

## RESOLUTION NO. PC 23-033 (B)

### A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF EL PASO DE ROBLES TO APPROVE PLANNED DEVELOPMENT 22-21 & CONDITIONAL USE PERMIT 22-21 FOR THE FIRESTONE SOLAR PROJECT PHASE II APN: 009-631-018

#### APPLICANT – REC SOLAR

**WHEREAS**, an application for Planned Development (PD 22-21) and Conditional Use Permit (CUP 22-21, P22-0128), has been filed by REC Solar, representative for the Firestone Solar Project; and

**WHEREAS**, the project would consist of construction of a 1.2-megawatt (MW) solar ground-mounted single-axis tracker system, east of the Firestone Campus at the northern end of Ramada Drive, east of US Highway 101; and

**WHEREAS**, the project is consistent with the applicable policy and regulatory documents of the City, including the following:

- **General Plan Business Park and Open Space land use designations** – The project would provide development of a renewable energy utility site which is consistent with the Business Park (BP) land use designations; and
- **Zoning Districts of Planned Industrial (PM)** – The project is a “*conditionally permitted*” use in the PM district; and

**WHEREAS**, in compliance with the California Environmental Quality Act (CEQA), an initial study and mitigated negative declaration (SCH 2023040553) were prepared for the project and were circulated between April 24, 2023, and May 23, 2023.

**WHEREAS**, a duly noticed public hearing was conducted by the Planning Commission on May 23, 2023 to consider the facts as presented in the staff report prepared for this project, and to accept public testimony regarding this Planned Development and Conditional Use Permit request; and

**WHEREAS**, at the request of the applicant, the public hearing was continued from the May 23, 2023 meeting to June 13, 2023 to allow the applicant time to consider a comment letter from CDFW prior to the Planning Commission making a decision; and

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF EL PASO DE ROBLES DOES HEREBY RESOLVE AS FOLLOWS:

**Section 1: Recitals.** All of the above recitals are true and correct and incorporated herein by reference.

**Section 2: Findings.** In accordance with Zoning Ordinance Section 21.23B.050, Findings for Approval of Development Plans, and findings for approval of a Conditional Use Permit, and based upon the facts and analysis presented in the staff report, public testimony received and subject to the conditions listed below, the Planning Commission makes the following findings:

#### Development Plan Findings

1. The project is consistent with the goals and policies established by the General Plan and Zoning Ordinance, since the project would provide for renewable energy utility sites which is consistent

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with the Business Park (BP) land use designation and the Planned Industrial (PM) zoning designation; and

2. The proposed development plan will not be detrimental to the health, safety, morals, comfort, convenience and general welfare of the residents and or businesses in the surrounding area, or be injurious or detrimental to property and improvements in the neighborhood or to the general welfare of the City, since the property is not located in close proximity to other residents or neighborhoods, and it would not result in significant noise, traffic, light, glare, or other potential effects; and
3. The proposed development plan accommodates the aesthetic quality of the City as a whole, since the solar field will be located behind Firestone's water treatment ponds which is not highly visible, and there are no nearby neighborhoods or sensitive uses with a clear view of the site; and
4. The proposed development plan is compatible with, and is not detrimental to, surrounding land uses and improvements, provides an appropriate visual appearance, and contributes to the mitigation of any environmental and social impacts, since it is proposed to be a low-intensity development, will fit in generally with the visual character of the surrounding area, and will promote development and increased usage of clean solar power; and
5. The proposed development plan is compatible with existing scenic and environmental resources such as hillsides, stream courses, oak trees, vistas, and historic buildings and structures; because there are no existing buildings that need to be removed, there are no oak trees on this site, and any effects to environmental resources are specifically accounted for in the MND and MMRP for the project; and
6. The proposed development plan contributes to the orderly development of the city as a whole by providing a well-designed project that is suitable for the location where it is proposed and surrounding land uses including commercial, industrial, and the existing rural residential in the vicinity.

### Conditional Use Permit Findings

7. The proposed use is consistent with the General Plan and Zoning Ordinance, since the project would provide for renewable energy utility sites which is consistent with the Business Park (BP) land use designation and the Planned Industrial (PM) zoning designation; and
8. The establishment, and subsequent operation or conduct of the use will not, because of the circumstances and conditions applied in the particular case, be detrimental to the health, safety or welfare of the general public or persons residing or working in the neighborhood of the use, or be detrimental or injurious to property or improvements in the vicinity of the use, since the property is not located in close proximity to other residents or neighborhoods, and it would not result in significant noise, traffic, light, glare, or other potential effects; and
9. The proposed project or use will not be inconsistent with the character of the immediate neighborhood or contrary to its orderly development because it is a well-designed project that is suitable for the location due to its proximity to a water treatment pond and another solar field, both of which are not highly visible from public vantage points; and
10. The proposed use or project will not generate a volume of traffic beyond the safe capacity of all roads providing access to the project, either existing or to be improved in conjunction with the project, or beyond the normal traffic volume of the surrounding neighborhood because the site is unmanned and will only require minimal maintenance visits by operating personnel; and

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11. The establishment, maintenance, and operation of the proposed land use will not be injurious or detrimental to property and improvements in the neighborhood or to the general welfare of the City because it is a low-intensity development.

**Section 3 - Environmental Determination:** In accordance with the California Environmental Quality Act (Public Resources Code §§ 21000 et seq., "CEQA"), and the regulations promulgated thereunder (14 Cal. Code of Regulations §§ 15000 et seq., the "CEQA Guidelines"), the City prepared an Initial Study/Mitigated Negative Declaration (SCH #2023040553) ("MND") that analyzed the proposed Project's environmental impacts. The MND was made available to the public for review from April 24, 2023 through May 23, 2023. On May 23, 2023, the Planning Commission conducted a duly noticed public hearing and considered the entire administrative record (as of that date), including staff reports, the MND, MMRP, and oral and written testimony from interested persons, all of whom were given an opportunity to be heard. At the request of the applicant, the public hearing was continued from the May 23, 2023 meeting to June 13, 2023 to allow the applicant time to consider a comment letter from the California Department of Fish and Wildlife prior to the Planning Commission making a decision. Resolution No. 23-032 recommends adoption of the MND and MMRP, and, among other things, properly assesses the environmental impact of the Project in accordance with CEQA. This Resolution incorporates by reference the environmental findings and analysis set forth in Resolution No. 23-032 including the MND, as if fully set forth herein.

**Section 4 - Approval:** Planned Development 22-21 & CUP 22-21 is approved subject to the following:

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
A	Site Specific Conditions of Approval
B	Standard Conditions of Approval
C	Development Plans

PASSED AND ADOPTED THIS 13<sup>th</sup> day of June 2023 by the following roll call vote:

AYES: Commissioner Covarrubias, Christensen, Davis, Connally, Marlow and Chairperson Neel

NOES: None

ABSENT: Commissioner Koegler

ABSTAIN: None

ATTEST:

WARREN FRACE, PLANNING COMMISSION SECRETARY

JOEL NEEL, CHAIRPERSON

## Exhibit A

### Site Specific Conditions of Approval – PD22-21 & CUP22-21

#### Planning Division Conditions:

NOTE: In the event of conflict or duplication between standard and site-specific conditions, the site-specific condition shall supersede the standard condition.

1. The project shall be constructed in substantial conformance with the Conditions of Approval established by this Resolution and it shall be constructed in substantial conformance with the following Exhibits:

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
B	Standard Conditions of Approval
C	Development Plans

2. Planned Development 22-21, Conditional Use Permit 22-21 allows for the installation a 1.2-megawatt (MW) ground-mounted single axis tracker system located on approximately 4.84-acres, located east of Firestone's main building operations, near the water treatment ponds and existing 2.1-MW single axis tracker system.
3. Approval of this project is valid for a period of two (2) years from date of approval. Unless construction permits have been issued and site work has begun, the approval of Planned Development 22-21 and Conditional Use Permit 22-21 shall expire on June 13, 2025. The Planning Commission may extend this expiration date if a Time Extension application has been filed with the City along with the fees before the expiration date.
4. Prior to issuance of a grading permit, the applicant shall provide evidence that a 1602 permit from the CDFW Lake and Streambed Alteration Agreement program has been satisfied, as necessary.
5. All lighting shall be downward directed and shielded to prevent offsite glare in conformance with Section 21.21.040 of the City's Zoning Ordinance.
6. Upon completion of the construction of the project, the property and any improvements thereon shall be restored to a good and safe condition.
7. Any condition imposed by the Planning Commission in approving this Development Plan may be modified or eliminated, or new conditions may be added, provided that the Planning Commission shall first conduct a public hearing in the same manner as required for the granting of the original permit. No such modification shall be made unless the Commission finds that such modification is necessary to protect the public interest and/or neighboring properties, or, in the case of deletion of an existing condition, that such action is necessary to permit reasonable operation and use under the Development Plan.



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## **Engineering Division Conditions:**

8. Historical storm drainage patterns running on to the project shall be accommodated on the site grading and drainage plans.

## **Building Division Conditions:**

9. Prior to the start of construction, applicant shall submit plans prepared by a registered design professional, showing compliance with all applicable building and fire codes and obtain the required permits.

## **Emergency Services Conditions:**

### **Ground-mount system:**

10. The roadway providing access from Road to the proposed project site must provide a minimum 12-foot edge-to-edge all-weather driving surface capable of supporting a 20-ton load capacity.
11. Any part of the Road grade that exceed 12% shall be nonskid asphalt or concrete surface.
12. An approved 20-foot minimum road is required around the perimeter of the entire project for emergency vehicles.
13. All internal roads shall be a minimum of 20 feet wide.
14. Vertical clearance of 13'-6" is required the entire length of the roadway.
15. Roadways shall also provide for a 10-foot fuel modification zone on both sides.
16. A fuel reduction zone (vegetation Clearance) is required around the project site. A minimum of 100-feet of "defensible space" shall be required.
17. Annual fuel modification must be maintained in accordance with the Public Resources Code, Title 19 and California Fire Code.
18. Access to all associated equipment shall be controlled by means of a locked gate or fence.
19. If a proposed gate is added at the access point, Emergency Services may require a "Knox" lock to ensure access during emergencies.
20. Electrical Panels and shut offs must be identified and labeled.
21. 30-foot setback from property line required for parcels 1 acre in size or larger. \*\*Note: All setbacks are subject to City of Paso Robles Planning Department approval.
22. Solar Photovoltaic systems must be clearly marked. Marking is needed to provide emergency responders with appropriate warning and guidance with respect to working around and isolating the solar electric system.
23. All marking signs shall be installed per the current Cal Fire Solar Photovoltaic Installation Guidelines.
24. Materials used for marking signs must be weather resistant.

## Air Quality Conditions:

25. The following measures are recommended to minimize nuisance impacts associated with construction-generated fugitive dust emissions:

- a. Reduce the amount of the disturbed area where possible;
- b. Use of water trucks or sprinkler systems, in sufficient quantities to prevent airborne dust from leaving the site and from exceeding the APCD's limit of 20 percent opacity for greater than 3 minutes in any 60-minute period. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible. Please note that during drought conditions, water use may be a concern and the contractor or builder shall consider the use of an APCD-approved dust suppressant where feasible to reduce the amount of water used for dust control;
- c. All dirt stock pile areas should be sprayed daily and covered with tarps or other dust barriers as needed;
- d. Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible, following completion of any soil disturbing activities;
- e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast germinating, non-invasive grass seed and watered until vegetation is established;
- f. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD;
- g. All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;
- h. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site;
- i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with CVC Section 23114;
- j. "Track-Out" is defined as sand or soil that adheres to and/or agglomerates on the exterior surfaces of motor vehicles and/or equipment (including tires) that may then fall onto any highway or street as described in California Vehicle Code Section 23113 and California Water Code 13304. To prevent Track Out, designate access points and require all employees, subcontractors, and others to use them. Install and operate a "track-out prevention device" where vehicles enter and exit unpaved roads onto paved streets. The track-out prevention device can be any device or combination of devices that are effective at preventing track out, located at the point of intersection of an unpaved area and a paved road. Rumble strips or steel plate devices require periodic cleaning to be effective. If paved roadways accumulate tracked out soils, the track-out prevention device may need to be modified;

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- k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers shall be used with reclaimed water used where feasible. Roads shall be pre-wetted prior to sweeping when feasible;
- l. All of these fugitive dust reduction measures shall be shown on grading and building plans; and
- m. The contractor or builder shall designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints and reduce visible emissions below the APCD's limit of 20% opacity for greater than 3 minutes in any 60-minute period. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the APCD Compliance Division prior to the start of any grading, earthwork or demolition.

### **Mitigation Measures – Conditions of Approval:**

- BR-1. Within one week of ground disturbance activities, if work occurs between March 15 and August 15, nesting bird surveys shall be conducted. To avoid impacts to nesting birds, grading and construction activities that affect trees and grasslands shall not be conducted during the breeding season from March 1 to August 15. If construction activities must be conducted during this period, nesting bird surveys shall take place within one week of habitat disturbance. If surveys do not locate nesting birds, construction activities may be conducted. If nesting birds are located, no construction activities shall occur within a distance specified by a qualified biologist, until chicks are fledged or nest fails. This includes nests of all common bird species (under the MBTA), as well as special status birds and raptor nests. Construction activities shall observe the delineated buffer, determined by a qualified biologist, where buffer radius will be specified according to special status rank, intensity of construction activity or impact (i.e. high decibel levels or heavy ground disturbance) and where local, state, and federal regulations apply. A preconstruction survey report shall be submitted to the lead agency immediately upon completion of the survey. The report shall detail appropriate fencing or flagging of the buffer zone and make recommendations on additional monitoring requirements. A map of the Project site and nest locations shall be included with the report. The Project biologist conducting the nesting survey shall have the authority to reduce or increase the recommended buffer depending upon site conditions.
- BR-2. A pre-construction survey shall be conducted within thirty days of beginning work on the site to identify if badgers are using the site. If the pre-construction survey finds potential badger dens, they shall be inspected to determine whether they are occupied. The survey shall cover the entire property and shall examine both old and new dens. If potential badger dens are too long to completely inspect from the entrance, a fiber optic scope shall be used to examine the den to the end. Inactive dens may be excavated by hand with a shovel to prevent re-use of dens during construction. If badgers are found in dens on the property between February and July, nursing young may be present. To avoid disturbance and the possibility of direct take of adults and nursing young, and to prevent badgers from becoming trapped in burrows during construction activity, no grading shall occur within 100 feet of active badger dens between February and July. Between July 1st and February 1st all potential badger dens shall be inspected to determine if badgers are present. During the winter badgers do not truly hibernate but are inactive and asleep in their dens for several days at a time. Because they can be torpid during the winter, they are vulnerable to disturbances that may collapse their dens before they rouse and emerge. Therefore, surveys shall be conducted for badger dens throughout the year. If badger dens are found on the property during the pre-construction survey, the CDFW wildlife biologist for the area shall be contacted to review current allowable management practices.

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BR-3. Prior to issuance of grading and/or construction permits, the applicant shall submit evidence to the City of Paso Robles, Community Development Department (Planning Division) that states that one or a combination of the following three San Joaquin kit fox mitigation measures has been implemented, upon confirmation from CDFW that compensatory mitigation is required:

a. Provide for the protection in perpetuity, through acquisition of fee or a conservation easement of [Total number of mitigation acres required] acres of suitable habitat in the kit fox corridor area (e.g. within the San Luis Obispo County kit fox habitat area, in the City of Paso Robles), either on-site or off-site, and provide for a nonwasting endowment to provide for management and monitoring of the property in perpetuity. Lands to be conserved shall be subject to the review and approval of the California Department of Fish and Wildlife (Department) and the City. This mitigation alternative (a.) requires that all aspects of this program must be in place before City permit issuance or initiation of any ground disturbing activities.

b. Deposit funds into an approved in-lieu fee program, which would provide for the protection in perpetuity of suitable habitat in the kit fox corridor area within San Luis Obispo County, and provide for a non-wasting endowment for management and monitoring of the property in perpetuity.

Mitigation alternative (b) above can be completed by providing funds to The Nature Conservancy (TNC) pursuant to the Voluntary Fee-Based Compensatory Mitigation Program (Program). The Program was established in agreement between the CDFW and TNC to preserve San Joaquin kit fox habitat, and to provide a voluntary mitigation alternative to project proponents who must mitigate the impacts of projects in accordance with the California Environmental Quality Act (CEQA). The fee, payable to "The Nature Conservancy," would total \$[Amount of fee based on \$2500 per acre]. This fee is calculated based on the current cost-per-unit of \$2500 per acre of mitigation, which is scheduled to be adjusted to address the increasing cost of property in San Luis Obispo County; your actual cost may increase depending on the timing of payment. This fee must be paid after the CDFW provides written notification about your mitigation options but prior to City permit issuance and initiation of any ground disturbing activities.

c. Purchase [Total number of mitigation acres required] credits in a CDFW-approved conservation bank, which would provide for the protection in perpetuity of suitable habitat within the kit fox corridor area and provide for a non-wasting endowment for management and monitoring of the property in perpetuity. Mitigation alternative (c) above can be completed by purchasing credits from the Palo Prieto Conservation Bank (see contact information below). The Palo Prieto Conservation Bank was established to preserve San Joaquin kit fox habitat, and to provide a voluntary mitigation alternative to project proponents who must mitigate the impacts of projects in accordance with the California Environmental Quality Act (CEQA). The cost for purchasing credits is payable to the owners of The Palo Prieto Conservation Bank, and would total \$[Amount of mitigation acres required (i.e. credits), currently priced at \$2500 per credit]. This fee is calculated based on the current cost-per-credit of \$2,500 per acre of mitigation. The fee is established by the conservation bank owner and may change at any time. Your actual cost may increase depending on the timing of payment. Purchase of credits must be completed prior to City permit issuance and initiation of any ground disturbing activities.

BR-4. Prior to issuance of grading and/or construction permits, the applicant shall provide evidence that they have retained a qualified biologist acceptable to the City. The retained biologist shall perform the following monitoring activities:

i. Prior to issuance of grading and/or construction permits and within 30 days prior to initiation of site disturbance and/or construction, the biologist shall conduct a pre-activity (i.e. preconstruction)

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survey for known or potential kit fox dens and submit a letter to the City reporting the date the survey was conducted, the survey protocol, survey results, and what measures were necessary (and completed), as applicable, to address any kit fox activity within the project limits.

- ii. The qualified biologist shall conduct weekly site visits during site-disturbance activities (i.e. grading, disking, excavation, stock piling of dirt or gravel, etc.) that proceed longer than 14 days, for the purpose of monitoring compliance with required Mitigation Measures. Site disturbance activities lasting up to 14 days do not require weekly monitoring by the biologist unless observations of kit fox or their dens are made on-site or the qualified biologist recommends monitoring for some other reason. When weekly monitoring is required, the biologist shall submit weekly monitoring reports to the City.
- iii. Prior to or during project activities, if any observations are made of San Joaquin Kit fox, or any known or potential San Joaquin kit fox dens are discovered within the project limits, the qualified biologist shall re-assess the probability of incidental take (e.g. harm or death) to kit fox. At the time a den is discovered, the qualified biologist shall contact USFWS and the CDFW for guidance on possible additional kit fox protection measures to implement and whether or not a Federal and/or State incidental take permit is needed. If a potential den is encountered during construction, work shall stop until such time the USFWS determines it is appropriate to resume work. If incidental take of kit fox during project activities is possible, before project activities commence, the applicant must consult with the USFWS. The results of this consultation may require the applicant to obtain a Federal and/or State permit for incidental take during project activities. The applicant should be aware that the presence of kit foxes or known or potential kit fox dens at the project site could result in further delays of project activities.
- iv. In addition, the qualified biologist shall implement the following measures:
  1. Within 30 days prior to initiation of site disturbance and/or construction, fenced exclusion zones shall be established around all known and potential kit fox dens. Exclusion zone fencing shall consist of either large flagged stakes connected by rope or cord, or survey laths or wooden stakes prominently flagged with survey ribbon. Each exclusion zone shall be roughly circular in configuration with a radius of the following distance measured outward from the den or burrow entrances: Each exclusion zone shall be roughly circular in configuration with a radius of distance measured outward from the den or burrow entrances, dependent on the use and activity of the den (i.e. potential, known, active, or natal den), to be determined by the kit fox biologist.
  2. All foot and vehicle traffic, as well as all construction activities, including storage of supplies and equipment, shall remain outside of exclusion zones. Exclusion zones shall be maintained until all project-related disturbances have been terminated, and then shall be removed.
  3. If kit foxes or known or potential kit fox dens are found on site, daily monitoring by a qualified biologist shall be required during ground disturbing activities.

BR-5. Prior to issuance of grading and/or construction permits, the applicant shall clearly delineate the following as a note on the project plans: "Speed signs of 25 mph (or lower) shall be posted for all construction traffic to minimize the probability of road mortality of the San Joaquin kit fox". Speed limit signs shall be installed on the project site within 30 days prior to initiation of site disturbance and/or construction.

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- BR-6. During the site disturbance and/or construction phase, grading and construction activities after dusk shall be prohibited unless coordinated through the City, during which additional kit fox mitigation measures may be required.
- BR-7. Prior to issuance of grading and/or construction permit and within 30 days prior to initiation of site disturbance and/or construction, all personnel associated with the project shall attend a worker education training program, conducted by a qualified biologist, to avoid or reduce impacts on sensitive biological resources (i.e. San Joaquin kit fox). At a minimum, as the program relates to the kit fox, the training shall include the kit fox's life history, all mitigation measures specified by the City, as well as any related biological report(s) prepared for the project. The applicant shall notify the City shortly prior to this meeting. A kit fox fact sheet shall also be developed prior to the training program, and distributed at the training program to all contractors, employers and other personnel involved with the construction of the project. The project biologist shall provide the City staff with the sign-in sheet after conducting the meeting.
- BR-8. During the site-disturbance and/or construction phase, to prevent entrapment of the San Joaquin kit fox, all excavations, steep-walled holes and trenches in excess of two feet in depth shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Trenches shall also be inspected for entrapped kit fox each morning prior to onset of field activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they shall be thoroughly inspected for entrapped kit fox. Any kit fox so discovered shall be allowed to escape before field activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
- BR-9. During the site-disturbance and/or construction phase, any pipes, culverts, or similar structures with a diameter of four inches or greater, stored overnight at the project site shall be thoroughly inspected for trapped San Joaquin kit foxes before the subject pipe is subsequently buried, capped, or otherwise used or moved in any way. If during the construction phase a kit fox is discovered inside a pipe, that section of pipe will not be moved. If necessary, the pipe may be moved only once to remove it from the path of activity, until the kit fox has escaped.
- BR-10. During the site-disturbance and/or construction phase, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of only in closed containers. These containers shall be regularly removed from the site. Food items may attract San Joaquin kit foxes onto the project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.
- BR-11. Prior to, during and after the site-disturbance and/or construction phase, use of pesticides or herbicides shall be in compliance with all local, State and Federal regulations. This is necessary to minimize the probability of primary or secondary poisoning of endangered species utilizing adjacent habitats, and the depletion of prey upon which San Joaquin kit foxes depend.
- BR-12. During the site-disturbance and/or construction phase, any contractor or employee that inadvertently kills or injures a San Joaquin kit fox or who finds any such animal either dead, injured, or entrapped shall be required to report the incident immediately to the applicant and City. In the event that any observations are made of injured or dead kit fox, the applicant shall immediately notify the USFWS and CDFW by telephone. In addition, formal notification shall be provided in writing within three working days of the finding of any such animal(s). Notification shall include the date, time, location and circumstances of the incident. Any threatened or endangered species found dead or injured shall be turned over immediately to CDFW for care, analysis, or disposition.



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BR-13. Prior to final inspection, or occupancy, whichever comes first, should any long internal or perimeter fencing be proposed or installed, the applicant shall do the following to provide for kit fox passage:

- i. If a wire strand/pole design is used, the lowest strand shall be no closer to the ground than 12 inches.
- ii. If a more solid wire mesh fence is used, 8 by 12 inch openings near the ground shall be provided every 100 yards
- iii. Upon fence installation, the applicant shall notify the City to verify proper installation. Any fencing constructed after issuance of a final permit shall follow the above guidelines.

BR-14. Oak Tree Protection:

1. Fencing. Prior to any site disturbance, tree protection fencing shall be installed as close to the outer limit of the CRZ as practicable for construction operations. The fencing shall be in place throughout the duration of project construction and removed only under the direction of the project's Certified Arborist. The Applicant shall be responsible for maintaining intact tree protection fencing throughout the construction period. The arborist(s), upon notification, will inspect the fence placement once it is erected. Weatherproof signs shall be permanently posted on the fences with the following information: Tree Protection Zone: No personnel, equipment, materials, or vehicles allowed.
2. Soil Aeration Methods. Soils within the CRZ that have been compacted by heavy equipment and/or construction activities must be returned to their original state before all work is completed. Methods include water jetting, adding organic matter, and boring small holes with an auger (18 inches deep, 2-3 feet apart with a 2- to 4-inch auger) and the application of moderate amounts of nitrogen fertilizer. The arborist(s) shall advise if soil aeration is required and methods for completion.
3. Chip Mulch. All areas within the CRZ of the trees that are fenced shall receive a 4-6 inch layer of chip mulch to retain moisture, soil structure and reduce the effects of soil compaction.
4. Trenching within CRZ. Trenching within the CRZ must be approved by the project's Certified Arborist and shall be done by hand or with an air spade. All major roots shall be avoided whenever possible. All exposed roots larger than 1 inch in diameter shall be clean cut with sharp pruning tools and not left ragged. Any roots exposed during construction shall be evaluated and treated by the Arborist.
5. Grading within the Critical Root Zone. Grading should not encroach within the CRZ unless authorized. Grading should not disrupt the normal drainage pattern around the trees. Fills should not create a ponding condition and excavations should not leave the tree on a rapidly draining mound. Any exposed roots shall be covered the same day they are exposed if possible. If they cannot, they must be covered with burlap or another suitable material and wetted down 2 times per day until reburied.
6. Equipment Operation. Vehicles and heavy equipment shall not be driven under oak trees, as this will contribute to soil compaction. Additionally, there is to be no parking of equipment or personal vehicles in these areas.

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7. Existing Surfaces. The existing ground surface within the critical root zone of all oak trees shall not be cut, filled, compacted or pared, unless shown on the grading plans and approved by the arborist.
8. Construction Materials and Waste. No liquid or solid construction waste shall be dumped on the ground within the critical root zone of any native tree. The critical root zone areas are not for storage of materials.
9. Arborist Monitoring. An arborist shall be present for soil disturbance work within the CRZ of oak trees. Monitoring does not necessarily have to be continuous but observational at times during these activities.
10. Impacted Root Treatment. Roots impacted during construction (e.g., trenching or grading operations) shall be treated by the arborist on a case-by-case basis using best practices such as clean cuts accompanied by application of appropriate fungicides and insecticides by a licensed pest control applicator.
11. Pruning. A certified arborist shall direct all pruning. No pruning shall take more than 25 percent of the live crown of any native tree.
12. Landscape. All landscape within the CRZ shall consist of drought tolerant or native varieties. Lawns shall be avoided. All irrigation trenching shall be routed around critical root zones, otherwise above ground drip-irrigation shall be used. It is the owner's responsibility to notify the landscape contractor regarding this mitigation.
13. Fertilization. As the project moves toward completion, the Arborist may suggest either fertilization and/or mycorrhizal inoculation applications that will benefit tree health. Application of mycorrhizal inoculum offers several benefits to the host plant, including faster growth, improved nutrition, greater drought resistance, and protection from pathogens.

### BR-15. Crotch Bumble Bee (CBB) Surveys

A qualified biologist shall conduct a habitat assessment for CBB prior to project implementation. Potential nesting sites, which include all small mammal burrows, perennial bunch grasses, thatched annual grasses, brush piles, old bird nests, dead trees, and hollow logs would need to be documented as part of the assessment. If potentially suitable habitat is identified, coordination with CDFW is recommended for guidance on developing focused CBB survey methodology to be conducted prior to any ground disturbing activities.

### BR-16. CBB Avoidance Buffer

In the event that a CBB nest and/or CBB are documented during surveys, consultation with CDFW is recommended for guidance on implementing no disturbance buffers prior to any ground disturbing activities.

### BR-17. CBB Take Authorization

In the event an active CBB nest is detected, consultation with CDFW is warranted to discuss how to implement the project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP, pursuant to Fish and Game Code section 2081 subdivision (b) is necessary to comply with CESA.

### BR-18. Burrowing Owl (BUOW) Surveys

A habitat assessment shall be conducted for burrowing owl following the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and CDFW's Staff Report on Burrowing Owl Mitigation" (CDFG 2012). If suitable habitat is determined to be present within the Project site or immediate vicinity, CDFW recommends

## Attachment 2

assessing presence/absence of BUOW by having a qualified biologist conduct surveys following the CBOC and CDFW's Staff Report referenced above. If suitable habitat is present and surveys are conducted, CBOC and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (April 15 to July 15), when BUOW are most detectable.

### BR-19. Burrowing Owl Avoidance Buffers

No-disturbance buffers, as outlined in the "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), shall be implemented prior to and during any ground-disturbing activities. Specifically, CDFW's Staff Report recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

\* meters (m)

### BR-20. Burrowing Owl Passive Relocation and Mitigation

If BUOW are found within these recommended buffers and avoidance is not possible, it is important to note that according to the Staff Report (CDFG 2012), exclusion is not a take avoidance, minimization, or mitigation method and is considered a potentially significant impact under CEQA. However, if necessary, CDFW recommends that burrow exclusion be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty through non-invasive methods, such as surveillance. CDFW recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting BUOW. BUOW may attempt to colonize or re-colonize an area that will be impacted; thus, CDFW recommends ongoing surveillance, at a rate that is sufficient to detect BUOW if they return.

### BR-21. Other State Species of Special Concern Pre-activity Surveys

A qualified biologist shall conduct a focused pre-activity survey prior to project implementation for each species and their requisite habitat features. If California red-legged frog, coast horned lizard, or northern California legless lizard are found during surveys or at any time during construction, coordination with CDFW is recommended to discuss appropriate avoidance and minimization measures.

### BR-22. Nesting Bird Surveys

If ground-disturbing activities occur during the nesting bird season (February 1 – September 15), CDFW recommends that a qualified biologist conduct pre-activity surveys for active nests no more than one week prior to the start of ground disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a sufficient area around the work site to identify nests and determine their status. A sufficient area means any area potentially affected by a project. In addition to direct impacts (i.e., nest destruction), noise, vibration, odors, and movement of workers or equipment could also affect nests. Prior to initiation

## Attachment 2

of construction activities, CDFW recommends a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests.

### BR-23. Nesting Bird Monitoring and/or Avoidance Buffer

Once construction begins, a qualified biologist shall continuously monitor nests to detect behavioral changes resulting from the project. If behavioral changes occur, CDFW recommends the work causing that change cease and that CDFW be consulted for additional avoidance and minimization measures. If continuous monitoring of identified nests by a qualified biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Variance from these no-disturbance buffers is possible when there is a compelling biological or ecological reason to do so, such as when the construction area would be concealed from a nest site by topography. CDFW recommends that a qualified biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

CR-1: A qualified archaeological monitor and a Native American observer shall be present for all ground-disturbing work for the proposed Project. This includes but is not limited to brushing, grubbing, vegetation removal with machinery other than hand equipment (weed whackers, hand cutters, etc.), fence removal/installation, utility removal/installation, potholing, boring, grading, trenching, excavation, and demolition activities. Archaeological monitoring should be conducted by a qualified professional archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the Project area. Cultural resource sensitivity training should be provided by the archaeologist to construction staff prior to beginning construction. A final report should be completed once all construction activities are complete and submitted to the lead agency, the project proponent, the Native American monitoring tribe(s), and the CCIC.

- **Inadvertent Finds:** If intact cultural resources are encountered at any time during construction or ground-disturbing activities within the Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can be retained to assess the discovery. Such finds include intact midden soils, house floors, hearths, grinding implements, stone tools, soapstone bowls, ornaments (e.g., beads, pendants), or any intact feature or archaeological resources. Other finds could include intact building foundations and high concentrations of historical artifacts. If the find(s) is considered a cultural resource or a potential resource, the archaeologist shall make appropriate recommendations to the lead agency. The lead agency shall make the final determination as to treatment and disposition of the resource(s).

- **Human Remains:** If human remains are uncovered, or in any other case when human remains are discovered, all work within 50 feet of the find shall stop and the San Luis Obispo Coroner is to be notified immediately. If the remains are identified—based on archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will provide recommendations for treatment and management of the remains based on tribal traditions and customs.

## Exhibit B

### CITY OF EL PASO DE ROBLES STANDARD DEVELOPMENT CONDITIONS

☒ Planned Development 22-21

☒ Conditional Use Permit 22-21

☐ Tentative Parcel Map

☐ Tentative Tract Map

Approval Body: PC

Date of Approval: June 13, 2023

Applicant: REC Solar

Location: Northern end of Ramada Drive

APNs: 009-631-018

The following conditions that have been checked are standard conditions of approval for the above referenced project. The checked conditions shall be complied with in their entirety before the project can be finalized, unless otherwise specifically indicated. In addition, there may be site specific conditions of approval that apply to this project in the resolution.

**COMMUNITY DEVELOPMENT DEPARTMENT - The applicant shall contact the Community Development Department, (805) 237-3970, for compliance with the following conditions:**

**A. GENERAL CONDITIONS – PD/CUP:**

- ☒ 1. This project approval shall expire on June 13, 2025 unless a time extension request is filed with the Community Development Department, or a State mandated automatic time extension is applied prior to expiration.
- ☒ 2. The site shall be developed and maintained in accordance with the approved plans and unless specifically provided for through the Planned Development process shall not waive compliance with any sections of the Zoning Code, all other applicable City Ordinances, and applicable Specific Plans.
- ☒ 3. To the extent allowable by law, Owner agrees to hold City harmless from costs and expenses, including attorney's fees, incurred by City or held to be the liability of City in connection with City's defense of its actions in any proceeding brought in any State or Federal court challenging the City's actions with respect to the project. Owner understands and acknowledges that City is under no obligation to defend any legal actions challenging the City's actions with respect to the project.
- ☒ 4. Any site specific condition imposed by the Planning Commission in approving this project (**PD/CUP**) may be modified or eliminated, or new conditions may be added, provided that the Planning Commission shall first conduct a public hearing in the same manner as required for the approval of this project. No such modification shall be made unless the Commission finds that such modification is necessary to protect the public interest and/or neighboring properties, or, in the case of deletion of an

## Attachment 2

existing condition, that such action is necessary to permit reasonable operation and use for this approval.

- ☒ 5. The site shall be kept in a neat manner at all times and the landscaping shall be continuously maintained in a healthy and thriving condition.
- ☐ 6. All signs shall be subject to review and approval as required by Municipal Code Section 21.19 and shall require a separate application and approval prior to installation of any sign.
- ☐ 7. All walls/fences and exposed retaining walls shall be constructed of decorative materials which include but are not limited to splitface block, slumpstone, stuccoed block, brick, wood, crib walls or other similar materials as determined by the Development Review Committee, but specifically excluding precision block.
- ☐ 8. Prior to the issuance of a Building Permit a landscape and irrigation plan consistent with the Landscape and Irrigation Ordinance, shall be submitted for City review and approval. The plan needs to be designed in a manner that utilizes drought tolerant plants, trees and ground covers and minimizes, if not eliminates the use of turf. The irrigation plan shall utilize drip irrigation and limit the use of spray irrigation. All existing and/or new landscaping shall be installed with automatic irrigation systems.
- ☐ 9. A reciprocal parking and access easement and agreement for site access, parking, and maintenance of all project entrances, parking areas, landscaping, hardscape, common open space, areas and site lighting standards and fixtures, shall be recorded prior to or in conjunction with the Final Map. Said easement and agreement shall apply to all properties, and be referenced in the site Covenants, Conditions and Restrictions (CC&Rs).
- ☒ 10. All outdoor storage shall be screened from public view by landscaping and walls or fences per Section 21.21.110 of the Municipal Code.
- ☐ 11. For commercial, industrial, office or multi-family projects, all refuse enclosures are required to provide adequate space for recycling bins. The enclosure shall be architecturally compatible with the primary building. Gates shall be view obscuring and constructed of durable materials. Check with Paso Robles Waste Disposal to determine the adequate size of enclosure based on the number and size of containers to be stored in the enclosure.
- ☐ 12. For commercial, industrial, office or multi-family projects, all existing and/or new ground-mounted appurtenances such as air-conditioning condensers, electrical transformers, backflow devices etc., shall be screened from public view through the use of decorative walls and/or landscaping subject to approval by the Community Development Director or his designee. Details shall be included in the building plans.
- ☐ 13. All existing and/or new roof appurtenances such as air-conditioning units, grease hoods, etc. shall be screened from public view. The screening shall be architecturally



## Attachment 2

integrated with the building design and constructed of compatible materials to the satisfaction of the Community Development Director or his designee. Details shall be included in the building plans.

- ☒ 14. All existing and/or new lighting shall be shielded so as to be directed downward in such a manner as to not create off-site glare or adversely impact adjacent properties. The style, location and height of the lighting fixtures shall be submitted with the building plans and shall be subject to approval by the Community Development Director or his designee.
- ☐ 15. All walls/fences and exposed retaining walls shall be constructed of decorative materials which include but are not limited to splitface block, slumpstone, stuccoed block, brick, wood, crib walls or other similar materials as determined by the Development Review Committee, but specifically excluding precision block.
- ☒ 16. It is the property owner's responsibility to insure that all construction of private property improvements occur on private property. It is the owner's responsibility to identify the property lines and insure compliance by the owner's agents.
- ☒ 17. Any existing Oak trees located on the project site shall be protected and preserved as required in City Ordinance No.835 N.S., Municipal Code No. 10.01 "Oak Tree Preservation", unless specifically approved to be removed. An Oak tree inventory shall be prepared listing the Oak trees, their disposition, and the proposed location of any replacement trees required. In the event an Oak tree is designated for removal, an approved Oak Tree Removal Permit must be obtained from the City, prior to removal.
- ☐ 18. No storage of trash cans or recycling bins shall be permitted within the public right-of-way.
- ☒ 19. Prior to recordation of the map or prior to occupancy of a project, all conditions of approval shall be completed to the satisfaction of the City Engineer and Community Developer Director or his designee.
- ☐ 20. Two sets of the revised Planning Commission approved plans incorporating all Conditions of Approval, standard and site specific, shall be submitted to the Community Development Department prior to the issuance of building permits.
- ☒ 21. Prior to the issuance of building permits, the
  - ☐ Development Review Committee shall approve the following:
  - ☒ Planning Division Staff shall approve the following:
    - ☒ a. A detailed site plan indicating the location of all structures, parking layout, outdoor storage areas, walls, fences, light fixtures and trash enclosures;
    - ☒ b. A detailed landscape plan;
    - ☒ c. Detailed building elevations of all structures indicating

# Attachment 2

- ☐ materials, colors, and architectural treatments;  
d. Other:

## B. GENERAL CONDITIONS – TRACT/PARCEL MAP:

- ☐ 1. In accordance with Government Section 66474.9, the subdivider shall defend, indemnify and hold harmless the City, or its agent, officers and employees, from any claim, action or proceeding brought within the time period provided for in Government Code section 66499.37, against the City, or its agents, officers, or employees, to attack, set aside, void, annul the City's approval of this subdivision. The City will promptly notify subdivider of any such claim or action and will cooperate fully in the defense thereof.
- ☐ 2. The Covenants, Conditions, and Restrictions (CC&Rs) and/or Articles Affecting Real Property Interests are subject to the review and approval of the Community Development Department, the Public Works Department and/or the City Attorney. They shall be recorded concurrently with the Final Map or prior to the issuance of building permits, whichever occurs first. A recorded copy shall be provided to the affected City Departments.
- ☐ 3. The owner shall petition to annex residential Tract (or Parcel Map) into the City of Paso Robles Community Facilities District No. 2005-1 for the purposes of mitigation of impacts on the City's Police and Emergency Services Departments.
- ☐ 4. Street names shall be submitted for review and approval by the Planning Commission, prior to approval of the final map.
- ☐ 5. The following areas shall be permanently maintained by the property owner, Homeowners' Association, or other means acceptable to the City:
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**ENGINEERING DIVISION- The applicant shall contact the Engineering Division, (805) 237-3860, for compliance with the following conditions:**

All conditions marked are applicable to the above referenced project for the phase indicated.

## C. PRIOR TO ANY PLAN CHECK:

- ☒ 1. The applicant shall enter into an Engineering Plan Check and Inspection Services Agreement with the City.

## D. PRIOR TO ISSUANCE OF A GRADING PERMIT:

- ☐ 1. Prior to approval of a grading plan, the developer shall apply through the City, to FEMA and receive a Letter of Map Amendment (LOMA) issued from FEMA. The developer's engineer shall provide the required supporting data to justify the application.

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- ☒ 2. Any existing Oak trees located on the project site shall be protected and preserved as required in City Ordinance No. 553, Municipal Code No. 10.01 "Oak Tree Preservation", unless specifically approved to be removed. An Oak tree inventory shall be prepared listing the Oak trees, their disposition, and the proposed location of any replacement trees required. In the event an Oak tree is designated for removal, an approved Oak Tree Removal Permit must be obtained from the City, prior to its removal.
- ☒ 3. A complete grading and drainage plan shall be prepared for the project by a registered civil engineer and subject to approval by the City Engineer. The project shall conform to the City's Storm Water Discharge Ordinance.
- ☐ 4. A Preliminary Soils and/or Geology Report providing technical specifications for grading of the site shall be prepared by a Geotechnical Engineer.
- ☒ 5. A Storm Water Pollution Prevention Plan per the State General Permit for Storm Water Discharges Associated with Construction Activity shall be provided for any site that disturbs greater than or equal to one acre, including projects that are less than one acre that are part of a larger plan of development or sale that would disturb more than one acre.

### **E. PRIOR TO ISSUANCE OF A BUILDING PERMIT:**

- ☐ 1. All off-site public improvement plans shall be prepared by a registered civil engineer and shall be submitted to the City Engineer for review and approval. The improvements shall be designed and placed to the Public Works Department Standards and Specifications.
- ☐ 2. The applicant shall submit a composite utility plan signed as approved by a representative of each public utility.
- ☐ 3. Landscape and irrigation plans for the public right-of-way shall be incorporated into the improvement plans and shall require approval by the Streets Division Supervisor and the Community Development Department.
- ☒ 4. In a special Flood Hazard Area as indicated on a Flood Insurance Rate Map (FIRM) the owner shall provide an Elevation Certificate in accordance with the National Flood Insurance program. This form must be completed by a land surveyor or civil engineer licensed in the State of California.

### **F. PRIOR TO PROJECT FINAL BY THE BUILDING DEPARTMENT:**

**The Planning Commission has made a finding that the fulfillment of the construction requirements listed below are a necessary prerequisite to the orderly development of the surrounding area.**

- ☐ 1. The applicant shall pay any current and outstanding fees for Engineering Plan

# Attachment 2

Checking and Construction Inspection services.

- ☐ 2. All public improvements are completed and approved by the City Engineer, and accepted by the City Council for maintenance.

- ☐ 3. The owner shall offer to dedicate and improve the following street(s) to the standard indicated:

Street Name	City Standard	Standard Drawing No.
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- ☐ 4. If, at the time of approval of the final map, any required public improvements have not been completed and accepted by the City the owner shall be required to enter into a Subdivision Agreement with the City in accordance with the Subdivision Map Act.

Bonds required and the amount shall be as follows:

Performance Bond.....100% of improvement costs.

Labor and Materials Bond.....50% of performance bond.

- ☐ 5. If the existing City street adjacent to the frontage of the project is inadequate for the traffic generated by the project, or will be severely damaged by the construction, the applicant shall excavate the entire structural section and replace it with a standard half-width street plus a 12' wide travel lane and 8' wide graded shoulder adequate to provide for two-way traffic.

- ☐ 6. If the existing pavement and structural section of the City street adjacent to the frontage of the project is adequate, the applicant shall provide a new structural section from the proposed curb to the edge of pavement and shall overlay the existing paving to centerline for a smooth transition.

- ☐ 7. Due to the number of utility trenches required for this project, the City Council adopted Pavement Management Program requires a pavement overlay on \_\_\_\_\_ along the frontage of the project.

- ☐ 8. The applicant shall install all utilities. Street lights shall be installed at locations as required by the City Engineer. All existing overhead utilities adjacent to or within the project shall be relocated underground except for electrical lines 77 kilovolts or greater. All utilities shall be extended to the boundaries of the project.

- ☐ 9. The owner shall offer to dedicate to the City the following easement(s). The location and alignment of the easement(s) shall be to the description and satisfaction of the City Engineer:

- ☐ a. Public Utilities Easement;  
☐ b. Water Line Easement;  
☐ c. Sewer Facilities Easement;  
☐ d. Landscape Easement;

## Attachment 2

- ☐ e. Storm Drain Easement.
- ☐ 10. The developer shall annex to the City's Landscape and Lighting District for payment of the operating and maintenance costs of the following:
  - ☐ a. Street lights;
  - ☐ b. Parkway/open space landscaping;
  - ☐ c. Wall maintenance in conjunction with landscaping;
  - ☐ d. Graffiti abatement;
  - ☐ e. Maintenance of open space areas.
- ☒ 11. For a building project within a Special Flood Hazard Area as indicated on a Flood Insurance Rate Map (FIRM), the owner shall provide an Elevation Certificate in accordance with the National Flood Insurance Program to the satisfaction of the City Engineer. This form must be completed by a lands surveyor or civil engineer licensed in the State of California.
- ☐ 12. All final property corners shall be installed.
- ☐ 13. All areas of the project shall be protected against erosion by hydro seeding or landscaping.
- ☐ 14. All construction refuse shall be separated (i.e. concrete, asphalt concrete, wood gypsum board, etc.) and removed from the project in accordance with the City's Source Reduction and Recycling Element.
- ☐ 15. Clear blackline mylars and paper prints of record drawings, signed by the engineer of record, shall be provided to the City Engineer prior to the final inspection. An electronic autocad drawing file registered to the California State Plane – Zone 5 / NAD83 projected coordinate system, units in survey feet, shall be provided.

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**PASO ROBLES DEPARTMENT OF EMERGENCY SERVICES- The applicant shall contact the Department of Emergency Services, (805) 227-7560, for compliance with the following conditions:**

### **G. GENERAL CONDITIONS**

- 1. ☒ Prior to the start of construction:
  - ☐ Plans shall be reviewed, approved and permits issued by Emergency Services for underground fire lines.
  - ☐ Applicant shall provide documentation to Emergency Services that required fire flows can be provided to meet project demands.
  - ☐ Fire hydrants shall be installed and operative to current, adopted edition of the California Fire Code.
  - ☒ A based access road sufficient to support the department's fire apparatus (HS-20 truck loading) shall be constructed and maintained for the duration of the construction phase of the project.
  - ☒ Access road shall be at least twenty (20) feet in width with at least thirteen (13)

## Attachment 2

feet, six (6) inches of vertical clearance.

2. ☐ Provide central station monitored fire sprinkler system for all residential, commercial and industrial buildings that require fire sprinklers in current, adopted edition of the California Building Code, California Fire Code and Paso Robles Municipal Code.
- ☐ Plans shall be reviewed, approved and permits issued by Emergency Services for the installation of fire sprinkler systems.
3. ☐ Provide central station monitored fire alarm system for all residential, commercial and industrial buildings that require fire alarm system in current, adopted edition of the California Building Code, California Fire Code and Paso Robles Municipal Code.
4. ☒ If required by the Fire Chief, provide on the address side of the building if applicable:
- ☒ Fire alarm annunciator panel in weatherproof case.
  - ☒ Knox box key entry box or system.
  - ☐ Fire department connection to fire sprinkler system.
5. ☐ Provide temporary turn-around to current City Engineering Standard for phased construction streets that exceed 150 feet in length.
6. ☒ Project shall comply with all requirements in current, adopted edition of California Fire Code and Paso Robles Municipal Code.
7. ☐ Prior to the issuance of Certificate of Occupancy:
- ☐ Final inspections shall be completed on all underground fire lines, fire sprinkler systems, fire alarm systems and chemical hood fire suppression systems.
  - ☐ Final inspections shall be completed on all buildings.



# FIRESTONE WALKER BREWERY TRACKER - PHASE 2 SOLAR PHOTOVOLTAIC SYSTEM

## PROJECT SCOPE

THE PROJECT CONSISTS OF THE INSTALLATION OF A SOLAR PHOTOVOLTAIC (PV) SYSTEM AND ASSOCIATED ELECTRICAL EQUIPMENT.

## PROPERTY & BUILDING INFORMATION

PARCEL APN: 009-631-018  
PARCEL AREA: 13.75 ACRES  
SITE TEMPERATURES: LOW: 21°F, HIGH: 100°F

## CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED IF NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES:

OSHA – STATE VERSION OF OSHA  
ANSI/EIA-222- LIFE SAFETY CODE NFPA-101  
2019 CALIFORNIA FIRE CODE  
CITY/COUNTY ORDINANCES (PASO ROBLES, CA)  
2019 CALIFORNIA ELECTRIC SAFETY CODE (CESC)  
2019 CALIFORNIA BUILDING CODE (CBC)  
2019 CALIFORNIA ELECTRICAL CODE (CEC)

## UTILITY INFORMATION

ELECTRICAL UTILITY: PACIFIC GAS & ELECTRIC  
METER NUMBER: TBD

## PV POINT OF CONNECTION INFORMATION

VOLTAGE: 480/277V  
CURRENT: 4000A  
CONFIGURATION: 3P, 4W  
SHORT CIRCUIT: TBD  
MSB LOCATION: NEW MAIN SWITCHBOARD IN EXISTING ELECTRICAL AREA

## PV SYSTEM INFORMATION

### SYSTEM SPECIFICATIONS:

MODULES: (2,020) CS7N-650MB-AG  
INVERTER: (8) SUNNY HIGHPOWER PEAK3 125-US  
TILT: ±52°  
ROW SPACING: 17'-10"  
AZIMUTH: 180°  
PV AREA: 210,705 SQ FT

DC VOLTAGE: 1500 VDC  
AC VOLTAGE: 480 VAC

### SYSTEM SIZE:

DC SYSTEM SIZE: (2,020)(650W) = 1,313.00kW  
AC SYSTEM SIZE: (125kW) X (8) = 1,000.00kW  
CEC AC SYSTEM SIZE: (2,020) X (605.2W) X (98.5%) = 1,204.17kW  
DC:AC RATIO: (1.31)

## SHEET INDEX

### GENERAL

G101 COVER SHEET  
G201 QUALITY CONTROL NOTES  
G202 QUALITY CONTROL NOTES  
G203 QUALITY CONTROL NOTES  
G301 MASTER SITE PLAN

### PHOTOVOLTAIC

PV101 EQUIPMENT PLAN  
PV102 TRACKER MOTOR POWER & CONTROL PLAN  
PV201 RACEWAY PLAN - DC STRING WIRING  
PV210 MONITORING PLAN  
PV301 SINGLE LINE DIAGRAM  
PV310 SCHEDULES AND CALCULATIONS  
PV311 SCHEDULES AND CALCULATIONS  
PV401 ENLARGED VIEWS AND ELEVATIONS  
PV402 ENLARGED VIEWS AND ELEVATIONS  
PV501 CONSTRUCTION DETAILS  
PV502 CONSTRUCTION DETAILS  
PV503 CONSTRUCTION DETAILS  
PV601 EQUIPMENT SPECIFICATIONS  
PV701 LABELS & SIGNAGE

### ARRAY TECHNOLOGIES

ATI-1 COVER SHEET  
ATI-2 FOUNDATION LAYOUT  
ATI-3 TORQUE BEAM CONFIGURATIONS  
ATI-4 ASSEMBLY SEQUENCE  
ATI-5 DETAIL VIEWS  
ATI-5B DETAIL VIEWS

## PROJECT LOCATION

FIRESTONE WALKER BREWERY  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446



STREET MAP - PROJECT LOCATION



SATELLITE MAP - PROJECT LOCATION



FIRESTONE WALKER BREWERY  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446  
CONTACT: DARRIN MC MAHON  
PHONE: 805.540.1836



REC SOLAR  
3450 BROAD ST, SUITE #108  
SAN LUIS OBISPO, CA 93401  
PH: 844.732.765  
PROJECT MANAGER: DAVID OTT  
PROJECT ENGINEER: TONY STRADER

## ELECTRICAL ENGINEER (EEOR)



PURE POWER ENGINEERING  
111 RIVER STREET, SUITE 1110  
HOBOKEN, NJ 07030  
PH: 201-687-9761  
CONTACT: CONOR TRUJILLO

## RACKING SYSTEM



RP CONSTRUCTION SERVICES  
305 DELA VINA AVENUE  
MONTEREY, CA 93940  
PHONE: 855.428.3000

## UNDERGROUND UTILITIES

COLOR CODE  
WHITE - PROPOSED EXCAVATION  
PINK - TEMP SURVEY MARKINGS  
RED - ELECTRIC  
YELLOW - GAS-OIL-STEAM  
ORANGE - COMMUNICATION CATV  
BLUE - WATER  
PURPLE - RECLAIMED WATER  
GREEN - SEWER



EXISTING UNDERGROUND FACILITIES ARE SHOWN ON THESE PLANS FROM RECORD INFORMATION AND ARE FOR INFORMATION ONLY. OTHER UNDERGROUND FACILITIES NOT SHOWN ON THE PLANS MAY EXIST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY A ONE-CALL SERVICE CENTER, TOLL FREE AT 811, NO LESS THAN TWO DAYS PRIOR TO ANY EXCAVATION.



### CONTRACTOR

CA - B C10 #990001

### REC SOLAR

3450 BROAD ST, SUITE 105  
SAN LUIS OBISPO, CA 93401  
PH (805) 477-3970  
FX (805) 548-8661  
(844) REC SOLAR

THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF REC SOLAR COMMERCIAL CORPORATION.

### ENGINEER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

### OWNER

## FIRESTONE WALKER BREWERY

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

### PROJECT LOCATION

## FIRESTONE WALKER BREWERY TRACKER - PHASE 2

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018


0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
DATE	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

## IFP DESIGN

### SHEET TITLE

COVER SHEET

### SHEET NUMBER

G101



Resolution 2024-033

A/AMP	AMPERE
AC	ALTERNATING CURRENT
ACB	ARRAY COMBINER BOX
ACD	ARC DISCONNECT (FUSED AND NON-FUSED)
ACI	AMERICAN CONCRETE INSTITUTE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE
BLOG	BUILDING
BLK	BLOCK
C	CANOPY
CBT	CABLE TRAY
CONT'D	CONTINUED
CT	CURRENT TRANSFORMER
D	DISTANCE
DAS	DATA ACQUISITION SYSTEM
DC	DIRECT CURRENT
DCD	DC DISCONNECT (FUSED AND NON-FUSED)
DEG	DEGREE
DIA	DIAMETER
EF	ELECTRICAL FOREMAN
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METALLIC TUBING
EQUIV	EQUIVALENT
(E)	EXISTING
FT.	FOOT
G	GROUND MOUNT
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GND	GROUND
HDPE	HIGH DENSITY POLYETHYLENE
HRN	HARNESS, WIRE
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
IFC	IN FOR CONSTRUCTION
IFP	IN FOR PERMIT
IBC	INTERNATIONAL BUILDING CODE
IN	INCH
INV	INVERTER
JBX	JUNCTION BOX
KW	KILOWATT
L	LENGTH
LxWxD	LENGTH x WIDTH x DEPTH
MAX	MAXIMUM
MDP	MAIN DISTRIBUTION PANEL
MF	MECHANICAL FOREMAN
MIN	MINIMUM
MNB	MAINTENANCE BOX
MON	MONITORING EQUIPMENT
MOT	MOTOR
MPPT	MAXIMUM POWER POINT TRACKING
MTR	METER
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEG	NEGATIVE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NTS	NOT TO SCALE
OC	ON CENTER
PBX	PULL BOX
PDB	POWER DISTRIBUTION BLOCK
PH	PHASE
PNL	PANELBOARD
POC	POINT OF CONNECTION
POL	POLARITY
POS	POSITIVE
PPA	POWER PURCHASE AGREEMENT
PSI	POUNDS PER SQUARE INCH
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
QA	QUALITY ASSURANCE
QC	QUALITY CONTROL
R	ROOF MOUNT
RD	ROOF DRAIN
RFI	REQUEST FOR INFORMATION
RLY	RELAY
RMC	RIGID METAL CONDUIT
RT	RAIN-TIGHT
SCB	STRING COMBINER BOX (DISCONNECTING AND NON-DISCONNECTING)
SCH	SCHEDULE
SFB	SPARE FUSE BOX
SL	SKYLIGHT
SLD	SINGLE LINE DIAGRAM
SS	STAINLESS STEEL
SSQP	SITE SPECIFIC QUALITY PLAN
STR	STRING
SWB	SWITCHBOARD (MAIN-SWB FOR MAIN SWITCHBOARD)
SWG	SWITCHGEAR (MAIN-SWG FOR MAIN SWITCHGEAR)
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
TPS	TWISTED PAIR SHIELDED
TSW	TRANSFER SWITCH
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UV	ULTRAVIOLET
V	VOLT
VDC	VOLTAGE DIRECT CURRENT
VOC	OPEN CIRCUIT VOLTAGE
VT	VOLTAGE TAPS
W	WATT
W/O	WITHOUT
XPM	TRANSFORMER

#### A. GENERAL

- All work on this project shall be performed in compliance with all local, state, and federal codes and regulations, the AHJ approved drawings, IFC drawings, installation manuals, material specification sheets, as well as REC Solar's Environmental, Health, Safety (EHS), and quality requirements, as applicable to each Contractor's scope of work.
- Contractors', and contractors' employees, shall be duly licensed and certified to perform their scope of work required to build and complete this project.
- See diagrams and details for site specific information.
- This proposed photovoltaic system is intended to connect to the existing site or facility electrical system. This connection shall be in compliance with NEC article 705.12 "Point Of Connection" (POC).
- This proposed photovoltaic system is intended to be operated in parallel with the utility service provider. Anti-islanding protection is a requirement of UL 1741 and is intended to prevent the operation of the system when the utility grid is not operational.
- All electrical components and materials shall be listed for their intended use and installed per manufacturer specifications.
- All outdoor equipment shall meet appropriate NEMA standards.
- The contractor shall check and verify all dimensions on the drawings, and layout all areas of the array prior to any installation work in order to verify that no discrepancies, existing conditions, obstructions or shading exist. If either exist, contractor shall submit a RFI to the engineer and installation work shall not commence until formal direction is received.
- The contractor shall furnish and install all work as indicated on the drawings and specifications.
- The contractor shall be responsible for locating and protecting any existing utilities and equipment encountered in the work areas.
- The contractor shall coordinate all operations with equipment and installers.
- The contractor shall have all switches and breakers in the "off" position prior to receiving permission to operate with the exception of when conducting approved and code compliant testing and commissioning.
- Permission to operate the system is not authorized until final inspections and approvals are obtained.
- All mechanical hardware shall be corrosion resistant appropriate for site conditions.
- All connections shall be torqued per manufacturer specifications. If snug tight, then follow manufacturer recommendations. Provide permanent torque/witness marks on all structural, mechanical, and electrical terminating hardware with Red permanent paint pen for inspection. Remark to be Blue permanent paint pen.

#### B. PROCORE

- REC Solar requires the project/construction management of this project to be run through our PROCORE cloud-based system. Contractors are required to go through a PROCORE usage orientation prior to beginning work.

#### C. PRE-CONSTRUCTION MEETING

- No contractor shall begin construction without first attending a pre-construction meeting covering the following topics:
  - Contractor's scope of work
  - Site specific EHS plan review
  - AHJ approved drawings
  - IFC drawings review
  - Site specific quality, testing, and commissioning plan review
  - Use of REC Solar's PROCORE project/construction management system
  - Other project site requirements

#### D. MATERIALS & RECEIVING

- All material to be installed shall be new and free from any corrosion, damage, or deformation.
- All material to be used shall have an approved specifications sheet (cut sheet) available onsite.
- Contractor shall seek approval for material specification sheets and installation guides via REC Solar's PROCORE submittal tool.
- All material received shall be inspected for defects or non-conformances to design and purchasing specifications.
- Electrical equipment (i.e.: central inverters, switchboards/gears, inverter skids, transformers, etc.) That have a greater than 4 week lead time and/or costs greater than \$50k shall require a critical lift plan.

#### E. REQUESTS FOR INFORMATION (RFIS)

- AHJ approved IFP plans & IFC (issue for construction) drawings, with approved RFIs, are the only approved drawing set for the construction of this project.
- All desired changes to the IFC drawings shall be submitted through REC Solar's PROCORE RFI tool.
- RFI shall be submitted to the project engineer if ambiguity or contradictions exist between the IFC drawings, manufacturer's design/installation manuals, or approved product specifications sheets.
- RFIs shall be submitted to the project manager for all other clarifications.
- Changes to the IFC drawings shall will be updated by the project engineer and if a hard copy print of the IFC drawings is onsite, the invalid sheets/details shall be "X" out with a note to see new sheet/detail in the PROCORE current IFC drawing set.
- Record drawings shall be created for this project throughout construction and all IFC drawing changes shall be reflected in this record drawing set.

#### F. STOP WORK AUTHORITY

- All contractor personnel performing work on this project shall be granted "stop work authority" and should stop work of themselves and co-workers when they feel an unsafe condition is present and posing an environmental, health, and/or safety hazard to workers or the project., and when they feel non-conforming work is being installed or non-conforming material is being used.
- A stop work shall be initiated through REC Solar's PROCORE observation tool and noted in the daily log tool.
- Work shall only be restarted if the hazard or non-conformance has been abated/corrected.

#### G. NON-CONFORMANCE REPORTING

- A non-conformance is when the installation of material is not installed

to an expected code/standard/design, or when the material itself has a defect or does not meet purchase specifications.

- All installation or material non-conformances discovered shall be logged in REC Solar's PROCORE observation tool. Final punchlist walk non-conformances will be documented in REC Solar's PROCORE punchlist tool.

#### H. SITE LABELING

- String - a collection of solar PV modules wired in series.
- Subarray - an electrical subset of an 'array' (NEC 690.2; mechanical concept). A portion of the total PV array that is physically co-located and oriented in the same direction. Each module in a sub-array should have the same sun intensity and should have the same electrical characteristics. Typically, a subarray is a collection of strings that feed one inverter.
- Array - a mechanically integrated assembly of PV modules with a support structure and foundation, along with other components, to form a direct-current power-producing unit (NEC 690.2). Typically, a collection of 'subarrays' that feed one or more inverters.
- Zone - a designated area of a project whose identity is directly linked to a piece of equipment (i.e. inverter, combiner, panelboard, etc.).
- Block - a collection of project 'zones'. Typically used for large systems in order to bring clarity to a project with a significant amount of 'zones'.
- Area - a designated project boundary on the site plan that spatially encompasses 'blocks' and/or 'zones'.
- Site - a collection of all project 'areas' that reside on a specific parcel(s).

#### I. EQUIPMENT NAMING CONVENTION

- Three letter naming conventions will be used for equipment: See ABBREVIATIONS this page.
- These conventions will appear on both the single line diagrams and site plans.
- Equipment labeling is to be completed in the following manner:
  - {equipment three letter callout}{equipment number}
  - If a site has two inverters, labels = inv1 and inv2.
  - If a site has 20 string combiners, labels = scb1 through scb20.
- String labeling is to be completed in the following manner:
  - {equipment three letter callout}{equipment number}.{string number}
  - If the string callout is 'SCB1.5' for string combiner 1, string 5.
- Definitions
  - Main Distribution Panel - refer to NEC 551.2 'definitions: distribution panel.' a single panel assembly that contains buses and overcurrent protection devices for the control of power circuits. Typically placed in a cabinet against a wall with accessibility only from the front.
  - Panelboard - refer to NEC 100.1 'definitions: panelboard.' although the same in definition as a distribution panel, a panelboard is usually a subset of the main distribution panel, with smaller circuits tied to it. Panelboards are then electrically tied back to main distribution panel through larger feeder style conductors.
  - Switchgear - refer to NEC 100.1 'definitions: metal-enclosed power switchgear.' an assembly enclosed on all sides with sheet metal that contains primary power circuit switching, interrupting devices, or both, with buses and connections. Interior access provided via doors or removable covers.
  - Switchboard - refer to NEC 100.1 'definitions: switchboard.' commonly used interchangeably with "switchgear," switchboards in general often use the same type of breakers that are found in panelboards. Switchboards are also constructed with different UL/ANSI standards than switchgears (typically much smaller than a switchgear; often only 24-36" deep). The ability to withstand fault currents is less than that of switchgear. Switchboards typically have a maximum feeder breaker size of 1200amps.

### ENVIRONMENTAL, HEALTH & SAFETY (EHS) NOTES

#### A. GENERAL

- All contractors performing work on this project shall meet all local, state, and federal OSHA and EPA requirements, as well as REC Solar specific EHS requirements.
- All contractors who do not abide by governmental regulations or REC Solar EHS requirements are in breach of contract, and hence subjected to a "Notice to Cure".
- Contractors must ensure that a competent person supervisor is assigned and onsite for this project at all times.
- All projects must be built under a Site Specific Safety Plan (SSSP). Each contractor shall submit a site Purpose specific SSSP to REC Solar no later than 2 weeks prior to their construction start for review and approval. The contractor shall not be allowed to begin construction without an approved SSSP. The contractor's SSSP shall include site specific EHS OSHA compliant and best practices language covering the following topics:
  - PURPOSE
  - SCOPE
    - Construction scope of work
    - Scope of EHS Plan
  - Management Commitment To EHS Compliance
  - Roles & Responsibilities
  - Designation Of Affected, Authorized, Competent, And Qualified Persons
  - Safety Requirements
    - Activity Hazard Assessment (Aha)
    - Job Safety & Quality Analyses (JSQA), Aka: Pre-Task Plans
    - Safety & Staging Map
    - Jobsite Safety Orientations
    - Chain Of Command
    - Employee Parking
    - Security, Badging, & Site Access
    - Evacuation
    - Accountability / Discipline
    - PPE
  - Training Requirements
  - Inspection/Audit Requirements
  - Injury/Illness Reporting & Investigating
  - Substance Abuse Policies (including drug/alcohol testing)
  - Health & Safety Specific requirements relating to following (items applicable to project only):
    - Aerial Lifts & Elevated Work Platforms

- Bloodborne Pathogens
- Confined Space
- Crane & Rigging
- Dual Employer
- Equipment Safety / Operator Qualifications
- Emergency Medical Services Plan
- Emergency Action Plan Fall Protection
- Excavation & Trenching
- Fire Prevention & Protection
- Hazardous Communication
- Heat Illness Prevention
- Ladder Safety
- Lone Worker
- Material Handling
- Powered Industrial Trucks
- Respiratory
- Scaffolding
- Signs And Barricades
- Substance Abuse
- Tools & Equipment
- Traffic Control
- Weather
- Wildlife

I. Environmental Specific requirements relating to the following (as applicable):

- SWPPP
- Best Management Practices (Bmp)
- Spill Prevention Control & Countermeasures
- Air Pollution
- Trash And Recycling

#### B. ELECTRICAL

- Only employer verified personnel who are authorized and qualified by training in electrical construction and electrical safety shall be allowed to install electrical work. Verification of training shall be submitted to REC Solar.
- There shall be no energized electrical work performed on site unless under an Energized Electrical Work Permit approved by REC Solar.
- Lock-out / Tag-out (LOTO) shall be performed on equipment intended to be worked on/in.
- Any work on equipment exceeding 50V shall be worked on under the regulations of OSHA and NFPA 70E.
- Point of connection tie-ins shall be under an Electrical Work Job Briefing and Planning Checklist (EWJBPC) and an Activity Hazard Analysis (AHA) submitted to REC Solar at least 2 days prior to a shut-down, and the completed EWJBPC shall be submitted to REC Solar within 2 days of shutdown.
- No equipment shall be commissioned (energized) unless the system has been inspected and contractor has received approval by REC Solar.
- Electrical testing meters shall be of the correct category rating and lead shall be inspected prior to use.
- The correct arc flash Hazard Rating Category (HRC) clothing & equipment (PPE) shall be worn when working with energized electrical equipment. All clothing and equipment shall be inspected prior to use.
- The following table is used for reference only. You must verify in NFPA 70 Standards for Electrical Safety in the Work Place the correct combination of HRC clothing and equipment for the given HRC rating of the equipment that is to be opened up or worked on.

HRC rating	Incident energy (cal/cm²)	Arc flash rated clothing	PPE
1	Up to 4		• Hardhat
2	Up to 8	• Pants	• Safety Glasses
3	Up to 25	• Long Sleeve Shirt/Jacket	• Hearing protection (ear canal inserts)
		• Coveralls	• Voltage rated rubber insulated gloves
		• Face-Shield	• Heavy duty leather gloves
4	Up to 40	• Balacava	• Leather footwear
		• Suit	
		• Hood	

#### C. EXCAVATION & TRENCHING

- No excavation or trench shall be entered without first being inspected (documented) by a competent person excavation & trenching inspector.
- Excavation & trenching inspections shall be documented and inspected daily and right after a rain event.
- Access/egress ladders shall be placed no more than every 50' for any excavation/trench greater than 4'.
- Protection shall be in place from preventing the public or unauthorized persons from entering an excavation/trench.

#### D. FALL PREVENTION & PROTECTION

- Fall hazards should be eliminated whenever possible.
- 100% fall protection is required for any work above 6'.
- All fall prevention & protection equipment shall be OSHA compliant and installation in accordance with manufacturer's requirements.
- A fall protection competent person shall be onsite overseeing all activities where fall protection is required.
- All personnel to work at heights above 6' shall be trained in fall prevention and protection.

#### E. HAZARDOUS COMMUNICATIONS & SUBSTANCES

- All materials brought on site that have a Safety Data Sheet (SDS) shall have the material's SDS kept on site and the SDS shall be submitted to REC Solar.
- All SDSs shall be kept in a location with an organized table of contents that can be used for quick reference in the event of an emergency.
- No asbestos, lead, or PCB containing material shall be installed or used during the construction of this project.

#### F. SCAFFOLDING

- Scaffolding stair towers shall be used for access/egress of personnel

for roof mount projects. Stair treads shall be at minimum 36" wide.

#### G. TRAINING

- Contractor shall ensure that no employee works on site on this project without being properly authorized and trained to perform the work they are assigned to perform.
- Contractor shall submit to REC Solar training records of personnel to be onsite.

#### H. INSPECTIONS

- All personnel should be visually inspecting their work area prior and during their work task for possible hazards.
- Contractor's supervision shall performed visual inspections at least daily and these inspections shall be noted in contractor's daily log/report.
- Contractor's supervision shall perform at least weekly a documented jobsite safety inspection using the PROCORE inspection tool inspection template.
- All issues requiring corrective action identified during any inspection shall be documented in the PROCORE observation tool for corrective action assignment and completion.
- All issues requiring corrective action discovered during an inspection, shall be corrected in a timely manner.
- Any issue discovered during an inspection (or at any other time) that poses Immediate Danger to Life and Health (IDLH) of personnel or the public, work shall cease immediately (stop work), and the issue/hazard shall be corrected/abated by a qualified contractor prior to work resuming.
- REC Solar will perform EHS compliance inspections periodically throughout the build process. Interim inspections are courtesy inspection help contractor meet regulatory and the site's EHS plan compliance. A final safety audit will be performed to determine how well the contractor is compliant with EHS requirements. This final safety audit will be scored and the score will remain as part of the overall contractor scorecard.

## TORQUE VALUES

APPLICATION	FT-LBS	IN-LBS
UNISTRUT - BOLT & NUT	m	
1/4"-20	6.0	72.0
5/16"-18	11.0	132.0
3/8"-16	19.0	228.0
1/2"-13	50.0	600.0
BUILDDEX TEK SCREW		
1/4"-14 BUILDDEX TEK SCREW	12.5	150.0
WEDGE ANCHOR - TRUBOLT - REDHEAD		
1/4" DIA	4.0	48.0
3/8" DIA	25.0	300.0
1/2" DIA	55.0	660.0
5/8" DIA	90.0	1080.0
3/4" DIA	110.0	1320.0
ASTM A449 - SAE GRADE 5 BOLT		
3/8"-16 (PLAIN STEEL UNC THREAD)	30.0	360.0
3/8"-16 (GALV. STEEL UNC THREAD)	39.0	468.0
3/8"-24 (PLAIN STEEL UNC THREAD)	35.0	420.0
1/2"-13 (PLAIN STEEL UNC THREAD)	75.0	900.0
1/2"-13 (GALV. STEEL UNC THREAD)	94.0	1128.0
1/2"-20 (PLAIN STEEL UNC THREAD)	85.0	1020.0
ASTM A354 BD - SAE GRADE 8 BOLT		
3/8"-16 (PLAIN STEEL UNC THREAD)	44.0	528.0
3/8"-24 (PLAIN STEEL UNC THREAD)	49.0	588.0
1/2"-13 (PLAIN STEEL UNC THREAD)	110.0	1320.0
1/2"-20 (PLAIN STEEL UNC THREAD)	120.0	1548.0
18-8 / 304 STAINLESS STEEL BOLT		
3/8"-16 (UNC THREAD)	20.0	240.0
3/8"-24 (UNC THREAD)	22.0	264.0
1/2"-13 (UNC THREAD)	43.0	516.0
1/2"-20 (UNC THREAD)	45.0	540.0
316 STAINLESS STEEL BOLT		
3/8"-16 (UNC THREAD)	21.0	252.0
3/8"-24 (UNC THREAD)	23.0	276.0
1/2"-13 (UNC THREAD)	45.0	540.0
1/2"-20 (UNC THREAD)	47.0	564.0

#### ELECTRICAL AND MECHANICAL NOTE

ALL ELECTRICAL TERMINATION AND MECHANICAL FASTENERS TO BE TORQUED TO ASTM STANDARD VALUES OR MANUFACTURER'S SPECIFICATIONS (UNO). ELECTRICAL TERMINATIONS AND MECHANICAL FASTENERS SHOULD BE CLEARLY TORQUE MARKED WITH RED PERMANENT PAINT PEN. REMARK TO BE BLUE PERMANENT PAINT PEN.

#### TEK SCREW NOTE

HEAD OF FASTENER SHOULD BE FULLY SEATED AGAINST THE WORK SURFACE AND MUST PENETRATE THE METAL STRUCTURE A MINIMUM OF 3 PITCHES OF THREAD. AVOID DISTORTION OF STRUCTURAL MEMBERS DUE TO OVER TIGHTENING (UNO).

## SYMBOLS

FOR ADDITIONAL SYMBOLS SEE INDIVIDUAL SHEETS

	SECTION		DETAIL REFERENCE
	ELEVATION		REVISION TAG
	EQUIPMENT LABEL		METER
	GENERATOR		INVERTER
	TRANSFER SWITCH		COMBINER
	DISTRIBUTION PANEL		COMBINER W/ INTEGRATED DISCONNECT
	TRANSFORMER		MODULES
	UNFUSED AC OR DC DISCONNECT		FUSED AC OR DC DISCONNECT
	CONDUIT REFERENCE		MAIN BREAKER, SWITCHGEAR

# Attachment 2



CONTRACTOR

CA - B C10 #990001

## REC SOLAR

3450 BROAD ST, SUITE 105  
SAN LUIS OBISPO, CA 93401  
PH (805) 477-3970  
FX (805) 548-8661  
(844) REC SOLAR

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ENGINEER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

OWNER

## FIRESTONE WALKER BREWERY

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

## FIRESTONE WALKER BREWERY

TRACKER - PHASE 2  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

## IFP DESIGN

SHEET TITLE

QUALITY CONTROL NOTES

SHEET NUMBER

G201



QUALITY CONTROL NOTES

A. GENERAL

1. All work shall be installed per the stamped and signed engineered drawings, any IFC Supplement Drawings, the products' installation manuals & specification sheets, additional REC Solar provided Best Practices, in a neat and workmanlike manner subject to REC Solar approval and discretion, and shall be installed complete.
2. All Subcontractors who do not abide by the IFC drawings and REC Solar quality requirements are in breach of contract, and hence subject to a "Notice to Cure"
3. No worker shall begin a task without first being instructed on the safety & quality of work expectations for that task.
4. Quality of work training shall include:
  - a. Review of IFC Drawings (Notes, Details, Diagrams, Schematics, Etc.)
  - b. Material Specification Sheets
  - c. Product Installation Manuals
  - d. Best & Worst Practices Photos
5. Quality of work visual inspections shall be performed daily to identify any non-conforming work. Non-conforming work shall be corrected prior to continuing installation.
6. Quality control pictures shall be taken of all parts of the system. A QC picture checklist is setup as an inspection template in PROCORE and shall be filled out with the required photos attached for each line item request.
7. REC Solar will perform interim quality inspections periodically throughout the build process. Interim inspections are courtesy inspection to help Subcontractor in understanding IFC drawings, codes, intent, etc. A scored final quality audit will be performed at the end of the project prior to commissioning to determine how well the Subcontractor installed the project. The final quality audit score will be determined by how many and the priority of the punchlist items identified during the final quality audit. Refer to the 'PROCORE punchlist' document in the PROCORE process & usage documents folder.

B. STRUCTURAL / MECHANICAL

1. **General**
  - a. Marred finishes or chipped galvanization from any galvanized product that has been damaged, shall be removed and re-finished with at least 2 coats of field applied cold galvanization. If project site is within 5 miles of ocean/sea, brush on cold galvanization is required.
  - b. Bent or overly damaged material shall not be installed.
  - c. Fastener connections used to build system shall be of the correct type and properly torqued per design specifications.
2. **Racking**
  - a. If installation manuals are not provided they must be requested, received and reviewed prior to installation.
  - b. All racking components are to be inspected and accepted at time of delivery. Any defects should be brought to the attention of the vendor prior to installation.
  - c. Impact tools may be used for tightening hardware if used with a built in or attachment clutch which limits tightening to less than the final bolt torque value.
  - d. All hardware shall be torqued with an annually certified torque wrench.
3. **PV (Photovoltaic) Modules**
  - a. Modules are to be installed per the stamped and signed electrical PV sheets and installation manuals. If installation manuals are not provided they must be requested, received and reviewed prior to installation.
  - b. No personnel shall step or stand on modules at any time, nor shall installers lean on module glass. Rack structure and modules are not designed for live loads and may void warranty.
  - c. No top-down mounting module clamp shall be installed with an impact driver without the use of a torque limiting attachment that can be proven to be less than the required mounting torque for the module clamp.
  - d. Module gaps in the non-clamping direction shall be no less than 1/8" to account for expansion and contraction.
  - e. Module glass, frames, back-sheets, junction box, leads and connectors shall be free of damage.
4. **Concrete**
  - a. All concrete for ground and canopy mount foundations shall be finished so there are no voids, cracks, cavities, etc.
  - b. The tops of concrete piers shall be sloped away from center for positive drainage with at least a 1% slope.

C. ROOFING/BUILDING PENETRATION WATERPROOFING & PROTECTION

1. **General**
  - a. Material loading and installation on a roof shall not commence until a roof loading and staging plan is approved by REC Solar that is based on material being spread out to not exceed the roof's maximum live and dead load (PSF) calculations.
  - b. Roofing work shall comply at minimum with NRCA standards.
  - c. A pre-installation roof inspection shall be performed and documented by a customer approved roofing Subcontractor/Consultant hired by the build Subcontractor and witnessed by REC Solar, to verify all pre-existing conditions prior to PV system installation.
  - d. A post-installation roof inspection shall be performed and documented by the same customer approved roofing Subcontractor/Consultant, the build Subcontractor, and witnessed by REC Solar, to ensure roof warranty continuity after PV system installation.
  - e. Adequate roof protection (plywood, foam, single ply, etc.), that is properly secured, shall be put in place during loading, staging, material distribution, and installation to protect the roof during construction.
  - f. Parapet protection shall be installed to protect the parapet during roof loading operations.
  - g. Footwear shall be appropriate for the roof material during installation so that it does not cause damage to the roof material.
  - h. All roof and building penetration waterproofing shall be performed by authorized and trained personnel only.
  - i. Any dropped item onto a roof membrane that causes potential damage, whether visible or not, shall be reported to a Supervisor immediately and the area marked for repair.
  - j. The use of wear pads and slip sheets shall be permitted. Material type, thickness, dimensions, and adhesion to the existing roof shall be at the discretion of the approved roofing Subcontractor/Consultant to maintain existing warranty.

2. Sloped Roofs - Composition Shingle

- a. All roof penetrations prior to flashing being installed, shall be sealed with a caulking equivalent to Rainbuster 850, Geocel S2/S4, or Chemlink M-1.
  - b. Any caulking that is exposed to UV shall be covered upon installation of caulking with composition granules of the same color as the existing comp shingles.
3. Sloped Roofs - Concrete Tile
- a. All tile roof racking foundations utilizing a post and flashing, shall be made with an "Base-Flashing" and then a "Profile-Flashing" to match existing tile profile. Base-Flashing shall be overlapped on the upslope side with roofing felt paper. Profile-Flashing shall seat into existing tiles without lifting adjacent tiles out of place.
  - b. All cracked tiles shall be replaced. Exception: corners of tiles with no more than 2" of the tile cracked off, may be re-used if the broken off piece can be cleanly glued back on with a roofing adhesive caulking (i.e.: Rainbuster 850).

D. PAINTING

1. All material to be painted shall be prepped, cleaned, primed, and painted with products that are meant for the material coating application and applied at the recommended temperatures.
2. Steel to be painted shall be cleaned free of dirt, grease, or oil. Direct to metal primer/paint may be used to paint steel if approved for use by paint manufacturer.
3. Coating thickness shall be per paint product manufacturer's specifications for expected design life.

E. ELECTRICAL

1. **General**
  - a. All furnished material shall be listed by a NERTL (i.e.: UL, ETL, etc.) And have an associated label unless special fabrication of material is required. Special fabricated material shall be fabricated using listed components and procedures.
  - b. All installed work and wiring methods shall conform to the National Electrical Code (NEC), NECA standards, REC Solar's Best Practices, and the requirements set forth in these IFC drawings.
  - c. Installation practices shall be installed in a neat and workmanlike manner. Neat and workmanlike manner is subject to REC Solar approval and discretion.
  - d. Fuses and wires subject to transformer inrush current shall be sized per manufacturer.
2. **Signage / Labeling**
  - a. All equipment, conduit, and conductors shall be labeled per NEC, local AHJ, and REC Solar's requirements.
  - b. Refer to the IFC drawings Signage & Labeling sheet details for further information on specific locations for equipment, conduit, and conductor/cable labeling.
  - c. Required safety signage and labels shall be permanently attached.
  - d. ARC Flash Hazard labeling shall be installed on all equipment that are likely to be serviced while energized, and shall meet the requirements of NFPA 70E for label content.
3. **Disconnecting Means**
  - a. Means shall be provided to disconnect all current carrying conductors of the photovoltaic power source from all other conductors in the building.
  - b. The grounded conductor may have a bolted or terminal disconnecting means to allow maintenance or troubleshooting by qualified personnel.
  - c. The disconnecting means shall not be required to be suitable as service equipment and shall be rated in accordance with NEC 690.17.
  - d. Equipment such as photovoltaic source circuits, overcurrent devices, and blocking diodes, shall be permitted on the photovoltaic side of the photovoltaic disconnecting means.
  - e. Means shall be provided to disconnect equipment such as inverters from all ungrounded conductors of all sources. If the equipment is energized from more than one source, the disconnecting means shall be grouped and/or identified.
  - f. Dead front mechanical means shall be provided to disconnect a fuse from all sources of supply if the fuse is energized from both directions and is accessible to other than qualified persons. Such a fuse in a photovoltaic source circuit shall be capable of being disconnected independently of fuses in other photovoltaic source circuits.
  - g. Disconnecting means should not be disconnected under load unless device is rated to do so.
4. **1000v DC Systems**
  - a. Module, inverter, fuse, circuit breaker, combiner box, disconnect, connector, junction box, lead, wire, and cable specifications must be UL listed and labeled as rated for 1000v DC. All material specification sheets must be submitted by the Subcontractor to the Project Engineer for approval prior to procurement.
  - b. Working clearances for equipment for 1000v systems should refer to NEC 110.34(a).
5. **Grounding and Bonding**
  - a. Equipment grounding conductors (EGC) and grounding electrode conductors (GEC) will have as short a distance to ground as possible and a minimum number of turns.
  - b. All non-current carrying metal parts of entire PV system (modules to point of connection) shall be bonded via NEC compliant means.
  - c. Non-current carrying metal parts shall be checked for proper grounding; noting that terminal lugs bolted on an enclosure's finished surface may be insulated because of paint/finish. As needed, remove paint/finish to ensure proper grounding and ensure the use of a rust/corrosion inhibitor (e.g.: KOPR-SHIELD, NOA-LOX, etc.).
  - d. The equipment grounding connection to the module or panel of this PV system shall be so arranged that removal of a module or panel from the photovoltaic source circuit does not interrupt the grounded path to another photovoltaic source circuit.
  - e. Grounding system components shall be listed for their purpose, including but not limited to ground rods, grounding lugs, grounding clamps, etc. Exterior installed grounding devices shall be rated for direct burial.

6. Electrical - Conduit

- a. **General**
  - i) All empty conduits must be terminated into an enclosure or be capped off with REC Solar approved means.
  - ii) The correct conduit type, quantity and size is installed per design specifications. All conduits shall be at minimum ¾".
  - iii) All fittings shall be properly glued or made up wrench tight without fitting threads stripping.
  - iv) All fittings enter enclosures/boxes/equipment perpendicular and flush completely sealing hole in enclosure/box/equipment from water intrusion.
  - v) All supports are properly fastened with correct type and material of fastener and straps are of proper type and material and installed according to design specifications.
  - vi) The correct conduit fittings are used, they are correctly installed and all gland nuts are tight.
  - vii) Where installed, conduit subject to physical damage shall be rigid metallic conduit or otherwise protected by rigid means (e.g.: bollards).
  - viii) A safety factor of at least 4 shall be maintained for the strength of fasteners or supports used to mount equipment, conduit, or wiring.
  - ix) No bent, kinked, distorted, or damaged conduit shall be installed.
  - x) Installed conduit has less than 360° of bends.
  - xi) All penetrations through fire rated assemblies shall maintain existing fire ratings.
- b. **Expansion and Contraction**
  - i) Depending on the conduit run length and/or layout, conduit expansion joints are required any time there is/are a straight run(s) of PVC, EMT, IMC, or RMC where calculated expansion and contraction exceed allowable limits.
  - ii) Conduit expansion joints are also required anytime the conduit is run over a building expansion joint.
  - iii) Expansion joints can be installed per two options below:
    - 1) **Option 1:** a typical piston style expansion fitting. This is the preferred method when using PVC conduit. If a PVC expansion fitting is used in a metal conduit run, Subcontractor must ensure that both sides of the conduit run are bonded.
    - 2) **Option 2:** an expansion joint made up of liquid-tight flexible metal conduit and LT fittings. This is the preferred method when using EMT, IMC, and RMC.
  - iv) The following locations are where expansion/contraction fittings are typically required:
    - 1) Roof - conduit on roof deck
    - 2) Roof - conduit on parapet wall
    - 3) Roof/Ground - conduit across racking or structure
    - 4) Ground - surface ground mounted conduit
    - 5) Underground - conduit above frost line entering/exiting ground
    - 6) Across buildings or building expansion joints
  - v) Expansion fitting can be installed per methods below. For roof mount systems methods 1 or 2 must be approved by customer's approved roofing Subcontractor/Consultant:
    - 1) **Method 1:** allows the conduit support (i.e.: Dura-blok) to move freely on slip-sheets (slip-sheets are adhered to exist roof deck material) with the conduit strap tightly secured to the conduit.
    - 2) **Method 2:** is the same as method 1 except that the slip-sheet is rigidly adhered to the support so that the slip-sheet material which is the same as the roof deck material can slide on itself.
    - 3) **Method 3:** is the reverse of method 1 where the support is rigidly fixed to the structure and the conduit strap is loose enough to act as a conduit guide.
  - vi) Theory, equations, and supporting tables
    - 1) Thermal expansion calculation:  $\Delta L = 12 \cdot \alpha \cdot L \cdot \Delta T$
    - 2) Temperature change:  $\Delta T = T_{max} + T_{add} - T_{min}$
    - 3) Variable Definitions and Values:

$\Delta L$ = total thermal expansion change in length of conduit. Units [in]			
$\alpha$ = coefficient of thermal expansion for conduit material. Units [in/in/°F]			
$L$ = length of conduit run. Units [ft]			
$\Delta T$ = maximum change in temperature. Units [°F]			
$T_{max}$ = maximum recorded temperature for job site. Units [°F]			
$T_{add}$ = temperature added based on the distance (d) conduit is above roof. Units [°F]			
$T_{min}$ = minimum recorded temperature for job site. Units [°F]			
Conduit type	Code reference	A (in/in/ft)	Max expansion (in)
PVC	NEC 352.44	3.38 X 10	¼
Steel EMT/IMC/RMC	NEC 300.7(b)	0.65 X 10	1
Aluminum	NEC 300.7(b)	1.3 X 10	5/8

c. Conduit Chases - PV Source Circuit (Aka: "String")

- i) Conduit chases shall be grounded on one end (NOA-LOX applied between direct bury clamp and metal conduit) and bushed properly.
- ii) Conduit chases shall extend far enough under array so that PV wire is not exposed to UV from at least 7am to 7pm.
- iii) Conduit chases into j-boxes, enclosures, and equipment are sealed at open conduit end with duct seal or UV rated sealing foam to prevent moisture and critter entry.

d. Conduit Underground, Enclosure To Enclosure

- i) Underground conduit is considered all conduit from source termination to connection point termination, including all hand holes, pull boxes, junction boxes and above ground transitions from source termination to connection point termination.
  - ii) Depth of conduit shall match NEC minimum or design depth, whichever sets precedence.
  - iii) Spacing between conduits, side trench walls, and trench floor shall match design specifications. Where chairs or Silverman racks are required, chair, rack spacing, and size shall match design specifications.
- Where PVC conduit lengths exceed 200' with more than 180° of bends, rigid metallic elbows shall be used on the pulling end of the conduit run.

- vi) All rigid metallic conduit installed underground shall be protected with the equivalent of 20mil corrosion protection tape (10mil tape overlapped during a single wrap = 20mil protection). Protection tape shall extend above grade between 0.5" - 1".
  - vi) SCHD 80 conduit shall be used at least 18" below grade where conduit transitions vertically to above ground.
  - vii) Where transition from SCHD 40 to SCHD 80 conduit occurs, the SCHD 80 inside lip should be reamed/filled to allow smooth transition from thin wall to thick wall conduit.
  - viii) All PVC conduit joints, couplings, and connectors shall be glued together with the proper PVC conduit cement glue. Glue shall encapsulate complete adjoining surfaces and be evident with visual signs of glue seen around the perimeter of where the base of the fitting and conduit join.
  - ix) All underground conduits entering vaults shall be sealed around the perimeter with grout or approved underground fittings designed to seal around underground conduit to vault connections.
  - x) In geographical areas where conduits are installed with frost lines, expansion fittings shall be installed in the conduit run stub up prior to the conduits first above ground support. If PVC expansion joints are not installed directly behind arrays where they are protected by shade from high heat & UV (direct sunlight) conditions, then the expansion fitting shall be shielded (e.g.: black plastic split loom wrap) to prevent the fitting from burning and becoming non-functional.
- e. Conduit Above Ground, Enclosure To Enclosure
- i) Above ground conduit is considered all conduit above grade installed between all pull boxes, junction boxes, equipment, etc.
  - ii) Where conduit is installed down walls, all supports shall be attached to a structural member or in a manner strong enough to support conduit.
  - iii) Where EMT conduit is called out for exterior conduits runs, "Rain-Tight" (aka: "RT", "Water-Tight") fittings shall be used. Any rubber gasket supplied with the fitting for installation on the fitting threads, shall be removed and replaced with "sealing rings". All sealing rings shall be installed in the correct orientation (box side to enclosure/box).
  - iv) The tops of all rain-tight EMT connectors shall be caulked with an exterior grade high temp metal compatible sealant to help prevent water intrusion.
  - v) All rigid threaded fittings shall be made up with thread compound (e.g.: KOPR-SHIELD, NOA-LOX, etc.) to help protect bare steel threads and provide a waterproofing sealant from water entry.
  - vi) Expansion/contraction fittings and conduit supports for runs requiring expansion/contraction joints shall be installed correctly.
  - vii) Spacing between conduits shall be uniform and symmetric and match design specifications.
  - viii) Conduits shall be level, plumb, true, and run squared, paralleled or perpendicular to surrounding objects. Conduits are not to "cheat" and be run at angles other than 90°, unless part of a saddle or offset bend.
  - ix) Field bends shall be true, no 'dog legged' bends, and no rippled, kinked bends or malformed angles created.
  - x) Where installed on rooftops or canopies conduit chases shall not be installed closer than 3-1/2" to deck unless otherwise permitted.
  - xi) Where installed on rooftops or canopies, conduit subject to foot traffic by maintenance or emergency personnel shall be marked with reflective caution tape, and have additional supports installed within conduit couplings and 90° bends at the following intervals:

Conduit size	Support from coupling	Support from 90° bend
½" - 1"	12"	12"
1-1/4" - 2"	18"	18"
≥2-1/2"	24"	24"

- xii) Where conduit chases cross walkways, supports shall be installed. At least one support shall be installed and centered in walkway for walkways 2' to 6' wide. At least two supports centered in walkway no more than 4' between supports for walkways 6' - 10' wide. For distances greater than 10' between arrays, conduit supports shall be installed per code requirements.
- xiii) Any marred finish on conduit or fittings shall be re-sealed with cold galvanization spray (typically occurs during material handling and fitting tightening).
- xiv) Where painted conduits are required, conduit shall be cleaned/prepped, primed, and painted with appropriate paint color, coating thickness, and product.
- xv) Where a facade is used to cover conduits, façade is per design specifications and has been cleaned/prepped, primed and painted with appropriate paint color, coating thickness, and product.
- xvi) Liquid-tight conduit shall be used to connect EMT/IMC/RMC conduit, via listed fittings, to equipment requiring flexibility for equipment vibration or seismic movement. An RFI must be submitted to increase usage length:

Conduit size	Max usable length	1st support from equipment	1st support from equipment for flexibility
½" - 1-1/4"	36"	12"	24"
1-1/2" - 2"	48"	12"	36"
>2-1/2"	60"	12"	48"

7. Electrical - Equipment

- a. **General**
  - i) Enclosures shall be the right NEMA rating for the application and shall be of the correct voltage, amperage and application ratings.
  - ii) Enclosures (interior/exterior) and mounting hardware shall be corrosion resistance enough to last the intended system design life. Material requirements will be geographical specific and shall be approved by the Engineer.
  - iii) Equipment shall be mounted securely with corrosion resistance hardware on structural members, and is square, plumb, level, and installed per design.

Attachment 2



CONTRACTOR

CA - B C10 #990001

REC SOLAR

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SAN LUIS OBISPO, CA 93401  
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ENGINEER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

OWNER

FIRESTONE WALKER  
BREWERY

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

FIRESTONE WALKER  
BREWERY

TRACKER - PHASE 2  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018


0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER		
DAVID OTT		
PROJECT ENGINEER		
TONY STRADER		

IFP DESIGN

SHEET TITLE

QUALITY CONTROL NOTES

SHEET NUMBER

G202



QUALITY CONTROL NOTES

- iv) Installed equipment shall have all working clearances maintained with doors opened to at least 90°.
- v) Strut where used for mounting purposes shall be filed and cut ends cold galvanized/painted.
- vi) Any marred or scratched painted surface shall be cleaned, prepped, primed, and painted with manufacturer approved touch up primer and paint.
- vii) All holes in equipment shall be sealed except for weep holes where applicable.
- viii) Conduit entry into equipment containing any ungrounded conductor bussing, splice, or termination, shall be made through the bottom or lower 1/3 of the side walls. top entry or upper 2/3 entry of equipment shall only occur if approved by REC solar via an approved RFI.
- ix) If weep holes are required in equipment, and RFI shall be submitted for approval and only the use of a listed weep hole vent shall be approved and installed.
- x) Equipment shall not shade array.
- xi) Fuses shall not be installed until just prior to commissioning.
- xii) Breakers, switches and fuse holders are in the off/open position until commissioning.
- xiii) PVC and fiberglass enclosures shall be installed in locations under cover, where possible, and where system is installed in geographic locations subject to hail events.
- xiv) All dirt, debris, metal shavings, trimmed wire insulation and strands, and pulling lubrication shall be removed from equipment enclosures. Metal shavings must be removed prior to pulling any wiring/cabling into the enclosure.
- xv) Equipment inspection checklists shall be followed, filled out, and submitted for approval to REC solar prior to commissioning.

b. Modules

- i) Modules shall be marked to identify lead polarity, device ratings, and specifications for voltage, current, and power.

c. Inverters

- i) Inverters shall be installed with the correct clearances about them per manufacturer's guidelines to allow for proper cooling and servicing.
- ii) Inverters shall not be mounted in direct sunlight unless under shade canopy, and conduit knockouts shall not be drilled larger than what the manufacture allows for.

d. Monitoring (aka: DAS = Data Acquisition System) Equipment

- i) DAS base station equipment enclosures should be mounted facing north or installed under a shade canopy to reduce heating effects from direct sunlight.
- ii) Plane Of Array (POA) Pyranometers (aka: Irradiance Sensors) shall be mounted at the same tilt and orientation as the array. Global Horizontal Pyranometers shall be mounted with no tilt. All caps shall be removed prior to commissioning.
- iii) Back of module temperature sensors shall be installed as far into the array as possible and in the center of the cell in the center of the module.
- iv) All weather station equipment shall be mounted and secured from movement, vibration, or displacement from wind or snow load.
- e. Non-PV Power & Lighting Equipment (i.e.: lights, receptacles, switches, etc.)
- i) Lights under canopies may be connected to conduit via liquid-tight flexible conduit means. If used, liquid-tight flexible conduit shall not exceed 18".

8. Electrical - Wiring Installation

a. General

- i) Conductors shall be of the correct insulation and voltage type.
- ii) Conductors shall have color insulation regardless of conductor size in order to reduce chance of cross phasing or reverse polarity condition. refer to CONDUCTOR COLOR PHASING STANDARD table for proper colors per system.

CONDUCTOR COLOR PHASING STANDARD			
AC SYSTEMS			
CONDUCTOR TYPE	3PH 277/480Y V <sub>AC</sub>	3PH 120/208Y & 1PH 120/240Y V <sub>AC</sub>	3PH 4-W 120/240Δ V <sub>AC</sub> <sup>1</sup>
PHASE A / LINE 1:	BROWN	BLACK	BLACK
PHASE B / LINE 2:	ORANGE	RED	RED
PHASE C:	YELLOW	BLUE	BLUE
NEUTRAL <sup>2</sup> :	GRAY	WHITE	WHITE
EGC / GEC <sup>3</sup> :	GREEN / BARE CONDUCTOR/ GREEN with YELLOW STRIPES		
DC SYSTEMS			
CONDUCTOR TYPE	DC +*	DC -*	EGC/GEC <sup>3</sup>
FUNCTIONALLY GROUNDED, UNGROUNDED, AND GROUNDED SYSTEMS:	BLACK	RED	GREEN / BARE / GREEN with YELLOW STRIPES
MODULE STRING JUMPER:	BLUE PHASE TAPE AT CONNECTOR ENDS <sup>4</sup>		

- 1) On grounded 3ph 4-wire 240Vac Delta supply, Phase B is typically the "Stinger Leg" (1ph is 208V to ground). The string leg shall be field verified as it could be another phase. The string leg shall have orange colored insulation or be marked with orange phase tape 3"-6" wide between 1"-6" of the termination.
- 2) All equipment ground conductors (EGCs) and grounding electrode conductors (GECs) must be copper (Cu). All string wiring shall be Cu.
- 3) When running module string jumper conductors install a 4-wrap band of blue phase tape at each end of the jumper to indicate that this conductor is a jumper wire between modules in a string. Jumper conductor color should be consistent. Pick one and stay with it throughout the site.
- 4) All conductor sizes are required to use colored insulation. CAUTION: even with colored insulated wire, an electrician can still install the wrong colored wire in the incorrect terminal!
- iii) All factory and field wiring shall be kept out of direct sunlight.
- iv) Conductors shall be meggered for insulation integrity and verified with a continuity check (aka: "ringing out your conductors") to identify proper phase/polarity and conductor to/from location.
- v) Conductors shall be routed in a clean, neat, and organized manner.
- vi) Conductor insulation shall not be chafed, gouged, slit, or pinched.
- vii) Conductors shall be pulled into conduit or throughout array (free-air conductors) from their wire spools. subcontractors shall ensure conductors are not stepped on, dragged over asphalt, dirt, concrete, or any other surface that causes abrasion to the conductor insulation, and that the conductors recommended wire pulling tension is not exceeded.
- viii) Conductors shall be pulled into conduit with pulling lubrication when the conduit run is over 20' long and has more than 180° of bends.
- ix) Conductors shall be run away from any metal or sharp plastic edges/lips, bolt heads/threads, etc., so there is no chance of conductor movement through the conduit during vibration or wind vibration that would cause insulation breach and thereby create a potential future fault condition. This applies during the installation process as well where conductors may be pulled to their locations but

- have not been wire management into their final position.
- x) Conductors should be wire managed so that they are centered in conduit fittings as best as possible. if conductors are heavily pressed up against a conduit fitting edge and cannot be wire managed away from fitting edge, an additional 1/8" thick rubber sheet shall be wrapped around and zip-tied to the conductor to provide additional abrasion protection. A stripped off piece of insulation of the same wire size maybe substituted for the 1/8" sheet rubber.
- xi) All conductors shall be labeled with "to" and "from" numbering labels using vinyl labels from a label maker. Labels must wrap around the conductor and adhere onto the conductor and back onto itself. Installers' hands must be clean of all dirt, debris, grease, oil, etc., or use a clean knife edge in order to ensure proper label adhesion. Labels must be clearly visible and readable.
- xii) Any zip tie used in an exterior application outside or inside equipment for wire management, shall be at minimum a nylon polyamide 66 and be high impact, high strength, and heat and UV stabilized (ex.: Hellermantytton: T120I-PA66HIRHSUV, Part #: 111-12217, 300mm x 7.6mm).
- xiii) If plastic coated stainless steel cable ties (ex. Heyco Sun Bundlers) are need to directly hang/support PV wire, the PV wire shall first be sleeved with black plastic split loom to prevent direct contact.
- xiv) A service loop shall be provided in any pull/junction box.
- xv) The photovoltaic source circuits and photovoltaic output circuits shall not be contained in the same raceway cable tray, cable, outlet box, junction/pull box, or similar fitting as feeders or branch circuits of other systems unless the conductors of the different systems are separated by a partition.
- xvi) For Rooftop Solar with RSD:
- 1) Minimum manufacturer recommendation 12" between DC conduit of each RSS transmitter.
  - 2) Minimum manufacturer recommendation of 20" between inverter wireboxes with integrated RSS transmitter.
  - 3) "Minimum of 1 twist per tray PV+/- pairs, do not strain the wire." Place PV+/- pair in the same cable tray. Avoid separating the pairs into + and - bundles.

b. Direct Burial Conductors

- i) Conductors must be rated for direct burial and wet conditions.
- ii) Material submittals must be approved prior to procurement.
- iii) Depth of trench matches NEC minimum (NEC 300.5) or design depth whichever sets precedence.
- iv) Sieved sand bedding free of clay or organic material (meeting CAL TRANS specifications) shall be placed prior to laying conductors directly in trench and shall be placed over conductors to design coverage depth.
- 1) No. 4 sieve size with 90-100 percentage passing
  - 2) No. 200 sieve size with 0-5 percentage passing
- v) Traceable/detectable line/tape shall be installed above conductors 12" below grade in all trenches throughout entire run.
- vi) Backfill material shall not be clean nor contain any substance that may cause conductor damage.
- vii) Backfill material shall be completed in proper lifts (no more than 6" per lift) and has been compacted to 90% or design requirements whichever sets precedence.
- viii) Any direct burial conductors crossing a roadway shall be sleeved in schd 80 conduit at minimum extending at least 36" past the roadway edges.
- ix) Direct bury cable splicing is prohibited.
- x) Leave an "S" loop at the end of the trench to allow for earth movement. the "S" loop shall be made so that if pulled straight the conductor would be at least 36" longer.

c. PV Source Circuit (Aka: "String") Homerun And Jumper Conductors

- i) **PV Source Circuit (String)** - modules to module connections and conductors connected to the first dc common connection point (typically a string combiner box or string inverter).
- ii) PV conductors shall be rated as UV resistant PV wire.
- iii) Homerun locations should be visibly and cleanly marked at the module rail or purlin for serviceability with red permanent paint pen.
- 1) Marking shall include inverter #, string combiner box # (if applicable), and string #.
  - 2) Example 1: inverter 1, string combiner box 3, string 12, positive homerun = "1.3.12+".
  - 3) Example 2: inverter 1, string 12, positive homerun = "1.12+".
  - 4) Example 3: inverter 2, string 8, negative homerun = "2.8-".
- iv) Red-lines should be generated if any homerun location deviates from IFC drawings or if drawings do not have a string layout.
- v) Conductors shall not be chafed or pinched.
- 1) Noted: module and string homerun conductors can accidentally be pinched between module frame and racking structure. This condition creates or lead to a ground fault condition.
- vi) Conductors shall have zero exposure to UV, except at module gaps and array expansion joints less than 4" (measure module edge to module edge). Any conductor routed where exposed to UV shall be protected in a conduit chase that extends under cover so conductors are not exposed to UV from at least 7am to 7pm. Outdoor and UV rated corrugated split wire loom maybe used to cover/sleeve DC free-air conductors when conductors are not able to be installed within a standard conduit chase. An RFI must be submitted and approved to request the use of this product.
- vii) Module lead and string homerun wiring shall not transition from row to row on the outside edge of the array (east/west edges for traditional south facing arrays) so there is no chance of direct sunlight exposure. They should transition from row to row at least one module width in from the edge.
- viii) All conductors shall be run straight or at 90 degree angles with proper bends (minimum bending radii for conductor size) and roll out of rails/purlins or conduit in a workmanship-like manner.
- 1) Note: free-air routed conductors should be installed similar to how conduit is installed with 90s, kicks, offsets, saddles, etc., or combination thereof.
- ix) Conductors shall enter JBX/PBX/enclosures in a water-tight manner with drip loops installed. Drip loops should be kept to less than 6" in diameter in order maintain the first securing means to be within 12" of the enclosure.
- x) All string homerun conductors have been run using color insulated conductors and polarities verified with continuity and open circuit voltage testing using a 1000vDC rated CAT IV digital multi-meter (DMM).
- xi) All conductor supports are appropriate for the environmental conditions (i.e.: stainless steel wire clips, PVC coated j-hook, high quality UV-rated black zip ties).
- xii) PVC coated j-hooks when used shall be "rolled" up to "entrap" conductors.
- xiii) The correct support/strap/clip shall be used to support free-air conductors on ground and canopy mount structures with no more than 4.5' between supports for conductors runs of 5' or greater. For runs less than 5' or where conductors turn or jump out of rails/purlins/beams, conductors shall be supported and more frequent intervals, -12"-18".
- xiv) Conductors shall be routed and supported on the side of rails with the least amount of metal edge or hardware crossings to eliminate possible conductor insulation wear. If not possible conductors must be routed firmly secured at least

- 1.5" from metal edge, or bolt head/threads.
- xv) Conductors routed along rails on roofs shall be supported at least every 18"-24" to ensure that no conductor is sagging and visible from looking up at the plane of array.
- xvi) Conductors and grounds when ran perpendicular to rails on flush roof mount systems, shall be routed up and over rails.
- xvii) Conductors shall be kept at least 3-1/2" above roof/canopy decks unless design specifies otherwise.
- d. **PV Source Circuits (Module To Module Connections) And Jumpers**
- i) PV module leads and PV source circuit conductors shall be rated as UV resistant PV wire.
- ii) Modules shall never be stored in a location where module lead connectors are subject to water or dirt/mud immersion as internal metal pins will corrode.
- iii) The correct number of modules shall be connected to form the correct number of strings and voltage for strings as per design.
- 1) Note: some sites may have different number of modules connected together, verify on the single line diagram details.
- iv) The correct module brand and size (watt class) shall be connected together as per design.
- 1) Note: some sites have multiple brands and size modules and will affect system safety & production output if incorrectly connected.
- v) Module to module connectors are connected as per manufacturer's instructions (typically: "clicked" and sometimes "clicked and twisted" required).
- vi) Module connectors shall not be ran in any location subject to direct sunlight or rain (e.g.: do not install connector in between module gaps).
- vii) Module connectors are not to be installed in location subject to immersion or where water is free flowing towards connection point. They are not to be installed in the bottom flange of a purlin for a ground or canopy mount structure. If a connector is needed in a run of conductors in the bottom flange of a purlin/rail, the connector must be lifted and secured on both sides of the connector, in order to elevate the connector out of the purlin/rail.
- viii) Ground and roof mount: all module leads run so that they are not visible from looking eye level at the plane of the array from the low side of the array.
- ix) Carport mount: all module leads shall be run in a neat and uniform manner for visual aesthetics.
- x) All module leads are run straight or at 90 degree angles with proper bends (minimum bending radii for conductor size) and roll out of rails/purlins or conduit in a workmanship-like manner.
- 1) Note: free-air routed conductors should be installed similar to how conduit is installed with 90s, kicks, offsets, saddles, etc. Or combination thereof.
- xi) All module lead supports shall be appropriate for the environmental conditions (i.e.: stainless steel wire clips, PVC coated j-hook, or high quality high impact/strength, UV & heat stabilized rated black zip ties).
- xii) Module leads shall be secured up and supported inside the module frames whenever possible.
- xiii) Where a string has to be connected via a jumper wire (jumper = a circuit extension because a string of modules is physically broken up and cannot be connected continuously via the module to module leads), the jumper wire shall be marked with a 4-wrap band of blue phase tape at each end within 6" of connector, so that it is visibly denoted as a circuit jumper.
- e. **PV Source Circuit Homerun And Jumper Connectors**
- i) Polarity is determined from the PV source.
- ii) The correct polarity connector shall be installed on the DC string circuit conductors.
- 1) Example: a positive connector shall be installed on the string homerun conductor that is to be plugged into the negative string homerun module lead connector.
  - 2) Warning: if the wrong polarity connectors are connected to the opposite polarity wire Subcontractor risks personnel accidentally plugging opposite polarity conductor, thereby creating a short circuit.
- iii) Connectors, connector crimp pins, and crimps shall be compatible with module lead connectors.
- iv) Proper crimp tool shall be used for connector crimp pin provided.
- v) Crimp tool and crimps shall be correct for conductor diameter and crimp tool stops shall be set properly.
- vi) Insulation shall be stripped back to proper length (not over or under stripped).
- vii) Metal crimp pins shall not be crimped over insulation.
- viii) Connector gland nuts shall be properly torqued using proper tools.
- ix) Ends of string homerun connectors shall be taped to string module lead connector until ready to plug in and test to reduce accidentally energization at SCB/INV, and to help prevent moisture and debris intrusion.
- x) Module connectors are not be installed in location subject to immersion or where water is free flowing towards connection point. They are not to be installed in the bottom flange of a purlin for a ground or canopy mount structure. If a connector is needed in a run of conductors in the bottom flange of a purlin/rail, the connector must be lifted up and secured on both sides of the connector, in order to elevate the connector out of the purlin/rail.
- f. **DC And AC Feeders**
- i) PV output, inverter input, and inverter output conductors from the inverter through to the point of connection typically make up the DC and AC feeder conductors.
- ii) Point of connection conductors (each conductor) that are connecting via a line-side tap (Utility side) on the main breaker of the facilities main switchboard/gear shall be installed in an individual sleeve of non-metallic flexible conduit (e.g.: Seal-tight) when passing through the distribution side (Customer side) of the main switchboard/gear so that Utility/Customer power separation is maintained and there is additional protection for personnel from these conductors when the facilities main breaker is shutdown.

g. Monitoring (aka: DAS = Data Acquisition System) Equipment Conductors And Cables

- i) Proper size, type, color, and rating of wire shall be verified prior to installation.
- ii) Conductors/cables shall be verified for "shielding" requirements.
- iii) Communication cables shall be routed away from power conductors in separate raceway unless separated by a barrier.
- iv) Conductors/cables shall not be chafed or pinched.
- v) Conductors/cables shall be identified with "to" and "from" labeling.
- vi) Weather sensor cabling shall be routed out of direct sunlight. They should be routed along the north side of masts, equipment, and be sleeved in conduit or black plastic split loom.
- h. **Non-PV Power & Lighting Conductors**
- vi) Proper size, type, color, and rating of wire shall be used and verified prior to installation.
- ii) Only color insulated conductors shall be used according to the conductor color standard provided in the IFC drawings.
- iii) Circuits shall be identified by labels.

9. Electrical - Wiring Termination

- a. Conductor
- i) Test loops or saddles shall be made in conductors prior to termination, to provide

- easy access for current clamp test meter reading. Conductors should not have to be manipulated to get a test clamp around the conductor. Each test loop or saddle shall be labeled with the circuit number in the center of the loop/saddle for quick reference.
- ii) When removing insulation from the conductor, a suitable stripping tool shall be used to avoid "nicking" or "ringing" the conductor.
- iii) All conductor strands shall be terminated in the wiring terminal.
- iv) All conductors shall be landed in the correct phase/polarity terminals, in the proper **line** and **load** side terminations, torqued correctly with no insulation under terminal screw/clamp, and terminated with anti-corrosion lubricant (NOA-LOX) around all bare strands in contact with termination lug.
- v) Incoming electrical utility supply phase rotation shall be identified to maintain inverter required phase rotation. Conductors shall be terminated throughout the system to maintain the correct phase rotation. Clockwise (CW) rotation = Phase **A-B-C**, Counter-Clockwise (CCW) rotation = Phase **C-A-B**, unless denoted elsewhere.
- vi) All terminated conductors shall be pull tested to ensure there are no loose connections.
- vii) All field and factory lugs, bolts, bussing, termination points shall be torqued and marked.
- viii) A Point of Connection (POC) Supply Side Connection for the PV system shall not be installed unless an approved detail has been provided to the Subcontractor for use prior to installation.
- ix) All bussing required to be added for a POC tie-in shall be designed, sized, and installed in accordance with UL standards for field modified switchboard/gears.
- x) POC tie-in conductors and Central Inverter conductors shall be terminated using crimped compression terminal lugs manufactured by ILSCO, Burndy, or equivalent. The terminal lug and crimp die shall have identification or color coding to match the conductor size. Wherever possible the terminal lugs shall have long barrels to provide 2 crimps per terminal lug per conductor, and shall be 2-hole.
- xi) Equipment enclosure shall be clean and free of debris with all entries sealed.
- b. **Splicing**
- i) There shall be no underground splicing of conductors unless approved via a RFI by REC Solar.
- ii) Any underground splice that is approved, shall be spliced with an underground and submersible rated, insulated splice. Splice material and installation specifications shall be part of the approved RFI.
- iii) Splice connectors mounted in an underground junction box shall be "free-floating" and not touch the walls, lid, or ground of the underground box and be so secured that if conductors experience thermal movement, conductors won't come in contact with the walls, lid, or ground.
- iv) Any approved underground splice must be made in an underground box.
- v) Splicing in conductors above ground shall be limited as much as possible and approval must be sought through an RFI if additional splicing is necessary beyond what has been allowed by design.
- vi) String conductors shall be run from the module string homerun location to the first equipment disconnecting means without splicing. If a splice is necessary, then they shall be spliced with the same type of connector that is on the module leads.
- vii) Conductors that are spliced in wire nuts (where allowed) installed in outdoor NEMA 3R junction boxes/equipment, shall be installed with anti-corrosion lubricant (NOA-LOX), be lug tested, taped with electrical tape, show visual representation that conductors have been twisted, and face vertically up in a "bouquet" style arrangement up off of the bottom of the junction box/equipment.
- viii) The use of wire nuts for splicing is allowed only for monitoring power circuits (this does not include the data signal circuits), and non-PV power (convenience) & lighting circuits.
- ix) Conductors that are spliced in insulated connector (i.e.: Polaris connectors) shall not be forcefully installed into the connector lug, so as to not put stress and potentially puncture the insulation from the inside.
- x) All splice connectors shall be so arranged that the splice connectors are "free-floating", and do not touch the sides, top, bottom, back, or front walls/covers of any enclosure or box.




c. Aluminum Conductor Terminations

- i) Aluminum conductors shall only be terminated using compression lugs that are UL listed and dual rated for aluminum & copper conductors (AL7CU OR AL9CU).
- ii) Aluminum conductors shall be sized for the correct aluminum ampacity charts specified in the NEC.
- iii) When removing insulation from the conductor, a suitable stripping tool shall be used to avoid "nicking" or "ringing" the conductor.
- iv) Just before making a termination, wire brush the conductor to remove oxidation, and immediately apply a listed anti-corrosion lubricant (NOA-LOX).
- v) Tighten the connection per the connector manufacturer's recommendation torque settings.
- d. **Grounding Terminations**
- i) All ground lug mounting hardware and lug set screws shall be torqued and marked to the manufacturer's torque specifications.
- ii) If ground lugs are to be installed to module frames, the anodized paint coated shall not be removed. Follow manufacturer's instructions for this application.
- iii) If ground lugs are to be installed in equipment with a paint coating, the paint coating shall be removed only at the point of contact of the lug. An anti-corrosive compound (i.e.: NOA-LOX) shall be applied between the lug and the enclosure prior to lug installation, and be applied over any accidentally exposed bare steel.
- iv) The free end of a terminated ground wire should not pose a cut hazard depending on the location of termination. Example:
- 1) The cut end of the ground wire terminated into a ground bus bar in a panelboard shall not be installed more than a ¼" past the grounding bar termination.
  - 2) The cut end of the ground wire terminated to a ground lug on a canopy column where the public is exposed to this lug, shall be trimmed flush with the top of the lug port, or the wire ran long enough to hook back onto itself so no sharp edge is exposed. This hook should not be taller than 1".

e. Monitoring (aka: DAS = Data Acquisition System) Equipment Conductor Terminations

- i) All conductors have been landed in the correct phase/polarity terminals, proper **line** and **load** side terminations, torqued correctly with no loose stands or insulation under terminal.
- ii) Network plug shall be made up correctly with the correct colored pair landed in the correct plug location.
- iii) RJ45 connections have been tested to ensure good communication from end to end.
- iv) All monitoring circuits shall be spliced inside the correct NEMA rated enclosure.
- v) Data communications circuits (signaling conductors) shall only be spliced with gel-filled Ideal Industries IDC 3-wire red butt splice jellybean connectors or equivalent.
- f. **Non-PV Power & Lighting Terminations**
- i) All conductors have been landed in the correct phase/polarity terminals, proper **line** and **load** side terminations, and torqued correctly with no loose stands or insulation under terminal screw/clamp.
- ii) All factory lugs, bolts, bussing, termination points have been verified torqued.

Exhibit C Attachment 2

		
CONTRACTOR		
CA - B C10 #990001		
<b>REC SOLAR</b>		
3450 BROAD ST, SUITE 105 SAN LUIS OBISPO, CA 93401 PH (805) 477-3970 FX (805) 548-8661 (844) REC SOLAR		
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ENGINEER		
		
		
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OWNER		
<b>FIRESTONE WALKER BREWERY</b>		
1400 RAMADA DRIVE PASO ROBLES, CA 93446		
PROJECT LOCATION		
<b>FIRESTONE WALKER BREWERY TRACKER - PHASE 2</b>		
1400 RAMADA DRIVE PASO ROBLES, CA 93446		
APN: 009-633-018		
0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
DATE	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	
<b>IFP DESIGN</b>		
SHEET TITLE		
QUALITY CONTROL NOTES		
SHEET NUMBER		
<b>G203</b>		



CONTRACTOR  
CA - B C10 #990001

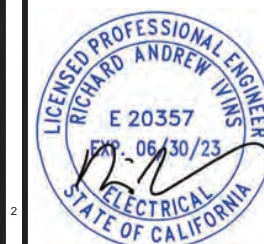
**REC SOLAR**

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(844) REC SOLAR

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**PUREPOWER**  
ENGINEERING



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OWNER

**FIRESTONE WALKER  
BREWERY**

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

**FIRESTONE WALKER  
BREWERY**

3 TRACKER - PHASE 2  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

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PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

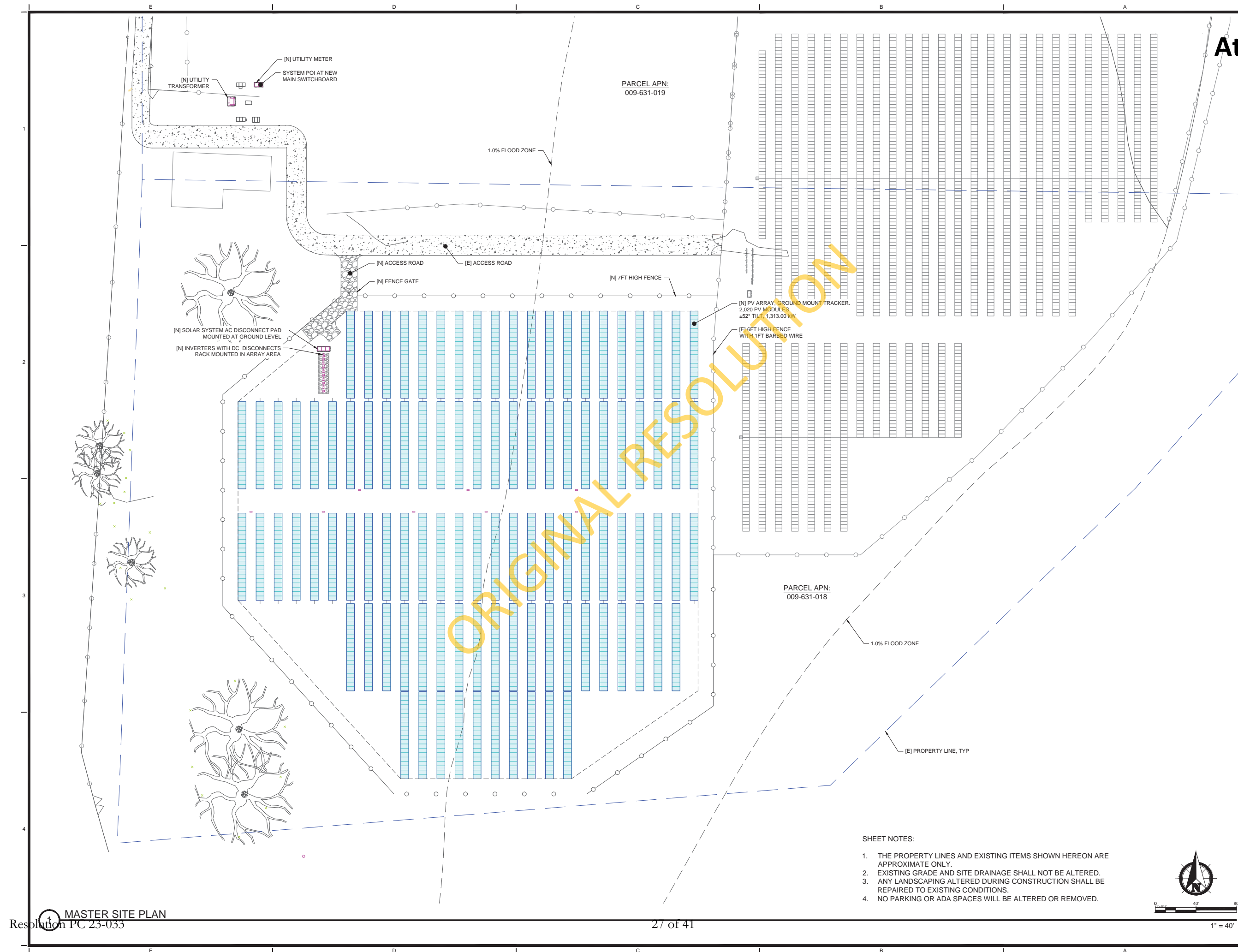
## IFP DESIGN

SHEET TITLE

MASTER SITE PLAN

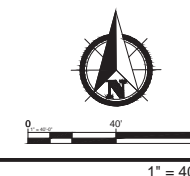
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**G301**



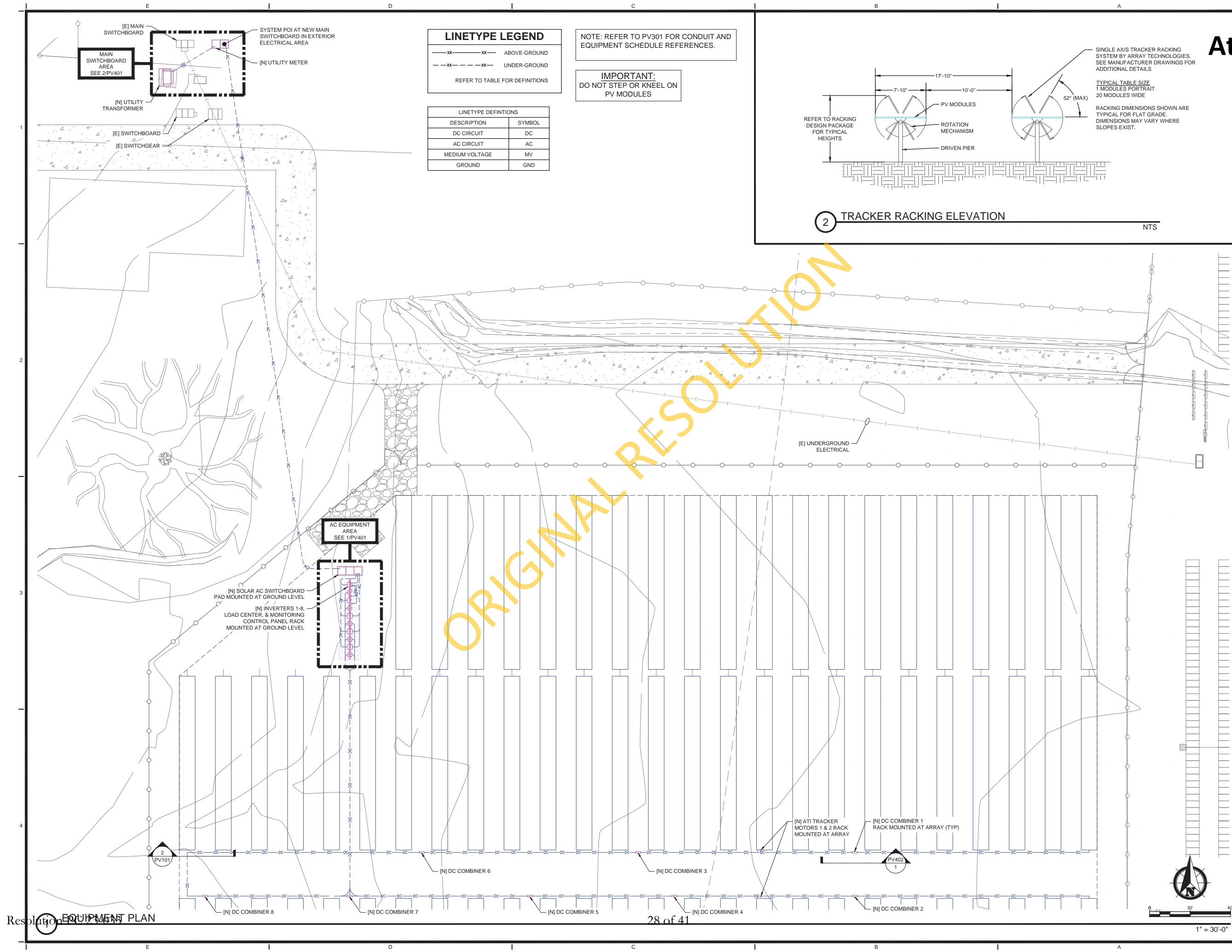
SHEET NOTES:

1. THE PROPERTY LINES AND EXISTING ITEMS SHOWN HEREON ARE APPROXIMATE ONLY.
2. EXISTING GRADE AND SITE DRAINAGE SHALL NOT BE ALTERED.
3. ANY LANDSCAPING ALTERED DURING CONSTRUCTION SHALL BE REPAIRED TO EXISTING CONDITIONS.
4. NO PARKING OR ADA SPACES WILL BE ALTERED OR REMOVED.



Resolution 1 MASTER SITE PLAN





**LINETYPE LEGEND**

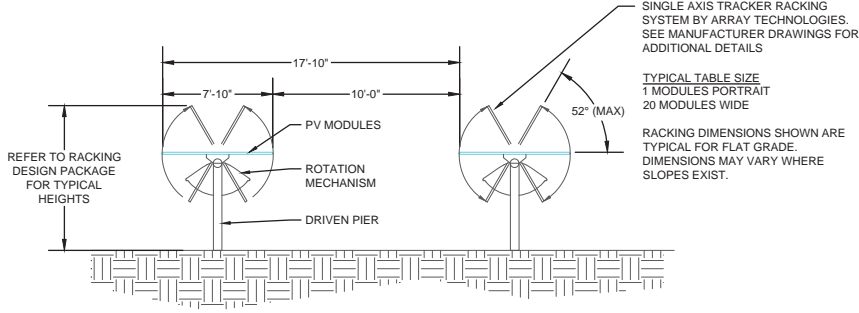
—xx—xx— ABOVE-GROUND  
- - -xx- - - UNDER-GROUND

REFER TO TABLE FOR DEFINITIONS

LINETYPE DEFINITIONS	
DESCRIPTION	SYMBOL
DC CIRCUIT	DC
AC CIRCUIT	AC
MEDIUM VOLTAGE	MV
GROUND	GND

NOTE: REFER TO PV301 FOR CONDUIT AND EQUIPMENT SCHEDULE REFERENCES.

IMPORTANT:  
DO NOT STEP OR KNEEL ON PV MODULES



2 TRACKER RACKING ELEVATION NTS

**REC SOLAR**  
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**PUREPOWER ENGINEERING**

**LICENSED PROFESSIONAL ENGINEER**  
RICHARD ANDREW IVINS  
E 20357  
EXP. 06/30/23  
STATE OF CALIFORNIA

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**FIRESTONE WALKER BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

**FIRESTONE WALKER BREWERY TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

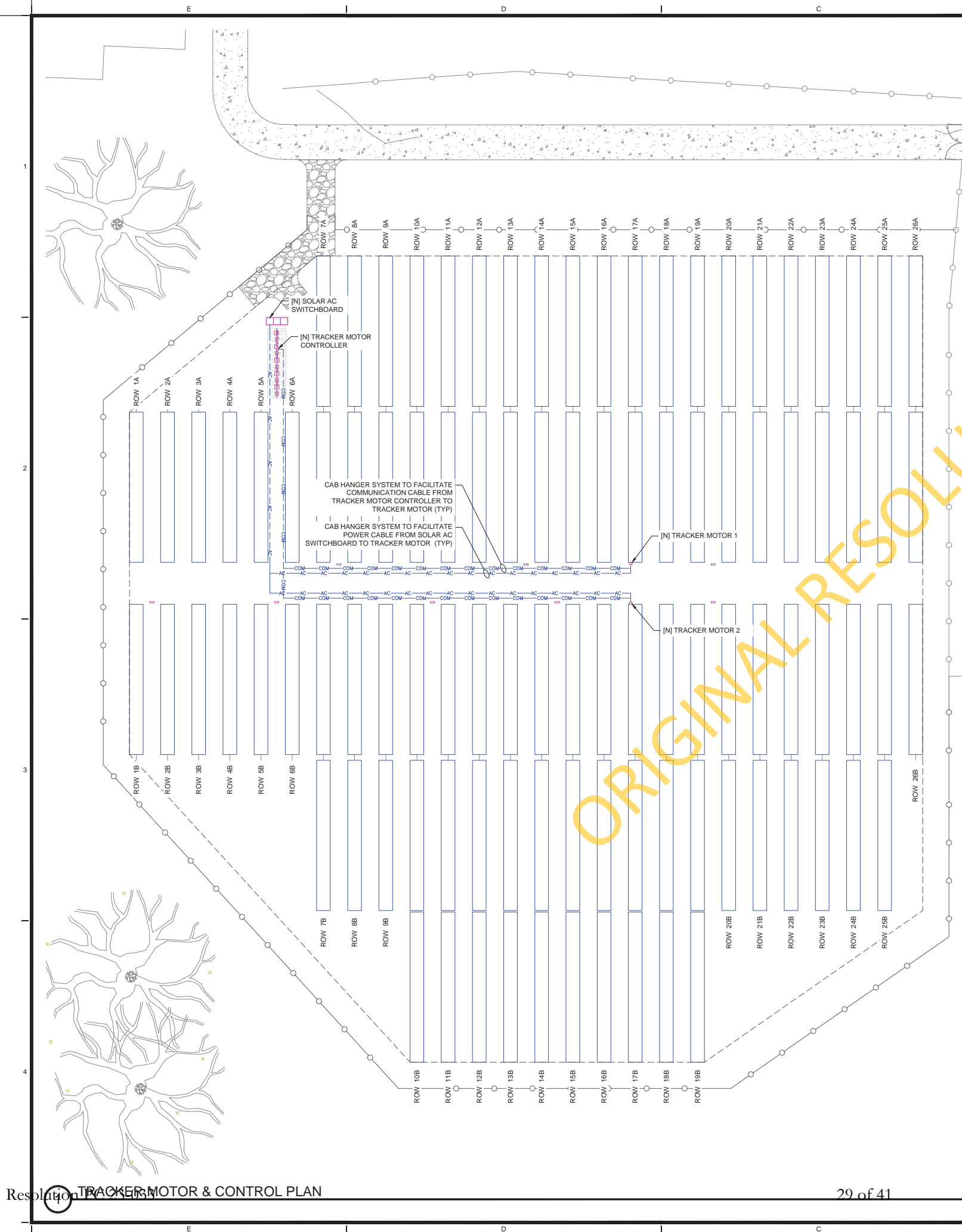
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**IFP DESIGN**

SHEET TITLE  
EQUIPMENT PLAN

SHEET NUMBER  
PV101

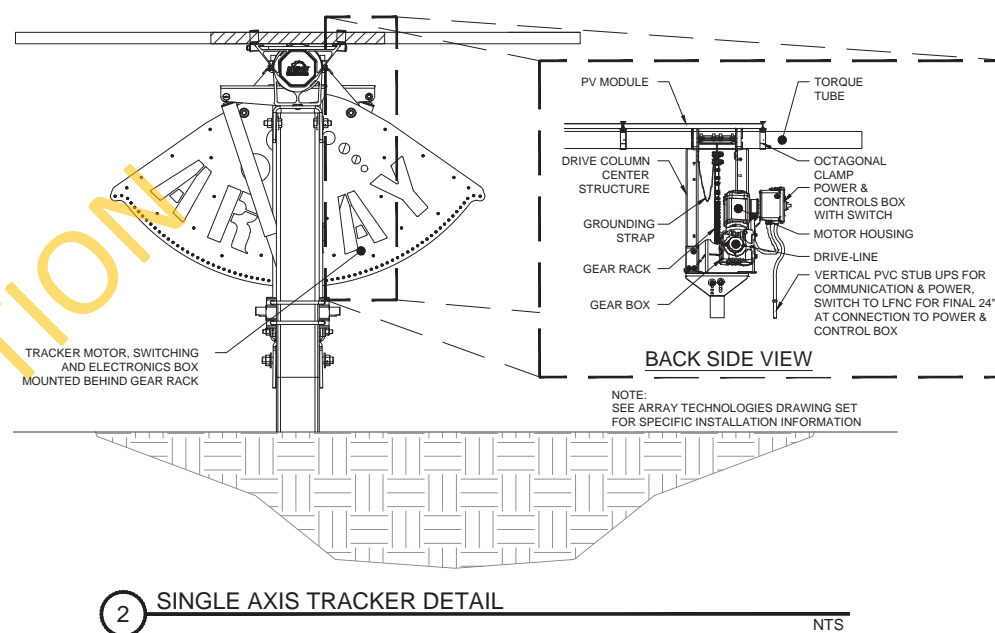




TRACKER MOTOR	POWER SOURCE	CONTROLLER & POWER	ROWS CONTROLLED
1	480V POWER FROM SOLAR AC SWITCHBOARD	TRACKER MOTOR CONTROLLER	1A THRU 26A
2		277V POWER FROM SOLAR AC SWITCHBOARD	1B THRU 26B

LINETYPE LEGEND	
— XX — XX —	ABOVE-GROUND
- - - XX - - - XX - - -	UNDER-GROUND
REFER TO TABLE FOR DEFINITIONS	

LINETYPE DEFINITIONS	
DESCRIPTION	SYMBOL
COMMUNICATION CIRCUIT	COM
AC CIRCUIT	AC



## Resolution TRACKER MOTOR & CONTROL PLAN

[illegible]



CONTRACTOR  
CA - B C10 #990001

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SAN LUIS OBISPO, CA 93401  
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OWNER

**FIRESTONE WALKER BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION  
**FIRESTONE WALKER BREWERY TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

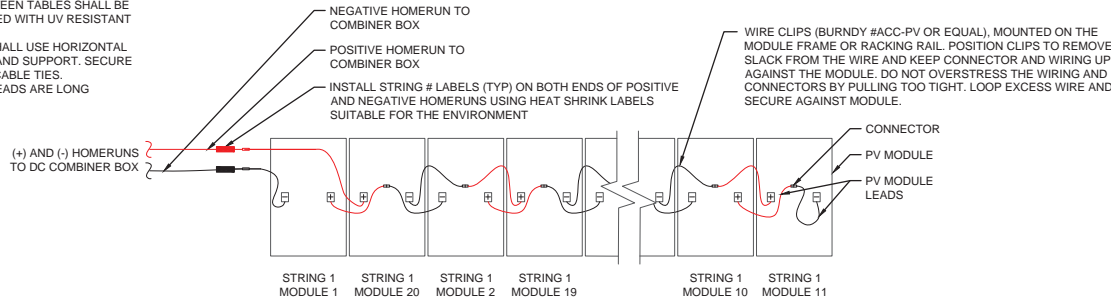
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**IFP DESIGN**

SHEET TITLE  
RACEWAY PLAN  
DC STRING WIRING

SHEET NUMBER  
**PV201**

- NOTES:
- CONDUCTORS TRANSITIONING BETWEEN TABLES SHALL BE PROPERLY SECURED AND PROTECTED WITH UV RESISTANT SPLIT LOOM OR SPIRAL WRAP.
  - STRING HOME RUN CONDUCTORS SHALL USE HORIZONTAL PURLINS FOR CABLE MANAGEMENT AND SUPPORT. SECURE CONDUCTORS WITH UV RESISTANT CABLE TIES.
  - CONTRACTOR TO VERIFY MODULE LEADS ARE LONG ENOUGH FOR SKIP-STRINGING.



CONDUIT FILL TABLE (PVWIRE, 2000VDC MAX)		
MAXIMUM NUMBER OF CU #8 PV WIRES. (WITH ALLOWANCE FOR AN ADDITIONAL GROUND WIRE)		
CONDUIT TRADE SIZE	CONDUIT LENGTH 24" OR LESS (60% FILL)	CONDUIT LENGTH OVER 24" (40% FILL)
3/4"	2	1
1"	5	3
1.25"	9	6
1.5"	13	8
2"	22	9
2.5"	31	9
3"	49	9
3.5"	67	9
4"	87	9

TABLE ASSUMING: CONDUIT AND CU #8 PV WIRE WITH 0.31in O.D., 0.91 TEMP. DERATE  
PV SOURCE CIRCUIT (SIMULATED) WITH 24.36A OUTPUT, 1 IN PARALLEL, AND 35A FUSES

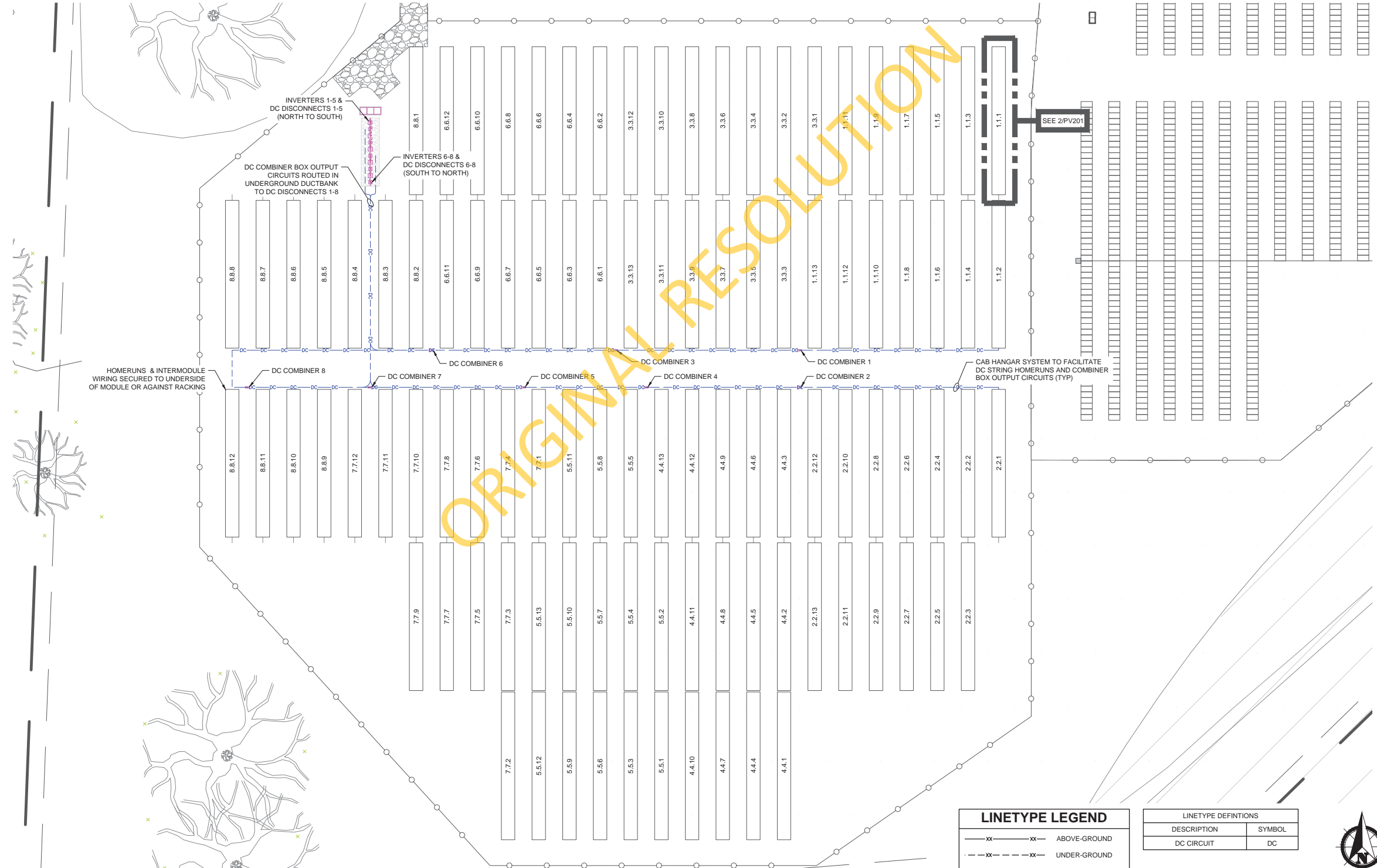
**IMPORTANT**  
CONTRACTOR MUST REDLINE  
DRAWINGS TO REFLECT EXACT  
AS-BUILT STRINGING AND RETURN TO  
PURE POWER.

**STRING LABEL KEY**

2.2.3  
— STRING #  
— COMBINER #  
— INVERTER #

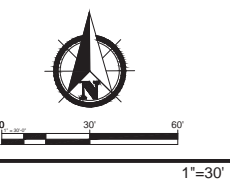
2 FULL ROW INTERMODULE WIRING DETAIL

NTS



LINETYPE LEGEND	
—xx—	ABOVE-GROUND
- - -xx- - -	UNDER-GROUND
REFER TO TABLE FOR DEFINITIONS	

LINETYPE DEFINITIONS	
DESCRIPTION	SYMBOL
DC CIRCUIT	DC

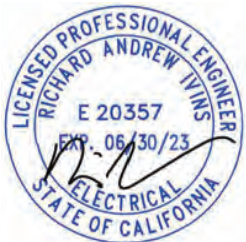




CONTRACTOR  
CA - B C10 #990001

**REC SOLAR**  
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OWNER

**FIRESTONE WALKER  
BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

**FIRESTONE WALKER  
BREWERY  
TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018


0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION

DATE 11/22/2022

PROJECT NUMBER	
PROJECT MANAGER	DAVID OTT
PROJECT ENGINEER	TONY STRADER

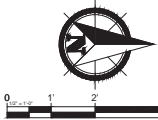
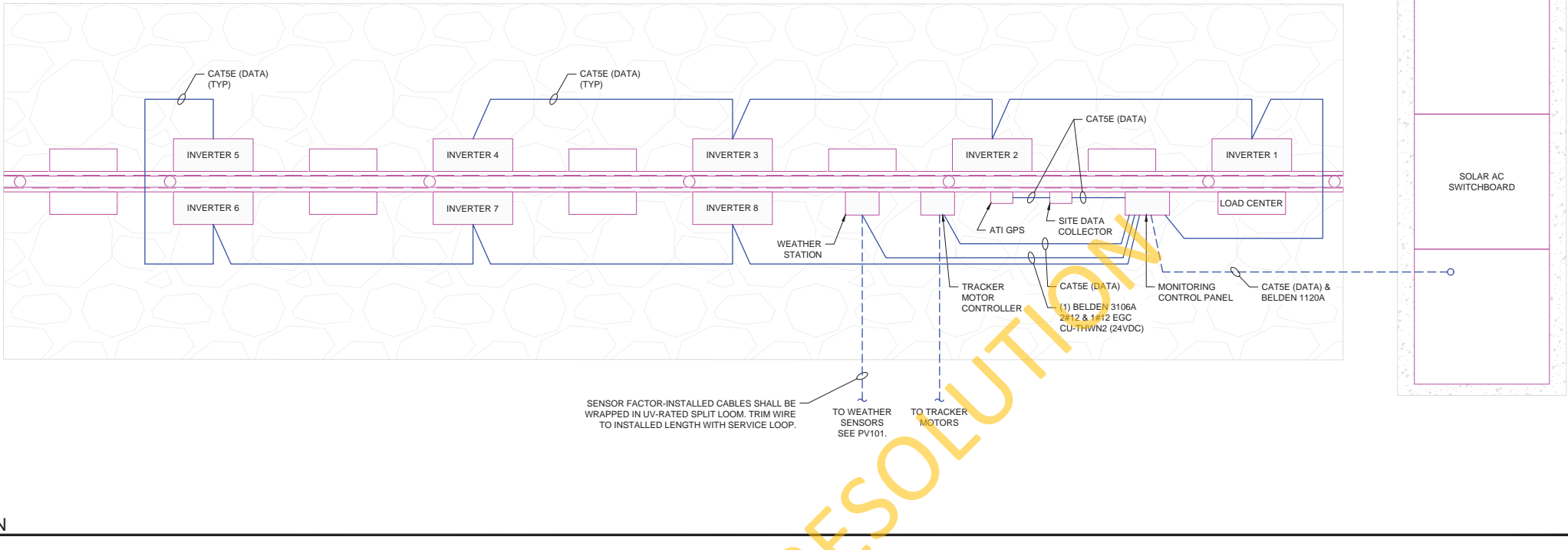
## IFP DESIGN

SHEET TITLE

MONITORING PLAN

SHEET NUMBER

**PV210**



## 1 MONITORING PLAN

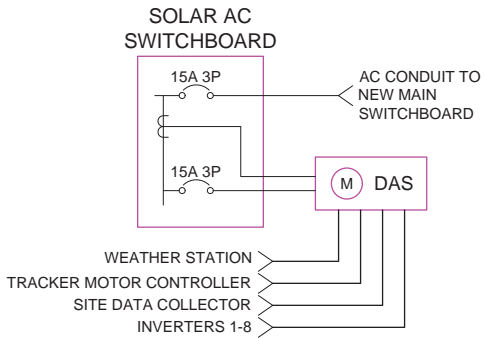
### SHEET NOTES:

- LAST INVERTER OF DAISY CHAIN, SET 120Ω RS-485 TERMINATION DIP SWITCH TO ON.
- CONDUIT - ONLY BOTTOM PENETRATIONS ALLOWED IN DAS ENCLOSURES. EXCEPTION MAY BE GRANTED VIA RFI IN PROCORE BY AN REC SOLAR QUALITY EMPLOYEE.
- CT'S - VERIS AND MAGNALAB SOLID CORE 0.333VAC, ARROW POINTS TO INVERTERS. FACTORY LENGTH IS 8 FEET. AVOID EXTENDING PV CT'S, MOUNT DAS ENCLOSURE CLOSE TO CT LOCATION.
- RS485 - BELDEN 3106 A RS485 CABLE. DRAIN SHIELD AT DAS ENCLOSURE, FLOAT/CONNECT SHIELDS TOGETHER IN INVERTERS AND WRAP WITH ELECTRICAL TAPE SO NO ELECTRICAL CONTACT CAN BE MADE.
- 24V POWER (24VDC) USE BELDEN 1120A. DRAIN SHIELD AT DAS ENCLOSURE.
- ABOVE GROUND COMMUNICATION CABLE MINIMUM SEPARATION WITH AC POWER CABLES: 12" FOR PVC CONDUITS.
- IRRADIANCE SENSOR SHALL BE INSTALLED IN LOCATION WITH NO POSSIBILITY OF SHADING .
- MOUNT DAS ENCLOSURE TO MINIMIZE SUN EXPOSURE. IF DAS ENCLOSURE MUST BE MOUNTED WITH MAJOR SUN EXPOSURE, THEN PROVIDE A SUN SHIELD.
- POWER DAS VIA 15A/3P BREAKER IN PV SUBPANEL. RUN 12AWG MINIMUM WITH NEUTRAL AND GROUND. WIRE/VERIFY 12AWG JUMPER IN DAS IS INSTALLED PER SPECIFICATION, VARIES DEPENDING ON SERVICE VOLTAGE.

FIRESTONE WALKER BREWERY - TRACKER	INTERNAL COMPONENTS		EXTERNAL COMPONENTS		QTY		
	VERIS METER		SMALL ENCLOSURE		4		
	DATA LOGGER						
	ETHERNET SWITCH 2X 8-PORT						
	SMA DATA MANAGER						
	CELL MODEM						
	DAS-1 RS485 CONNECTIONS						
	RS 485 PORT		DEVICE	TERMINAL	DEVICES		MODBUS ID
	DATA LOGGER_P1		METER (MODBUS ID 101)		SMP10 (POA) & SMP10 (GHI)		
	DATALOGGER_P2		ENC FLEXOM INPUT (3PIN)		IMT (BOM) & IMT (AMBIENT)		
		ENC FLEXOM INPUT (SPIN)	X2	INVERTERS		1-8	

DEVICE	STANDARD TCP/IP ADDRESSING	DEVICE ID	NOTES
SMA INVERTERS	192.168.1.101...179	3...	INVERTER #2, OR LAST OCTET -98
SMA DATA MANAGER	192.168.1.100	1, 2	50X SMA INVERTERS MAX TO EACH 1X DATA MANAGER
ATI TRACKER - SITE CONTROLLER 4X AND 6X MOTOR CONTROLLER	192.168.1.50 192.168.1.51, 52, 53 ETC.	1	
CELLULAR MODEM	192.168.1.1	N/A	DHCP RANGE 192.168.1.200...250 MASK 255.255.255.0
MODBUS GATEWAY	192.168.1.3,4,5	1	SEVERAL GATEWAYS ALLOWED: MESR 901, 902T MOXA NPORT ICP DAS I/O DEVICE (TYPICAL ON SOLAR MV TRANSFORMER)

DEVICE	DESS PN	ADDRESS	IF QTY > 1
METER, VERIS ES1C2	GPM-MTR-ES1C2-RTU-STD	101	PRIOR ES1C2 ADDRESS +1
PYRANOMETER, SMP FAMILY (POA OR GHI) SMP 10 - CLASS A	GPM-MET-SMP10-PYRA	241	PRIOR SMP ADDRESS + 1
BACK OF MODULE TEMPERATURE SENSOR	IMT PART NUMBER: TM-RS485-MB	131	131 FOR BOM IMT

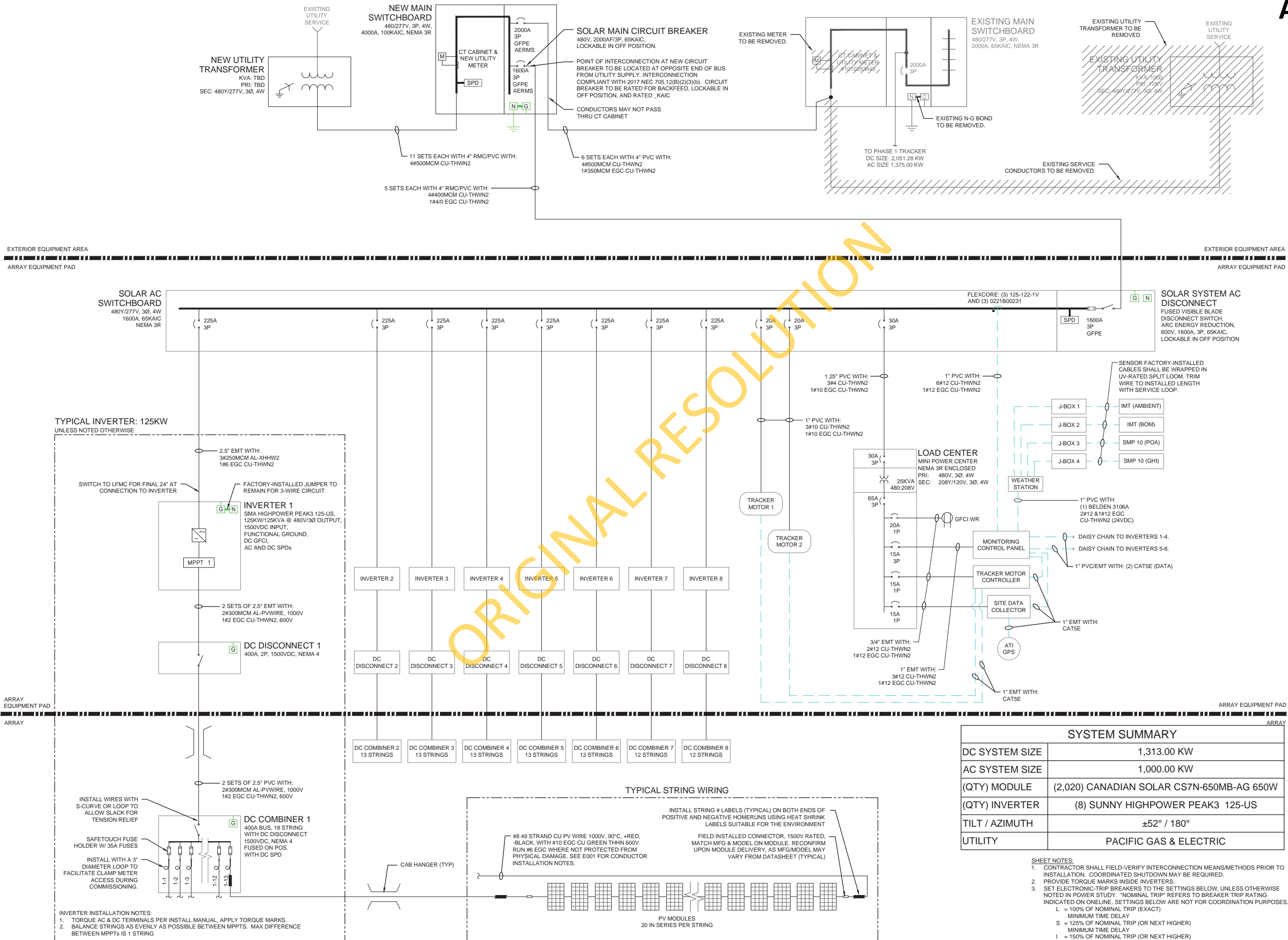


## 2 MONITORING DIAGRAM OVERVIEW

NTS



## Exhibit C



CONTRACTOR  
CA - B C10 #990001

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ENGINEER

**PUREPOWER**  
ENGINEERING



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.

OWNER \_\_\_\_\_

**FIRESTONE WALKER  
BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

**FIRESTONE WALKER  
BREWERY  
TRACKER - PHASE 2**

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
	DATE	11/22/2022
PROJECT NUMBER		
PROJECT MANAGER		DAVID OTT
PROJECT ENGINEER		TONY STRADER

## IFP DESIGN

SHEET TITLE

SINGLE LINE  
DIAGRAM

SHEET NUMBER

**PV301**

AC CIRCUIT CALCULATIONS																	
EQUIPMENT SUPPLIED	FED FROM	VOLTAGE	FULL LOAD AMPS "FLA"	FLA x 1.25	OCPD SIZE [A]	GROUND SIZE	CONDUCTORS PER PHASE	PHASE CONDUCTOR SIZE	NEUTRAL CONDUCTOR SIZE	75" AMPACITY	90" AMPACITY	90" AMPACITY WITH C.O.U.	C.O.U DERATE AMBIENT TEMP	C.O.U. DERATE CONDUIT FILL	FEEDER LENGTH (FEET)	SEGMENT VOLTAGE DROP AT FLA	TOTAL VOLTAGE DROP AT FLA
NEW MAIN SWITCHBOARD	NEW UTILITY TRANSFORMER	480	2798.9	3499	4000		11	CU 500MCM	CU 500MCM	4180	4730	4304	0.91	1.00	25	0.07%	0.07%
SOLAR AC SWITCHBOARD	NEW MAIN SWITCHBOARD	480	1208.0	1510	1600	CU #4/0	5	CU 400MCM	CU 400MCM	1675	1900	1729	0.91	1.00	270	0.82%	0.89%
INVERTER 1	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	15	0.07%	0.96%
INVERTER 2	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	20	0.09%	0.98%
INVERTER 3	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	25	0.12%	1.01%
INVERTER 4	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	30	0.14%	1.03%
INVERTER 5	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	35	0.16%	1.05%
INVERTER 6	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	35	0.16%	1.05%
INVERTER 7	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	30	0.14%	1.03%
INVERTER 8	SOLAR AC SWITCHBOARD	480	151.0	189	225	CU #4	1	AL 250MCM	NONE	205	230	209	0.91	1.00	25	0.12%	1.01%
EXISTING MAIN SWITCHBOARD	NEW MAIN SWITCHBOARD	480	1590.9	1989	2000	CU 250MCM	6	CU 400MCM	CU 400MCM	2010	2280	2075	0.91	1.00	99	0.33%	0.40%

AVERAGE AC VOLTAGE  
DROP FROM POI TO  
INVERTERS: 1.02%

DC FEEDER CALCULATIONS - CONDUIT																											
CIRCUIT DESCRIPTION									CONDUCTOR CHECK PER 690.8(B)(1)			CONDUCTOR CHECK PER 690.8(B)(2)				TERMINAL CHECK			OCPD CHECK				VOLTAGE DROP CALCS				
COMBINER BOX	QTY OF STRINGS	OPERATING VOLTAGE Vmp [V]	STRING MAXIMUM CURRENT (SMA SIMULATED Imax) [A]	FEEDER MAX CURRENT (Imax) [A]	CONDUCTORS PER POLE	CONDUCTOR SIZE	GROUND SIZE	OCPD SIZE [A]	90° AMPACITY [A]	FEEDER CONTINUOUS CURRENT (Imax x 1.25)	PASS?	C.O.U DERATE FOR AMBIENT TEMPERATURE	C.O.U. DERATE FOR NUMBER OF CURRENT-CARRYING CONDUCTORS	90° AMPACITY WITH C.O.U. ADJUSTMENT [A]	FEEDER MAX CURRENT (Imax) [A]	PASS?	75° AMPACITY [A]	FEEDER CONTINUOUS CURRENT (Imax x 1.25)	PASS?	90° AMPACITY WITH C.O.U. ADJUSTMENT [A]	75° AMPACITY [A]	MAX ALLOWABLE OCPD [A]	PASS?	STRING OPERATING CURRENT (STRING Imp) [A]	FEEDER OPERATING CURRENT [A]	FEEDER LENGTH ( ONE WAY) [FT]	FEEDER VOLTAGE DROP
CB-1	13	758	24.36	317	2	AL 300MCM	CU #2	500	520	396	PASS	0.91	1	473	317	PASS	460	396	PASS	473	460	500	PASS	17.16	223	360	0.7%
CB-2	13	758	24.36	317	2	AL 300MCM	CU #2	500	520	396	PASS	0.91	1	473	317	PASS	460	396	PASS	473	460	500	PASS	17.16	223	400	0.8%
CB-3	13	758	24.36	317	2	AL 300MCM	CU #2	500	520	396	PASS	0.91	1	473	317	PASS	460	396	PASS	473	460	500	PASS	17.16	223	255	0.5%
CB-4	13	758	24.36	317	2	AL 300MCM	CU #2	500	520	396	PASS	0.91	1	473	317	PASS	460	396	PASS	473	460	500	PASS	17.16	223	310	0.6%
CB-5	13	758	24.36	317	2	AL 300MCM	CU #2	500	520	396	PASS	0.91	1	473	317	PASS	460	396	PASS	473	460	500	PASS	17.16	223	240	0.5%
CB-6	12	758	24.36	292	2	AL 300MCM	CU #2	500	520	365	PASS	0.91	1	473	292	PASS	460	365	PASS	473	460	500	PASS	17.16	206	150	0.3%
CB-7	12	758	24.36	292	2	AL 300MCM	CU #2	500	520	365	PASS	0.91	1	473	292	PASS	460	365	PASS	473	460	500	PASS	17.16	206	135	0.3%
CB-8	12	758	24.36	292	2	AL 300MCM	CU #2	500	520	365	PASS	0.91	1	473	292	PASS	460	365	PASS	473	460	500	PASS	17.16	206	210	0.4%

DC FEEDER CALCULATIONS - CAB																											
CIRCUIT DESCRIPTION									CONDUCTOR CHECK PER 690.8(B)(1)			CONDUCTOR CHECK PER 690.8(B)(2)				TERMINAL CHECK			OCPD CHECK				VOLTAGE DROP CALCS				
COMBINER BOX	QTY OF STRINGS	OPERATING VOLTAGE Vmp [V]	STRING MAXIMUM CURRENT (SMA SIMULATED Imax) [A]	FEEDER MAX CURRENT (Imax) [A]	CONDUCTORS PER POLE	CONDUCTOR SIZE	GROUND SIZE	OCPD SIZE [A]	90" AMPACITY [A]	FEEDER CONTINUOUS CURRENT (Imax x 1.25)	PASS?	C.O.U DERATE FOR AMBIENT TEMPERATURE	C.O.U. DERATE FOR NUMBER OF CURRENT-CARRYING CONDUCTORS	90" AMPACITY WITH C.O.U. ADJUSTMENT [A]	FEEDER MAX CURRENT (Imax) [A]	PASS?	75" AMPACITY [A]	FEEDER CONTINUOUS CURRENT (Imax x 1.25)	PASS?	90" AMPACITY WITH C.O.U. ADJUSTMENT [A]	75" AMPACITY [A]	MAX ALLOWABLE OCPD [A]	PASS?	STRING OPERATING CURRENT (STRING Imp) [A]	FEEDER OPERATING CURRENT [A]	FEEDER LENGTH ( ONE WAY) [FT]	FEEDER VOLTAGE DROP
CB-1	13	758	24.36	317	2	AL 300MCM	CU #2	500	520	396	PASS	1	1	520	317	PASS	460	396	PASS	520	460	500	PASS	17.16	223	360	0.7%
CB-2	13	758	24.36	317	2	AL 300MCM	CU #2	500	656	396	PASS	1	1	656	317	PASS	460	396	PASS	656	460	500	PASS	17.16	223	400	0.8%
CB-3	13	758	24.36	317	2	AL 300MCM	CU #2	500	656	396	PASS	1	1	656	317	PASS	460	396	PASS	656	460	500	PASS	17.16	223	255	0.5%
CB-4	13	758	24.36	317	2	AL 300MCM	CU #2	500	656	396	PASS	1	1	656	317	PASS	460	396	PASS	656	460	500	PASS	17.16	223	310	0.6%
CB-5	13	758	24.36	317	2	AL 300MCM	CU #2	500	656	396	PASS	1	1	656	317	PASS	460	396	PASS	656	460	500	PASS	17.16	223	240	0.5%
CB-6	12	758	24.36	292	2	AL 300MCM	CU #2	500	656	365	PASS	1	1	656	292	PASS	460	365	PASS	656	460	500	PASS	17.16	206	150	0.3%
CB-7	12	758	24.36	292	2	AL 300MCM	CU #2	500	656	365	PASS	1	1	656	292	PASS	460	365	PASS	656	460	500	PASS	17.16	206	135	0.3%
CB-8	12	758	24.36	292	2	AL 300MCM	CU #2	500	656	365	PASS	1	1	656	292	PASS	460	365	PASS	656	460	500	PASS	17.16	206	210	0.4%

NOTE: DISTANCES ARE ESTIMATES GENERATED FOR  
ENGINEER'S CALCULATIONS. CONTRACTOR IS RESPONSIBLE  
FOR OWN MEASUREMENTS AND TAKEOFFS.



CONTRACTOR  
CA - B C10 #990001

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ENGINEER



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WILL BE UNDER MY OBSERVATION.

OWNER

**FIRESTONE WALKER  
BREWERY**

1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

**FIRESTONE WALKER  
BREWERY**

**TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018


0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
DATE	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

**IFP DESIGN**

SHEET TITLE

SCHEDULES & CALCULATIONS

SHEET NUMBER

**PV310**



CONTRACTOR  
CA - B C10 #990001

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PROJECT LOCATION

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PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

## IFP DESIGN

SHEET TITLE

SCHEDULES & CALCULATIONS

SHEET NUMBER

**PV311**

STRING VOLTAGE DROP CALCULATIONS			MAX TOTAL VOLTAGE DROP	1.73%
			AVERAGE TOTAL VOLTAGE DROP	1.00%
STRING NUMBER	STRING WIRE GAUGE	TOTAL STRING DISTANCE [FT]	STRING VOLTAGE DROP	TOTAL VOLTAGE DROP
1-1	#8AWG-CU	240	0.88%	1.09%
1-2	#8AWG-CU	155	0.57%	0.77%
1-3	#8AWG-CU	225	0.82%	1.03%
1-4	#8AWG-CU	135	0.49%	0.70%
1-5	#8AWG-CU	205	0.75%	0.96%
1-6	#8AWG-CU	115	0.42%	0.63%
1-7	#8AWG-CU	190	0.70%	0.90%
1-8	#8AWG-CU	100	0.37%	0.57%
1-9	#8AWG-CU	170	0.62%	0.83%
1-10	#8AWG-CU	80	0.29%	0.50%
1-11	#8AWG-CU	155	0.57%	0.77%
1-12	#8AWG-CU	65	0.24%	0.44%
1-13	#8AWG-CU	45	0.16%	0.37%
2-1	#8AWG-CU	155	0.57%	1.40%
2-2	#8AWG-CU	135	0.49%	1.33%
2-3	#8AWG-CU	225	0.82%	1.66%
2-4	#8AWG-CU	115	0.42%	1.25%
2-5	#8AWG-CU	205	0.75%	1.58%
2-6	#8AWG-CU	100	0.37%	1.20%
2-7	#8AWG-CU	190	0.70%	1.53%
2-8	#8AWG-CU	80	0.29%	1.13%
2-9	#8AWG-CU	170	0.62%	1.45%
2-10	#8AWG-CU	65	0.24%	1.07%
2-11	#8AWG-CU	155	0.57%	1.40%
2-12	#8AWG-CU	45	0.16%	1.00%
2-13	#8AWG-CU	135	0.49%	1.33%
3-1	#8AWG-CU	245	0.90%	1.43%
3-2	#8AWG-CU	225	0.82%	1.35%
3-3	#8AWG-CU	135	0.49%	1.03%
3-4	#8AWG-CU	205	0.75%	1.28%
3-5	#8AWG-CU	120	0.44%	0.97%
3-6	#8AWG-CU	190	0.70%	1.23%
3-7	#8AWG-CU	100	0.37%	0.90%
3-8	#8AWG-CU	170	0.62%	1.15%
3-9	#8AWG-CU	80	0.29%	0.82%
3-10	#8AWG-CU	155	0.57%	1.10%
3-11	#8AWG-CU	65	0.24%	0.77%
3-12	#8AWG-CU	135	0.49%	1.03%
3-13	#8AWG-CU	45	0.16%	0.70%
4-1	#8AWG-CU	295	1.08%	1.73%
4-2	#8AWG-CU	210	0.77%	1.41%
4-3	#8AWG-CU	120	0.44%	1.08%
4-4	#8AWG-CU	275	1.01%	1.65%
4-5	#8AWG-CU	190	0.70%	1.34%
4-6	#8AWG-CU	100	0.37%	1.01%
4-7	#8AWG-CU	260	0.95%	1.60%
4-8	#8AWG-CU	170	0.62%	1.27%
4-9	#8AWG-CU	85	0.31%	0.96%
4-10	#8AWG-CU	240	0.88%	1.52%
4-11	#8AWG-CU	155	0.57%	1.21%
4-12	#8AWG-CU	65	0.24%	0.88%
4-13	#8AWG-CU	45	0.16%	0.81%
5-1	#8AWG-CU	295	1.08%	1.58%
5-2	#8AWG-CU	205	0.75%	1.25%
5-3	#8AWG-CU	275	1.01%	1.51%
5-4	#8AWG-CU	190	0.70%	1.20%
5-5	#8AWG-CU	100	0.37%	0.87%
5-6	#8AWG-CU	255	0.93%	1.43%
5-7	#8AWG-CU	170	0.62%	1.12%
5-8	#8AWG-CU	80	0.29%	0.79%
5-9	#8AWG-CU	240	0.88%	1.36%
5-10	#8AWG-CU	155	0.57%	1.07%
5-11	#8AWG-CU	65	0.24%	0.74%
5-12	#8AWG-CU	220	0.81%	1.31%
5-13	#8AWG-CU	135	0.49%	0.99%
6-1	#8AWG-CU	135	0.49%	0.78%
6-2	#8AWG-CU	225	0.82%	1.11%
6-3	#8AWG-CU	120	0.44%	0.73%
6-4	#8AWG-CU	210	0.77%	1.06%
6-5	#8AWG-CU	100	0.37%	0.65%
6-6	#8AWG-CU	190	0.70%	0.98%
6-7	#8AWG-CU	85	0.31%	0.60%
6-8	#8AWG-CU	170	0.62%	0.91%
6-9	#8AWG-CU	65	0.24%	0.53%
6-10	#8AWG-CU	155	0.57%	0.86%
6-11	#8AWG-CU	45	0.16%	0.45%
6-12	#8AWG-CU	135	0.49%	0.78%
7-1	#8AWG-CU	155	0.57%	0.83%
7-2	#8AWG-CU	310	1.14%	1.39%
7-3	#8AWG-CU	225	0.82%	1.08%
7-4	#8AWG-CU	135	0.49%	0.75%
7-5	#8AWG-CU	205	0.75%	1.01%
7-6	#8AWG-CU	120	0.44%	0.70%
7-7	#8AWG-CU	190	0.70%	0.96%
7-8	#8AWG-CU	100	0.37%	0.63%
7-9	#8AWG-CU	170	0.62%	0.88%

STRING NUMBER	STRING WIRE GAUGE	TOTAL STRING DISTANCE [FT]	STRING VOLTAGE DROP	TOTAL VOLTAGE DROP
7-10	#8AWG-CU	80	0.29%	0.55%
7-11	#8AWG-CU	65	0.24%	0.50%
7-12	#8AWG-CU	45	0.16%	0.42%
8-1	#8AWG-CU	265	0.97%	1.37%
8-2	#8AWG-CU	175	0.64%	1.04%
8-3	#8AWG-CU	155	0.57%	0.97%
8-4	#8AWG-CU	140	0.51%	0.92%
8-5	#8AWG-CU	120	0.44%	0.84%
8-6	#8AWG-CU	105	0.38%	0.79%
8-7	#8AWG-CU	85	0.31%	0.71%
8-8	#8AWG-CU	70	0.26%	0.66%
8-9	#8AWG-CU	100	0.37%	0.77%
8-10	#8AWG-CU	80	0.29%	0.70%
8-11	#8AWG-CU	65	0.24%	0.64%
8-12	#8AWG-CU	45	0.16%	0.57%

MODULE SPECIFICATIONS	
MAKE/MODEL	CS7N-650MB-AG
POWER [W]	650
ISC [A]	18.39
IMP [A]	17.16
VOC [V]	45.00
VMP [V]	37.90
β VOC [%/degC]	-0.260%
SITE CLIMATE CRITERIA	
ASHRAE HIGH [°C]	38
ASHRAE LOW [°C]	-6
STRING SPECIFICATIONS AT STC	
MODULES/STRING	20
POWER [W]	13000
STRING ISC [A]	18.39
STRING IMP [A]	17.16
STRING VMP [V]	758.00
STRING MAX VOLTAGE CALCULATION	
VOC TEMP ADJUSTMENT @ -6 °C	1.08
VOC @ -6 °C [V]	48.63
MAX STRING VOC [V]	972.5
SMA SIMULATED VALUES	
MAXIMUM CURRENT [A]	24.36
MAXIMUM VOLTAGE [V]	957
THE STRING MAX CURRENT IS CALCULATED BY SMA'S SUNNY DESIGN TOOL, AS ALLOWABLE BY NEC 690.8(A)(1)(2), THE CALCULATED CURRENT IS 88.3% OF THE VALUE USING 690.8(A)(1)(1).	

DC STRING WIRING CALCULATION - CAB	
STRING IMAX SIMULATED [A]	24.36
MAX CONTINUOUS FAULT CURRENT FROM PARALLEL SOURCES [AMPS]	24.36
1.25x MAX CONTINUOUS FAULT CURRENT [AMPS]	30.45
MAX # OF WIRES PER BUNDLE	9
DERATE FOR # OF CONDUCTORS IN A BUNDLE	0.7
MAX AMBIENT TEMPERATURE	38
TEMPERATURE DERATE	1.00
WIRE GAUGE	CU #8
75 DEG AMPACITY WITHOUT COU ADJUSTMENT [AMPS]	57
IS 75 DEG AMPACITY WITHOUT COU ADJUSTMENT >= 1.25x MAX CIRCUIT CURRENT?	YES. COMPLIES WITH 690.8(B)(1)
90DEG AMPACITY WITH COU ADJUSTMENT [AMPS]	46.2
IS 90DEG AMPACITY WITH COU ADJUSTMENT >= 1.0x MAX CIRCUIT CURRENT?	YES. COMPLIES WITH 690.8(B)(2)
PV SOURCE CIRCUIT (SIMULATED) FUSE RATING [AMPS]	35
AVAILABLE FAULT CURRENT FROM ALL PARALLEL SOURCES [AMPS]	24.36
IS FUSE RATING >= 1.25x MAX CIRCUIT CURRENT?	YES. COMPLIES WITH 690.9(B)

DC STRING WIRING CALCULATION - CONDUIT	
STRING IMAX SIMULATED [A]	24.36
MAX CONTINUOUS FAULT CURRENT FROM PARALLEL SOURCES [AMPS]	24.36
1.25x MAX CONTINUOUS FAULT CURRENT [AMPS]	30.45
MAX # OF WIRES PER CONDUIT	9
DERATE FOR # OF CONDUCTORS IN A CONDUIT	0.7
MAX AMBIENT TEMPERATURE	38
TEMPERATURE DERATE	0.91
WIRE GAUGE	CU #8
75 DEG AMPACITY WITHOUT COU ADJUSTMENT [AMPS]	50
IS 75 DEG AMPACITY WITHOUT COU ADJUSTMENT >= 1.25x MAX CIRCUIT CURRENT?	YES. COMPLIES WITH 690.8(B)(1)
90DEG AMPACITY WITH COU ADJUSTMENT [AMPS]	35.035
IS 90DEG AMPACITY WITH COU ADJUSTMENT >= 1.0x MAX CIRCUIT CURRENT?	YES. COMPLIES WITH 690.8(B)(2)
PV SOURCE CIRCUIT (SIMULATED) FUSE RATING [AMPS]	35
AVAILABLE FAULT CURRENT FROM ALL PARALLEL SOURCES [AMPS]	24.36
IS FUSE RATING >= 1.25x MAX CIRCUIT CURRENT?	YES. COMPLIES WITH 690.9(B)





CONTRACTOR  
CA - B C10 #990001

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OWNER

**FIRESTONE WALKER BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION  
**FIRESTONE WALKER BREWERY TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

REV	DATE	DESCRIPTION
0	11/22/2022	ISSUE FOR PERMIT
1		
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**IFP DESIGN**

SHEET TITLE

ENLARGED VIEWS & ELEVATIONS

SHEET NUMBER

**PV401**

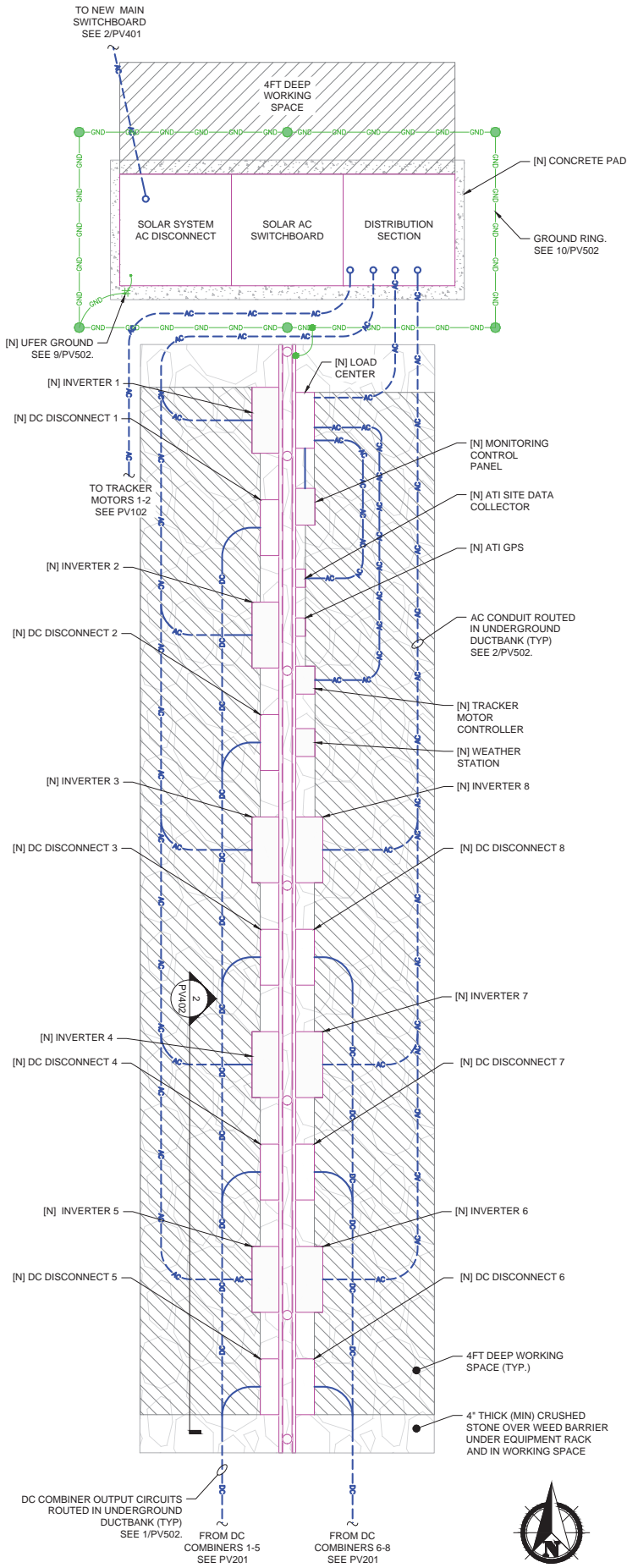
- SHEET NOTES:
1. MAINTAIN 48" (MIN) WORKING CLEARANCE FOR ALL EQUIPMENT, UNLESS NOTED OTHERWISE. REMOVE BUSHES AND TREES AS NECESSARY IN WORKING SPACE.
  2. MOUNT EQUIPMENT AS PER INSTALLATION MANUAL INSTRUCTION.
  3. TRANSITION AC, DC, AND COMMUNICATIONS CONDUITS FROM EMT TO LFMC WITHIN 24" OF INVERTER.
  4. CONDUITS AND TROUGHS SHALL NOT ENCR OACH MORE THAN 6" INTO WORKING SPACE OF EQUIPMENT.
  5. EQUIPMENT SHALL BE INSTALLED AT HEIGHT SUCH THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE SWITCH OR CIRCUIT BREAKER, WHEN IN ITS HIGHEST POSITION, SHALL NOT BE MORE THAN 67" ABOVE THE WORKING PLATFORM.
  6. TROUGHS AND WIREWAYS SHALL BE SIZED SUCH THAT THE SUM OF THE CROSS-SECTIONAL AREAS OF ALL CONDUCTORS AND CABLES AT ANY CROSS SECTION SHALL NOT EXCEED 20 PERCENT OF THE AREA OF THE TROUGH.
  7. THE NUMBER OF CURRENT CARRYING CONDUCTORS SHALL NOT EXCEED 30 AT ANY CROSS-SECTION OF THE TROUGH.
  8. AVOID EXISTING UNDERGROUND UTILITIES.

**LINETYPE LEGEND**

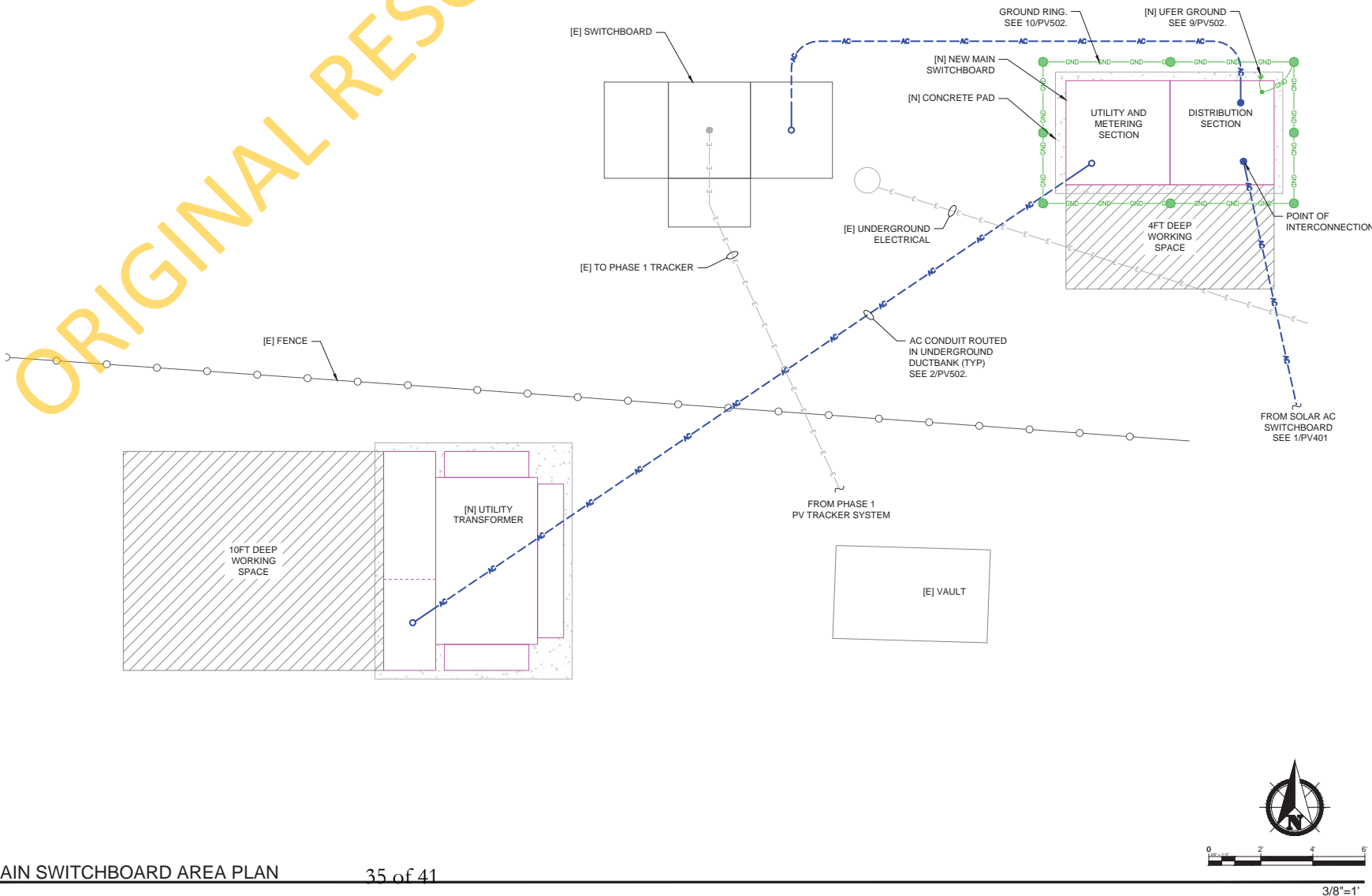
—xx—xx—	ABOVE-GROUND
- - -xx- - -	UNDER-GROUND
REFER TO TABLE FOR DEFINITIONS	

**LINETYPE DEFINITIONS**

DESCRIPTION	SYMBOL
DC CIRCUIT	DC
AC CIRCUIT	AC
GROUND	GND



ORIGINAL RESOLUTION



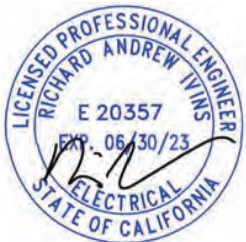


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ENGINEER  
**PUREPOWER ENGINEERING**



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PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

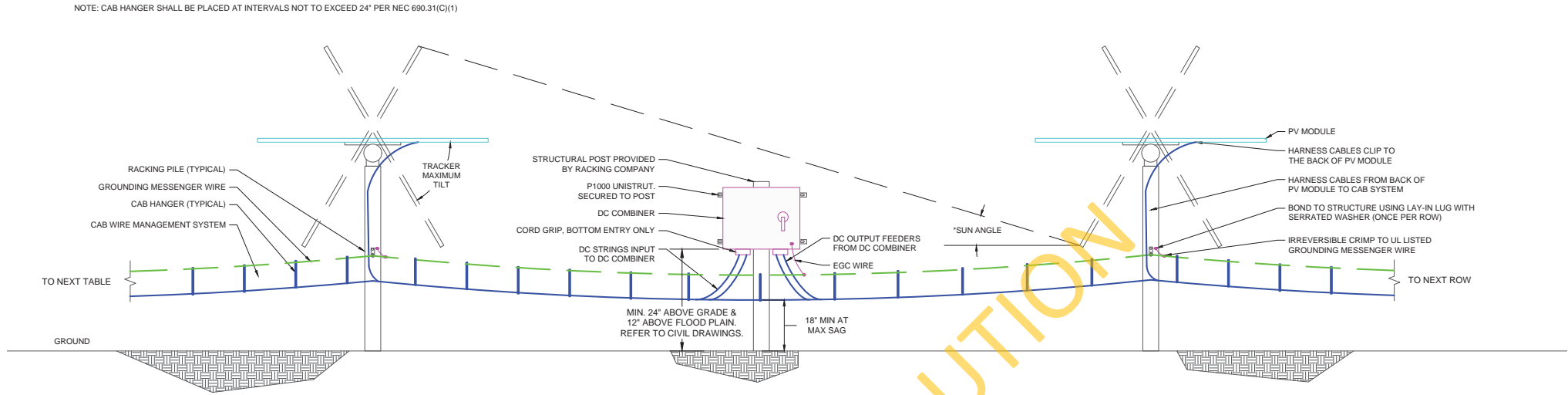
**IFP DESIGN**

SHEET TITLE

ENLARGED VIEWS & ELEVATIONS

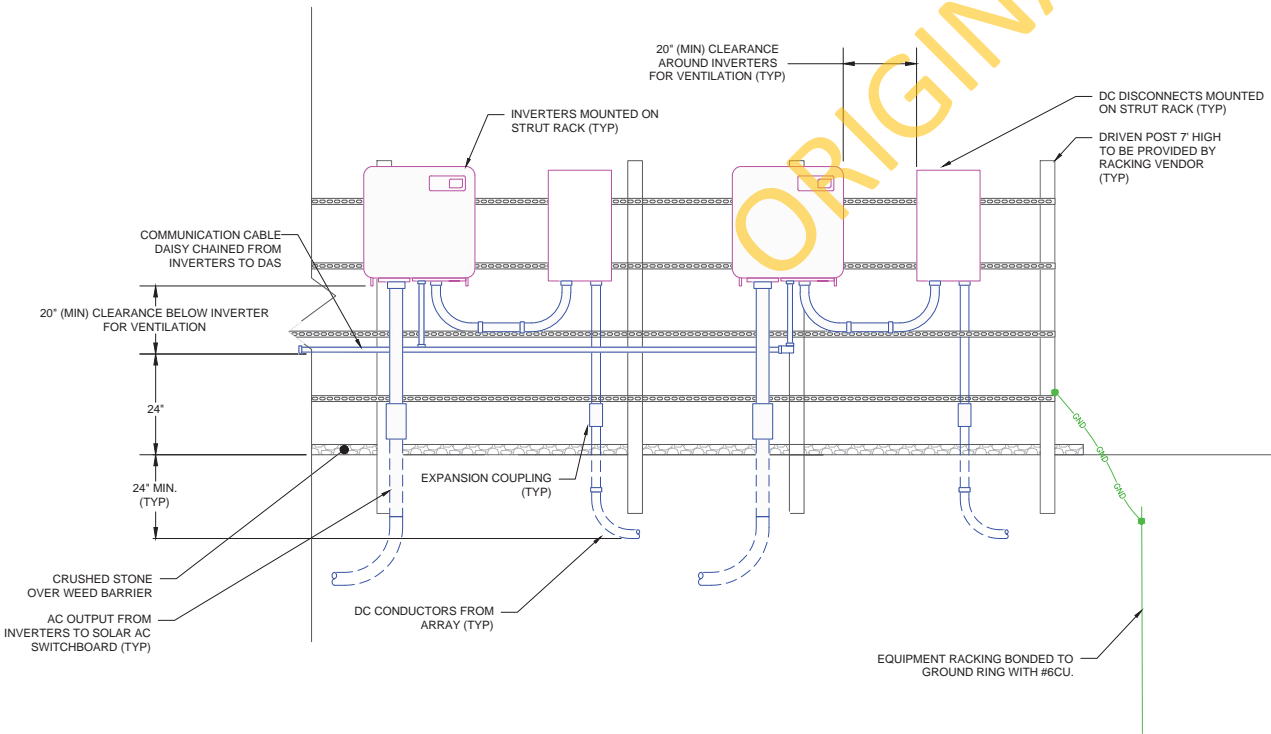
SHEET NUMBER

**PV402**



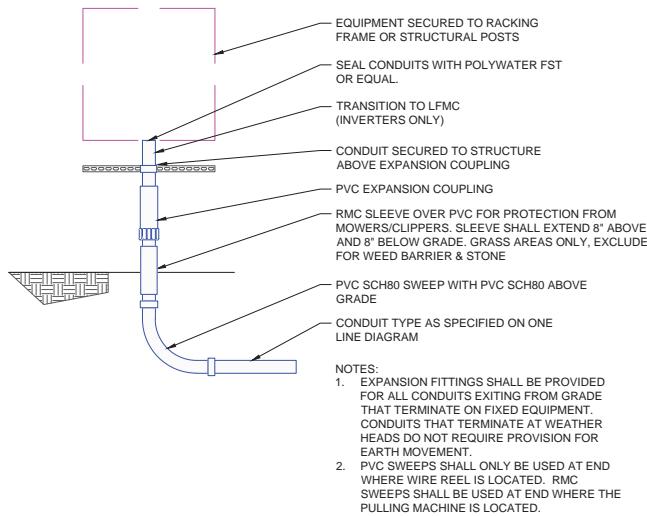
1 TYPICAL RACKING ELEVATION - SIDE VIEW

NTS



2 TYPICAL INVERTER ELEVATION

NTS



3 TYPICAL CONDUIT TRANSITION ABOVE GRADE

NTS



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CA - B C10 #990001

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PROJECT ENGINEER	TONY STRADER	

**IFP DESIGN**

SHEET TITLE

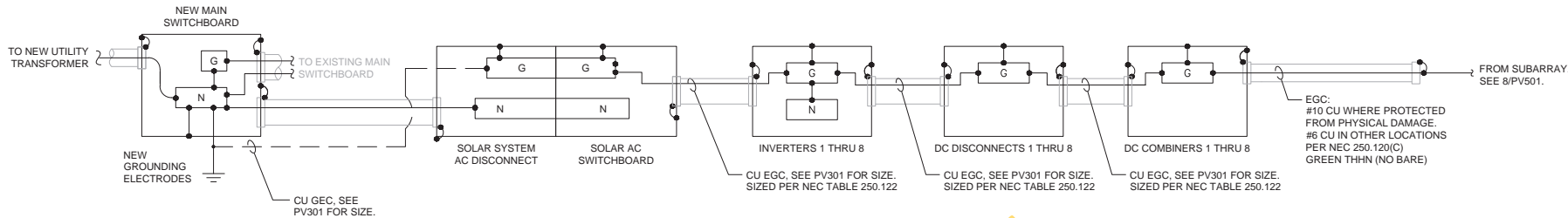
CONSTRUCTION DETAILS

SHEET NUMBER

**PV501**

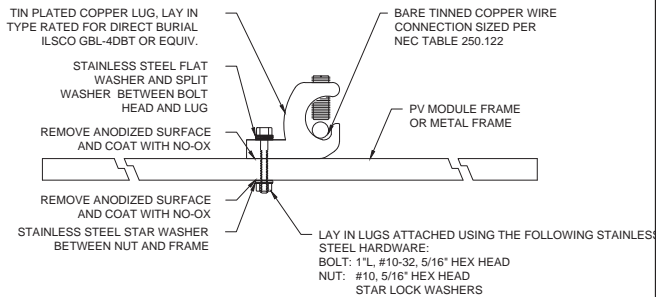
NEC 250.64(E) - ENCLOSURES FOR GROUNDING ELECTRODE CONDUCTORS  
FERROUS METAL ENCLOSURES FOR GROUNDING ELECTRODE CONDUCTORS SHALL BE ELECTRICALLY CONTINUOUS FROM THE POINT OF ATTACHMENT TO CABINETS OR EQUIPMENT TO THE GROUNDING ELECTRODE AND SHALL BE SECURELY FASTENED TO THE GROUND CLAMP OR FITTING. NONFERROUS METAL ENCLOSURES SHALL NOT BE REQUIRED TO BE ELECTRICALLY CONTINUOUS. FERROUS METAL ENCLOSURES THAT ARE NOT PHYSICALLY CONTINUOUS FROM CABINETS OR EQUIPMENT TO THE GROUNDING ELECTRODE SHALL BE MADE ELECTRICALLY CONTINUOUS BY BONDING EACH END OF THE RACEWAY OR ENCLOSURE TO THE GROUNDING ELECTRODE CONDUCTOR. BONDING METHODS IN COMPLIANCE WITH 250.92(B) FOR INSTALLATIONS AT SERVICE EQUIPMENT LOCATIONS AND WITH 250.92(B)(2) THROUGH (B)(4) FOR OTHER THAN SERVICE EQUIPMENT LOCATIONS SHALL APPLY AT EACH END AND TO ALL INTERVENING FERROUS RACEWAYS, BOXES, AND ENCLOSURES BETWEEN THE CABINETS OR EQUIPMENT AND THE GROUNDING ELECTRODE. THE BONDING JUMPER FOR A GROUNDING ELECTRODE CONDUCTOR RACEWAY OR CABLE ARMOR SHALL BE THE SAME SIZE AS, OR LARGER THAN, THE ENCLOSED GROUNDING ELECTRODE CONDUCTOR. IF A RACEWAY IS USED AS PROTECTION FOR A GROUNDING ELECTRODE CONDUCTOR, THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE APPROPRIATE RACEWAY ARTICLE.

NOTE: SEE PV502 & PV503 FOR ADDITIONAL GROUNDING DETAILS



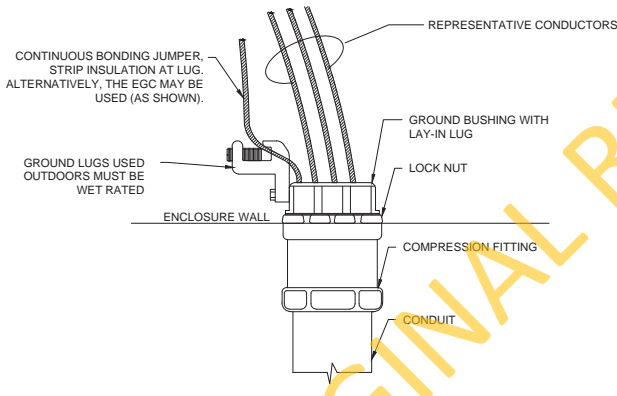
1 TYPICAL GROUNDING DETAIL

NTS



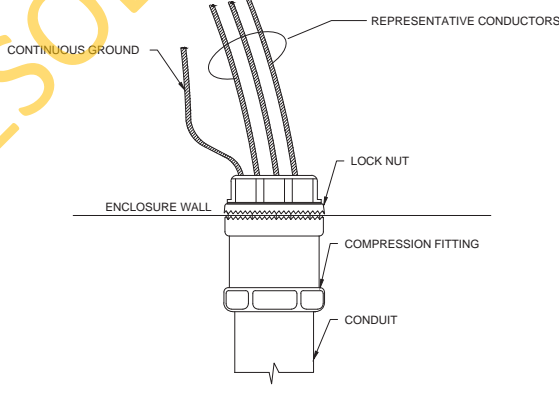
2 GROUND LUG DETAIL

NTS



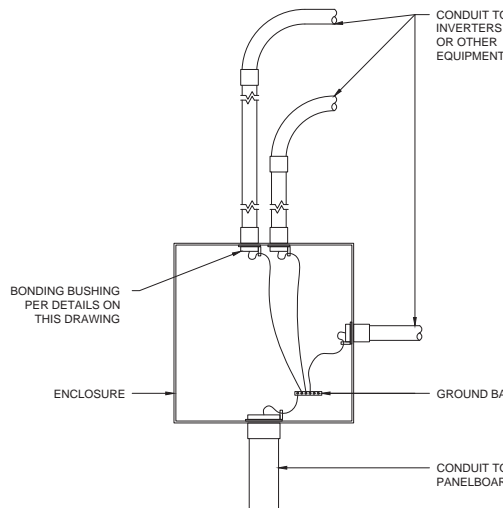
3 BONDING BUSHING GROUNDING DETAIL

NTS



4 MYER'S HUB GROUNDING DETAIL

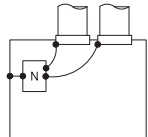
NTS



5 PULL BOX/TROUGH GROUNDING DETAIL

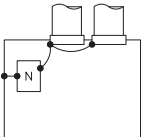
NTS

NEC 250.102(C)(1)  
SSBJ IS SIZED PER TABLE 250.102(C)(1) BASED ON THE SIZE OF PHASE CONDUCTORS IN EACH INDIVIDUAL CONDUIT



INDIVIDUAL

NEC 250.102(C)(2)  
SSBJ IS SIZED PER TABLE 250.102(C)(1) BASED ON THE COMBINED AREA OF PARALLEL PHASE CONDUCTORS



COMBINED

TABLE 250.102(C)(1)

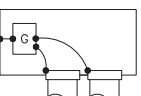
SIZE OF LARGEST UNGROUNDED CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/KCMIL)		SIZE OF GROUNDED CONDUCTOR OR BONDING JUMPER (AWG/KCMIL)	
COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM	COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM
2 OR SMALLER	1/0 OR SMALLER	8	6
1 OR 1/0	2/0 OR 3/0	6	4
2 OR 2/0	4/0 OR 250	4	2
OVER 3/0 THROUGH 350	OVER 250 THROUGH 500	2	1/0
OVER 350 THROUGH 600	OVER 500 THROUGH 900	1/0	3/0
OVER 600 THROUGH 1100	OVER 900 THROUGH 1750	2/0	4/0
OVER 1100	OVER 1750	REFER TO NOTES IN NEC TABLE 250.102(C)(1)	

A) FOR CONCENTRIC KNOCKOUTS, USE BONDING JUMPERS AS FOLLOWS:

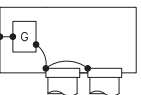
OVERCURRENT DEVICE CIRCUIT NOT EXCEEDING (AMPERES)	SIZE (AWG OR KCMIL)	
	COPPER	ALUMINUM
15	14	12
20	12	10
60	10	8
100	8	6
200	6	4
300	4	2
400	3	1
500	2	1/0
600	1	2/0
800	1/0	3/0
1000	2/0	4/0
1200	3/0	250
1600	4/0	350
2000	250	400
2500	350	600
3000	400	600
4000	500	750

FOR PARALLEL FEEDERS - NEC 250.102(D)  
EQUIPMENT BONDING JUMPER IS SIZED PER TABLE 250.122, REGARDLESS IF COMBINED OR INDIVIDUAL BONDING JUMPERS ARE USED

1) INDIVIDUAL



2) COMBINED



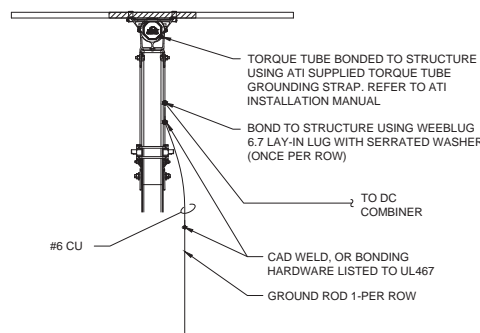
B) FOR NON-CONCENTRIC KNOCKOUTS, THE FOLLOWING METHODS SHALL BE PERMITTED (PER NEC 250.97)

- 1) THREADLESS COUPLINGS AND CONNECTORS FOR CABLES WITH METAL SHEATHS
- 2) TWO LOCKNUTS, ON RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT, ONE INSIDE AND ONE OUTSIDE OF BOXES AND CABINETS
- 3) FITTINGS WITH SHOULDERS THAT SEAT FIRMLY AGAINST THE BOX OR CABINET, SUCH AS ELECTRICAL METALLIC TUBING CONNECTORS, FLEXIBLE METAL CONDUIT CONNECTORS, AND CABLE CONNECTORS, WITH ONE LOCKNUT ON THE INSIDE OF BOXES AND CABINETS
- 4) LISTED FITTINGS (SUCH AS MEYERS HUB)

7 LOAD SIDE EQUIPMENT BONDING JUMPER

NTS

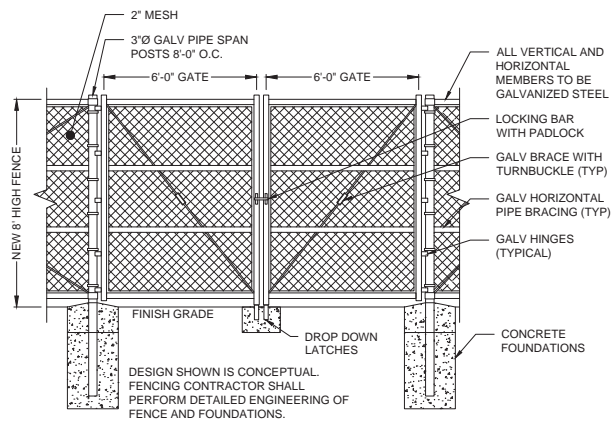
- NOTES:
1. EACH SUBARRAY CONNECTED TO AN INVERTER SHALL HAVE AN EGC RUN TO THAT INVERTER
  2. PV MODULES AND RAILS GROUNDED PER NEC 690.43
  3. IN LIEU OF GROUND RODS CONTRACTOR MAY INSTALL #3/0 GROUND RING WITH #3/0 CU JUMPER BONDED TO STRUCTURE AT END OF EACH ROW



ARRAY TECHNOLOGIES

8 ARRAY GROUNDING

NTS



9 TYPICAL FENCE AND GATE

NTS

NTS





CONTRACTOR  
CA - B C10 #990001

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PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

## IFP DESIGN

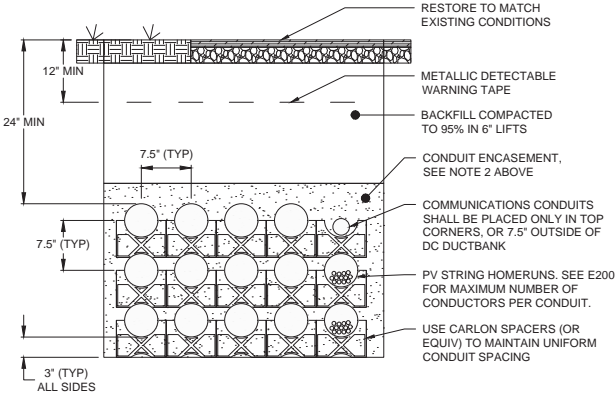
SHEET TITLE

CONSTRUCTION DETAILS

SHEET NUMBER

**PV502**

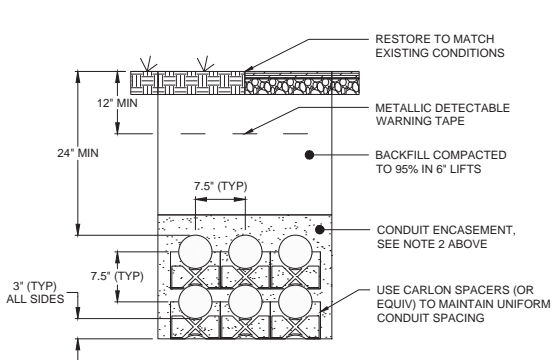
- NOTES:
- ALL UNDERGROUND CONDUIT SHALL BE PVC AND TRANSITION TO RMC FOR ELBOW. RMC ELBOW DOES NOT NEED TO BE BONDED IF THE ENTIRE ELBOW IS  $\geq 18"$  DEEP (NEC 250.86 EXCEPTION 3).
  - UNDER ROADS AND PARKING AREAS ENCASUREMENT SHALL BE 2500 PSI CONCRETE. UNDER GRASSY AREAS NOT SUBJECT TO VEHICULAR TRAFFIC ENCASUREMENT SHALL BE SAND.
  - CALL BEFORE YOU DIG, DIAL 811 TO BE CONNECTED TO THE LOCAL ON-CALL CENTER. YOU MUST CALL AT LEAST 48 HOURS BEFORE EXCAVATING.
  - IF DUCTBANK SLOPES SUCH THAT ANY PART OF THE DUCTBANK IS ABOVE STUB UP ELEVATION, INCLUDE HAND HOLE WITH GRAVEL BASE TO ALLOW DRAINAGE AT LOWEST ELEVATION.



1 TYPICAL DC DUCTBANK

NTS

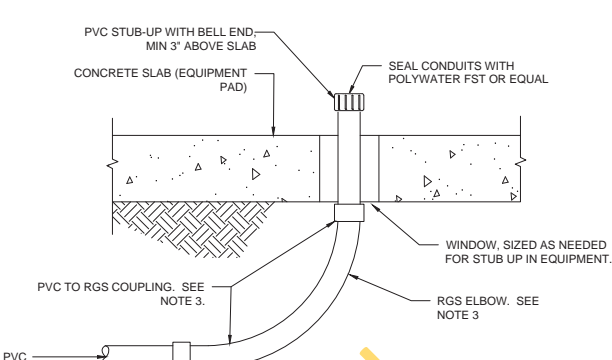
- NOTES:
- ALL UNDERGROUND CONDUIT SHALL BE PVC AND TRANSITION TO RMC FOR ELBOW. RMC ELBOW DOES NOT NEED TO BE BONDED IF THE ENTIRE ELBOW IS  $\geq 18"$  DEEP (NEC 250.86 EXCEPTION 3).
  - UNDER ROADS AND PARKING AREAS ENCASUREMENT SHALL BE 2500 PSI CONCRETE. UNDER GRASSY AREAS NOT SUBJECT TO VEHICULAR TRAFFIC ENCASUREMENT SHALL BE SAND.
  - CALL BEFORE YOU DIG, DIAL 811 TO BE CONNECTED TO THE LOCAL ON-CALL CENTER. YOU MUST CALL AT LEAST 48 HOURS BEFORE EXCAVATING.
  - IF DUCTBANK SLOPES SUCH THAT ANY PART OF THE DUCTBANK IS ABOVE STUB UP ELEVATION, INCLUDE HAND HOLE WITH GRAVEL BASE TO ALLOW DRAINAGE AT LOWEST ELEVATION.



2 TYPICAL AC DUCTBANK

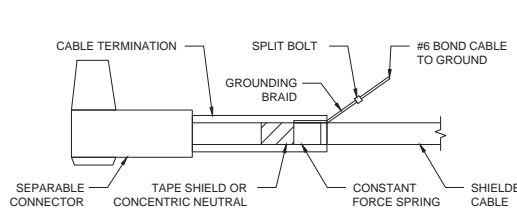
NTS

- NOTES:
- INITIALLY INSTALL COUPLING CAP TO PREVENT DAMAGE TO STUB-UP UNTIL GEAR IS SET.
  - INSTALL ROUNDED FITTING BEFORE PULLING CABLES TO AVOID DAMAGE TO CABLES.
  - RMC ELBOW ONLY REQUIRED ON ONE SIDE OF EACH PULL. NEAREST THE LOCATION OF THE PULLING MACHINE. ON OPPOSITE SIDE, PVC SCH80 ELBOWS ARE PERMITTED.

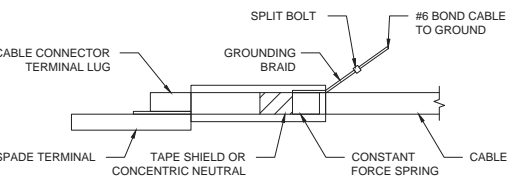


3 EQUIPMENT PAD STUB-UP

NTS



DEAD FRONT MV TERMINATION

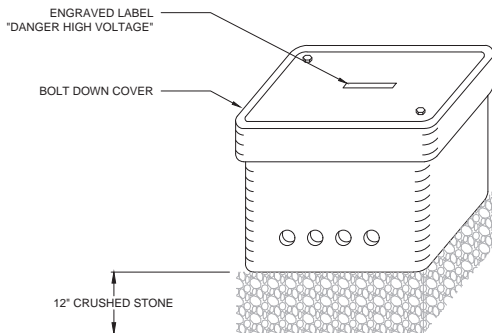


LIVE FRONT MV TERMINATION

4 MV CABLE TERMINATION

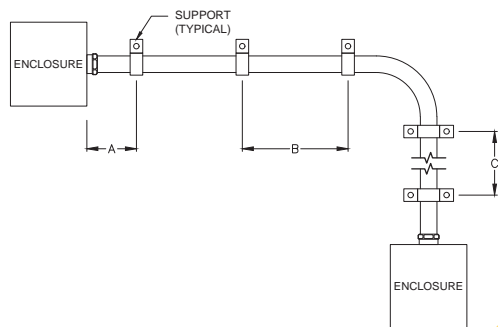
NTS

- NOTES:
- BOX SHALL BE RATED T8 FOR USE IN GRASSY AREAS NOT SUBJECT TO VEHICULAR TRAFFIC, OR RATED T22 FOR USE IN SIDEWALKS OR PARKING LOTS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC. BOXES TO BE USED IN ROADWAYS OR AREAS FREQUENTLY SUBJECT HEAVY VEHICULAR TRAFFIC SHALL BE SUBMITTED TO EFOR FOR APPROVAL.
  - CONDUITS SHALL ENTER ON SIDES. MINIMUM BURIAL DEPTHS OF CONDUITS IS 24" BELOW FINISHED GRADE.
  - CONDUIT KNOCKOUTS SHALL BE DRILLED OR PUNCHED ON SITE, QUANTITIES AND SIZES TO MATCH TRENCH PLAN AND COMBINER SCHEDULE.



5 HANDHOLE

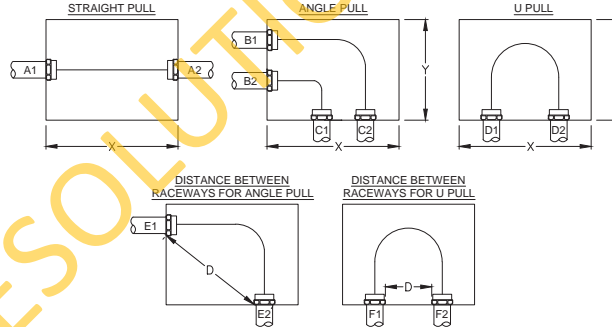
NTS



MAXIMUM CONDUIT HARDWARE SPACING				
CONDUIT TYPE	ENCLOSURE TO SUPPORT (A)	SUPPORT TO SUPPORT (B)	VERTICAL RUNS (C)	NEC ARTICLE
ELECTRICAL METALLIC TUBING (EMT)	3'	10'	10'	358
INTERMEDIATE METAL CONDUIT (IMC)	3'	10'	20'	342
RIGID METAL CONDUIT (RMC)	3'	10'	20'	344
LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)	1'	4.5'	4.5'	350
PVC (SCH40 & 80) [0.5" - 1"]	3'	3'	3'	352
PVC (SCH40 & 80) [1.25" - 2"]	3'	5'	5'	352
PVC (SCH40 & 80) [2.5" - 3"]	3'	6'	6'	352
PVC (SCH40 & 80) [3.5" - 5"]	3'	7'	7'	352
PVC (SCH40 & 80) [6"]	3'	8'	8'	352

6 CONDUIT SUPPORT SPACING

NTS

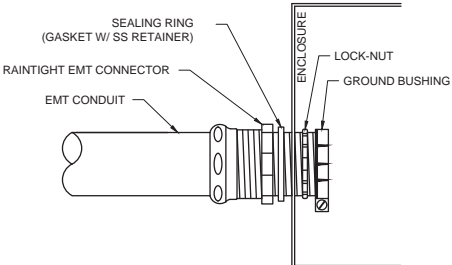


NEC 314.28(A)(1)-(3) PULL BOX SIZING			
BOX TYPE	LENGTH (X)	HEIGHT (Y)	DISTANCE (D)
STRAIGHT PULL	8 X LARGEST OF A1 & A2	AS NEEDED	N/A
ANGLE PULL	6 X (LARGEST OF B1 & B2) + SUM OF OTHER CONDUIT ENTERING THE SAME WALL	6 X (LARGEST OF C1 & C2) + SUM OF OTHER CONDUIT ENTERING THE SAME WALL	6 X LARGEST OF E1 & E2
U PULL	AS NEEDED	6 X (LARGEST OF D1 & D2) + SUM OF OTHER CONDUIT ENTERING THE SAME WALL	6 X LARGEST OF F1 & F2

NOTE:  
REFER TO NEC 314.28 FOR ADDITIONAL REQUIREMENTS.

7 PULL BOX & JUNCTION BOX SIZING

NTS

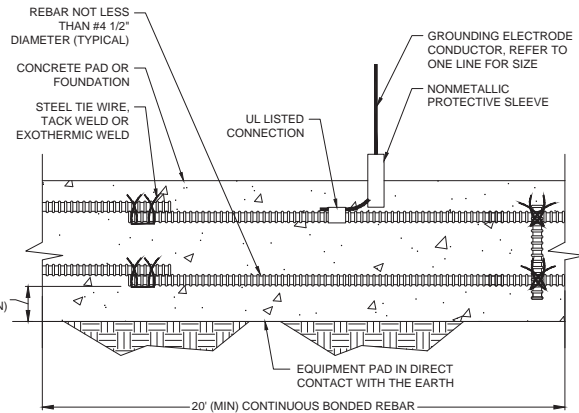


- NOTES:
- BOTTOM 1/3 OF SIDE AND BOTTOM ENTRY ONLY
  - GROUND BUSHING REQUIRED AS PER NEC
  - IF NEEDING TO MAINTAIN NEMA 4/4X ENCLOSURE REQUIREMENT FOR BOTTOM ENTRY CONDUITS, THEN INSTALL SEALING RING ON BOTTOM ENTRIES, OTHERWISE SEALING RING NOT REQUIRED.
  - FOR ENTRY INTO PLASTIC BOXES "LONG THROAT" CONDUIT FITTINGS SHALL BE USED.
  - "LONG THROAT" CONDUIT FITTINGS SHALL BE USED AS NEEDED FOR INSTALLING SEALING RINGS.

8 EMT TO ENCLOSURE

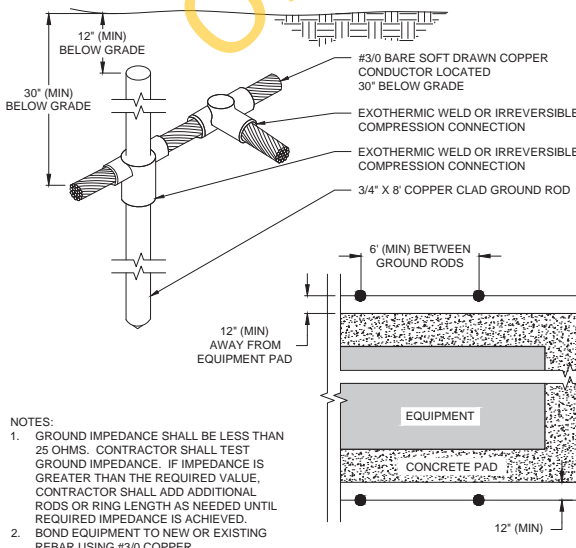
NTS

- NOTE:  
SHORTER LENGTHS OF REBAR CAN BE CONNECTED TOGETHER TO FORM AN ELECTRODE OF AT LEAST 20' BY STEEL TIE WIRES, EXOTHERMIC WELDING, OR WELDING.



9 EQUIPMENT PAD GROUNDING - UFER

NTS



- NOTES:
- GROUND IMPEDANCE SHALL BE LESS THAN 25 OHMS. CONTRACTOR SHALL TEST GROUND IMPEDANCE. IF IMPEDANCE IS GREATER THAN THE REQUIRED VALUE, CONTRACTOR SHALL ADD ADDITIONAL RODS OR RING LENGTH AS NEEDED UNTIL REQUIRED IMPEDANCE IS ACHIEVED.
  - BOND EQUIPMENT TO NEW OR EXISTING REBAR USING #3/0 COPPER.

10 GROUND RING DETAIL

NTS



CONTRACTOR  
CA - B C10 #990001

**REC SOLAR**  
3450 BROAD ST, SUITE 105  
SAN LUIS OBISPO, CA 93401  
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

OWNER

**FIRESTONE WALKER BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

**FIRESTONE WALKER BREWERY TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
DATE	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

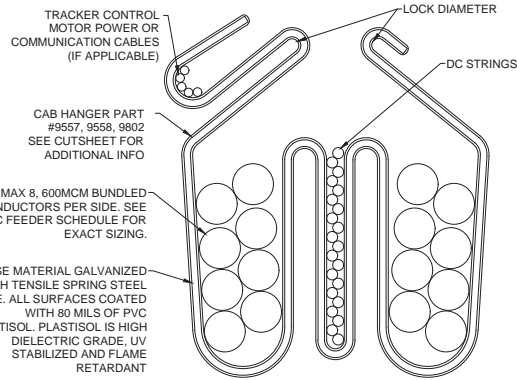
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SHEET TITLE

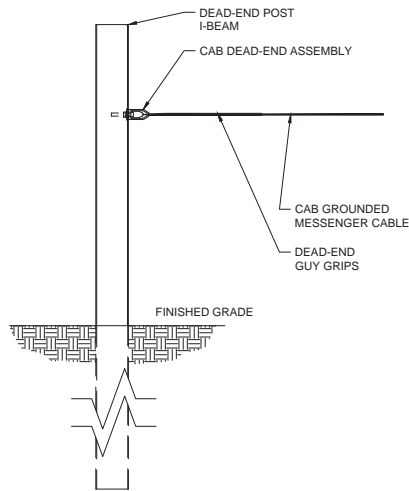
CONSTRUCTION DETAILS

SHEET NUMBER

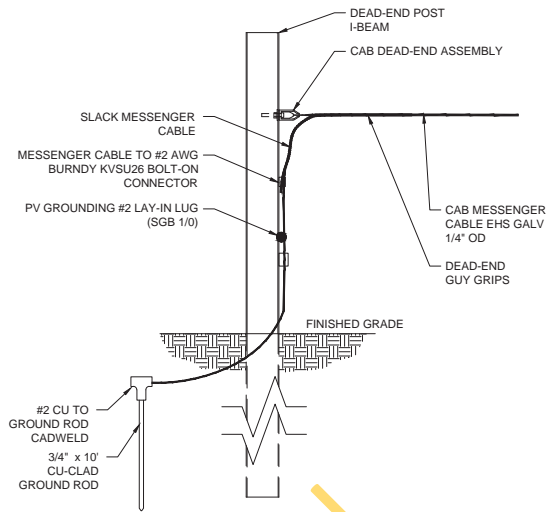
**PV503**



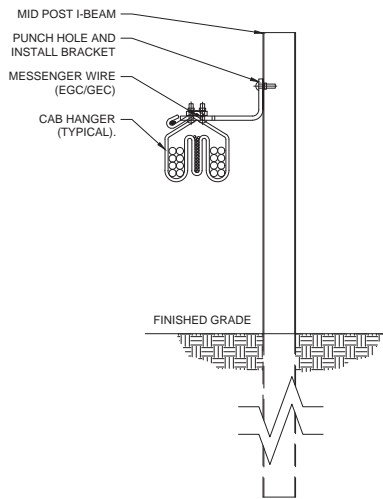
1 TYPICAL CAB HANGER NTS



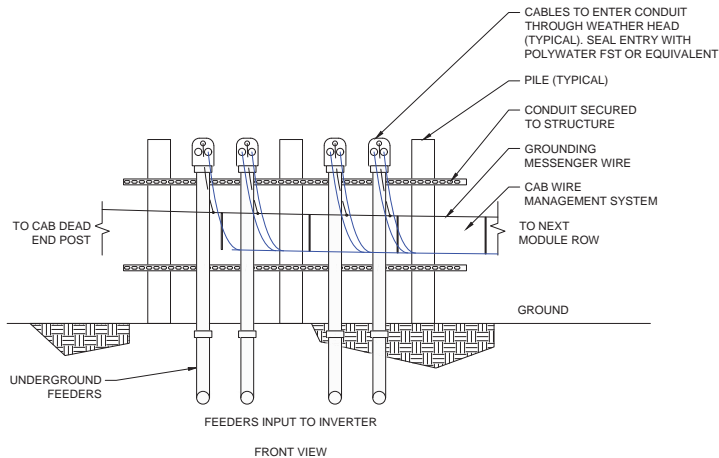
2 TYPICAL DEAD-END ASSEMBLY NTS



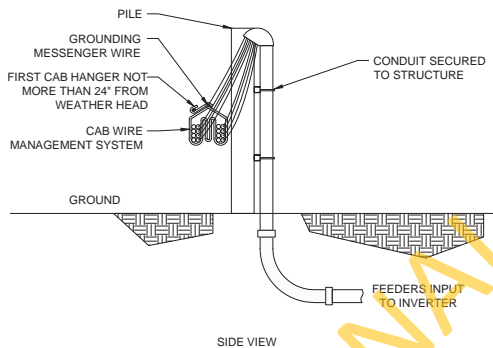
3 TYPICAL MESSENGER DEAD END GROUNDING NTS



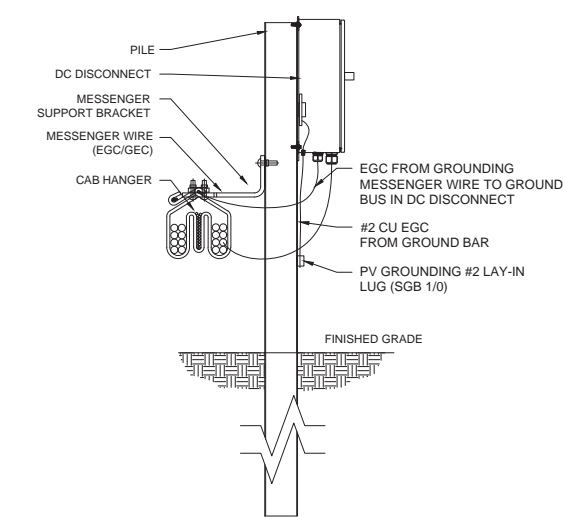
4 TYPICAL MID SPAN POST ASSEMBLY NTS



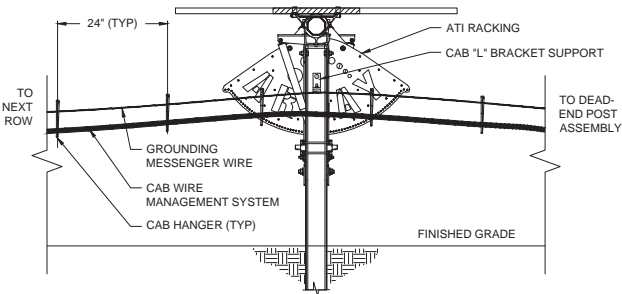
5 TYPICAL CAB TRANSITION TO UNDERGROUND DUCTBACK NTS



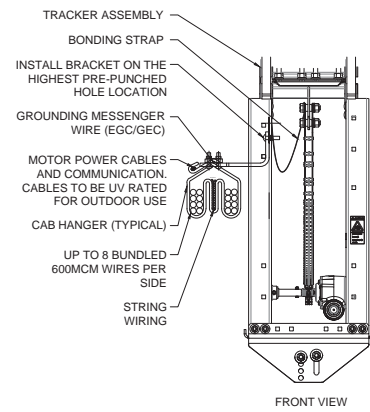
7 TYPICAL EQUIPMENT MOUNTING NTS



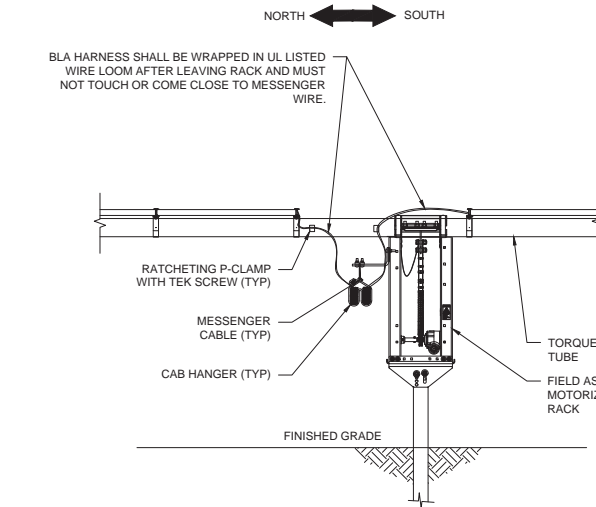
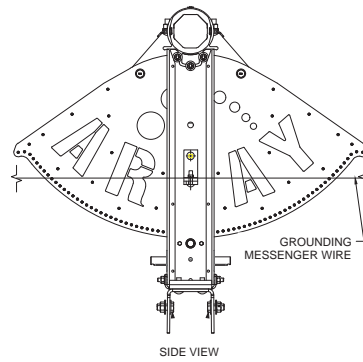
8 TYPICAL EQUIPMENT GROUNDING NTS



9 TYPICAL CAB INSTALLATION ON TRACKER NTS



10 TYPICAL CAB MOUNTING NTS



11 END OF STRING TRANSITION TO MESSENGER ELEVATION NTS



NEW



FRONT

BACK



BiHiKu7

BIFACIAL MONO PERC

640 W ~ 665 W

CS7N-640 | 645 | 650 | 655 | 660 | 665MB-AG

MORE POWER

665 W

Module power up to 665 W

Module efficiency up to 21.4 %

Up to 8.9 % lower LCOE

Up to 4.6 % lower system cost

Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation

Compatible with mainstream trackers, cost effective product for utility power plant

Better shading tolerance

MORE RELIABLE

40 °C lower hot spot temperature, greatly reduce module failure rate

Minimizes micro-crack impacts

Heavy snow load up to 5400 Pa, wind load up to 2400 Pa\*

Enhanced Product Warranty on Materials and Workmanship\*

12 Years

Linear Power Performance Warranty\*

30 Years

MANAGEMENT SYSTEM CERTIFICATES\*

ISO 9001:2015 / Quality management system

ISO 14001:2015 / Standards for environmental management system

ISO 45001:2018 / International standards for occupational health & safety

PRODUCT CERTIFICATES\*

IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA

CSC listed (US California) / PSC US Listing

UL 61730 / IEC 61701 / IEC 61718 / IEC 60098-3-60

Take-away

CS1 SOLAR (USA) CO., LTD.

1350 Treat Blvd, Suite 500, Walnut Creek, CA 94598, USA | www.csisolar.com/na | service.ca@csisolar.com

ARRAY TECHNOLOGIES

FOLLOW THE SUN. FOLLOW THE LEADER.

99.996% UPTIME.

ENGINEERED SIMPLICITY.

7% LOWER LCOE

31% LOWER LIFETIME O&M

DuraTrack® HZ v3

Three decades of field-tested design improvements have resulted in the DuraTrack® HZ v3—the most durable, reliable tracking system under the sun. While our single-bolt module clamp and forgiving tolerances streamline installation, and our flexibly linked architecture maximizes power density, it's our innovative use of fewer components and a failure-free wind management system that makes Array Technologies the best choice for solar trackers. Better. Stronger. Smarter.

HIGHEST POWER DENSITY.

Higher density means more power and more profit. DuraTrack HZ v3 offers the unique ability to maximize the power density of each module, boosting 100 modules per row and higher density than our closest competitor.

LEADING TERRAIN ADAPTABILITY.

Our flexibly linked architecture, with articulating driveless joints and forgiving tolerances, enables the most adaptable system on the market, following natural land contours while creating the greatest power generation potential from every site.

FEWER COMPONENTS, GREATER RELIABILITY.

Array was founded on a philosophy of simplicity and reliability. Minimizing potential failure points (167 fewer lower components than competitors), DuraTrack HZ v3 consistently delivers higher reliability and superior uptime.

FAILURE-FREE WIND DESIGN.

DuraTrack HZ v3 was designed and field tested to withstand some of the harshest conditions on the planet. It is the only tracker on the market that reliably handles wind events with a fully integrated, fully mechanical, passive wind load mitigation system without the need for complex communication systems, batteries, or power.

ZERO SCHEDULED MAINTENANCE.

Maintenance-free motors and gears, lower moving parts, and industrial-grade components—what does this mean for our customers? No scheduled maintenance required. While our competitors average two unscheduled maintenance events per day, we average only one per year.

SMA

SUNNY HIGHPOWER PEAK3 125-US / 150-US



Modular architecture reduces BOS and maximizes system uptime

Maximum system voltage 1500 VDC building block with best-in-class performance

Compact design and high power density maximize transportation and logistical efficiency

Maximum flexibility

Scalable 1,500 VDC building block with best-in-class performance

Flexible architecture creates scalability while maximizing land usage

Simple install, commissioning

Ergonomic handling and single connection enable quick installation

Centralized commissioning and control with SMA Data Manager

Highly innovative

SMA Smart Connected features: O&M costs and simplifies field service

Powered by smart tuning innerOS cross sector energy management platform

SUNNY HIGHPOWER PEAK3 125-US / 150-US

A superior modular solution for large-scale power plants

The PEAK3 1,500 VDC inverter offers high power density in a modular architecture that achieves a cost-optimized solution for large-scale PV integrators. With fast, simple installation and commissioning, the Sunny Highpower PEAK3 is accelerating the path to energization. SMA has also brought its field-proven Smart Connected technology to the PEAK3, which simplifies O&M and contributes to lower lifetime service costs. The PEAK3 power plant solution is powered by the innerOS cross sector energy management platform, 2018 winner of the Intersolar smarter E AWARD.

ENGINEERING DRAWING (mm)

Rear View

Frame Cross Section A-A



CS7N-650MB-AG / 3V CURVES



ELECTRICAL DATA | STC\*

	Nominal Power (Pmax)	Opt. Power (Vmp)	Opt. Current (Imp)	Open Circuit Voltage (Voc)	Short Circuit Current (Isc)	Module Efficiency (%)
CS7N-640MB-AG	640 W	37.5 V	17.07 A	44.6 V	18.31 A	20.6%
10%	672 W	37.5 V	17.52 A	44.6 V	19.23 A	21.6%
20%	704 W	37.5 V	18.78 A	44.6 V	20.14 A	22.7%
30%	736 W	37.5 V	20.48 A	44.6 V	21.97 A	24.7%
CS7N-645MB-AG	645 W	37.7 V	17.11 A	44.8 V	18.35 A	20.8%
10%	677 W	37.7 V	17.57 A	44.8 V	19.27 A	21.8%
20%	710 W	37.7 V	18.84 A	44.8 V	20.19 A	22.9%
30%	742 W	37.7 V	20.53 A	44.8 V	22.02 A	24.9%
CS7N-650MB-AG	650 W	37.9 V	17.16 A	45.0 V	18.39 A	20.9%
10%	683 W	37.9 V	18.03 A	45.0 V	19.31 A	22.0%
20%	715 W	37.9 V	18.88 A	45.0 V	20.23 A	23.0%
30%	748 W	37.9 V	20.59 A	45.0 V	22.07 A	25.1%
CS7N-655MB-AG	655 W	38.1 V	17.20 A	45.2 V	18.43 A	21.1%
10%	688 W	38.1 V	18.06 A	45.2 V	19.35 A	22.1%
20%	721 W	38.1 V	18.91 A	45.2 V	20.27 A	23.2%
30%	754 W	38.1 V	20.64 A	45.2 V	22.12 A	25.3%
CS7N-660MB-AG	660 W	38.3 V	17.24 A	45.4 V	18.47 A	21.2%
10%	693 W	38.3 V	18.10 A	45.4 V	19.39 A	22.3%
20%	726 W	38.3 V	18.96 A	45.4 V	20.31 A	23.4%
30%	759 W	38.3 V	20.69 A	45.4 V	22.16 A	25.5%
CS7N-665MB-AG	665 W	38.5 V	17.28 A	45.6 V	18.51 A	21.4%
10%	698 W	38.5 V	18.14 A	45.6 V	19.44 A	22.5%
20%	732 W	38.5 V	19.02 A	45.6 V	20.36 A	23.6%
30%	766 W	38.5 V	20.74 A	45.6 V	22.21 A	25.7%

ELECTRICAL DATA

Operating Temperature -40°C ~ +85°C

Max. System Voltage 1500 V (IEC/UL) or 1000 V (REC/UL)

Module Fire Performance TYPE 29 (UL 61730) or CLASS C (IEC 61730)

Max. Series Fuse Rating 35 A

Application Classification Class A

Power Tolerance 0 ~ +10 W

Power Bifaciality\* 70 %

\* Power Bifaciality = (Pmax\_Front / Pmax\_Rear) \* 100. Both Pmax\_Front and Pmax\_Rear are tested under STC. Bifaciality Tolerance: ± 5 %

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	132 (121 x 11 x 9.1)
Dimensions	2364 x 1303 x 35 mm (93.0 x 51.3 x 1.38 in)
Weight	37.9 kg (83.6 lbs)
Front Glass	2.0 mm heat strengthened glass with anti-reflective coating
Back Glass	2.0 mm heat strengthened glass with anti-reflective coating
Frame	Anodized aluminum alloy
J-Box	IP68, 3 bypass diodes
Cable	4.8 mm (0.19 in) 10 AWG (UL)
Cable Length	400 mm (15.7 in) (3.2 / 3.40 mm (13.4 in) (1.34 in))
Connector	T4 or MC4 series
Per Panel	31 pieces
Per Container (40 HQ)	527 pieces or 465 pieces (only for US)

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.34 % / °C
Temperature Coefficient (Voc)	-0.26 % / °C
Temperature Coefficient (Isc)	0.05 % / °C

Nominal Module Operating Temperature

41 ± 3 °C

PARTNER SECTION



ARRAY TECHNOLOGIES

FOLLOW THE SUN. FOLLOW THE LEADER.

COST VERSUS VALUE

We believe value is more than the cost of a tracking system. It's about building with forgiving tolerances and lower parts so construction crews can work efficiently. It means protecting your investment with a failure-free wind management system. It also includes increasing power density. But most of all, value is measured in operational uptime, or reliability.

THE GLOBAL LEADER IN RELIABILITY

Array has spent decades designing and perfecting the most reliable tracker on the planet. Fewer moving parts, stronger components and intelligent design that protects your investment in the harshest weather are but a few of the innovative differences that keep your system running flawlessly all day and your resting easy at night.

ARRAY TECHNOLOGIES, INC.

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Albuquerque, NM 87109 USA

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+1 855.TRACKPV (872.2578)

+1 505.881.7572

sales@arraytechnic.com

arraytechnic.com

30 GW YEARS OF OPERATION

167x FEWER COMPONENTS THAN COMPETITIVE TRACKERS

STRUCTURAL & MECHANICAL FEATURES/SPECIFICATIONS

Tracking Type	Horizontal single axis
Less than 1 drive motor / MW	Up to 1,152 MW DC
String Voltage	Up to 1,500V DC
Maximum United Rows	32
Maximum Row Size	100 modules/crystalline and bifacial, 240 modules First Solar 4: 78 modules First Solar 6: 1
Drive Type	Rotating gear drive
Motor Type	2 HP, 3 PH, 480V AC
East-West/North-South Dimensions	Site / machine specific
Array Height	54' standard, adjustable (48" min height above grade)
Ground Coverage Ratio (GCR)	Fluorine, 28-45% typical, others supported on request
Terrain Flexibility	N-S tolerance: 0-15% standard, 20% optional; Crabtree: 40" in all directions
Modules Supported	Most commercially available, including monocrystalline, thin film, and bifacial
Tracking Range of Motion	± 52° standard, ± 62° optional
Operating Temperature Range	-30°F to 140°F (-34°C to 60°C)
Module Configuration available	Single in portrait standard, including bifacial. Four in landscape (thin film)
Module Attachment	Single fastener, high-speed mounting clamps with integrated grounding. Traditional rails for crystalline in landscape, custom racking for thin film and monocrystalline and bifacial per manufacturer specs.
Materials	Pre-galv steel, HOG steel and aluminum structural members, as required
Allowable Wind Load (ASCE 7-10)	140 mph, 3-second gust exposure C
Wind Protection	Failure free passive mechanical system protects against wind damage without the use of complex communication systems, batteries — no power required

ELECTRONIC CONTROLLER FEATURES/SPECIFICATIONS

Site Tracking Method	Align then wait, GPS input
Gen/Par (Driveline)	MC4 plus Central Controller
Data Feed	MODBUS over Ethernet to SCADA system
Night-Axis Slow	Yes
Tracking Accuracy	± 2" standard, field adjustable
Backtracking	Yes

INSTALLATION, OPERATION & MAINTENANCE

Software	31 pieces
PI Stamped Structural Calculations & Drawings	Yes
On-site Training and System Commissioning	Yes
Connection Type	Field fabricated connections, no welding
In-field Fabrication Required	No
Dry Slide Bearings and Articulating Driveline Connections	No lubrication required
Scheduled Maintenance	None required
Module Cleaning Compatibility	Robotic, Tractor, Manual

Sunny Highpower PEAK3 125-US

Sunny Highpower PEAK3 150-US

Technical Data

Input (DC)	187500 Wp STC	225000 Wp STC
Maximum array power	187500 Wp STC	225000 Wp STC
Maximum system voltage	705 V ~ 1450 V	880 V ~ 1450 V
Rated MPP voltage range	684 V ~ 1500 V	855 V ~ 1500 V
MPP operating voltage range		
MPP trackers	1	180 A
Maximum operating input current	325 A	325 A
Maximum input short-circuit current		
Output (AC)		
Nominal AC power	125000 W	150000 W
Maximum apparent power	125000 VA	150000 VA
Output phases / line connections	3 / 3 PE	3 / 3 PE
Nominal AC voltage	480 V	600 V
Compatible transformer winding configuration	Wye-grounded	Wye-grounded
Maximum output current	153 A	153 A
Rated grid frequency	60 Hz	60 Hz
Grid frequency / range	50 Hz, 60 Hz / ± 5 Hz ... ± 6 Hz	50 Hz, 60 Hz / ± 5 Hz ... ± 6 Hz
Power factor at rated power / adjustable displacement	1 / 0.0 leading ... 0.0 lagging	1 / 0.0 leading ... 0.0 lagging
Harmonics (THD)	< 5%	< 5%
Efficiency		
CEC efficiency	98.5 %	99.0 %

Protection and safety features

Ground fault monitoring, Rco / Differential current	✓ / ✓
DC reverse polarity protection	✓
AC short circuit protection	✓
Monitored surge protection (Type 2) DC / AC	✓ / ✓
Protection class / overvoltage category (as per UL 840)	1 / IV

General data

Device dimensions (W / H / D)	770 / 830 / 444 mm (30.3 / 32.7 / 17.5 in)
Device weight	98 kg (216 lbs)
Operating temperature range	-25°C ~ +60°C (13°F ~ +140°F)
Storage temperature range	-40°C ~ +70°C (40°F ~ +158°F)
Audible noise emission (full power @ 1m and 25°C)	< 49 dBA
Internal consumption at night	< 5 W
Topology	Transformerless
Cooling concept	OptiCool (forced convection, variable speed fans)
Enclosure protection rating	Type 4E (as per UL 508)
Maximum permissible relative humidity (non-condensing)	100%

Additional information

Mounting	Rock mount
DC connection	Terminal lugs - up to 900 kcmil CU/AL
AC connection	Screen terminals - up to 300 kcmil CU/AL
LED indicators (Status/Fault/Communication)	✓
SMA Speedrive (Ethernet network interface)	✓
Data protocols: SMA Modbus / Sinus4x Modbus	✓
Integrated Power Control / Q on Demand 24/7	✓
Or-grid capable / SMA Hybrid Controller compatible	✓
SMA Smart Connected (proactive monitoring and service)	✓

Certifications

Certifications and approvals	UL 42109, UL 1996, CAN/CSA C22.3 No.62109
RCC compliance	RCC Part 15, Class A
Grid interconnection standards	IEEE 1547, UL 1741 SA, CA Rule 21, REC0 Rule 14H
Advanced grid support capabilities	LVRT, LVRT, VAWA, VAWA, VAWA, Frequency/Var, Ramp Rate Control, Fixed Power Factor

Warranty

Standard	3 years
Optional extensions	10 / 15 / 20 years

Exhibit C

Attachment 2

CONTRACTOR

CA - B C10 #990001

REC SOLAR

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SAN LUIS OBISPO, CA 93401

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(844) REC SOLAR

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ENGINEER

PUREPOWER ENGINEERING

LICENSED PROFESSIONAL ENGINEER

RICHARD ANDREW IVINS

E 20357

EXP. 06/30/23

STATE OF CALIFORNIA

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

OWNER

FIRESTONE WALKER BREWERY

1400 RAMADA DRIVE

PASO ROBLES, CA 93446

FIRESTONE WALKER BREWERY TRACKER - PHASE 2

1400 RAMADA DRIVE

PASO ROBLES, CA 93446

APN: 009-633-018

REV	DATE	DESCRIPTION
0	11/22/2022	ISSUE FOR PERMIT
1	11/22/2022	DAVID OTT
2	11/22/2022	DAVID OTT
3	11/22/2022	DAVID OTT
4	11/22/2022	DAVID OTT

IFP DESIGN

SHEET TITLE

EQUIPMENT SPECIFICATIONS

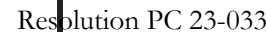
SHEET NUMBER

PV601

Resolution PC 23-033

40 of 41





**PV MAIN AC  
DISCONNECT**

## AC SWITCHBOARD

## PV INVERTERS

## DC COMBINERS

## PV MODULES

**REC SOLAR**  
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**PUREPOWER**  
ENGINEERING



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.

OWNER

**FIRESTONE WALKER  
BREWERY**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

PROJECT LOCATION

**FIRESTONE WALKER  
BREWERY  
TRACKER - PHASE 2**  
1400 RAMADA DRIVE  
PASO ROBLES, CA 93446

APN: 009-633-018

0	11/22/2022	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION
DATE	11/22/2022	
PROJECT NUMBER		
PROJECT MANAGER	DAVID OTT	
PROJECT ENGINEER	TONY STRADER	

## IFP DESIGN

SHEET TITLE

LABELS & SIGNAGE

SHEET NUMBER

**PV701**