AIS.0 ADDITIONAL INFORMATION STATEMENT FOR THE SOITEC SOLAR DEVELOPMENT PROGRAM EIR

1.0 Introduction

This Additional Information Statement provides information regarding a new, optional component of the Soitec Solar Development Project (Proposed Project) that was not analyzed in the Draft Program Environmental Impact Report (DPEIR) dated January 2014. Rugged LLC proposes to include an optional energy storage system in the Rugged solar farm as part of the Proposed Project. This Additional Information Statement describes the energy storage system, analyzes its potential to have a significant environmental impact, and concludes that the addition of the energy storage system on the Rugged solar farm would not affect the conclusions of the DPEIR prepared and circulated for the development of the Proposed Project. The analysis is based on the review of technical information provided for the energy storage unit, as well as the following documents prepared for this component of the Proposed Project:

- *Aesthetics Analysis – Energy Storage* (AIS-1);
- *Supplemental Air Quality and Greenhouse Gas Analysis – Energy Storage* (AIS-2);
- *Addendum to the Acoustical Assessment Report for Rugged Solar* (AIS-3); and
- *Addendum to the Fire Protection Plan for Rugged Solar* (AIS-4).

1.1 Purpose and Need

The State of California adopted Assembly Bill 2514 on September 29, 2011, which set out a mandate for the California Public Utilities Commission (CPUC), by March 1, 2012, to open a proceeding to determine appropriate targets, if any, for each load-serving entity to procure viable and cost-effective energy storage systems and, by October 1, 2013, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by each load-serving entity by December 31, 2015, and a 2nd target to be achieved by December 31, 2020. The bill requires the governing board of a local publicly owned electric utility, by March 1, 2012, to open a proceeding to determine appropriate targets, if any, for the utility to procure viable and cost-effective energy storage systems and, by October 1, 2014, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by the utility by December 31, 2016, and a 2nd target to be achieved by December 31, 2021.

The California Legislature's purpose for requiring energy storage is as follows:

a) Expanding the use of energy storage systems can assist electrical corporations, electric service providers, community choice aggregators, and local publicly owned electric utilities in integrating increased amounts of renewable energy resources into the electrical transmission and distribution grid in a manner that minimizes emissions of greenhouse gases.

b) Additional energy storage systems can optimize the use of the significant additional amounts of variable, intermittent, and off peak electrical generation from wind and solar energy that will be entering the California power mix on an accelerated basis.

c) Expanded use of energy storage systems can reduce costs to ratepayers by avoiding or deferring the need for new fossil fuel-powered peaking power plants and avoiding or deferring distribution and transmission system upgrades and expansion of the grid.

d) Expanded use of energy storage systems will reduce the use of electricity generated from fossil fuels to meet peak load requirements on days with high electricity demand and can avoid or reduce the use of electricity generated by high carbon-emitting electrical generating facilities during those high electricity demand periods. This will have substantial co-benefits from reduced emissions of criteria pollutants.

e) Use of energy storage systems to provide the ancillary services otherwise provided by fossil-fueled generating facilities will reduce emissions of carbon dioxide and criteria pollutants.

On October 17, 2013, the CPUC adopted an order establishing a first-in-the-nation target for the state's three Independently Operated Utilities (IOUs)—San Diego Gas & Electric (SDG&E), Southern California Edison (SCE), and Pacific Gas & Electric (PG&E)—to procure 1.3 gigawatts (GW) of energy storage by 2020. Order Instituting Rulemaking Pursuant to Assembly Bill 2514 to Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems, Rulemaking 10-12-007, at 2 (CPUC 2013), available at http://docs.cpuc.ca.gov/PublishedDocs/
Published/G000/M078/K912/78912194.PDF. SCE and PG&E each have a 580 MW procurement target, and SDG&E has a 165 MW target. The order seeks to use energy storage as one of many mechanisms for optimizing the electricity transmission grid, integrating renewable energy, and reducing GHG emissions.

2.0 Project Description

The applicant proposes to include a component as part of the Rugged solar farm, to be located in southeastern San Diego County. This component consists of energy storage in the form of lithium ion (Li-ion) batteries (energy storage system), which would be located on the Rugged solar farm site in order to store energy produced by CPV trackers and to provide the ability to dispatch this energy upon request depending upon demand and other factors. The battery storage system would provide 160 Megawatt hours (MWh) of Li-ion battery storage in the form of 160 1 MWh containers each measuring 40 feet x 8.5 feet x 9.5 feet (LxWxH) on approximately 7 acres with appropriate fire access and approximately 20 feet of spacing on all four sides of each container.

2.2 Location

The energy storage system would be located on an approximate 7-acre portion of the Rugged solar farm site immediately south of the on-site substation (see Figures 1a and 1b, Energy Storage System Location) in an area previously proposed to be developed with approximately 47 CPV trackers and associated inverters and step-up transformers . The proposed energy storage system would not change the developed footprint of the Rugged solar farm site.

2.3 Components

The Li-ion battery storage would be housed in standard 40’ International Organization for Standardization (ISO) shipping containers. The containers are typically made from 12 to 14 gauge steel. The supplier’s logo would be displayed on each container and containers can be painted to order (i.e., containers can be painted with any color stocked by the supplier). The containers would be oriented in two rows of 80 containers each or in four rows of 40 containers each. An approximate 7-acre area would be required to accommodate two rows of 80 containers and an additional 0.5-acre area would be required to accommodate four rows of 40 containers. Approximately 20 feet of spacing would be provided on all four sides of each container; see Figure 2, Energy Storage Container Size and Spacing. It should be noted that inverters and step-up transformers would be located within the container spacing as described below and as depicted in Figure 3.

The Li-ion batteries (cells) would be arranged into modules, which in turn would be stored in battery racks. The racks would be entirely contained within the container. The container would have an access door at each end and overhead lighting on the interior roof. Each container would have an integrated heating, ventilation, and air conditioning (HVAC) unit located on the roof of the container. Each HVAC unit would measure approximately 7.5 feet in height. An inverter with a battery management system and container control system would be installed externally on a concrete pad next to each container. A step-up transformer would be associated with a set of two containers and would be installed alongside the container on a separate concrete pad. Thus, a total of 160 HVAC units, 160 inverters, and 80 step-up transformers would be associated with the energy storage system. Figure 3 provides an example illustration of the containers, step up transformers, and related infrastructure while Figure 4 provides an example of the typical container interior and battery pack configurations. Figure 5 presents the typical Li-ion battery pack components.

The proposed batteries and containers also include the following important monitoring and safety components:

Modular battery racks designed for ease of maintenance. Every rack's battery monitoring system (BMS) continually monitors for unsafe voltage, current, and temperature, and has control of an automated switch (contactor) to disconnect the rack from the system if necessary.

Integrated fire detection and suppression system

Li-ion nanophosphate chemistry which is considered to be the most stable Li-ion technology and substantially reduces the possibility of thermal runaway and provides for reduced reaction from abuse (Sandia National Laboratories 2012) and A123 Systems (no date).

2.3.1 Project Design Features

The project design features (PDFs) listed in Table 1-10, Summary of Project Design Features, of the DPEIR would also apply to this optional new component of the Rugged solar farm, as appropriate. For example, PDF-AE-1 (visual screening of staging and storage areas), PDF-AE-5 (restriction of outdoor lighting), PDF-AQ-1 (implementation of measures to reduce construction and operational air quality emissions) and conditions of approval that would reduce fugitive dust generation, and PDF-HZ-2 and HZ-3 (implementation of construction and operation fire protection plan) would be applicable to the energy storage system. Furthermore, the applicant has incorporated additional PDFs specifically related to this energy storage system component of the Rugged solar farm. The PDFs are included in Table AIS-1, Summary of Project Design Features, and are referenced throughout the discussion in Chapter 3.0, Environmental Issue Areas and various technical memoranda prepared for environmental issue areas. These PDFs would be made conditions of approval for the Rugged solar farm to ensure these features are incorporated into the solar farm design.

2.4 Comparison

As stated in Section 2.1, the energy storage system would not increase the development footprint of the Rugged solar farm site because it would replace 47 CPV trackers, associated inverters and step-up transformers located on an approximate 7-acre portion of the Rugged site. It should also be noted that the energy storage system would eliminate the need for the proposed backup power and storm positioning system, which, as indicated in Section 1.2.1.1 of the DPEIR (p. 1.0-9), would consist of one of the following options: (1) a 1.5 MW diesel-powered emergency generator or equivalent located at the substation, (2) an Uninterrupted Power Supply (UPS) battery storage system at each inverter station, or (3) a 20 kW propane generator at each inverter skid.

The bulk and scale of energy storage system as compared to 47 CPV trackers would result in slightly greater lot coverage and reduced height. The energy storage system containers would be 9.5 feet tall (when accounting for the height of HVAC units (7.5 feet tall) and associated perimeter screen walls (i.e., implementation of PDF-ES-N-1), the containers and associated components would measure approximately 18 feet tall) as compared to a maximum height of 30 feet above grade for the 47 CPV trackers. As for lot coverage, the energy storage system would consist of 160 containers each measuring 40 feet long by 8.5 feet wide. The containers would be oriented east/west in two rows of 80 (or four rows of 40) containers with approximately 20 feet of spacing on all four sides of each container. Each of the 47 CPV tracker modules is approximately 25 feet long by 48 feet wide. Trackers would be installed in parallel rows, oriented north-south with an estimated spacing of 69 feet north-south and 82 feet east-west. Including associated inverters and transformers, the energy storage system would result in approximately 61,120 square feet of covered area as compared to 54,436 square feet of covered area for the 47 CPV trackers. This equates to approximately 20 percent lot coverage on the approximately 7-acre portion for the energy storage system compared to approximately 17.9 percent lot coverage for the 47 CPV trackers. When taking into account the entire 765-acre site, this translates into a negligible 0.0002 percent increase (from 12.49 percent to 12.51 percent). Therefore, the lot coverage would be similar to that associated with the Rugged solar farm analyzed in the DPEIR, and the development footprint would remain the same.

It should also be noted that implementation of PDF-AE-1 and Mitigation Measure M-AE-PP-1 identified in the DPEIR and other project refinements would remove numerous trackers from targeted locations on the Rugged solar farm site. The plot plans for the Rugged solar farm have been revised to reflect the removal of these trackers. A total of 65 CPV trackers have been removed from the topographical saddle occurring in the southeastern corner of the central subarea of the site to reduce visibility of CPV trackers from Interstate 8. In addition, 31 CPV trackers have been removed from the site for landscape screening purposes (the landscape screen would be installed on the Rugged solar farm site west of McCain Valley Road and east of the O&M annex), and 24 CPV trackers have been removed for additional refinements to the plot plan. In total, the applicant has revised the Rugged solar farm plot plans to reflect the removal of 120 CPV trackers (from 3,588 CPV trackers to 3,468 CPV trackers). With the energy storage system, the number of CPV trackers would be further reduced to 3,421. This would result in an 12.5 percent lot coverage with the energy storage system or 11.9 percent lot coverage without.

2.5 Project Construction, Operation and Decommissioning Activities

2.5.1 Construction Activities and Methods

The construction of the Li-ion energy storage system would consist of site preparation and grading, development of fire access roads, container arrangement, and assembly of accessory components, including transformers and inverters. Because the energy storage system would be located on an area previously proposed to be developed with CPV systems, site preparation and grading would be consistent with what was anticipated in the DPEIR. No additional grading would be required. All existing vegetation would be cleared and grubbed from the area, as originally anticipated in the DPEIR. Fire access roads and pads for each container would be graded consistent with what is required for the entire project. Each container would be directly connected to the onsite substation by an underground buried connection. Each container would be trucked to the site and arranged on a graded pad. Accessory components would be placed either adjacent to or mounted on each container. Following placement of the energy storage systems, fire access roads would be constructed to the required fire code (50,000 lb.) standard. All other disturbed areas would be treated with a permeable nontoxic soil binding agent to reduce fugitive dust and erosion, which is consistent with the DPEIR.

Construction personnel, equipment, and hours of operation would be consistent with that discussed in the DPEIR; refer to Chapter 1.0, Project Description. Compared to the installation of 47 CPV trackers, construction of the optional energy storage system would result in a net increase of approximately 197 one-way delivery trips over an eight month period; refer to Section 3.3, Air Quality, below for details.

2.5.2 Operational Activities and Methods

During operation, containers would be inspected monthly with physical maintenance (equipment testing, continuous remote monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance) occurring annually. All inspections would occur during daylight hours and would be performed by the employees operating the Rugged solar farm. No additional employees would be required for the operation of the energy storage system.

2.5.3 Decommissioning Activities and Methods

The energy storage system would be located on the Rugged solar farm site for the duration of the operation of the solar farm. At the end of the useful life of the solar farms, the energy storage system would be dismantled along with the other components of the solar farm. Components that are nontoxic would be recycled along with the CPV tracker module component materials. The actual battery cells contain hazardous components (see Section 3.6 Hazards and Hazardous Materials, below) and would be disposed of at an appropriate facility that accepts hazardous materials. The containers would be re-purposed for other uses. The energy storage system site would be restored to a condition that would allow future use of the site consistent with the current zoning or future applicable zoning, including either preparation of the site with a nontoxic permeable soil binding agent or reseeding with native species.

The energy storage system would be included in the Rugged solar farm's final decommissioning plan and financial assurances for removal of all components would be the same as for the Rugged solar farm.

2.6 Water Usage

The following discussion analyzes the amount of water that would be needed for the energy storage system during construction and site preparation, ongoing operation and maintenance, and decommissioning and dismantling which would come from groundwater from existing wells located on site. No additional water sources beyond those that have already been identified in the DPEIR for the Rugged solar farm would be required to add the optional energy storage system to the Rugged solar farm. See Section 3.1.5 of the DPEIR for further details about the water supply sources for the Rugged solar farm.

2.6.1 Construction and Application of Soil Binding Agents

As anticipated in the DPEIR, during construction water would be used to suppress fugitive dust during general site preparation—including grubbing, clearing, grading, and soil compaction—and to apply a nontoxic soil binding agent to help with soil stabilization at the end of construction. General site preparation includes all project components (i.e., roads, container and/or building pads, fencing, etc.) within the development footprint of the energy storage system site.

Total estimated water demand for the energy storage system is not anticipated to be greater than that previously calculated for the development of trackers on the same site; therefore, water demand would be consistent with that shown on Table 1-6.

2.6.2 Operation and Maintenance Potable Water Usage

No additional water use would be required for operation and maintenance of the energy storage system. Replacement of 47 CPV trackers would reduce the operational water demand by reducing the number of trackers to be washed. As indicated in Table 1-7 of the DPEIR, operational water demands estimated 24 gallons of water per tracker per washing, and up to nine washings per year. This would result in approximately 10,152 less gallons of operational water demand per year.

2.6.3. Decommissioning and Dismantling

It is estimated that the amount of water necessary to decommission and dismantle the Proposed Project would be the same or less than that required for operations and maintenance, as listed in Table 1-7 of the DPEIR, because there would be no need to use water for concrete mixing, construction site preparation, or tracker washing. Over the operational life of the project, the applicants will allow vegetation to naturally recolonize the site, mowing as needed to maintain vegetation to less than 6 inches in height and to avoid conflicting with facilities or fire protection requirements. Following dismantling and removal of structures, soil binders or a native seed mix will be applied to areas that remain exposed or unvegetated (e.g., access/fire roads and freshly removed concrete pads). Water would primarily be used for the application of soil binders or native seed mix. Decommissioning will not involve installation or use of an irrigation system.

3.0 Environmental Issue Areas

Based on the project description in Section 2.0, the following environmental issue areas are evaluated for impacts relative to the addition of the energy storage system to the Rugged solar farm: aesthetics, biological resources, air quality, noise, greenhouse gas emissions, and hazards and hazardous materials. The following explains the rationale for why these environmental issue areas have been selected and an analysis of potential effects. The analysis is based on the following technical studies prepared for the Rugged solar farm battery storage component:

- Aesthetics Analysis – Energy Storage (Appendix AIS-1);
- Supplemental Air Quality Analysis and Greenhouse Gas Analysis – Energy Storage (Appendix AIS-2);
- Addendum Acoustical Assessment Report, Rugged Solar LLC Project (Appendix AIS-3);
- Addendum Fire Hazards Assessment, Rugged Solar LLC Project (Appendix AIS-4).

3.1 Aesthetics

The energy storage system would introduce additional man-made features to the Rugged solar farm site that could be visible from scenic vistas and public viewpoints. In addition, potentially reflective surfaces associated with the shipping container, HVAC systems and inverters and any outdoor lighting required for nighttime maintenance of energy storage system could affect night and daytime views in the area.

The energy storage system would be located internally within the Rugged solar farm and would consist of 160 9.5-foot tall containers (approximately 18 feet tall when accounting for the height of HVAC units and HVAC unit screen walls) that would be placed in two rows oriented east/west of 80 containers each or four rows of 40 containers each. Because the containers would be surrounded by project components (i.e., CPV trackers) exhibiting a larger vertical scale and form, aesthetic impacts would be minimal; see Appendix AIS-1. With the exception of locations at which superior angle views of the Rugged solar farm are available (i.e., eastbound Interstate 8 at the Tecate Divide and Mt. Tule), visible project components from local area public roads would primarily consist of CPV trackers located along the site boundary. Further, because the height of the top of CPV trackers would range from 13 feet, 6 inches to 30 feet above grade during normal daily operations, CPV trackers would effectively screen the energy storage system during most hours of the day from view of motorists on local area public roads near the solar farm.

On eastbound Interstate 8 at the Tecate Divide, views to the project site would be brief and due to distance, the form, line and texture of energy storage system containers would not be overly distinguishable from CPV trackers. However, color contrasts between containers and surrounding CPV trackers may be perceptible from superior viewing locations. Therefore, it is recommended that the containers be painted a color that is consistent in hue and intensity with the CPV trackers to minimize visible color contrast.

From Mt. Tule, the energy storage system would be viewed as an interior component of the larger Rugged solar farm. The installation of 160 containers, HVAC units and associated step-up transformers would interrupt the continuity and visual pattern of repetitive CPV tracker rows spread across the solar farm however; when viewed from a superior viewing location, the energy storage system would display an altogether short, horizontal form. As such, containers would not obstruct long, westward-oriented scenic views available from Mt. Tule.

In addition, the application of an exterior color to the containers consistent in hue and intensity with the CPV tracker panels (PDF-ES-AE-1) would minimize visible color contrast with the other solar farm components. Therefore, for the reasons discussed above, the inclusion of the energy storage system to the Rugged solar farm would not result in additional impacts to valued focal and/or panoramic vistas; see also Appendix AIS-1.

The DPEIR determined that the Rugged solar farm would produce strong visual contrast with existing vegetation and terrain and that the operation of numerous rows of tall CPV trackers in the McCain Valley would create visible contrast in form and color with existing vegetation and rural residential development. As such, the Rugged solar farm was determined to have significant and unmitigable impacts to existing visual character and quality. Due to the height of CPV trackers, the energy storage system would be screened at most public viewing locations in the surrounding area. Further, public perception of the Rugged solar farm would typically be fashioned by the visibility of peripheral solar farm components and more specifically, by CPV trackers. Therefore, because the energy storage system would be screened from most public viewpoints by taller CPV tracker systems, the inclusion of the energy storage system to the Rugged solar farm would not create impacts to the existing visual character and quality of the project site and surroundings beyond those previously stated in the DPEIR; see also Appendix AIS-1.

The installation of exterior lighting on individual containers, HVAC systems or step-up transformers is not anticipated to be necessary and therefore, no additional nighttime lighting sources would be added to the Rugged solar farm. As such, no new nighttime lighting impacts would occur due to the addition of the proposed energy storage system. As stated previously, containers would be painted a color to match the hue and intensity of CPV tracker panels to minimize potential color contrast within the solar farm. Implementation of PDF-ES-AE-1 would minimize the potential for glare generated by the energy storage system. As stated in the DPEIR, CPV trackers would create glare that would be received by motorists and residences in the surrounding area. This source of glare was determined to be a significant and unmitigatable impact of the Rugged solar farm. The addition of the energy storage system to the Rugged solar farm would not create a substantial source of additional glare that would increase the severity of anticipated glare impacts of the Proposed Project described in the DPEIR; see also Appendix AIS-1.

3.2 Biological Resources

The energy storage system would not result in any additional ground disturbance and as such, impacts to sensitive habitat and natural communities would be the same as discussed in the DPEIR. However, the energy storage system would include features such as HVAC units, step-up transformers and inverters which could increase noise and result in potential impacts to nesting birds or other indirect wildlife impacts. While indirect impacts associated with noise generated during construction of the Rugged solar farm including the energy storage system could affect the nesting success of tree-nesting raptors near the Rugged solar farm site, mitigation measures (i.e.; preconstruction surveys and setbacks) identified in the DPEIR (see Section 2.3, Biological Resources) would be sufficient and would reduce potential impacts to a less than significant level.

Further, operational noise from the Rugged solar farm, including noise generated by the energy storage system HVAC units and transformers would not exceed County noise ordinance thresholds with implementation of PDFs (see Section 3.4, Noise, below). The PDFs would reduce noise levels received at off-site property boundaries that would in turn minimize the potential for additional indirect wildlife impacts associated with proposed energy storage system HVAC units and transformers. As stated in AIS 3 (Acoustical Assessment Report Addendum for the Rugged Solar Project) with incorporation of mitigation measures identified in the DPEIR and PDFs, operational noise from the Rugged solar farm including the optional energy storage system would generate less than 50 dBA at adjacent property lines/natural habitat interface. The United States Fish and Wildlife Service, California Department of Fish and Wildlife and most entities consider noise levels of 60 dBA to be the threshold of indirect noise impacts for federally listed avian species. Therefore, with implementation of PDFs intended to minimize noise received offsite, the Rugged solar farm including the optional energy storage system would generate considerably less noise than the 60 dBA indirect noise threshold and as such, indirect impacts to wildlife would be less than significant.

3.3 Air Quality

Although no additional grading would be required, the energy storage system would require additional truck trips to transport materials to the project site that may impact air quality. Dudek prepared a technical memorandum to address potential air quality and greenhouse gas emission impacts associated with construction and operation of the proposed energy storage system; see Appendix AIS -2. As stated in the technical memorandum, the energy storage system would be located on an area previously proposed to be developed with CPV systems and as such, site preparation and grading would be consistent with that originally anticipated in the DPEIR.

Each container would be trucked to the site and arranged on a graded pad and accessory components would be placed either adjacent to or mounted on each container. Following installation of the energy storage system, fire access roads would be constructed to support the imposed loads of fire apparatus (not less than 50,000 pounds) as required by the County Fire Code. All other disturbed areas would be treated with a permeable nontoxic soil-binding agent to reduce fugitive dust and erosion, which is consistent with fugitive dust control measures identified in the DPEIR. Therefore, the addition of the energy storage system would generate similar air quality emissions during site preparation and grading as previously analyzed in the DPEIR. Transportation of the 160 1MWh energy storage units, including associated transformers, inverters and HVAC units, to the Rugged solar farm site would require the use of heavy duty trucks. Approximately 160 trucks (320 additional one-way trips) would be required for energy storage unit deliveries and these trips would occur over an approximately eight month period following site preparation activities. The energy storage units would replace approximately 47 CPV tracker components previously proposed in the DPEIR as part of the Rugged solar farm. Approximately 123 one-way trips for material deliveries associated with the 47 CPV components that would be replaced by the energy storage system were originally analyzed in the DPEIR. Therefore, with the addition of the energy storage delivery trips and the removal of 47 CPV components, a net increase of 197 one-way delivery trips over an eight-month period would occur. Daily deliveries and delivery trips during construction would not exceed more than 25 energy storage deliveries (50 one-way trips) on any given day. At this level, criteria air pollutants would remain below the County significance thresholds (see Appendix AIS-2 for revised Rugged solar farm construction emissions). Therefore, because the addition of truck trips associated with the transportation of energy storage units would not contribute to an exceedance of the County of San Diego thresholds for the purposes of analyzing air quality impacts, air quality impacts associated with the Rugged solar farm would remain less than significant as originally concluded in the DPEIR.

During operation, containers would be inspected monthly with physical maintenance (equipment testing, continuous remote monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance) occurring annually. All inspections would occur during daylight hours and would be performed by the employees operating the Rugged solar farm. No additional employees would be required for the operation of the energy storage system and therefore, operational emissions would be similar to those previously identified in the DPEIR. Operational air quality impacts associated with the Rugged solar farm would be less than significant; see also Appendix AIS-2.

3.4 Noise

Dudek prepared an Acoustical Assessment Report Addendum that considers and analyzes the potential noise impacts associated with operation of the proposed energy storage system; see Appendix AIS-3. Each energy storage container would each be equipped with an individual HVAC system which generates a noise level of 68 dBA at a distance of 50 feet during full operation (NACO 2011). In addition, between each pair of containers, a step-up transformer would be provided (a total of 80 transformers would be installed). The anticipated transformer model has a sound rating of 60 dB at a distance of 5 feet based on National Electric Manufactures Association (NEMA) ratings for the size of transformer anticipated to be used with inverters (NEMA 2000). The anticipated power inverter is equivalent to a Xantrex model that has a noise level rating of 77 dB at 6 feet (Schneider Electric 2011). However, it should be noted that the anticipated power inverter would be bi-directional (i.e., able to convert AC to DC and DC to AC) whereas the Xantrex model is not.

Figure 5 of Appendix AIS-3 illustrates the noise modeling locations selected to determine the worst-case cumulative noise levels at the property lines, resulting from the building block inverters and transformers, substation transformer, operations and maintenance yard, CPV tracker motors and dryers/blowers. The anticipated operational noise levels from the Rugged solar farm with addition of the energy storage component were assessed at the same locations as identified in the DPEIR. In addition, the noise levels from all the noted equipment were combined and calculated for the nearest property lines without any shielding from proposed buildings. Noise calculation worksheets are included in Appendix AIS-3. Each calculated noise level also includes contribution from the substation transformer, operations yard, tracker and blower motors, and the energy storage system HVAC units and step-up transformers. The calculated noise levels also take into consideration the applicable mitigation measure from the DPEIR, as follows (see Section 2.6, Noise, of the DPEIR):

M-N-R-1 Enclose Inverters in Noise Attenuating Structures: To ensure noise from inverters would comply with the County Noise Ordinance, the following would be implemented:

- Locate non-enclosed inverters a minimum of 800 feet or greater from the nearest property line, or enclose inverters within 800 feet of property lines in cement blocks or other type of structure capable of achieving a minimum 10 dB attenuation.

- Direct all switch station doorways and exterior ventilation ducts away from adjacent property lines.
- Prior to the approval of building plans, a noise analysis shall be prepared that demonstrates that the inverters comply with the County Noise Ordinance.
- The O&M building at the Rugged solar farm shall be located no closer than 1,250 feet from the property line.

Additionally, as indicated in Table AIS-1, the applicant proposes to implement one of two project design feature options (PDF-ES-N-1) based on two different types of HVAC units. Option 1 would be implemented if the energy storage container units are equipped with the standard HVAC unit (NACO Model 30RB120). Each HVAC unit would be surrounded by a solid perimeter screen wall with elevation one foot higher than the top elevation of the HVAC unit. In addition, each step-up transformer and related pair (2) of power inverters would be enclosed with an 8-foot high solid perimeter wall. As indicated in Table AIS-2, the resulting noise level from combined noise sources would comply with the County's noise ordinance criteria at all property boundaries. Thus, operational noise under Option 1 would not result in a significant noise impact; see also Appendix AIS-3.

Option 2 would be implemented if a quieter HVAC unit (Daikin McQuay 025D, or sound equivalent) is used. With this option, each would be surrounded by a solid perimeter (screen) wall with elevation one foot higher than the top elevation of the chiller unit. No transformer or inverter screen walls are proposed or necessary if the Daikin McQuay 025D, or sound-equivalent HVAC model is used. As illustrated in Table AIS-3, the resulting noise level from combined noise sources would comply with the County's noise ordinance criteria at all property boundaries. Thus, operational noise under Option 2 would also not result in a significant noise impact; see also Appendix AIS-3.

Therefore, with implementation of PDF-ES-N-1 and applicable mitigation from the DPEIR (i.e.; M-N-R-1 as described above), operational noise associated with the energy storage system HVAC units, transformers and inverters do not result in additional significant noise impacts.

Because no additional grading would be required and construction equipment and duration would remain the same as evaluated in the DPEIR, the on-site construction noise would not be appreciably altered with substitution of the energy storage units for approximately 47 CPV components (Appendix AIS-3). Installation of the energy storage system would also result in a short-term increase in traffic on the local area's roadway network; approximately 160 truck trips (320 one-way trips) would be required for energy storage units deliveries. However, approximately 123 one-way trips for material deliveries associated with the 47 CPV components were originally analyzed in the DPEIR, and therefore the energy storage unit substitution for 47 CPV trackers would result in a net trip increase of 197 one-way trips over an eight-month period.

As indicated in Section 3.3, even if the energy storage unit deliveries were condensed to reach up to 25 truck trips per day (or 50 one-way trips per day), the peak construction truck traffic would be 197 one-way trips per day. This increase would not be sufficient to increase traffic noise levels a substantial amount. Typically, traffic volumes must double to create an increase in perceptible (3 dBA) traffic noise (Caltrans 2009). The addition of 197 one-way construction-related trips to the roadway network would not double existing traffic levels and, therefore, would not increase traffic noise by 3 dBA.

3.5 Greenhouse Gas Emissions

Electricity required to power the HVAC systems associated with each individual unit would be directly generated on site and would not require an additional external source of electricity. Each individual unit would be designed as an integrated energy storage system, and the HVAC system associated with each individual unit would be directly connected to the energy storage system's output and would not require additional electrical input. Therefore, greenhouse gas emissions associated with electrical use would not increase. As stated in the DPEIR, the total construction-related and operational CO_2E emissions associated with the solar farm would be less than the screening criteria of 900 $MTCO_2E$ recommended by the County. In addition, operational emissions of the Rugged solar farm would not exceed the screening threshold of 2,500 $MTCO_2E$ per year as delineated in the *County of San Diego Guidelines for Determining Significance – Climate Change* (County of San Diego 2013). It should also be noted that the Rugged solar farm has been certified as an Environmental Leadership Project under the Jobs and Economic Improvement through Environmental Leadership Act (Assembly Bill 900) (PRC Section 21178 et seq.) and that the applicant has committed to obtain voluntary carbon offsets or GHG credits from a qualified GHG emissions broker to offset total projected construction and operational GHG emissions as stated in the *AB 900 Application for the Soitec Solar Energy Project* (attached as Appendix 3.1.3-3 to the DPEIR). Therefore, as stated in the DPEIR, there would not be a net-increase in GHG emissions following implementation of the Rugged solar farm, and impacts would be less than significant.

3.6 Hazards and Hazardous Materials

Dudek prepared a Fire Hazards Assessment Addendum (Appendix AIS-4) that considers and analyzes the potential fire hazards associated with operation of the proposed energy storage system. As stated Appendix AIS-4, fire hazards associated with the proposed energy storage systems would be less than significant based on a variety of factors including but not limited to the type of Li-ion nanophosphate batteries identified and associated technological monitoring systems. In addition, the individual energy storage systems would be contained within enclosed shipping containers equipped with cooling, monitoring, and fire suppression systems. These features and others discussed in Appendix AIS-4 would result in minimal potential for battery failure that could lead to thermal runaway or fire.

The Li-ion battery cells that would comprise the energy storage system contain a flammable electrolyte and are kept pressurized. If overheated or overcharged, the battery may combust or catch fire. The battery units contain both hazardous and non-hazardous components. When replaced or no longer needed, hazardous components would be disposed of at a special facility that accepts hazardous materials. Non-hazardous battery unit components/elements including iron, copper, nickel and cobalt are considered safe for incinerators and landfills, or can be recycled, and would be disposed of at an appropriate landfill or recycling facility.

There are applicable results from related tests of Li-ion technology as well as results of chemistry, packaging, and container tests that influence the assessment conducted herein and summarized in Appendix AIS-4. There are extremely large quantities of Li-ion batteries in use for a variety of applications world-wide from cell phones to vehicles to large-scale energy storage. They are also utilized as back-up power for large data storage facilities.

Although statistics were not available at the time of this analysis, research indicates that the number of fire incidents to date, in relation to the number of batteries in use, has been very low (Appendix AIS-4). Li-ion nanophosphate batteries proposed for this Project include more stable chemistry and are less likely to ignite than regular Li-ion batteries, as supported by Sandia National Laboratories (Appendix AIS-4).

Regarding a potential increased wildfire risk associated with operation of the energy storage system, the wildland fire risk in the vicinity of the Proposed Project sites was analyzed in the DPEIR. As stated in the DPEIR, wildfires are likely occurrences in the area but would not be significantly increased in frequency, duration, or size as a result of construction of the Proposed Project (Dudek and Hunt 2013).

Similarly, construction and operation of the energy storage component would not significantly increase wildland fire risk in the area. The energy storage system component would be located in an area set back from wildland fuels and individual energy storage batteries would be located within non-combustible, steel containers equipped with sophisticated monitoring and fire suppression systems. In addition, the Rugged solar site would be largely converted from readily ignited wildland chaparral fuels to ignition resistant facilities and equipment.

Also, the energy storage system would comply with applicable fire codes and include a layered fire protection system designed to current codes including site-specific measures that would result in a project that is less susceptible to wildfire than surrounding landscapes. While an increased wildland fire risk attributable to the energy storage system component is not anticipated, PDF-HZ-3 from the DPEIR requires implementation of the Rugged solar farm FPP which would now include the FPP Addendum (Appendix AIS-4)l, that describes energy storage system design considerations and training/monitoring protocols that would be implemented and would ensure additional fire hazards would be less than significant.

The addition of the proposed energy storage system would not increase the anticipated fire service calls from the Rugged solar farm and would not result in inadequate emergency access. The number of annual fire service calls to the Rugged solar farm site, including the energy storage component, is anticipated to be the same as stated in the DPEIR. Access consistent with the Consolidated County Fire Code would be provided for the energy storage system and throughout the Rugged solar farm facility.

Lastly, the Rugged solar farm (including the energy storage system) would have sufficient operational water supplies to serve the project from existing entitlements and resources as described in Section 3.1.5 of the DPEIR.

3.7 Transportation and Traffic

As stated in Section 3.3, although no additional grading would be required, the energy storage system would require additional truck trips to transport materials to the Rugged solar farm site. Installation of the energy storage system would result in a short-term increase in traffic on the local area’s roadway network; approximately 160 truck trips (320 one-way trips) would be required for energy storage units deliveries. However, approximately 123 one-way trips for material deliveries associated with the 47 CPV components were originally analyzed in the DPEIR, and therefore the energy storage unit substitution for 47 CPV trackers would result in a net trip increase of 197 one-way trips over an eight-month period. Daily deliveries and delivery trips during construction would not exceed more than 25 energy storage deliveries (50 one-way trips) would be permitted to occur on any given day.

According to information presented in Table 3.1.8-4 of the DPEIR, Mobility Element Roads included on the anticipated construction access route to Rugged solar farm site (i.e., I-8, Ribbonwood Road (south of I-8), and Old Highway 80) are operating at LOS A. Therefore, the net trip increase of 197 one-way trips over an eight-month period would not cause roadway operations to fall below LOS D. In addition, non-Mobility Element Roads used by construction are operating at an acceptable LOS and the addition of approximately 197 one-way trips over an eight-month period when construction traffic generation would be greatest would not cause Ribbonwood Road (north of I-8) or McCain Valley Road to exceed their assumed design capacity as it pertains to acceptable traffic volumes on a Rural Residential

Collectors (i.e., less than 4,500 ADT – see Table 3.1.8-5 in the DPEIR). Also, construction traffic on Mobility Element and non-Mobility Element Roads would be reduced with implementation of M-AQ-PP-2 from the DPEIR, which would implement a construction worker ridership program having a goal of decreasing single-occupancy vehicle trips by 30%. In addition, PDF-TR-1(Traffic Control Plan, Construction Notification Plan, and Notification and Provision of Access to Property) from the DPEIR would ensure the safe, timely movement of traffic through the area. As such, construction traffic impacts would remain at a level less than significant. No additional operational traffic trips would result from implementation of the energy storage system.

Table AIS-1
Summary of Energy Storage System Project Design Features

Subject Area	Design Feature or Construction Measure
Aesthetics	**PDF-ES-AE-1** Energy storage system containers shall be painted a color consistent in hue and intensity with CPV tracker. Materials, coatings, or paints having little or no reflectivity shall be used whenever possible.
Noise	**PDF-ES-N-1** To ensure noise from energy storage system HVAC units, transformers, and inverters will comply with the County Noise Ordinance, one of the following measures shall be implemented: a) If the battery storage container units are equipped with the standard HVAC unit (NACO Model 30RB120, or equivalent), each HVAC unit shall be surrounded by a solid perimeter screen wall with elevation one foot higher than the top elevation of the HVAC unit. In addition, each step-up transformer and related pair (2) of power inverters shall be enclosed with an 8-foot high solid perimeter wall. b) If the battery storage container units are equipped with a quieter HVAC unit (Daikin McQuay 025D, or equivalent), each HVAC unit shall be surrounded by a solid perimeter screen wall with elevation one foot higher than the top elevation of the chiller unit. No transformer or inverter screen walls are necessary if the Daikin McQuay 025D, or sound-equivalent HVAC model is used.

Table AIS-2
Summary of Project Noise Levels at Property Lines
Option 1 (PDF-ES-N-1)

Property Line	Project Noise Level (dBA Leq)	Exceed County daytime noise limit (50 dBA Leq)	Exceed County nighttime noise limit (45 dBA Leq)
#1	44	No	No
#2	42	No	No
#3	42	No	No
#4	45	No	No
#5	45	No	No
#6	44	No	No
#7	41	No	No
#8	42	No	No

Table AIS-2
Summary of Project Noise Levels at Property Lines
Option 1 (PDF-ES-N-1)

Property Line	Project Noise Level (dBA Leq)	Exceed County daytime noise limit (50 dBA Leq)	Exceed County nighttime noise limit (45 dBA Leq)
#9	42	No	No
#10	44	No	No
#11	42	No	No
#12	43	No	No
#13	44	No	No
#14	43	No	No
#15	43	No	No
#16	45	No	No

Source: Appendix AIS-3

Table AIS-3
Summary of Project Noise Levels at Property Lines
Option 2 (PDF-ES-N-2)

Property Line	Project Noise Level (dBA Leq)	Exceed County daytime noise limit (50 dBA Leq)	Exceed County nighttime noise limit (45 dBA Leq)
#1	44	No	No
#2	41	No	No
#3	42	No	No
#4	44	No	No
#5	44	No	No
#6	44	No	No
#7	41	No	No
#8	42	No	No
#9	42	No	No
#10	44	No	No
#11	42	No	No
#12	43	No	No
#13	44	No	No
#14	43	No	No
#15	43	No	No
#16	44	No	No

Source: Appendix AIS-3

VISUAL AND
TECHNICAL SPECIFICATIONS

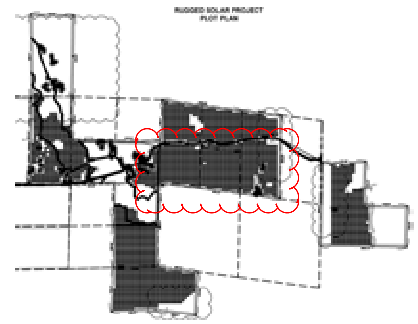
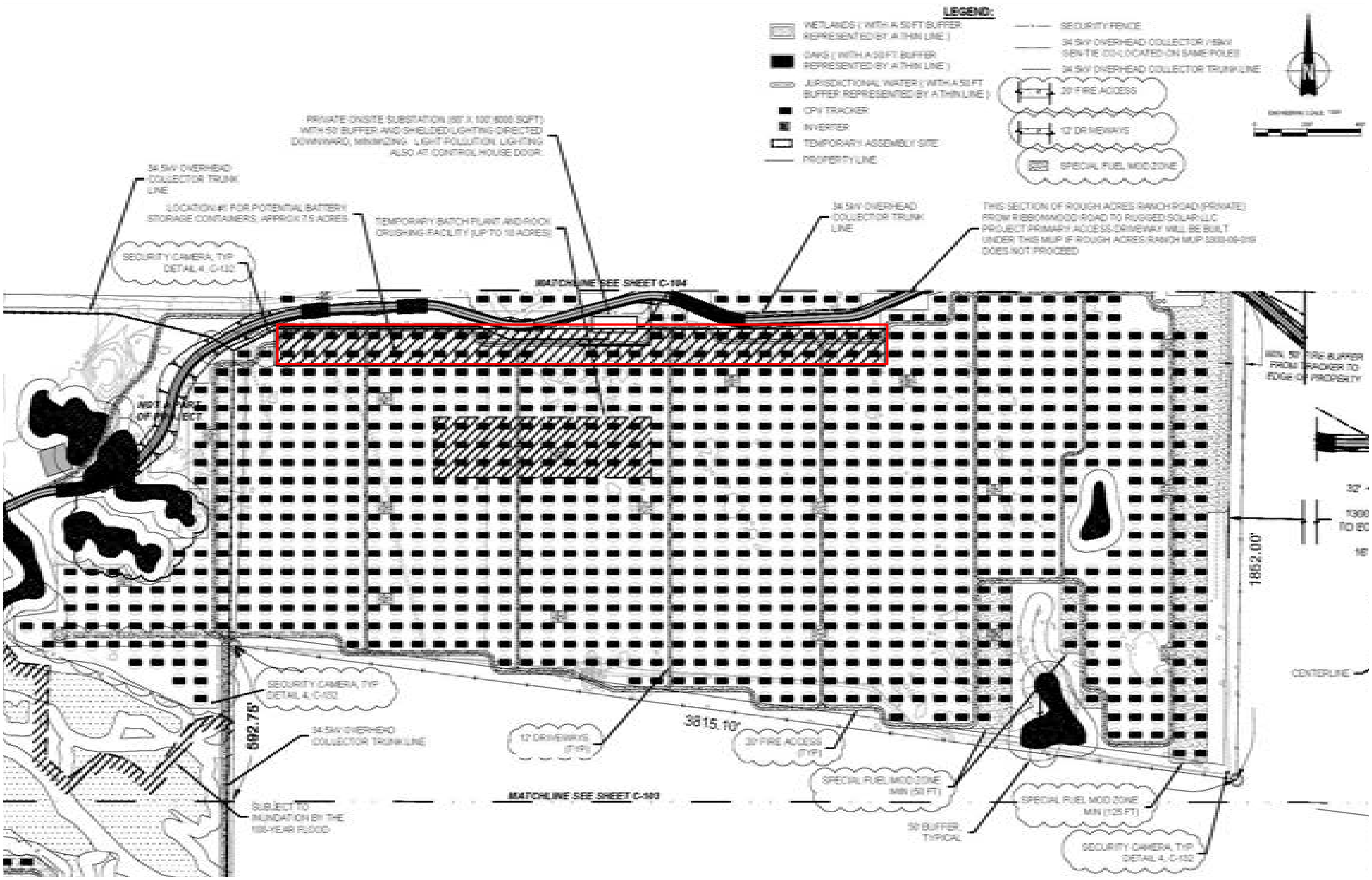


Figure 1a

Example Location for Battery Storage Containers



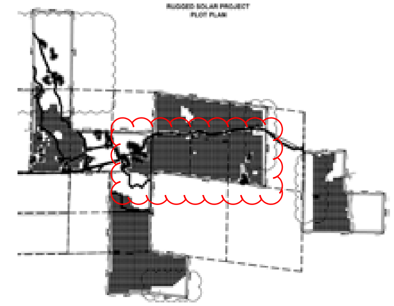


Figure 1b

Example Location for Battery Storage Containers

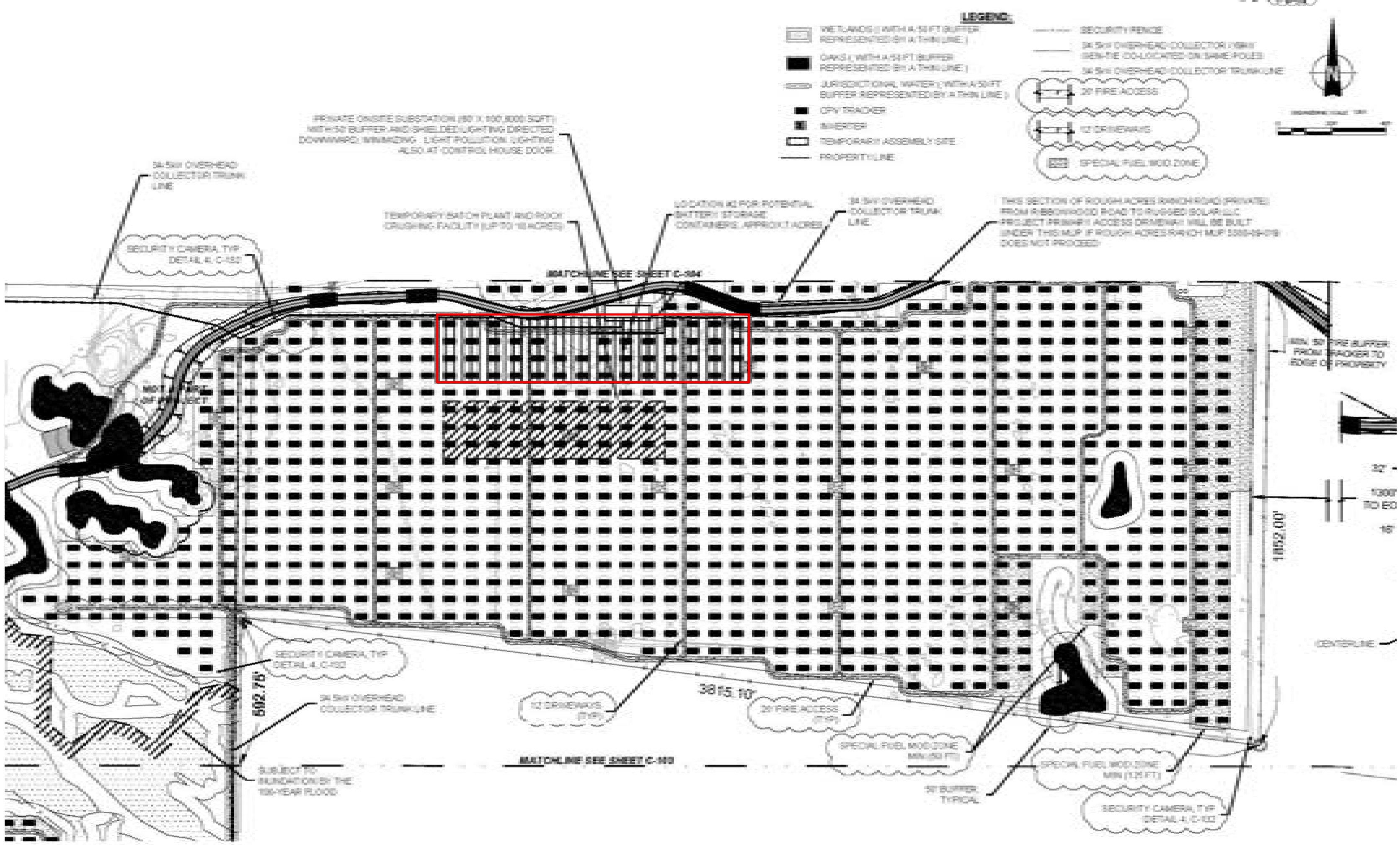


Figure 2
Energy Storage Container Size and Spacing