APPENDIX O

Fire Prevention and Safety Plan

Fire Prevention and Safety Plan

Sapphire Solar Project

FEBRUARY 2023

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AED	Automated External Defibrillator
AMSL	Above mean sea level
BESS	Battery Energy Storage System
BLM	Bureau of Land Management
CBC	California Building Code
CEQA	California Environmental Quality Act
CO2	Carbon Dioxide
COD	Commercial Operation Date
CUP	Conditional Use Permit
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
EDFR	EDF Renewables Development, Inc
EIS	Environmental Impact Statement
FPSP	Fire Prevention & Safety Plan
FSC	Fire Safety Coordinator
IC	Incident Commander
Linear Facility Route	Gen-tie line alignments, access roads, and collector line routes
kV	Kilovolt
MW	Megawatt
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NH	National Hose
NWS	National Weather Service
O&M	Operation & Maintenance
PPE	Personal Protective Equipment
PUP	Public Use Permit
PV	Photovoltaic
RCFD	Riverside County Fire Department
RFW	Red Flag Warning
ROD	Record of Decision
ROW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SCE	Southern California Edison
SSO	Site Safety Officer
TBD	To Be Determined
WUI	Wildland-Urban Interface

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Definitions

Activity Risk: Activity risks include those actions that present a risk of igniting a wildfire.

Site Safety Officer (SSO): The SSO serves as a liaison to the emergency service agencies and all contractors or inspectors on the jobsite for the utilities on emergency incidents and construction-related activities. The Fire Safety Coordinator has the authority to stop any Project work that appears to pose a particular fire risk or hazard.

Fire Season (FS): Fire season is no longer officially designated by the wildland fire agencies. Southern California is considered to be in FS on a yearlong basis. CALFIRE adjusts their staffing patterns as fire conditions moderate or escalate and this can be used as an indicator of potential fire activity.

Incident Commander (IC): The Sapphire Solar Fire Safety Coordinator will be the single point of contact for all utility resources (people and equipment) on an emergency incident. This person will interface with the Incident Commander, as necessary.

Red Flag Warning (RFW): A Red Flag Warning is issued for a stated period of time by the National Weather Service using pre-determined criteria to identify particularly critical wildfire danger in a particular geographic area. All ground disturbance and activities with the potential to start a fire shall cease during RFWs.

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1 Introduction

This Fire Prevention and Safety Plan (FPSP) will detail practices designed to address potential impacts from construction and operation of the Sapphire Solar Project (Project) in Riverside County, California. This plan provides guidance to construction and field personnel on measures identified by EDF Renewables Development, Inc. (EDFR) on behalf of Sapphire Solar, LLC (Applicant) to mitigate fire risks during construction, operations, and decommissioning activities associated with the Project. It will be the responsibility of EDFR and its Project contractors to comply with measures identified in this plan.

The BLM would be responsible for responding to wildfires located within their Direct Protection Areas (DPA) in conjunction with the Riverside County Fire Department (RCFD) and California Department of Forestry and Fire Protection (CAL-FIRE). A DPA is an area for which a particular fire protection organization has the primary responsibility for attacking an uncontrolled fire and for directing the suppression action. The Project's Linear Facility Routes are located on BLM land within a BLM Development Focus Area (DFA). RCFD would be responsible for responding to wildfires within the Project's solar energy generation facility, which will be located entirely on private lands and along the linear facilities located on BLM administer lands.

Riverside County will be the California Environmental Quality Act (CEQA) lead agency for the Project. The BLM will be the National Environmental Policy Act (NEPA) lead agency for the Project's Linear Facilities Routes located on BLM land. This Fire Prevention and Safety Plan has been prepared consistent with CEQA and NEPA standards in order to support preparation of Project's environmental documents and the discretionary land use decisions that will be undertaken by the Riverside County Board of Supervisors and the BLM.

EDFR will also prepare an emergency response plan (ERP), which will be developed in accordance with OSHA standards and other applicable federal, state, and local occupational safety and health laws, regulations and standards.

1.1 Project Description

EDFR on behalf of Sapphire Solar, LLC proposes to entitle, construct, operate, and maintain the Project, located in Riverside County, California. The Project would consist of approximately 1,192 acres with approximately 1,082 acres of private lands and approximately 110 acres of BLM administered lands. The Project would include up to 117-MW of photovoltaic solar generation and up to 117-MW of battery storage (Figure 1, Project Location).

The Project would primarily consist of PV panels, a single-axis tracker system, inverters, converters, transformers, electrical collection and communication lines, a 12-kilovolt (kV) distribution line for backup power, an on-site electrical substation, a battery energy storage system (BESS), security fence, an operations and maintenance (O&M) facility including a stand along storage building, up to three onsite groundwater wells, meteorological station and albedometer weather station, a microwave/communication tower, and a supervisory control and data acquisition (SCADA) system that are located on private lands.

The Project would also include up to three 230-kV generation tie (gen-tie) line alignment options, access roads, and collector line routes, collectively referred to as "Linear Facility Routes," that are located on federal public lands administered by the BLM and designed to support the proposed Project, which is located on adjacent private lands. Table 1, provides a summary of the Project components that could be located within the proposed Linear Facility

Routes. The Project would interconnect with the Southern California Edison (SCE) Red Bluff Substation via the existing Desert Harvest gen-tie line located on lands administered by the BLM.

Table 1. Project Components to be Located Within Linear Facility Routes

Linear Facility Route	230 kV Gen-Tie Line	Access Road	Above Ground Electrical Lines, Spur Roads, and Temporary Pulling and Tensioning Stations	Underground Collector Lines	12-kV Distribution Line
Linear Facility Route #1	●	✓	●	●	●
Linear Facility Route #2	●	✓	●	●	●
Linear Facility Route #3		●		✓	

Notes:
✓=Facilities that will be located in Linear Facility Route
●=Facilities that may be located in Linear Facility Route

The Applicant is pursuing a Conditional Use Permit (CUP), Public Use Permit (PUP), and a Development Agreement (DA) from Riverside County for the private lands associated with the Project and a Right-of-Way (ROW) grant from the BLM for the BLM administered lands associated with the Project. As such, Riverside County will serve as the CEQA lead agency and the BLM as the NEPA lead agency.

Construction of the Project is anticipated to occur in two phases. The first phase would consist of construction of the gen-tie line, telecommunication line, 12-kV distribution line, and access roads associated with the Linear Facility Routes, and the construction of fences, gates, and the onsite substation located on the private lands associated with the Project. The second phase would consist of installation and operation of the approximately 117-MW solar array, the approximately 117-MW BESS, and ancillary facilities. Construction is anticipated to commence in September of 2024 and the Commercial Operation Date (COD) is anticipated to occur in December of 2025. The operational life of the Project is anticipated to be 39 years with potential for extension to 40 years or greater.

1.2 Project Location and Access

The proposed Project site is located in Riverside County, California, approximately five miles north of Desert Center, approximately 40 miles west of the City of Blythe, and three and a half miles north of Interstate 10. The Project is bounded on the north, east, and west sides by BLM lands and to the south by Belsby Avenue. Melon Street runs along the west side of the Project boundary and Jojoba Street on the east.

Two County roads intersect the interior of the Project site from east to west, including Investor Avenue and Osborne Avenue. The portion of Osborne Avenue that intersects the Project site is approximately 0.6 mile long. Osborne Avenue is identified by Riverside County as a road “accepted for public use” by Riverside County. The portion of Investor Avenue that intersects the Project site is approximately 1 mile long. Investor Avenue is identified by Riverside County as a road “accepted for public use.” The portions of Osborne Avenue and Investor Avenue that intersect the Project site would be removed from public use.

The east side of the Project site is adjacent to California State Route 177/Rice Road. Primary construction access would be from the main access road via Kaiser Road. A secondary access road for emergency services would be constructed within the Linear Facility Route from either Kaiser Road (Linear Facility Routes #1 and #2) or Interstate 10 and California State Route 177/Rice Road (exit 192) (Linear Facility Route #3). Two 24-foot-wide unpaved driveways with up to 5-foot shoulders on either side to enter the Project site off this existing road will be constructed. The driveways will provide independent points of ingress/egress to the Sapphire Solar Project as required by Riverside County Fire Department.

While the Linear Facility Routes are within the land use jurisdiction of the BLM Palm Springs South Coast Field Office, the Sapphire Solar Project is within the land use jurisdiction of Riverside County. The entirety of the 110-acre area associated with the three Linear Facility Routes on BLM administered lands is located within a DFA for solar, wind, and geothermal Projects as designated by the Desert Renewable Energy Conservation Plan (DRECP). The DRECP Final Environmental Impact Statement (EIS) was approved by a Record of Decision (ROD) signed on September 14, 2016.

1.3 Topography and Vegetation

The topography of the Project site generally slopes downward toward the northeast at a gradient of less than 1 percent. Ground surface elevations at the Project site range from approximately 550 feet above mean sea level (amsl) in the eastern solar parcel to 660 feet amsl near the western end of the parcel. Anthropogenic impacts and land use near the Project site include aquaculture, transportation (Kaiser Road, Rice Road/SR 177), agricultural, renewable energy (both existing and proposed), energy transmission, historical military operations, and recreational development. The solar facility is situated within fallowed agriculture land that was used for cultivating jojoba and supported ruderal vegetation including several nonnative species. The Linear Facility Routes are situated on land dominated by Sonoran creosote bush scrub.

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2 Project Specific Risk Summary

2.1 Fire Risk

The estimated risk associated with the Sapphire Solar site is considered to be low to moderate during construction and decommissioning and low during operation The risk of fires associated with solar photovoltaic (PV) facilities is low because of newer technology techniques and improved fire prevention techniques and maintenance including vegetation management. The active construction phase results in higher potential for ignition because hot work, vegetation clearing, and other activities that may result in flame or heat sources to ignite vegetation, especially if non-native grasses have established and cured. However, with proper clearance and maintenance of vegetation, this risk could be mitigated.

Key actions to reduce the risk of fire for the Sapphire Solar Project include having clear safety standards for all components of the Project such as water, fire suppression systems, emergency and notification procedures, training, and vegetation management. During construction and operation, this would specifically entail proper vegetation maintenance according to appropriate fire codes and ensuring proper use of all equipment including but not limited to chainsaws, welders, or vehicles around or near any vegetation. This would also entail emergency and evacuation protocols including notification procedures with clear, comprehensive, and consistent training of staff to execute those protocols. Additional measures would also include clear communication with relevant stakeholders including BLM and Riverside County Fire Department (RCFD).

Fire risks must be assessed based upon the potential frequency (probability of an incident occurring) and consequence (potential damage should an event occur). Among the listed potential causes of fire incidents involving solar and BESS facilities that are relevant for this study are:

- Explosion/Arcs, arc flashing, electrical shorts, sparking, motor or other machinery fire, wiring and harnessing fire, overheated junction boxes, rodents chewing on wires and causing arcing, etc.
- Collapse of supporting structure causing electrical shorts and fire.
- Overgrown vegetative fuel under and around the array.
- Equipment and supplies stored under arrays for shading.
- Trash cans, smoking areas, and other combustible storage under arrays.
- Fire in an inverter.
- Short circuit and fire of components in or on a panel.
- Lubricating and control oil fire.
- Fire from BESS caused by battery damage.
- Fire from BESS due to failure of the battery management system.
- Switchgear and cable fire.
- Backup generators for the O&M building and the onsite substation.

2.1.1 Construction and Decommissioning Phase Risks

The Project's fire risks are associated with the following:

- **Earth-moving equipment** – create sparks, heat sources, fuel or hydraulic leaks, etc.
- **Chainsaws** – may result in vegetation ignition from overheating, spark, fuel leak, etc.
- **Vehicles** – heated exhausts/catalytic converters in contact with vegetation may result in ignition.
- **Welders** – open heat source may result in metallic spark coming into contact with vegetation
- **Wood chippers** – include flammable fuels and hydraulic fluid that may overheat and spray onto vegetation with a hose failure.
- **Temporary vegetation piles** – large piles that are allowed to dry and are left on-site may result in combustion and potential for embers landing in adjacent vegetation.
- **Grinders** – sparks from grinding metal components may land on a receptive fuel bed.
- **Torches** – heat source, open flame, and resulting heated metal shards may come in contact with vegetation.
- **Dynamite/blasting** – if necessary, blasting may cause vegetation ignition from open flame, excessive heat or contact of heated material on dry vegetation.
- **Other human-caused accidental ignitions** – ignitions related to discarded cigarettes, matches, temporary electrical connections, inappropriately placed generators, poor maintenance of equipment, and others.

2.1.2 Operation and Maintenance Phase Risks

Ignition risks are anticipated to drop considerably following the Project's active construction phase. Operation and maintenance activities occur within a defined Project footprint where the adjacent fuels have been removed or converted to fuel modification-consistent vegetation.

- **Transformers** – are subject to occasional failure, sending sparks, hot materials out in any direction; fire in a transformer may result in ignition of the oil therein.
- **Capacitors** – may overheat, fail, and cause a spark, which may result in combustion of flammable materials, such as vegetation, if nearby.
- **Electrical transmission lines** – energized lines may arch from adjacent vegetation (trees) or if tower/pole fails, may arch on the ground, causing ignition of vegetation.
- **Substations** – include various electrical components that may explode, fail, or ignite and include oil-cooled transformers.
- **Vehicles** – heated exhausts in contact with vegetation may result in ignition.
- **Hot works equipment** – all small hand tools either gas or electric powered that may result in sparks, flames, or excessive heat may result in vegetation ignition.
- Wildlife coming into contact with solar panels specially avian species.
- **BESS** - excess heat caused by lithium-ion battery defects or damage that could start fires or explosions.
- **BESS** – failure of the battery management systems.

2.1.3 Power Line Risks

Electrical transmission and collection lines such as those proposed for this Project and associated structures can start fires in a number of ways, including the following:

- Uncleared vegetation, especially trees, coming into contact with conductors.
- Sparks (from exploding hardware such as transformers and capacitors) coming into contact with vegetation.
- Wind-blown debris coming into contact with hardware such as transformers and conductors.
- Conductor-to-conductor contact.
- Aircraft or helicopter, or attached features such as fire-fighting water buckets, coming into contact with power line hardware and support structures.

2.2 Sapphire Solar Energy Project Risk Rating

The estimated risk associated with the Sapphire Solar site is considered to be low to moderate during construction and decommissioning and low during operation. The risk of fires associated with solar facilities is low. The active construction phase results could result in higher potential for fires. Hot works, vegetation clearing, and other activities that may result in flame or heat sources can ignite vegetation, especially if non-native grasses have established and cured. However, with proper vegetation clearance and maintenance during construction and O&M of the project, this risk is minimized. Although there will be a potential for structural/equipment fires and wildfires, the risk is considered manageable as indicated by the low historic fire occurrence in existing solar facilities including by not limited to the nearly Desert Sunlight, Desert Harvest, Athos, Victory Pass, and Palen Solar Projects.

2.3 Risk Reduction Measures

The following measures will be employed, as appropriate, during each phase of the Project (construction, operation and maintenance and decommissioning) to reduce the risk of ignitions. These measures will be enforced through the SSO and ongoing worker safety training.

- Fire prevention rules shall be posted on the Project bulletin board at the contractor's field office as defined in section 8.
- This shall include all contractors and subcontractors if more than one.
- All internal combustion engines used at the Project site shall be equipped with spark arrestors that are in good working order.
- Once initial roads have been cut and initial fencing completed, light trucks and cars shall be used only on roads where the roadway is cleared of vegetation. Mufflers on all cars and light trucks shall be maintained in good working order.
- During construction activities the Project will be equipped with at least one and up to three water trucks each of 4,000-gallon capacity. Each truck will be equipped with 50 feet of 1 /4" fast response hose with fog nozzles. Any hose size greater than 1 ½" shall use National Hose (NH) couplings.
- All pickup trucks will be equipped with first-aid kits, fire extinguishers and shovels.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

- The Applicant shall make an effort to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to outside of red flag warning periods. When the above tools are used, water trucks equipped with hoses, fire rakes and axes shall be easily accessible to personnel.
- A fire watch (person responsible for monitoring for ignitions) will be provided during hot work and shall remain at the site for up to one hour following completion of the hot work activities.
- Smoking shall be prohibited in wildland areas and within 50 feet of combustible materials storage and shall be limited to paved areas or designated areas cleared of all vegetation.
- The construction site shall be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- All construction workers and maintenance workers visiting the Project to perform maintenance activities shall receive training on the proper use of firefighting equipment and procedures to be followed in the event of a fire.
- All on-site employees shall participate in annual fire prevention and response training exercises with the RCFD if required and provided locally by RCFD.
- A SSO will perform daily patrols of the site during RFW equipped with a portable fire extinguisher and communications equipment. The Applicant shall notify the BLM and County of the name and contact information of the current SSO in the event of any change.
- Remote monitoring of all major electrical equipment (transformers and inverters) will screen for unusual operating conditions. Higher than normal temperatures, for example, can be compared with other operational factors to indicate the potential for overheating which, under certain conditions, could precipitate a fire.
- Fires ignited on site shall be immediately reported to the RCFD.
- The engineering, procurement, and construction contracts for the Project shall clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in this Fire Prevention and Safety Plan.
- Water system will include on site water storage, RCFD approved connections and RCFD approved fire flow pressures and durations.
- Water tank(s). will be located on site and will be sized to comply with RCFD requirements.
- A temporary water storage tank with an approximate storage capacity of 15,000 gallons shall be maintained onsite during construction and will be made available for firefighting purposes.
- Vegetation on-site, under trackers, adjacent internal roads, and directly adjacent the perimeter fence shall be maintained in a low fuel, ignition resistant condition and shall be trimmed/mowed as needed or controlled via herbicide acceptable to BLM and/or the County, as applicable.

2.3.1 Battery Energy Storage System Risk Reduction

Potential hazards associated with battery energy storage systems are primarily associated with the possibility of thermal runaway (similar to overheating) occurring from a malfunctioning or damaged battery. Newer battery technologies have minimized the occurrence of thermal runaway through a system of protections including internal cell monitoring and partitioning; use of nonflammable chemicals; container design and features; ventilation, and air-conditioning systems; and inert gas fire suppression systems.

The Project's battery energy storage system will include self-contained container units, measuring approximately 70 feet long by 13 feet wide by 15 feet high (these dimensions can vary by manufacturer), situated in a parallel configuration. Foundational pads for the BESS containers and inverters would include structural material like crushed aggregate, concrete, and/or steel. Inverters would convert the DC electric input into grid-quality AC output and would be located within an enclosure. The inverters would be located throughout the solar field and connected to the Project onsite substation via the collection system.

The proposed Project will use battery storage systems that are National Fire Protection Association (NFPA) 855 Code compliant, and UL certified and that include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire.

Under normal operations, BESS facilities do not contain, store or generate hazardous materials in quantities that would represent a risk to off-site receptors. In addition, the Project's preventative measures and fire and safety systems, as described below, make an accident condition very rare. Nevertheless, because BESS facilities do store energy, a battery thermal runaway can occur if a cell, or area within a cell, reaches elevated temperatures due to thermal failure, mechanical failure or internal/external short circuiting.

All stationary battery storage facilities in California are required to comply with Chapter 12 (Energy Systems) and particularly Section 1206 (Electrical Energy Storage Systems) of the California Fire Code, which has adopted internationally and federally accepted NFPA 855 standards for the design, construction, installation, commissioning, operation and maintenance of stationary energy storage systems. In addition to compliance with the 2022 California Fire Code, the Project will also comply with all other local, state, and federal safety standards and regulations, including those of the Riverside County Fire Department.

Pursuant to the 2022 California Fire Code, all battery manufacturers must prove that a failed battery cell inside and enclosure will not cause a fire outside the system. The Project must meet the industry standards for adequate separations, cascading protections, and suppression systems to limit failure to a single battery cell. All BESS must use an Energy Management System for 24/7 monitoring, management, and balancing of cell voltages, currents and temperatures in order to ensure every cell remains within its safe operating parameters. The system must transmit an alarm signal if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage, are detected. This system is capable of controlling and isolating individual cells from the rest of the system both remotely and manually.

The Project will utilize pre-engineered battery storage systems equipped with integrated operational management systems, fire, and safety systems, such as HVAC, ventilation, gas, heat and smoke detection and alarms, and fire extinguishing and suppression systems. The 2022 California Fire Code contains safety standards for the system's construction (e.g., frame and enclosure, including mounting, supporting materials, barriers and more); the insulation, wiring, switches, transformers, spacing and grounding; safety standards for performance, such as tests for temperature, volatility, impact, overload of switches, and an impact drop test; and standards for manufacturing, ratings, markings, and instruction manuals. In addition to the many individual standards referenced, a Failure Mode and Effects Analysis (FMEA) must be performed for each system and requires a test to ensure safe compatibility of the system's parts.

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

- Modular battery racks designed for ease of maintenance
- Integrated heat and fire detection and suppression system

- Integrated air conditioning system
- Integrated battery management system

The heat and fire detection system will be linked to an automatic inert gas suppression system within each container. The containers would also have a basic interior sprinkler system with several sprinkler heads for coverage and an external dry standpipe for fire fighters to connect and pump water.

2.4 Daily Fire Prevention Measures

To limit the risk of fires, all site staff, employees, and contractors shall take the following precautions:

- Fire safety shall be a component of daily tailgate meetings. Foremen will remind employees of fire safety, prevention, and emergency protocols daily.
- No smoking will be allowed on site except in designated safe smoking areas which include cleared area with no combustible vegetation or materials and approved butt receptacles (noncombustible containment of cigarette butts). Smoking inside closed vehicles at the site may be allowed in designated areas away from vegetation, at the discretion of the SSO.
- Combustible materials will be stored in areas away from native vegetation. Whenever combustibles are being stored in the open air, the SSO shall be informed of the situation.
- Maintain all evacuation routes free of obstructions. Coordinate unavoidable evacuation route blockages such that a secondary route is identified and available.
- Dispose of combustible waste in accordance with all applicable laws and regulations.
- Use and store flammable materials in areas away from ignition sources.
- Properly store chemicals such that incompatible (i.e., chemically reactive) substances are separated appropriately.

2.4.1 Fire Prevention/Protection System Maintenance

The SSO (or trained specialist, when necessary) will ensure that fire suppression and related equipment is maintained according to manufacturers' specifications. NFPA guidelines shall be implemented for specific equipment.

The following equipment is subject to ongoing maintenance, inspection, and testing procedures:

- portable fire extinguishers
- fire alarm systems
- water trucks and associated equipment
- emergency backup generators/systems and the equipment they support.

2.5 Hot Work

These requirements are primarily from California Fire Code (CFC) Chapter 35, “Welding and other Hot Work,” and NFPA 51-B, “Fire Prevention During Welding, Cutting and other Hot Work”. Hot Work is defined in the CFC as operations involving cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying,

thawing pipe, or other similar operations. Hot Work areas are defined as the areas exposed to sparks, hot slag, radiant heat, or convective heat because of the Hot Work.

A Hot Work Permit shall be obtained from the SSO, following guidelines from RCFD, for all Hot Work regardless of location. The SSO will require all Hot Work to be done per requirements in NFPA 51-B and the Fire Code Chapter 35.

Hot Work shall only be done in fire safe areas designated by the SSO and shall comply with the following:

- All personnel involved in Hot Work shall be trained in safe operation of the equipment by the SSO. This will include providing training at "tailgate safety meetings". They shall also be made aware of the risks involved and emergency procedures, such as how to notify the SSO of an issue and who is responsible to call 911.
- Signage required in areas where workers may enter indicating "Caution; Hot Work in progress; Stay Clear."
- Hot Work shall not be done on any containers which contain or have contained flammable liquids, gases or solids until containers have been thoroughly cleaned, purged, or inerted.
- A fire extinguisher with a minimum rating of 3-A-40 BC, a 5-gallon backpack pump fire extinguisher, and a 46-inch round point shovel, shall be readily accessible within 25 feet of Hot Work area.
- The SSO shall inspect the Hot Work area daily.
- Gas welding and cutting shall comply with 2022 California Fire Code (CFC) Section 3505.
- Electric arc hot work shall comply with CFC 3505.
- Piping manifolds and hose systems for fuel gases and oxygen shall comply with CFC Section 3509. Cylinder use and storage shall comply with CFC Chapter 53, "Compressed Gases."
- Personal Protective Equipment (PPE) shall be selected to minimize the potential for ignition, burning, trapping hot sparks, and electric shock.
- As considered necessary by the FSC, post work fire monitoring may be required for up to one hour.
- Any ignitions will be immediately extinguished (as possible) by site personnel and the RCFD will be notified of the incident.

The FSC shall have the responsibility to assure safe Hot Work operations and shall have the authority to modify Hot Work activities associated with construction and/or maintenance activities, and to exceed the requirements in NFPA 51-B and the Fire Code, to the degree necessary to prevent fire ignition. Workers must be trained on the Hot Work Information and criteria in this plan.

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3 Fire Prevention and Safety Plan Goals

The primary goals of this FPSP are to address the identified ignition sources and risks so that the Sapphire Solar Project, from the construction phase to the final decommissioning phase, has clearly defined protocols and procedures for reducing fire risk and maintaining a fire safe worksite. Among the goals developed for the Sapphire Project site are:

- Prevent/minimize fires during construction, operation, and decommissioning.
- Provide a safe worksite for all employees, contractors, visitors and emergency personnel.
- Prevent shock to emergency responders, workers, and unauthorized trespassers.
- Prevent arcing or sparking, which could ignite vegetation on site.
- Employ materials which will not be readily ignited by airborne burning embers or exposure to off-site wildland fires or on-site equipment fires.
- Prevent or minimize dollar loss to the equipment.
- Prevent or minimize potential for a fire starting on site to spread off site.
- Provide water, appropriate fire extinguishers and access for firefighters.
- Provide adequate signage and shut off devices to stop power feed into power lines in the event of a line failure, or fire in the right-of-way.
- Provide the ability to report a fire or other emergency to the emergency dispatch center and company personnel without delay.

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4 Emergency Notification Procedures

Any fire event at or near the site will trigger the emergency notification procedures identified in this section. Fire reporting is critical for tracking where, when, how, and why fire ignitions occur.

4.1 First Call = 9-1-1

Reporting Fires and other emergencies: The first call should be to 9-1-1 so that appropriate apparatus can be dispatched.

The personnel in Table 1 are the primary site contacts to be notified during a fire emergency.

Table 2. Emergency Notification Primary Contacts

Name	Position	Telephone Number
TBD	Site Safety Officer	TBD
TBD	Site Manager	TBD
TBD	Project Manager	TBD
TBD	Project Engineer	TBD
TBD	Construction Supervisor	TBD

The first call should be to 911 so that emergency responders can be dispatched. Travel times to the site require notification of 911 as early as possible after the fire or other emergency has been observed.

Emergency related contacts near the site include:

Emergency Service	Contact	Telephone Number
Fire/Emergency Medical	Riverside County Fire Department	760.227.3253 (Alternate: 760.921.7825)
Ambulance	Blythe Ambulance	760.922.8460
BLM Fire	Fed Interagency Com Center	909.383.5651
Riverside County Sheriff	Blythe Office	760.921.7900
California Highway Patrol	Blythe Office	760.922.6141
Hospital	Blythe Hospital	760.922.4115
California OSHA	Region 6 office	909.383.4567

To facilitate the arrival of fire services during construction, an emergency response meeting point will be established with the BLM and Riverside County Fire Department. The SSO, or designee will meet the emergency response team including the IC at the meeting point to lead them into the site. The meeting point will be selected with RCFD input.

4.2 Evacuation Procedures

During significant emergency situations at, or near the Project site the Site Manager and/or SSO, in consultation with law or fire authorities, as possible, may issue an evacuation notice. When an evacuation has been called, all site employees will gather at the designated assembly area and the SSO will account for all personnel. Once all employees are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off-site away from the threat. Should there still be persons within the site after the evacuation has been called, the SSO will send convened personnel off site to safe zones and the SSO and supervisors will perform a sweep of the facility to locate persons and reconvene at the assembly area. Once all personnel are accounted for, they will exit the site. The Primary Designated Assembly Area is designated as the lay down area adjacent to the main job-site trailer.

Should a structure or wild land fire (or other emergency) occur that threatens the primary assembly area; other locations may be designated as secondary assembly areas by the SSO or supervisors, as dictated by the situation. The SSO and/or Site Supervisors should be prepared to be available to the Fire Safety Coordinator throughout the Incident to facilitate information exchange.

4.2.1 Evacuation Routes

Depending on the type and severity of the emergency, along with weather and/or localized site conditions, roadways designated on Figure 2 will be used for evacuating the area. The east side of the Project site is adjacent to California State Route 177/Rice Road. Primary construction access would be from the main access road via Kaiser Road. A secondary access road for emergency services would be constructed within the Linear Facility Route from either Kaiser Road (Linear Facility Route #1 and #2) or Interstate 10 and California State Route 177/Rice Road (exit 192) (Linear Facility Route #3).

The SSO and Site Managers are primarily responsible for evacuations. They will employ procedures to determine the emergency, talk with fire officials, as possible, and declare the emergency status. Foreman level supervisors shall assist in accounting for personnel. The SSO or his/her designee, shall be assigned to meet and guide firefighting resources to the scene.

5 Sapphire Solar Project Roles and Responsibilities

All employees should know how to prevent and respond to fires and are responsible for adhering to company policy regarding fire emergencies. In particular, the following sections detail general responsibilities, by position.

5.1 Project Owner/Management

The Project owners/management are responsible for funding appropriate studies to determine overall fire risk and then implementing necessary measures to reduce the risk and comply with federal, state, and local fire safety/protection policies. Additionally, Owners/Management are responsible for making necessary training and equipment available to provide a safe working environment for employees and contractors.

5.2 Site Safety Officer

The SSO will manage the Fire Prevention and Safety Plan for the Project and shall maintain all records pertaining to the plan. Among the other responsibilities of the SSO are:

- Understanding the Fire Prevention and Safety Plan and its mandates for training, fire prevention, fire suppression, and evacuation.
- Understanding the fire risk associated with the site and with activities that will occur on site.
- Developing and administering the fire prevention and safety training program.
- Ensuring that fire control equipment and systems are properly maintained and in good working condition.
- Monitoring combustibles on the site and managing where they are stored.
- Conducting fire safety surveys and making recommendations to the Site Manager.
- Posting fire rules on the Project bulletin board at the contractor's field office and areas visible to employees including in the operations and maintenance building.
- Stopping Project work activities that pose a fire hazard or are not in compliance with this Fire Prevention and Safety Plan
- Reporting all fires ignited on the site, whether structural, vegetation, electrical, or other to BLM FIRE and the Riverside County Fire Department.
- Updating the FPSP annually and providing updated copies to the BLM and RCFD.

5.3 Supervisors

Supervisors are responsible for:

- Ensuring that employees receive appropriate fire safety training.
- Notifying the SSO when changes in operation increase the risk of fire.
- Enforcing fire prevention and protection policies.

- Accounting for employees/contractors in the case of an evacuation.
- Performing site sweeps to round up staff in the case of an evacuation.
- Facilitating fire agency access to the site.
- Cooperating with the fire agencies/Incident Commander during and following fires.
- Identifying unsafe work practices that may lead to fire ignitions and correcting those practices in coordination with the SSO and/or FSC, as appropriate.

5.4 Employees/Contractors

All employees and contractors shall:

- Complete all required training before working on site without supervision.
- Conduct operations safely to limit the risk of fire.
- Report potential fire hazards to their supervisors.
- Follow fire emergency procedures.
- Understand the emergency evacuation protocols.

6 Sapphire Solar Project Minimum Safety Standards

1. **Roads: Fire Apparatus Access Roads (Fire):** Fire access roads would be provided according to RCFD requirements which typically include an all-weather surface and ability to support the imposed loads of fire apparatus. At minimum, fire access roads should be provided around the perimeter of the property and within 150 feet of any on-site, habitable structures (O&M buildings, etc.). These roads shall be no less than 20 feet wide with a grade to not exceed 15%.
    a. **Service Roads:** Graded hard-packed service roads for cleaning and maintaining panels. Service roads will be capable of supporting typical maintenance vehicles and some types of fire apparatus. Service roads would be clearly marked to indicate that they will not support imposed loads of 75,000 pounds, as appropriate.
    b. **Secondary Access:** Secondary access is designed to enable responding fire engine access and citizen egress during an emergency. At least one additional fire access road would be provided to the site, if deemed necessary by a fire official in accordance with CFC Section 503.1.2 and Riverside County Fire Department Technical Policy #TP 15-002.
    c. **Vertical clearance:** Minimum vertical clearance of 13 feet 6 inches shall be provided throughout the roadway unless the fire agency determines it is not required.
    d. **Surface:** All internal fire access road surfaces will be considered "all-weather" and capable of supporting the imposed load of responding firefighting and emergency apparatus (75,000 pound minimum).
    e. **Gates/Fences:** Gates will be in compliance with RCFD requirements. The facility will be completely fenced with a chain link and barbed wire fence. Fences: shall not limit access to fire roads, fire hydrants, or fire protection systems; such limitations shall be mitigated with gates to allow immediate access. Gates shall be no less width than 12 feet, to facilitate the use of firefighting bulldozers. Knox padlocks will be provided on all gates.
    f. **Identification:** Identification of roads and structures will comply with California Fire Code requirements. Below surface pipelines, electrical and communications lines shall be "signed" at an interval appropriate to alert firefighting bulldozer and off-road fire engine operations to advise firefighters of depth and location. Appropriate signage to be reviewed with Riverside County prior to installing.

       Additionally, a site layout map at the Project entrance will be provided that clearly indicates inverter and electrical grid layout, panel "safe" mode switch location and entire site de-energizing disconnect switch identification and location
    g. **Water:** Typical water usage will include panel washing, dust suppression (soil binding agent road applications), and O&M building personnel usage. On-site water tank(s) shall comply with NFPA 22, Private Fire Protection Water Tanks. The water capacity of each tank shall be compliant with Riverside County Fire Department requirements.
2. **Ignition-Resistant Construction and Fire Protection Systems:** Operations & Maintenance Buildings: On-site structures such as Operations and Maintenance Buildings or other buildings that will include regular human inhabitance along with inverter structures, water tanks, and substation control rooms will be of non-combustible construction or will comply with the ignition-resistive construction requirements: Wildland-

Urban Interface (WUI) areas of Chapter 7A of the California Building Code (CBC). In addition, ignition resistance solar panel components are recommended, and include:

a. Wiring, harnesses, and junction boxes designed so as to not ignite and arc or spark thereby causing potential ignition source for vegetation.
b. Electrical wiring to be listed for outdoors/exterior and be fire retardant.
c. Insulation materials (sealants) on panels to be noncombustible.
d. Electrical motors to be of a type that is sealed and does not emit sparks.
e. Provide Arc-Flash protection.
f. Exposed electrical wiring to be in proper weather resistant conduit to help resist fire exposure, arcing and sparking, etc.
g. Waterproof electrical enclosures.
h. No plastic components or cases on panels.

3. **Substations:** Substation control rooms will be of non-combustible construction.
4. **Staff and Firefighter Training:** Staff and firefighter training shall include the following topics: firefighter training, proper labeling, firefighter familiarizing, and extreme caution during fire response. On-site staff will be trained for basic first aid and (AED) operation. Basic firefighting training will also be provided to O&M on-site staff.
5. **Remote Monitoring:** Remote monitoring of the facility and its system features should be incorporated into the facility design. For example, the supervisory control and data acquisition (SCADA) system utilized by the Project will provide notification to technical staff of system faults or potential issues.
6. **Technical Staff Contact:** Project contact information will be provided to local fire agencies/stations to assist responding firefighters during an emergency. A copy of this Fire Safety Plan will be submitted to RCFD.
7. **Fire Safety Plan Notification**: The Fire Prevention and Safety Plan will be provided to RCFD's closest fire station staff, and available on scene within a Knox Box.
8. **On-Site Water:** Water tank(s) will be located at the Project site in compliance with RCFD requirements, Consolidated Fire Code and NFPA 22.
9. **Fire extinguishers:** Fire extinguishers shall be provided throughout the O&M and storage buildings, within 75 feet of each other and where there is high risk for fire ignitions and additional parameters as directed by the RCFD and following NFPA guidelines. This could include but is not limited to the following options. Standard dry chemical extinguishers are one option. Another form of fire extinguisher, carbon dioxide (CO2) extinguishers, could be used in lieu of dry chemical as they leave no residue. However, most fire engines do not carry CO2 extinguishers, so in order for this resource to be used, they would need to be available to responding firefighters.
10. **Funded and Enforced Maintenance:** Committed on-going maintenance of all facility components to fire safe levels for the life of the Project.

7 Red Flag Warning Protocol

Red Flag Warnings are issued by the National Weather Service and indicate that conditions are such (low humidity, high winds) that wildfire ignitions and spread may be facilitated. During Red Flag Warning or Watch periods, no hot works will be performed unless consultation with the RCFD has occurred to discuss the type of hot works activity and what precautions will be provided. Other construction, operation and maintenance, and decommissioning activities may proceed during these periods under heighted awareness conditions. The SSO, will determine what activities are appropriate and which should not be conducted until the Red Flag Warning has been lifted.

In order to ensure compliance with Red Flag Warning restrictions, the National Weather Service (NWS) Web site will be monitored daily during normal conditions or 2-3 times a day during Red Flag Warnings at the Project site during construction and decommissioning:

(https://forecast.weather.gov/MapClick.php?CityName=Blythe&state=CA&site=PSR&textField1=33.6103&textField2=-114.596&e=1#.Y-_dQGnMKUk)

Upon announcement of a Red Flag Warning, red flags will be prominently displayed at the entrance gate and main office indicating to employees and contractors that restrictions are in place.

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8 Fire Safety Briefings, Inspections and Training

8.1 Briefings and Inspections

The SSO will conduct routine inspections. The SSO will develop an inspection check list to document these inspections.

Prior to Project construction Project personnel will receive a presentation on the contents of this FPSP along with additional fire safety and fire prevention information provided by an informed SSO (or his/her designee) as part of their OSHA training. Supervisors/foremen will be responsible for sharing FPSP content with transient Project personnel throughout the construction of the Project. Each daily safety tailgate session should include an assessment of the day's fire related risks or hazards and the mitigation for each.

Compliance with this FPSP is mandatory. Monitoring compliance with this FPSP is everybody's responsibility. All levels of Project management have the authority to shut down any operation that presents an inappropriate amount of fire risk or hazard until it can be properly mitigated.

Violations of any of the requirements of this FPSP will be addressed immediately. Appropriate consequences for repeated or serious negligence in respect to this Plan will be dealt with accordingly. All Project-related vegetation fires, regardless of size, shall be promptly reported to the California Public Utility Commission and Bureau of Land Management to determine if appropriate mitigation measures are being taken.

8.2 Training Requirements

8.2.1 Basic Fire Safety Training

The SSO and or Site Supervisors/Foremen shall present basic fire prevention training to all site personnel with their Project onboarding, and shall maintain documentation of the training, which includes:

- This FPSP, including how it can be accessed
- Fire Management: Wildfire Prevention (43 C.F.R. 9212.2 et seq.)
- Proper response and notification in the event of a fire
- Instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Response Plan), and recognition of potential fire hazards

In addition, all construction and decommissioning personnel shall be trained about the fire hazards associated with the specific materials and processes to which they are exposed and SSO will maintain documentation of the training. Operational site employees will receive this training:

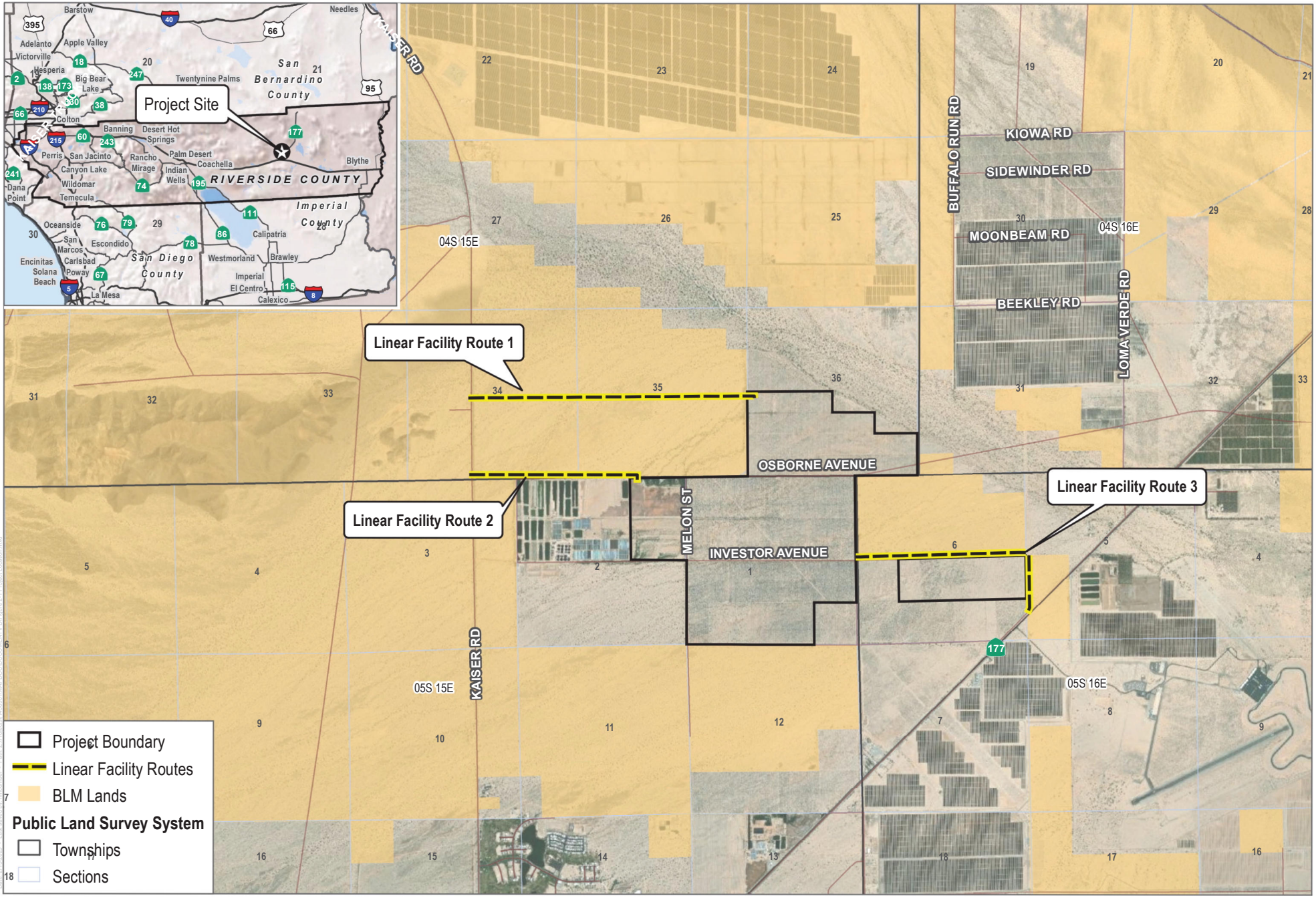
- Upon first entering the facility
- Annually during a pre-planned meeting
- When changes in work processes necessitate additional training

8.2.2 Supervisor/Foreman Fire Safety Training

Prior to Project construction and or decommissioning, all Project supervisors will receive a minimum of one hour training on Wildland Fire Prevention and Safety. This training will be provided by the SSO or their qualified designee. This training will then be shared with all construction and decommissioning personnel.

Each supervisor/foreman shall be trained to understand:

- Fire reporting
- Extinguishing small fires in order to prevent them from growing into more serious threats.
- Fire prevention
- Initial Attack Firefighting
- Identifying work activities that may result in a fire hazard.



SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022; BLM 2022

DUDEK

0 2,000 4,000 Feet

FIGURE 1

Project Location

Sapphire Solar Project

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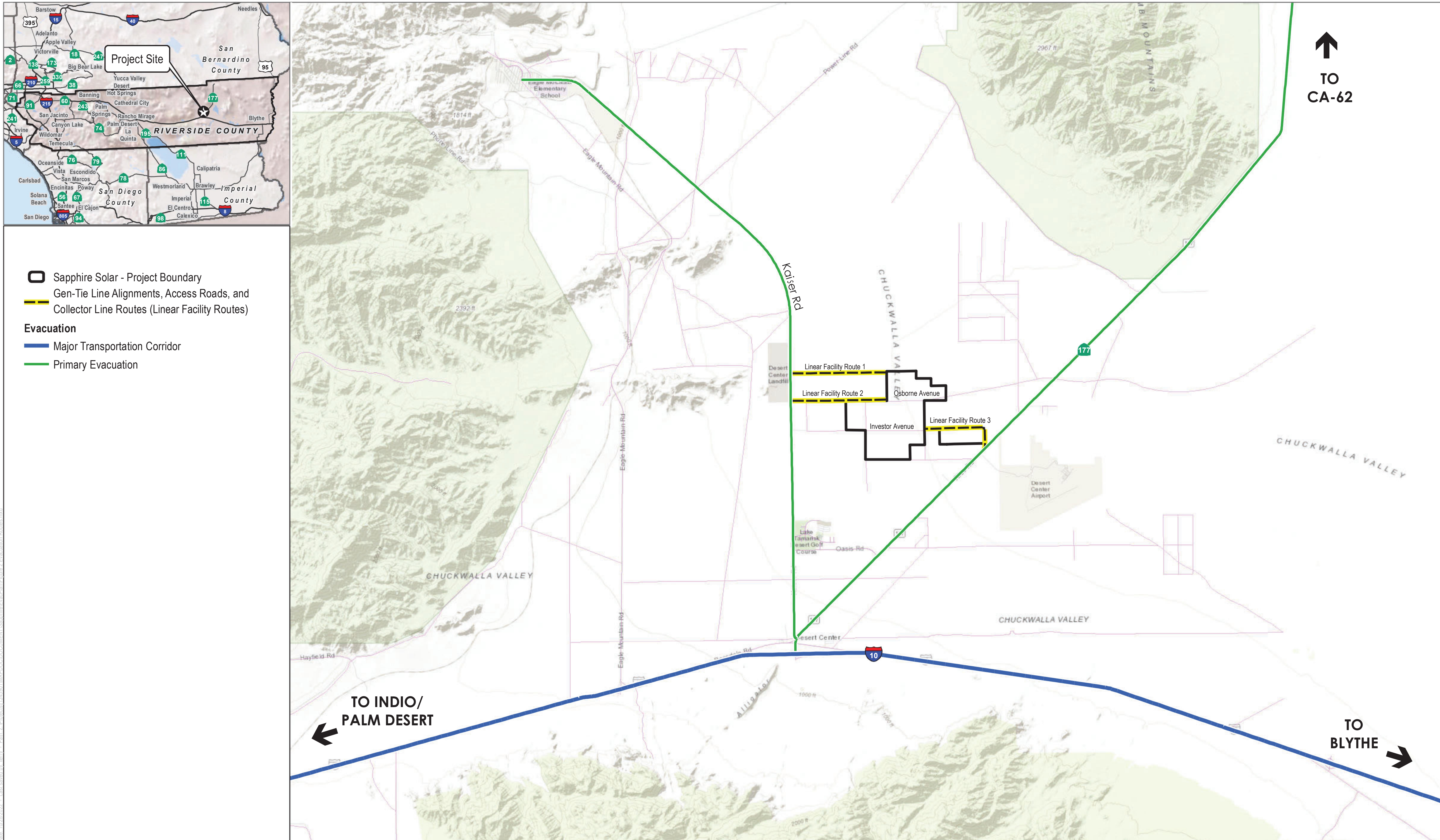

Project Site
RIVERSIDE COUNTY
San Bernardino County
San Diego County
Imperial County
Sapphire Solar - Project Boundary
Gen-Tie Line Alignments, Access Roads, and Collector Line Routes (Linear Facility Routes)
Evacuation
Major Transportation Corridor
Primary Evacuation
Kaiser Rd
Linear Facility Route 1
Linear Facility Route 2
Linear Facility Route 3
Osborne Avenue
Investor Avenue
Desert Center Landfill
Desert Center Airport
Desert Center
CHUCKWALLA VALLEY
TO CA-62
TO INDIO/ PALM DESERT
TO BLYTHE
Eagle Mountain Rd
Hayfield Rd
Oasis Rd
177
10

SOURCE: Esri World Imagery Basemap 2022; County of Riverside 2022

DUDEK 0 4,000 8,000 Feet

FIGURE 2

Sapphire Solar Evacuation Routes

Sapphire Solar Project

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Fire Prevention and Safety Plan

Sapphire Solar Project

FEBRUARY 2023

Prepared for:

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Table of Contents

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TABLES

FIGURES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AED	Automated External Defibrillator
AMSL	Above mean sea level
BESS	Battery Energy Storage System
BLM	Bureau of Land Management
CBC	California Building Code
CEQA	California Environmental Quality Act
CO2	Carbon Dioxide
COD	Commercial Operation Date
CUP	Conditional Use Permit
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
EDFR	EDF Renewables Development, Inc
EIS	Environmental Impact Statement
FPSP	Fire Prevention & Safety Plan
FSC	Fire Safety Coordinator
IC	Incident Commander
Linear Facility Route	Gen-tie line alignments, access roads, and collector line routes
kV	Kilovolt
MW	Megawatt
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NH	National Hose
NWS	National Weather Service
O&M	Operation & Maintenance
PPE	Personal Protective Equipment
PUP	Public Use Permit
PV	Photovoltaic
RCFD	Riverside County Fire Department
RFW	Red Flag Warning
ROD	Record of Decision
ROW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SCE	Southern California Edison
SSO	Site Safety Officer
TBD	To Be Determined
WUI	Wildland-Urban Interface

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Definitions

Activity Risk: Activity risks include those actions that present a risk of igniting a wildfire.

Site Safety Officer (SSO): The SSO serves as a liaison to the emergency service agencies and all contractors or inspectors on the jobsite for the utilities on emergency incidents and construction-related activities. The Fire Safety Coordinator has the authority to stop any Project work that appears to pose a particular fire risk or hazard.

Fire Season (FS): Fire season is no longer officially designated by the wildland fire agencies. Southern California is considered to be in FS on a yearlong basis. CALFIRE adjusts their staffing patterns as fire conditions moderate or escalate and this can be used as an indicator of potential fire activity.

Incident Commander (IC): The Sapphire Solar Fire Safety Coordinator will be the single point of contact for all utility resources (people and equipment) on an emergency incident. This person will interface with the Incident Commander, as necessary.

Red Flag Warning (RFW): A Red Flag Warning is issued for a stated period of time by the National Weather Service using pre-determined criteria to identify particularly critical wildfire danger in a particular geographic area. All ground disturbance and activities with the potential to start a fire shall cease during RFWs.

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1 Introduction

This Fire Prevention and Safety Plan (FPSP) will detail practices designed to address potential impacts from construction and operation of the Sapphire Solar Project (Project) in Riverside County, California. This plan provides guidance to construction and field personnel on measures identified by EDF Renewables Development, Inc. (EDFR) on behalf of Sapphire Solar, LLC (Applicant) to mitigate fire risks during construction, operations, and decommissioning activities associated with the Project. It will be the responsibility of EDFR and its Project contractors to comply with measures identified in this plan.

The BLM would be responsible for responding to wildfires located within their Direct Protection Areas (DPA) in conjunction with the Riverside County Fire Department (RCFD) and California Department of Forestry and Fire Protection (CAL-FIRE). A DPA is an area for which a particular fire protection organization has the primary responsibility for attacking an uncontrolled fire and for directing the suppression action. The Project's Linear Facility Routes are located on BLM land within a BLM Development Focus Area (DFA). RCFD would be responsible for responding to wildfires within the Project's solar energy generation facility, which will be located entirely on private lands and along the linear facilities located on BLM administer lands.

Riverside County will be the California Environmental Quality Act (CEQA) lead agency for the Project. The BLM will be the National Environmental Policy Act (NEPA) lead agency for the Project's Linear Facilities Routes located on BLM land. This Fire Prevention and Safety Plan has been prepared consistent with CEQA and NEPA standards in order to support preparation of Project's environmental documents and the discretionary land use decisions that will be undertaken by the Riverside County Board of Supervisors and the BLM.

EDFR will also prepare an emergency response plan (ERP), which will be developed in accordance with OSHA standards and other applicable federal, state, and local occupational safety and health laws, regulations and standards.

1.1 Project Description

EDFR on behalf of Sapphire Solar, LLC proposes to entitle, construct, operate, and maintain the Project, located in Riverside County, California. The Project would consist of approximately 1,192 acres with approximately 1,082 acres of private lands and approximately 110 acres of BLM administered lands. The Project would include up to 117-MW of photovoltaic solar generation and up to 117-MW of battery storage (Figure 1, Project Location).

The Project would primarily consist of PV panels, a single-axis tracker system, inverters, converters, transformers, electrical collection and communication lines, a 12-kilovolt (kV) distribution line for backup power, an on-site electrical substation, a battery energy storage system (BESS), security fence, an operations and maintenance (O&M) facility including a stand along storage building, up to three onsite groundwater wells, meteorological station and albedometer weather station, a microwave/communication tower, and a supervisory control and data acquisition (SCADA) system that are located on private lands.

The Project would also include up to three 230-kV generation tie (gen-tie) line alignment options, access roads, and collector line routes, collectively referred to as "Linear Facility Routes," that are located on federal public lands administered by the BLM and designed to support the proposed Project, which is located on adjacent private lands. Table 1, provides a summary of the Project components that could be located within the proposed Linear Facility

Routes. The Project would interconnect with the Southern California Edison (SCE) Red Bluff Substation via the existing Desert Harvest gen-tie line located on lands administered by the BLM.

Table 1. Project Components to be Located Within Linear Facility Routes

Linear Facility Route	230 kV Gen-Tie Line	Access Road	Above Ground Electrical Lines, Spur Roads, and Temporary Pulling and Tensioning Stations	Underground Collector Lines	12-kV Distribution Line
Linear Facility Route #1	●	✓	●	●	●
Linear Facility Route #2	●	✓	●	●	●
Linear Facility Route #3		●		✓	

Notes:
✓=Facilities that will be located in Linear Facility Route
●=Facilities that may be located in Linear Facility Route

The Applicant is pursuing a Conditional Use Permit (CUP), Public Use Permit (PUP), and a Development Agreement (DA) from Riverside County for the private lands associated with the Project and a Right-of-Way (ROW) grant from the BLM for the BLM administered lands associated with the Project. As such, Riverside County will serve as the CEQA lead agency and the BLM as the NEPA lead agency.

Construction of the Project is anticipated to occur in two phases. The first phase would consist of construction of the gen-tie line, telecommunication line, 12-kV distribution line, and access roads associated with the Linear Facility Routes, and the construction of fences, gates, and the onsite substation located on the private lands associated with the Project. The second phase would consist of installation and operation of the approximately 117-MW solar array, the approximately 117-MW BESS, and ancillary facilities. Construction is anticipated to commence in September of 2024 and the Commercial Operation Date (COD) is anticipated to occur in December of 2025. The operational life of the Project is anticipated to be 39 years with potential for extension to 40 years or greater.

1.2 Project Location and Access

The proposed Project site is located in Riverside County, California, approximately five miles north of Desert Center, approximately 40 miles west of the City of Blythe, and three and a half miles north of Interstate 10. The Project is bounded on the north, east, and west sides by BLM lands and to the south by Belsby Avenue. Melon Street runs along the west side of the Project boundary and Jojoba Street on the east.

Two County roads intersect the interior of the Project site from east to west, including Investor Avenue and Osborne Avenue. The portion of Osborne Avenue that intersects the Project site is approximately 0.6 mile long. Osborne Avenue is identified by Riverside County as a road “accepted for public use” by Riverside County. The portion of Investor Avenue that intersects the Project site is approximately 1 mile long. Investor Avenue is identified by Riverside County as a road “accepted for public use.” The portions of Osborne Avenue and Investor Avenue that intersect the Project site would be removed from public use.

The east side of the Project site is adjacent to California State Route 177/Rice Road. Primary construction access would be from the main access road via Kaiser Road. A secondary access road for emergency services would be constructed within the Linear Facility Route from either Kaiser Road (Linear Facility Routes #1 and #2) or Interstate 10 and California State Route 177/Rice Road (exit 192) (Linear Facility Route #3). Two 24-foot-wide unpaved driveways with up to 5-foot shoulders on either side to enter the Project site off this existing road will be constructed. The driveways will provide independent points of ingress/egress to the Sapphire Solar Project as required by Riverside County Fire Department.

While the Linear Facility Routes are within the land use jurisdiction of the BLM Palm Springs South Coast Field Office, the Sapphire Solar Project is within the land use jurisdiction of Riverside County. The entirety of the 110-acre area associated with the three Linear Facility Routes on BLM administered lands is located within a DFA for solar, wind, and geothermal Projects as designated by the Desert Renewable Energy Conservation Plan (DRECP). The DRECP Final Environmental Impact Statement (EIS) was approved by a Record of Decision (ROD) signed on September 14, 2016.

1.3 Topography and Vegetation

The topography of the Project site generally slopes downward toward the northeast at a gradient of less than 1 percent. Ground surface elevations at the Project site range from approximately 550 feet above mean sea level (amsl) in the eastern solar parcel to 660 feet amsl near the western end of the parcel. Anthropogenic impacts and land use near the Project site include aquaculture, transportation (Kaiser Road, Rice Road/SR 177), agricultural, renewable energy (both existing and proposed), energy transmission, historical military operations, and recreational development. The solar facility is situated within fallowed agriculture land that was used for cultivating jojoba and supported ruderal vegetation including several nonnative species. The Linear Facility Routes are situated on land dominated by Sonoran creosote bush scrub.

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2 Project Specific Risk Summary

2.1 Fire Risk

The estimated risk associated with the Sapphire Solar site is considered to be low to moderate during construction and decommissioning and low during operation The risk of fires associated with solar photovoltaic (PV) facilities is low because of newer technology techniques and improved fire prevention techniques and maintenance including vegetation management. The active construction phase results in higher potential for ignition because hot work, vegetation clearing, and other activities that may result in flame or heat sources to ignite vegetation, especially if non-native grasses have established and cured. However, with proper clearance and maintenance of vegetation, this risk could be mitigated.

Key actions to reduce the risk of fire for the Sapphire Solar Project include having clear safety standards for all components of the Project such as water, fire suppression systems, emergency and notification procedures, training, and vegetation management. During construction and operation, this would specifically entail proper vegetation maintenance according to appropriate fire codes and ensuring proper use of all equipment including but not limited to chainsaws, welders, or vehicles around or near any vegetation. This would also entail emergency and evacuation protocols including notification procedures with clear, comprehensive, and consistent training of staff to execute those protocols. Additional measures would also include clear communication with relevant stakeholders including BLM and Riverside County Fire Department (RCFD).

Fire risks must be assessed based upon the potential frequency (probability of an incident occurring) and consequence (potential damage should an event occur). Among the listed potential causes of fire incidents involving solar and BESS facilities that are relevant for this study are:

- Explosion/Arcs, arc flashing, electrical shorts, sparking, motor or other machinery fire, wiring and harnessing fire, overheated junction boxes, rodents chewing on wires and causing arcing, etc.
- Collapse of supporting structure causing electrical shorts and fire.
- Overgrown vegetative fuel under and around the array.
- Equipment and supplies stored under arrays for shading.
- Trash cans, smoking areas, and other combustible storage under arrays.
- Fire in an inverter.
- Short circuit and fire of components in or on a panel.
- Lubricating and control oil fire.
- Fire from BESS caused by battery damage.
- Fire from BESS due to failure of the battery management system.
- Switchgear and cable fire.
- Backup generators for the O&M building and the onsite substation.

2.1.1 Construction and Decommissioning Phase Risks

The Project's fire risks are associated with the following:

- **Earth-moving equipment** – create sparks, heat sources, fuel or hydraulic leaks, etc.
- **Chainsaws** – may result in vegetation ignition from overheating, spark, fuel leak, etc.
- **Vehicles** – heated exhausts/catalytic converters in contact with vegetation may result in ignition.
- **Welders** – open heat source may result in metallic spark coming into contact with vegetation
- **Wood chippers** – include flammable fuels and hydraulic fluid that may overheat and spray onto vegetation with a hose failure.
- **Temporary vegetation piles** – large piles that are allowed to dry and are left on-site may result in combustion and potential for embers landing in adjacent vegetation.
- **Grinders** – sparks from grinding metal components may land on a receptive fuel bed.
- **Torches** – heat source, open flame, and resulting heated metal shards may come in contact with vegetation.
- **Dynamite/blasting** – if necessary, blasting may cause vegetation ignition from open flame, excessive heat or contact of heated material on dry vegetation.
- **Other human-caused accidental ignitions** – ignitions related to discarded cigarettes, matches, temporary electrical connections, inappropriately placed generators, poor maintenance of equipment, and others.

2.1.2 Operation and Maintenance Phase Risks

Ignition risks are anticipated to drop considerably following the Project's active construction phase. Operation and maintenance activities occur within a defined Project footprint where the adjacent fuels have been removed or converted to fuel modification-consistent vegetation.

- **Transformers** – are subject to occasional failure, sending sparks, hot materials out in any direction; fire in a transformer may result in ignition of the oil therein.
- **Capacitors** – may overheat, fail, and cause a spark, which may result in combustion of flammable materials, such as vegetation, if nearby.
- **Electrical transmission lines** – energized lines may arch from adjacent vegetation (trees) or if tower/pole fails, may arch on the ground, causing ignition of vegetation.
- **Substations** – include various electrical components that may explode, fail, or ignite and include oil-cooled transformers.
- **Vehicles** – heated exhausts in contact with vegetation may result in ignition.
- **Hot works equipment** – all small hand tools either gas or electric powered that may result in sparks, flames, or excessive heat may result in vegetation ignition.
- Wildlife coming into contact with solar panels specially avian species.
- **BESS** - excess heat caused by lithium-ion battery defects or damage that could start fires or explosions.
- **BESS** – failure of the battery management systems.

2.1.3 Power Line Risks

Electrical transmission and collection lines such as those proposed for this Project and associated structures can start fires in a number of ways, including the following:

- Uncleared vegetation, especially trees, coming into contact with conductors.
- Sparks (from exploding hardware such as transformers and capacitors) coming into contact with vegetation.
- Wind-blown debris coming into contact with hardware such as transformers and conductors.
- Conductor-to-conductor contact.
- Aircraft or helicopter, or attached features such as fire-fighting water buckets, coming into contact with power line hardware and support structures.

2.2 Sapphire Solar Energy Project Risk Rating

The estimated risk associated with the Sapphire Solar site is considered to be low to moderate during construction and decommissioning and low during operation. The risk of fires associated with solar facilities is low. The active construction phase results could result in higher potential for fires. Hot works, vegetation clearing, and other activities that may result in flame or heat sources can ignite vegetation, especially if non-native grasses have established and cured. However, with proper vegetation clearance and maintenance during construction and O&M of the project, this risk is minimized. Although there will be a potential for structural/equipment fires and wildfires, the risk is considered manageable as indicated by the low historic fire occurrence in existing solar facilities including by not limited to the nearly Desert Sunlight, Desert Harvest, Athos, Victory Pass, and Palen Solar Projects.

2.3 Risk Reduction Measures

The following measures will be employed, as appropriate, during each phase of the Project (construction, operation and maintenance and decommissioning) to reduce the risk of ignitions. These measures will be enforced through the SSO and ongoing worker safety training.

- Fire prevention rules shall be posted on the Project bulletin board at the contractor's field office as defined in section 8.
- This shall include all contractors and subcontractors if more than one.
- All internal combustion engines used at the Project site shall be equipped with spark arrestors that are in good working order.
- Once initial roads have been cut and initial fencing completed, light trucks and cars shall be used only on roads where the roadway is cleared of vegetation. Mufflers on all cars and light trucks shall be maintained in good working order.
- During construction activities the Project will be equipped with at least one and up to three water trucks each of 4,000-gallon capacity. Each truck will be equipped with 50 feet of 1 /4" fast response hose with fog nozzles. Any hose size greater than 1 ½" shall use National Hose (NH) couplings.
- All pickup trucks will be equipped with first-aid kits, fire extinguishers and shovels.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

- The Applicant shall make an effort to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to outside of red flag warning periods. When the above tools are used, water trucks equipped with hoses, fire rakes and axes shall be easily accessible to personnel.
- A fire watch (person responsible for monitoring for ignitions) will be provided during hot work and shall remain at the site for up to one hour following completion of the hot work activities.
- Smoking shall be prohibited in wildland areas and within 50 feet of combustible materials storage and shall be limited to paved areas or designated areas cleared of all vegetation.
- The construction site shall be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- All construction workers and maintenance workers visiting the Project to perform maintenance activities shall receive training on the proper use of firefighting equipment and procedures to be followed in the event of a fire.
- All on-site employees shall participate in annual fire prevention and response training exercises with the RCFD if required and provided locally by RCFD.
- A SSO will perform daily patrols of the site during RFW equipped with a portable fire extinguisher and communications equipment. The Applicant shall notify the BLM and County of the name and contact information of the current SSO in the event of any change.
- Remote monitoring of all major electrical equipment (transformers and inverters) will screen for unusual operating conditions. Higher than normal temperatures, for example, can be compared with other operational factors to indicate the potential for overheating which, under certain conditions, could precipitate a fire.
- Fires ignited on site shall be immediately reported to the RCFD.
- The engineering, procurement, and construction contracts for the Project shall clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in this Fire Prevention and Safety Plan.
- Water system will include on site water storage, RCFD approved connections and RCFD approved fire flow pressures and durations.
- Water tank(s). will be located on site and will be sized to comply with RCFD requirements.
- A temporary water storage tank with an approximate storage capacity of 15,000 gallons shall be maintained onsite during construction and will be made available for firefighting purposes.
- Vegetation on-site, under trackers, adjacent internal roads, and directly adjacent the perimeter fence shall be maintained in a low fuel, ignition resistant condition and shall be trimmed/mowed as needed or controlled via herbicide acceptable to BLM and/or the County, as applicable.

2.3.1 Battery Energy Storage System Risk Reduction

Potential hazards associated with battery energy storage systems are primarily associated with the possibility of thermal runaway (similar to overheating) occurring from a malfunctioning or damaged battery. Newer battery technologies have minimized the occurrence of thermal runaway through a system of protections including internal cell monitoring and partitioning; use of nonflammable chemicals; container design and features; ventilation, and air-conditioning systems; and inert gas fire suppression systems.

The Project's battery energy storage system will include self-contained container units, measuring approximately 70 feet long by 13 feet wide by 15 feet high (these dimensions can vary by manufacturer), situated in a parallel configuration. Foundational pads for the BESS containers and inverters would include structural material like crushed aggregate, concrete, and/or steel. Inverters would convert the DC electric input into grid-quality AC output and would be located within an enclosure. The inverters would be located throughout the solar field and connected to the Project onsite substation via the collection system.

The proposed Project will use battery storage systems that are National Fire Protection Association (NFPA) 855 Code compliant, and UL certified and that include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire.

Under normal operations, BESS facilities do not contain, store or generate hazardous materials in quantities that would represent a risk to off-site receptors. In addition, the Project's preventative measures and fire and safety systems, as described below, make an accident condition very rare. Nevertheless, because BESS facilities do store energy, a battery thermal runaway can occur if a cell, or area within a cell, reaches elevated temperatures due to thermal failure, mechanical failure or internal/external short circuiting.

All stationary battery storage facilities in California are required to comply with Chapter 12 (Energy Systems) and particularly Section 1206 (Electrical Energy Storage Systems) of the California Fire Code, which has adopted internationally and federally accepted NFPA 855 standards for the design, construction, installation, commissioning, operation and maintenance of stationary energy storage systems. In addition to compliance with the 2022 California Fire Code, the Project will also comply with all other local, state, and federal safety standards and regulations, including those of the Riverside County Fire Department.

Pursuant to the 2022 California Fire Code, all battery manufacturers must prove that a failed battery cell inside and enclosure will not cause a fire outside the system. The Project must meet the industry standards for adequate separations, cascading protections, and suppression systems to limit failure to a single battery cell. All BESS must use an Energy Management System for 24/7 monitoring, management, and balancing of cell voltages, currents and temperatures in order to ensure every cell remains within its safe operating parameters. The system must transmit an alarm signal if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage, are detected. This system is capable of controlling and isolating individual cells from the rest of the system both remotely and manually.

The Project will utilize pre-engineered battery storage systems equipped with integrated operational management systems, fire, and safety systems, such as HVAC, ventilation, gas, heat and smoke detection and alarms, and fire extinguishing and suppression systems. The 2022 California Fire Code contains safety standards for the system's construction (e.g., frame and enclosure, including mounting, supporting materials, barriers and more); the insulation, wiring, switches, transformers, spacing and grounding; safety standards for performance, such as tests for temperature, volatility, impact, overload of switches, and an impact drop test; and standards for manufacturing, ratings, markings, and instruction manuals. In addition to the many individual standards referenced, a Failure Mode and Effects Analysis (FMEA) must be performed for each system and requires a test to ensure safe compatibility of the system's parts.

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

- Modular battery racks designed for ease of maintenance
- Integrated heat and fire detection and suppression system

- Integrated air conditioning system
- Integrated battery management system

The heat and fire detection system will be linked to an automatic inert gas suppression system within each container. The containers would also have a basic interior sprinkler system with several sprinkler heads for coverage and an external dry standpipe for fire fighters to connect and pump water.

2.4 Daily Fire Prevention Measures

To limit the risk of fires, all site staff, employees, and contractors shall take the following precautions:

- Fire safety shall be a component of daily tailgate meetings. Foremen will remind employees of fire safety, prevention, and emergency protocols daily.
- No smoking will be allowed on site except in designated safe smoking areas which include cleared area with no combustible vegetation or materials and approved butt receptacles (noncombustible containment of cigarette butts). Smoking inside closed vehicles at the site may be allowed in designated areas away from vegetation, at the discretion of the SSO.
- Combustible materials will be stored in areas away from native vegetation. Whenever combustibles are being stored in the open air, the SSO shall be informed of the situation.
- Maintain all evacuation routes free of obstructions. Coordinate unavoidable evacuation route blockages such that a secondary route is identified and available.
- Dispose of combustible waste in accordance with all applicable laws and regulations.
- Use and store flammable materials in areas away from ignition sources.
- Properly store chemicals such that incompatible (i.e., chemically reactive) substances are separated appropriately.

2.4.1 Fire Prevention/Protection System Maintenance

The SSO (or trained specialist, when necessary) will ensure that fire suppression and related equipment is maintained according to manufacturers' specifications. NFPA guidelines shall be implemented for specific equipment.

The following equipment is subject to ongoing maintenance, inspection, and testing procedures:

- portable fire extinguishers
- fire alarm systems
- water trucks and associated equipment
- emergency backup generators/systems and the equipment they support.

2.5 Hot Work

These requirements are primarily from California Fire Code (CFC) Chapter 35, “Welding and other Hot Work,” and NFPA 51-B, “Fire Prevention During Welding, Cutting and other Hot Work”. Hot Work is defined in the CFC as operations involving cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying,

thawing pipe, or other similar operations. Hot Work areas are defined as the areas exposed to sparks, hot slag, radiant heat, or convective heat because of the Hot Work.

A Hot Work Permit shall be obtained from the SSO, following guidelines from RCFD, for all Hot Work regardless of location. The SSO will require all Hot Work to be done per requirements in NFPA 51-B and the Fire Code Chapter 35.

Hot Work shall only be done in fire safe areas designated by the SSO and shall comply with the following:

- All personnel involved in Hot Work shall be trained in safe operation of the equipment by the SSO. This will include providing training at "tailgate safety meetings". They shall also be made aware of the risks involved and emergency procedures, such as how to notify the SSO of an issue and who is responsible to call 911.
- Signage required in areas where workers may enter indicating "Caution; Hot Work in progress; Stay Clear."
- Hot Work shall not be done on any containers which contain or have contained flammable liquids, gases or solids until containers have been thoroughly cleaned, purged, or inerted.
- A fire extinguisher with a minimum rating of 3-A-40 BC, a 5-gallon backpack pump fire extinguisher, and a 46-inch round point shovel, shall be readily accessible within 25 feet of Hot Work area.
- The SSO shall inspect the Hot Work area daily.
- Gas welding and cutting shall comply with 2022 California Fire Code (CFC) Section 3505.
- Electric arc hot work shall comply with CFC 3505.
- Piping manifolds and hose systems for fuel gases and oxygen shall comply with CFC Section 3509. Cylinder use and storage shall comply with CFC Chapter 53, "Compressed Gases."
- Personal Protective Equipment (PPE) shall be selected to minimize the potential for ignition, burning, trapping hot sparks, and electric shock.
- As considered necessary by the FSC, post work fire monitoring may be required for up to one hour.
- Any ignitions will be immediately extinguished (as possible) by site personnel and the RCFD will be notified of the incident.

The FSC shall have the responsibility to assure safe Hot Work operations and shall have the authority to modify Hot Work activities associated with construction and/or maintenance activities, and to exceed the requirements in NFPA 51-B and the Fire Code, to the degree necessary to prevent fire ignition. Workers must be trained on the Hot Work Information and criteria in this plan.

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3 Fire Prevention and Safety Plan Goals

The primary goals of this FPSP are to address the identified ignition sources and risks so that the Sapphire Solar Project, from the construction phase to the final decommissioning phase, has clearly defined protocols and procedures for reducing fire risk and maintaining a fire safe worksite. Among the goals developed for the Sapphire Project site are:

- Prevent/minimize fires during construction, operation, and decommissioning.
- Provide a safe worksite for all employees, contractors, visitors and emergency personnel.
- Prevent shock to emergency responders, workers, and unauthorized trespassers.
- Prevent arcing or sparking, which could ignite vegetation on site.
- Employ materials which will not be readily ignited by airborne burning embers or exposure to off-site wildland fires or on-site equipment fires.
- Prevent or minimize dollar loss to the equipment.
- Prevent or minimize potential for a fire starting on site to spread off site.
- Provide water, appropriate fire extinguishers and access for firefighters.
- Provide adequate signage and shut off devices to stop power feed into power lines in the event of a line failure, or fire in the right-of-way.
- Provide the ability to report a fire or other emergency to the emergency dispatch center and company personnel without delay.

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4 Emergency Notification Procedures

Any fire event at or near the site will trigger the emergency notification procedures identified in this section. Fire reporting is critical for tracking where, when, how, and why fire ignitions occur.

4.1 First Call = 9-1-1

Reporting Fires and other emergencies: The first call should be to 9-1-1 so that appropriate apparatus can be dispatched.

The personnel in Table 1 are the primary site contacts to be notified during a fire emergency.

Table 2. Emergency Notification Primary Contacts

Name	Position	Telephone Number
TBD	Site Safety Officer	TBD
TBD	Site Manager	TBD
TBD	Project Manager	TBD
TBD	Project Engineer	TBD
TBD	Construction Supervisor	TBD

The first call should be to 911 so that emergency responders can be dispatched. Travel times to the site require notification of 911 as early as possible after the fire or other emergency has been observed.

Emergency related contacts near the site include:

Emergency Service	Contact	Telephone Number
Fire/Emergency Medical	Riverside County Fire Department	760.227.3253 (Alternate: 760.921.7825)
Ambulance	Blythe Ambulance	760.922.8460
BLM Fire	Fed Interagency Com Center	909.383.5651
Riverside County Sheriff	Blythe Office	760.921.7900
California Highway Patrol	Blythe Office	760.922.6141
Hospital	Blythe Hospital	760.922.4115
California OSHA	Region 6 office	909.383.4567

To facilitate the arrival of fire services during construction, an emergency response meeting point will be established with the BLM and Riverside County Fire Department. The SSO, or designee will meet the emergency response team including the IC at the meeting point to lead them into the site. The meeting point will be selected with RCFD input.

4.2 Evacuation Procedures

During significant emergency situations at, or near the Project site the Site Manager and/or SSO, in consultation with law or fire authorities, as possible, may issue an evacuation notice. When an evacuation has been called, all site employees will gather at the designated assembly area and the SSO will account for all personnel. Once all employees are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off-site away from the threat. Should there still be persons within the site after the evacuation has been called, the SSO will send convened personnel off site to safe zones and the SSO and supervisors will perform a sweep of the facility to locate persons and reconvene at the assembly area. Once all personnel are accounted for, they will exit the site. The Primary Designated Assembly Area is designated as the lay down area adjacent to the main job-site trailer.

Should a structure or wild land fire (or other emergency) occur that threatens the primary assembly area; other locations may be designated as secondary assembly areas by the SSO or supervisors, as dictated by the situation. The SSO and/or Site Supervisors should be prepared to be available to the Fire Safety Coordinator throughout the Incident to facilitate information exchange.

4.2.1 Evacuation Routes

Depending on the type and severity of the emergency, along with weather and/or localized site conditions, roadways designated on Figure 2 will be used for evacuating the area. The east side of the Project site is adjacent to California State Route 177/Rice Road. Primary construction access would be from the main access road via Kaiser Road. A secondary access road for emergency services would be constructed within the Linear Facility Route from either Kaiser Road (Linear Facility Route #1 and #2) or Interstate 10 and California State Route 177/Rice Road (exit 192) (Linear Facility Route #3).

The SSO and Site Managers are primarily responsible for evacuations. They will employ procedures to determine the emergency, talk with fire officials, as possible, and declare the emergency status. Foreman level supervisors shall assist in accounting for personnel. The SSO or his/her designee, shall be assigned to meet and guide firefighting resources to the scene.

5 Sapphire Solar Project Roles and Responsibilities

All employees should know how to prevent and respond to fires and are responsible for adhering to company policy regarding fire emergencies. In particular, the following sections detail general responsibilities, by position.

5.1 Project Owner/Management

The Project owners/management are responsible for funding appropriate studies to determine overall fire risk and then implementing necessary measures to reduce the risk and comply with federal, state, and local fire safety/protection policies. Additionally, Owners/Management are responsible for making necessary training and equipment available to provide a safe working environment for employees and contractors.

5.2 Site Safety Officer

The SSO will manage the Fire Prevention and Safety Plan for the Project and shall maintain all records pertaining to the plan. Among the other responsibilities of the SSO are:

- Understanding the Fire Prevention and Safety Plan and its mandates for training, fire prevention, fire suppression, and evacuation.
- Understanding the fire risk associated with the site and with activities that will occur on site.
- Developing and administering the fire prevention and safety training program.
- Ensuring that fire control equipment and systems are properly maintained and in good working condition.
- Monitoring combustibles on the site and managing where they are stored.
- Conducting fire safety surveys and making recommendations to the Site Manager.
- Posting fire rules on the Project bulletin board at the contractor's field office and areas visible to employees including in the operations and maintenance building.
- Stopping Project work activities that pose a fire hazard or are not in compliance with this Fire Prevention and Safety Plan
- Reporting all fires ignited on the site, whether structural, vegetation, electrical, or other to BLM FIRE and the Riverside County Fire Department.
- Updating the FPSP annually and providing updated copies to the BLM and RCFD.

5.3 Supervisors

Supervisors are responsible for:

- Ensuring that employees receive appropriate fire safety training.
- Notifying the SSO when changes in operation increase the risk of fire.
- Enforcing fire prevention and protection policies.

- Accounting for employees/contractors in the case of an evacuation.
- Performing site sweeps to round up staff in the case of an evacuation.
- Facilitating fire agency access to the site.
- Cooperating with the fire agencies/Incident Commander during and following fires.
- Identifying unsafe work practices that may lead to fire ignitions and correcting those practices in coordination with the SSO and/or FSC, as appropriate.

5.4 Employees/Contractors

All employees and contractors shall:

- Complete all required training before working on site without supervision.
- Conduct operations safely to limit the risk of fire.
- Report potential fire hazards to their supervisors.
- Follow fire emergency procedures.
- Understand the emergency evacuation protocols.

6 Sapphire Solar Project Minimum Safety Standards

1. **Roads: Fire Apparatus Access Roads (Fire):** Fire access roads would be provided according to RCFD requirements which typically include an all-weather surface and ability to support the imposed loads of fire apparatus. At minimum, fire access roads should be provided around the perimeter of the property and within 150 feet of any on-site, habitable structures (O&M buildings, etc.). These roads shall be no less than 20 feet wide with a grade to not exceed 15%.
    a. **Service Roads:** Graded hard-packed service roads for cleaning and maintaining panels. Service roads will be capable of supporting typical maintenance vehicles and some types of fire apparatus. Service roads would be clearly marked to indicate that they will not support imposed loads of 75,000 pounds, as appropriate.
    b. **Secondary Access:** Secondary access is designed to enable responding fire engine access and citizen egress during an emergency. At least one additional fire access road would be provided to the site, if deemed necessary by a fire official in accordance with CFC Section 503.1.2 and Riverside County Fire Department Technical Policy #TP 15-002.
    c. **Vertical clearance:** Minimum vertical clearance of 13 feet 6 inches shall be provided throughout the roadway unless the fire agency determines it is not required.
    d. **Surface:** All internal fire access road surfaces will be considered "all-weather" and capable of supporting the imposed load of responding firefighting and emergency apparatus (75,000 pound minimum).
    e. **Gates/Fences:** Gates will be in compliance with RCFD requirements. The facility will be completely fenced with a chain link and barbed wire fence. Fences: shall not limit access to fire roads, fire hydrants, or fire protection systems; such limitations shall be mitigated with gates to allow immediate access. Gates shall be no less width than 12 feet, to facilitate the use of firefighting bulldozers. Knox padlocks will be provided on all gates.
    f. **Identification:** Identification of roads and structures will comply with California Fire Code requirements. Below surface pipelines, electrical and communications lines shall be "signed" at an interval appropriate to alert firefighting bulldozer and off-road fire engine operations to advise firefighters of depth and location. Appropriate signage to be reviewed with Riverside County prior to installing.

       Additionally, a site layout map at the Project entrance will be provided that clearly indicates inverter and electrical grid layout, panel "safe" mode switch location and entire site de-energizing disconnect switch identification and location
    g. **Water:** Typical water usage will include panel washing, dust suppression (soil binding agent road applications), and O&M building personnel usage. On-site water tank(s) shall comply with NFPA 22, Private Fire Protection Water Tanks. The water capacity of each tank shall be compliant with Riverside County Fire Department requirements.
2. **Ignition-Resistant Construction and Fire Protection Systems:** Operations & Maintenance Buildings: On-site structures such as Operations and Maintenance Buildings or other buildings that will include regular human inhabitance along with inverter structures, water tanks, and substation control rooms will be of non-combustible construction or will comply with the ignition-resistive construction requirements: Wildland-

Urban Interface (WUI) areas of Chapter 7A of the California Building Code (CBC). In addition, ignition resistance solar panel components are recommended, and include:

a. Wiring, harnesses, and junction boxes designed so as to not ignite and arc or spark thereby causing potential ignition source for vegetation.
b. Electrical wiring to be listed for outdoors/exterior and be fire retardant.
c. Insulation materials (sealants) on panels to be noncombustible.
d. Electrical motors to be of a type that is sealed and does not emit sparks.
e. Provide Arc-Flash protection.
f. Exposed electrical wiring to be in proper weather resistant conduit to help resist fire exposure, arcing and sparking, etc.
g. Waterproof electrical enclosures.
h. No plastic components or cases on panels.

3. **Substations:** Substation control rooms will be of non-combustible construction.
4. **Staff and Firefighter Training:** Staff and firefighter training shall include the following topics: firefighter training, proper labeling, firefighter familiarizing, and extreme caution during fire response. On-site staff will be trained for basic first aid and (AED) operation. Basic firefighting training will also be provided to O&M on-site staff.
5. **Remote Monitoring:** Remote monitoring of the facility and its system features should be incorporated into the facility design. For example, the supervisory control and data acquisition (SCADA) system utilized by the Project will provide notification to technical staff of system faults or potential issues.
6. **Technical Staff Contact:** Project contact information will be provided to local fire agencies/stations to assist responding firefighters during an emergency. A copy of this Fire Safety Plan will be submitted to RCFD.
7. **Fire Safety Plan Notification**: The Fire Prevention and Safety Plan will be provided to RCFD's closest fire station staff, and available on scene within a Knox Box.
8. **On-Site Water:** Water tank(s) will be located at the Project site in compliance with RCFD requirements, Consolidated Fire Code and NFPA 22.
9. **Fire extinguishers:** Fire extinguishers shall be provided throughout the O&M and storage buildings, within 75 feet of each other and where there is high risk for fire ignitions and additional parameters as directed by the RCFD and following NFPA guidelines. This could include but is not limited to the following options. Standard dry chemical extinguishers are one option. Another form of fire extinguisher, carbon dioxide (CO2) extinguishers, could be used in lieu of dry chemical as they leave no residue. However, most fire engines do not carry CO2 extinguishers, so in order for this resource to be used, they would need to be available to responding firefighters.
10. **Funded and Enforced Maintenance:** Committed on-going maintenance of all facility components to fire safe levels for the life of the Project.

7 Red Flag Warning Protocol

Red Flag Warnings are issued by the National Weather Service and indicate that conditions are such (low humidity, high winds) that wildfire ignitions and spread may be facilitated. During Red Flag Warning or Watch periods, no hot works will be performed unless consultation with the RCFD has occurred to discuss the type of hot works activity and what precautions will be provided. Other construction, operation and maintenance, and decommissioning activities may proceed during these periods under heighted awareness conditions. The SSO, will determine what activities are appropriate and which should not be conducted until the Red Flag Warning has been lifted.

In order to ensure compliance with Red Flag Warning restrictions, the National Weather Service (NWS) Web site will be monitored daily during normal conditions or 2-3 times a day during Red Flag Warnings at the Project site during construction and decommissioning:

(https://forecast.weather.gov/MapClick.php?CityName=Blythe&state=CA&site=PSR&textField1=33.6103&textField2=-114.596&e=1#.Y-_dQGnMKUk)

Upon announcement of a Red Flag Warning, red flags will be prominently displayed at the entrance gate and main office indicating to employees and contractors that restrictions are in place.

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8 Fire Safety Briefings, Inspections and Training

8.1 Briefings and Inspections

The SSO will conduct routine inspections. The SSO will develop an inspection check list to document these inspections.

Prior to Project construction Project personnel will receive a presentation on the contents of this FPSP along with additional fire safety and fire prevention information provided by an informed SSO (or his/her designee) as part of their OSHA training. Supervisors/foremen will be responsible for sharing FPSP content with transient Project personnel throughout the construction of the Project. Each daily safety tailgate session should include an assessment of the day's fire related risks or hazards and the mitigation for each.

Compliance with this FPSP is mandatory. Monitoring compliance with this FPSP is everybody's responsibility. All levels of Project management have the authority to shut down any operation that presents an inappropriate amount of fire risk or hazard until it can be properly mitigated.

Violations of any of the requirements of this FPSP will be addressed immediately. Appropriate consequences for repeated or serious negligence in respect to this Plan will be dealt with accordingly. All Project-related vegetation fires, regardless of size, shall be promptly reported to the California Public Utility Commission and Bureau of Land Management to determine if appropriate mitigation measures are being taken.

8.2 Training Requirements

8.2.1 Basic Fire Safety Training

The SSO and or Site Supervisors/Foremen shall present basic fire prevention training to all site personnel with their Project onboarding, and shall maintain documentation of the training, which includes:

- This FPSP, including how it can be accessed
- Fire Management: Wildfire Prevention (43 C.F.R. 9212.2 et seq.)
- Proper response and notification in the event of a fire
- Instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Response Plan), and recognition of potential fire hazards

In addition, all construction and decommissioning personnel shall be trained about the fire hazards associated with the specific materials and processes to which they are exposed and SSO will maintain documentation of the training. Operational site employees will receive this training:

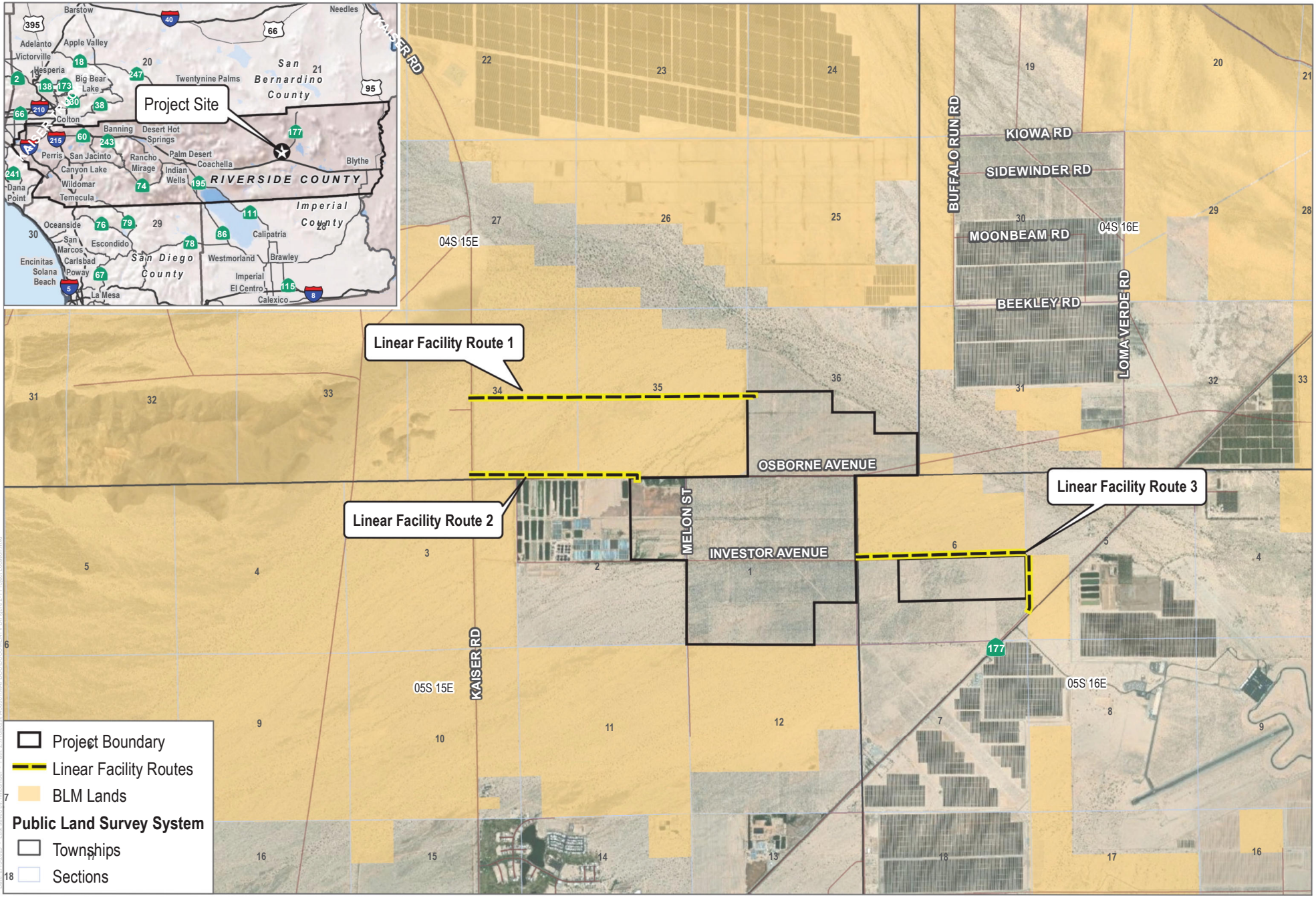
- Upon first entering the facility
- Annually during a pre-planned meeting
- When changes in work processes necessitate additional training

8.2.2 Supervisor/Foreman Fire Safety Training

Prior to Project construction and or decommissioning, all Project supervisors will receive a minimum of one hour training on Wildland Fire Prevention and Safety. This training will be provided by the SSO or their qualified designee. This training will then be shared with all construction and decommissioning personnel.

Each supervisor/foreman shall be trained to understand:

- Fire reporting
- Extinguishing small fires in order to prevent them from growing into more serious threats.
- Fire prevention
- Initial Attack Firefighting
- Identifying work activities that may result in a fire hazard.



SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022; BLM 2022

DUDEK

0 2,000 4,000 Feet

FIGURE 1

Project Location

Sapphire Solar Project

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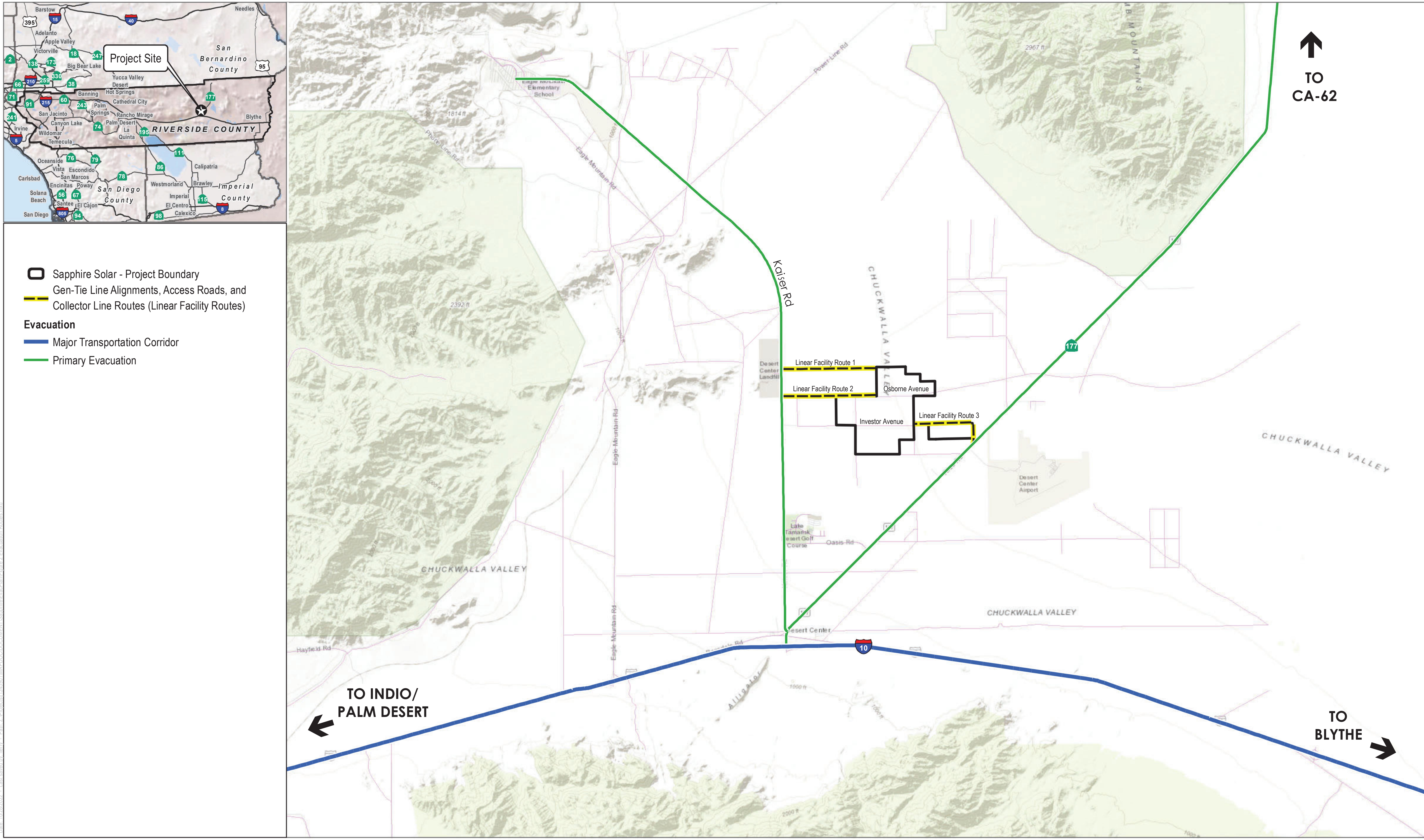
Project Site
RIVERSIDE COUNTY
Sapphire Solar - Project Boundary
Gen-Tie Line Alignments, Access Roads, and Collector Line Routes (Linear Facility Routes)
Evacuation
Major Transportation Corridor
Primary Evacuation
TO CA-62
Kaiser Rd
Linear Facility Route 1
Linear Facility Route 2
Linear Facility Route 3
Osborne Avenue
Investor Avenue
CHUCKWALLA VALLEY
Desert Center
TO INDIO/ PALM DESERT
TO BLYTHE

SOURCE: Esri World Imagery Basemap 2022; County of Riverside 2022

DUDEK 0 4,000 8,000 Feet

FIGURE 2

Sapphire Solar Evacuation Routes

Sapphire Solar Project

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