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Project Title:	Soda Mountain Solar
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Document Title:	Updated Project Description and Responses to REV 1 DR BIO-2 and REV 1 DR ES-1
Description:	1. Revised Project Description – 7.18.2025 2. Gen-Tie Overhead I-15 Crossing Visual Simulation 3. Access Road Figures (REV 1 DR BIO-2) 4. Executive Summary Figure 1-1 (REV 1 DR ES-1)
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Revised Project Description – 7.18.2025

CHAPTER 2. PROJECT DESCRIPTION

2.1 Introduction

Soda Mountain Solar, LLC (applicant), proposes to construct, operate, and maintain a utility-scale solar photovoltaic (PV) electrical generating and storage facility and associated infrastructure to generate and deliver renewable electricity to the statewide electricity transmission grid. The project also includes future decommissioning, which is anticipated to occur after 40 years of operation. This project is known as the Soda Mountain Solar Project (proposed project or project).

The project is located on approximately 2,670 acres of land administered by the U.S. Department of Interior, Bureau of Land Management (BLM), California Desert District, within the jurisdiction of the Barstow Field Office in San Bernardino County. As described in Section 2.1, the BLM performed a separate review of the project under the National Environmental Policy Act (NEPA).

The project would disturb approximately 2,059 acres overall. The project would generate up to 300 megawatts (MW) of renewable energy and include up to 300 MW/1,200 MW-hours (MWh) of battery storage. The power produced by the project would be conveyed to the regional electrical grid through an interconnection with the existing Mead-Adelanto 500-kilovolt (kV) transmission line operated by the Los Angeles Department of Water and Power (LADWP).

2.2 Description of the Proposed Project

2.3 Project Location

The project is located entirely on federally owned land managed by the BLM. The 2,670-acre project site is located approximately 7 miles southwest of the community of Baker in unincorporated San Bernardino County, California (Figure 2-1, 2-2, and 2-3), approximately 50 miles northeast of Barstow. The project site is in portions of Sections 1 and 11–14, Township 12 North, Range 7 East; Sections 25, Township 13 North, Range 7 East; Sections 6, 7, and 18, Township 12 North, Range 8 East; Sections 17 – 21, 29-32, Township 13 North, Range 8 East, San Bernardino Meridian, California.

The project is bounded directly to the east by the Mojave National Preserve (administered by the National Park Service) and BLM lands, including the Rasor Off-Highway Vehicle (OHV) Recreation Area at the southeast corner. Interstate 15 (I-15), the former Arrowhead Trail Highway, runs along the western boundary of the project site. The Rasor Road Services Shell Oil gas station is located off I-15 southwest of the project site, along the access road to the project site. A residence is next to the gas station, roughly 260 feet southwest of the proposed boundary. There are no other sensitive receptors within 1,500 feet of the project site. Approximately four storm drain culverts run under I-15 adjacent to the project site. Primary access to the project site is from the Rasor Road northbound exit off I-15.

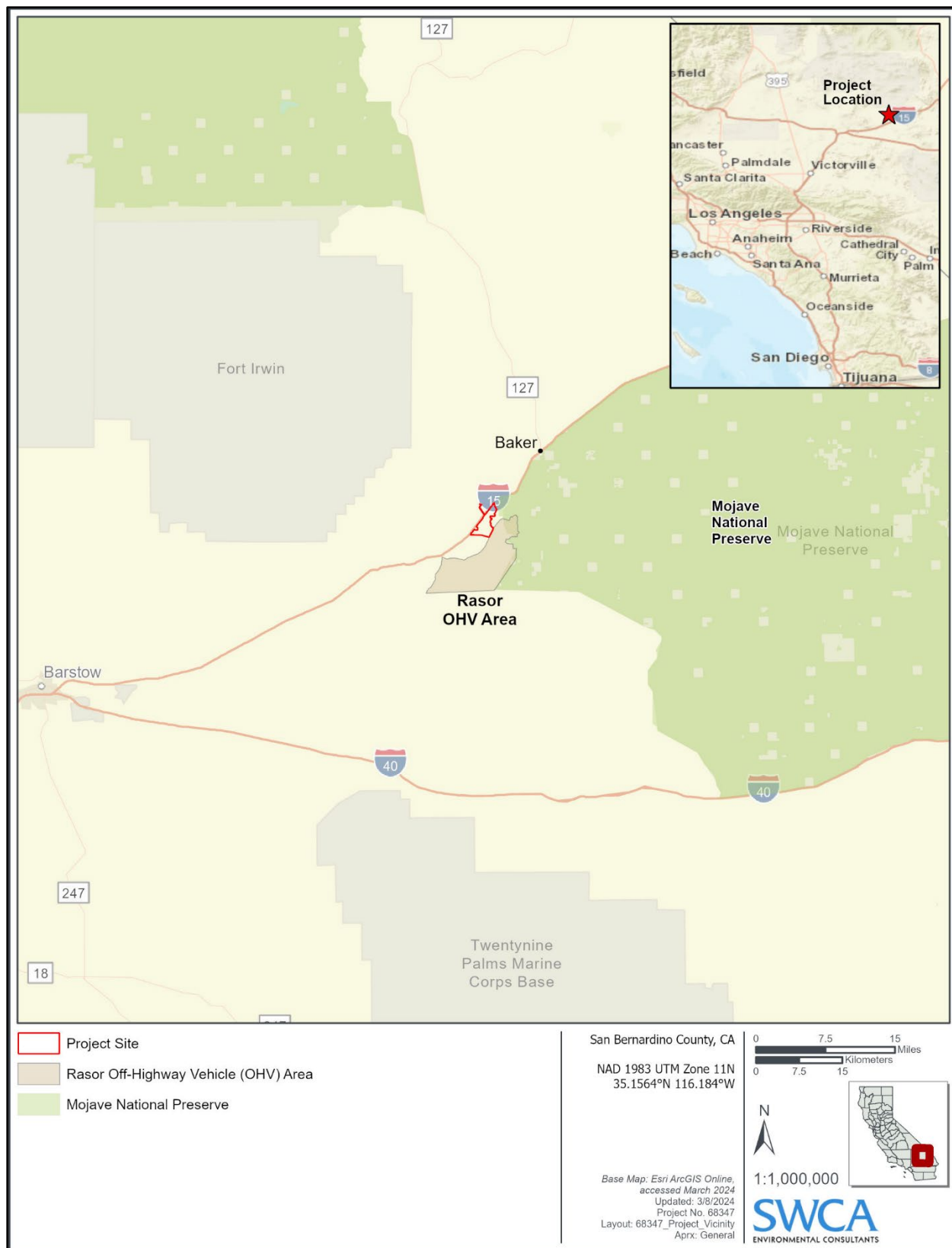


Figure 2-1. Project site vicinity.

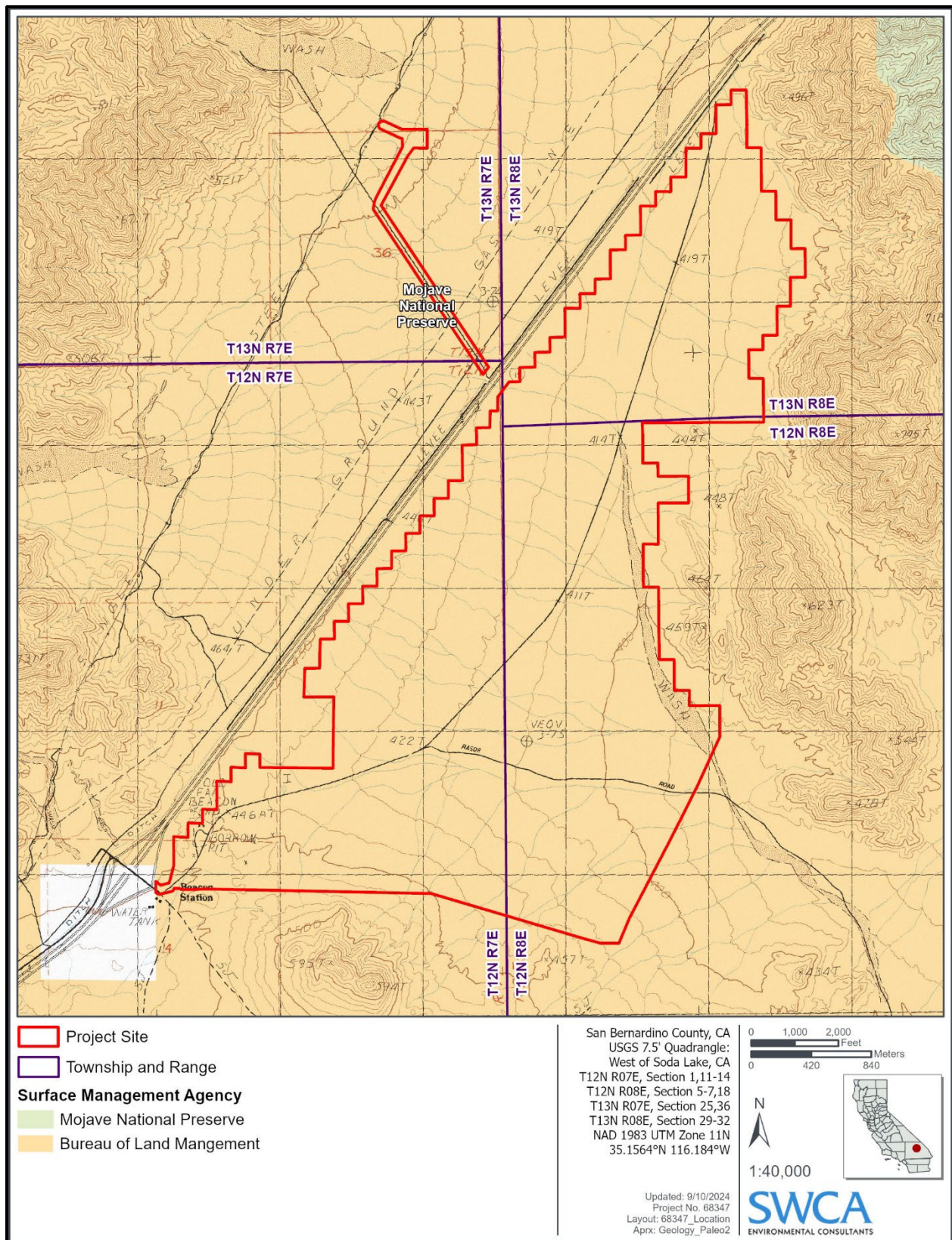


Figure 2-2. Public Land Survey location.

2.3.1.1 EXISTING CONDITIONS

The project would occupy the alluvial valley dividing the northern and southern portions of the Soda Mountains in the Mojave Desert. The project site is composed of rural desert land and is almost entirely undeveloped (Figure 2-4). Razor Road, an unimproved BLM public access road, runs from the site's southwest corner and splits into two forks after approximately 1.4 miles. The Razor Road fork continues from west to east, to the Razor OHV recreation area. Arrowhead Trail, the other fork, continues northward through the project site. Figure 2-4. Project site location and existing conditions. show the current existing conditions of the project site.

Based on a review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, unnamed tributaries are located east of the project site and flow from west to east (FEMA 2023). On-site runoff primarily drains to the southeast side of the project site. FEMA Zone D floodplains, which represent areas of undetermined flood hazards, are located within the project site. Additionally, the project is not located within the California Department of Water Resources (DWR) 100-year DWR Awareness floodplain. The project site is located in the Mojave Desert Air Basin and within a Soda Lake Valley Groundwater Basin sub-basin.

There are no existing overhead or underground transmission lines on the project site that would be affected by the proposed project. The infrastructure surrounding the site includes the four-lane I-15, two high-voltage electric transmission lines, an electrical distribution line, wireless cellular telephone towers, two fiber-optic cables, and two fuel pipelines. The location of the fiber-optic cables is not publicly available. The two high-voltage electrical transmission lines to the west of I-15 are the Kramer 115-kV sub-transmission line operated by Southern California Edison (SCE) and the Mead-Adelanto 500-kV transmission line operated by the LADWP, as shown in Figure 2-3. The project would cross the I-15 in one underground bore or overhead to connect the gen-tie to the Mead-Adelanto transmission line. The Mead-Adelanto Transmission Project is a 202-mile-long, 500-kV alternating current (AC) transmission line that extends between a southwest terminus at the Adelanto substation in Southern California and a northeast terminus at Marketplace Substation approximately 17 miles southwest of Boulder City, Nevada.

2.3.1.2 LAND USE AND ZONING

As shown in Figure 2-3, the project site is located within the BLM's California Desert District, within the jurisdiction of the Barstow Field Office, and the planning boundary of the California Desert Conservation Area (CDCA) Plan and the Desert Renewable Energy Conservation Plan (DRECP). The BLM signed its Record of Decision (ROD) approving the DRECP Land Use Plan Amendment (LUPA) to the CDCA Plan in September 2016 (BLM 2016). The DRECP is a landscape-level plan established by the California Energy Commission, the BLM, the California Department of Fish and Wildlife (CDFW), and the U.S. Fish and Wildlife Service (USFWS) which plan covers 22.5 million acres of public land in seven California counties. The DRECP LUPA includes land use allocations to replace the multiple-use classes established in the CDCA Plan. The project is within lands classified as General Public Land for management. However, given the BLM signed the ROD for the project in March 2016, before the BLM approved the DRECP LUPA, neither the BLM process for project review and approval nor the Conservation and Management Actions (CMAs) outlined in the DRECP are applicable to this project.

The generation-tie line (gen-tie line) west of I-15 would be located within an Area of Critical Environmental Concern and a designated federal Section 368 Energy Corridor adjacent to I-15 (corridor number 27-225).

2.3.1.3 SITE SELECTION

The project site was selected given the BLM's issuance of a ROD and associated amendment to the CDCA Plan in March 2016. The site is located within a designated federal Section 368 Energy Corridor adjacent to I-15 (Corridor number 27-225). Additionally, an existing SCE-owned 115-kV sub-transmission line and an LADWP-operated 500-kV transmission line run parallel to and adjacent to the western perimeter of the project site. The project site is located immediately adjacent to existing roadways that provide readily available access for construction and operations. The project site was selected based on consideration of the project objectives, engineering constraints, site geology, environmental impacts, water, waste and fuel constraints, and electric transmission constraints, among other factors.

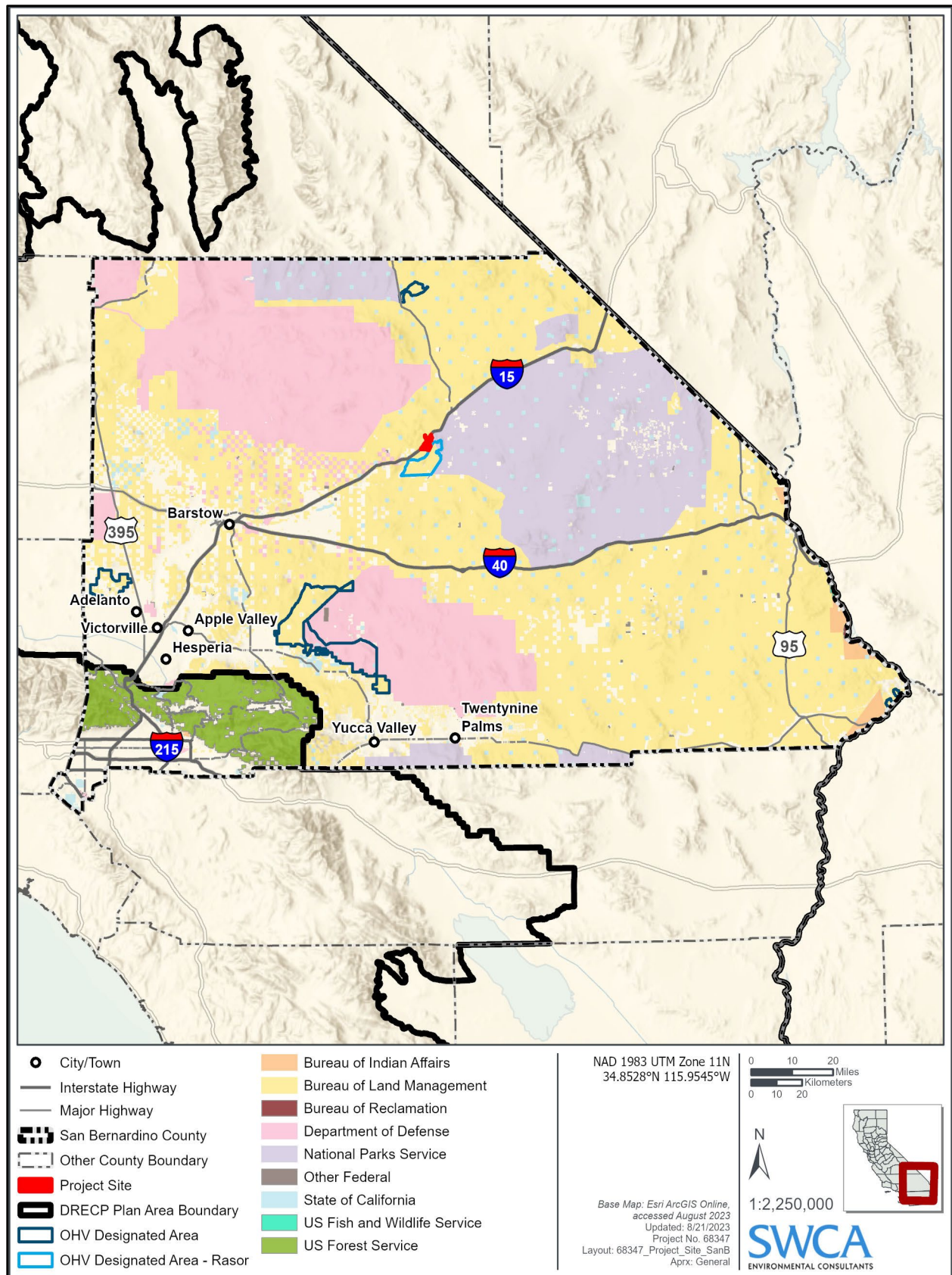


Figure 2-3. Land use management in San Bernardino County.

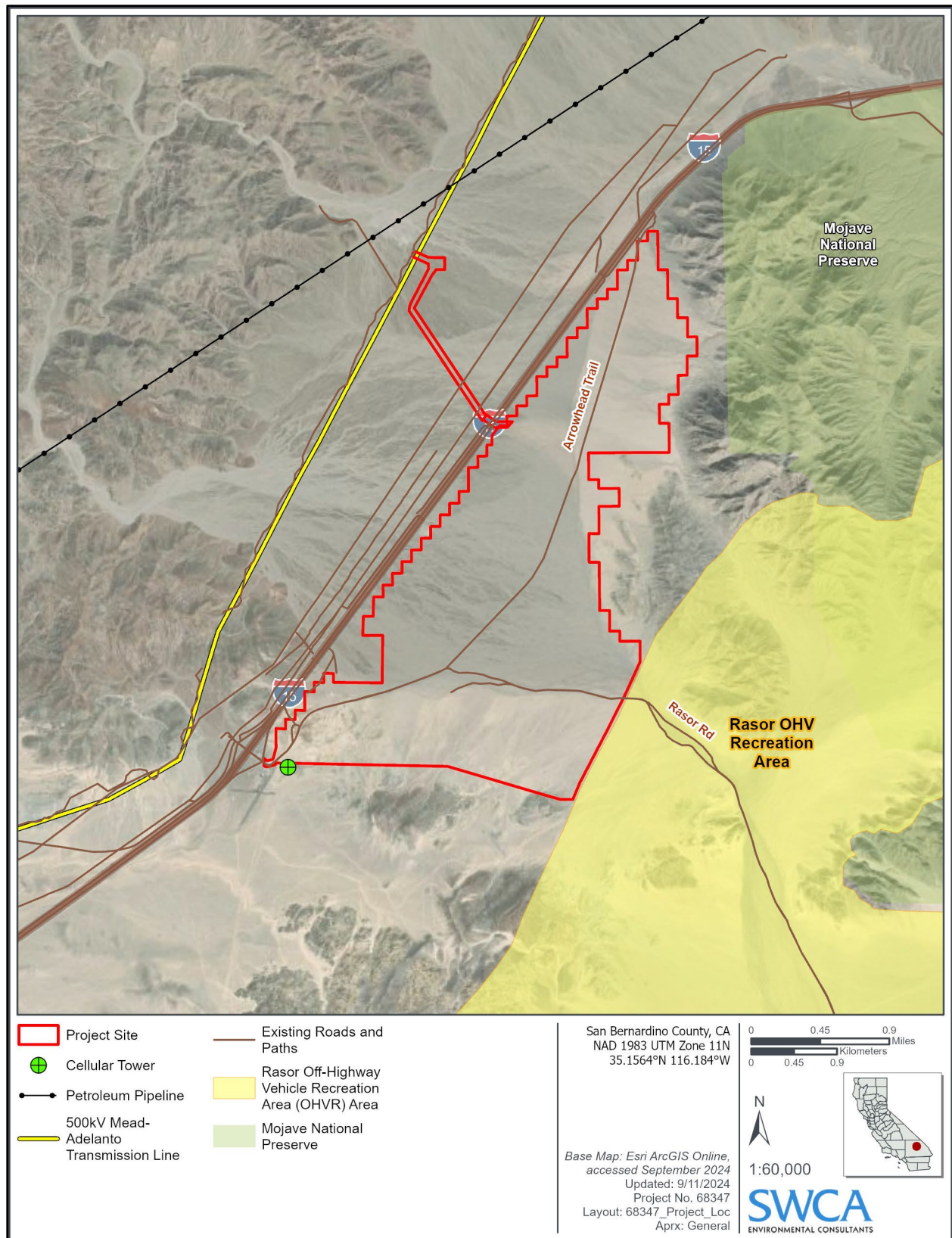


Figure 2-4. Project site location and existing conditions.



Figure 2-5. Existing view from west, facing east toward I-15 and project site.



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Figure 2-6. Existing view from northwest, facing east across I-15 to project site.

2.4 Generating Facility Description and Design

The project proposes to construct, operate, maintain, and decommission a proposed 300-MW PV solar facility located on approximately 2,670 acres. The approximate disturbance acreage for the project would be 2,059 acres. As shown in Figure 2-7 through Figure 2-10, the project components are as follows:

1. The solar plant site (i.e., all facilities that create a footprint in and around the field of solar panels, including the solar field consisting of solar power arrays identified as the East Array and South Arrays 1, 2, and 3), operation and maintenance (O&M) buildings and structures, stormwater infrastructure, and related infrastructure and improvements.
2. A substation and switchyard for interconnection to the existing transmission system.
3. Gen-tie line connecting project substation, switchyard, and 500-kV Mead-Adelanto line.
4. Approximately 300 MW/1,200 MWh of battery energy storage system (BESS) across 18 acres.

The project would operate 24 hours per day year-round and would generate electricity during daylight hours when the sun is shining. The project would generate and deliver solar-generated power to the regional electrical grid through an interconnection with the existing Mead-Adelanto 500-kV transmission line operated by LADWP and to the project's BESS. During final design, the configuration and number of components may vary as a result of micro-siting but all components would occur within the project footprint analyzed within this Opt-In Application.

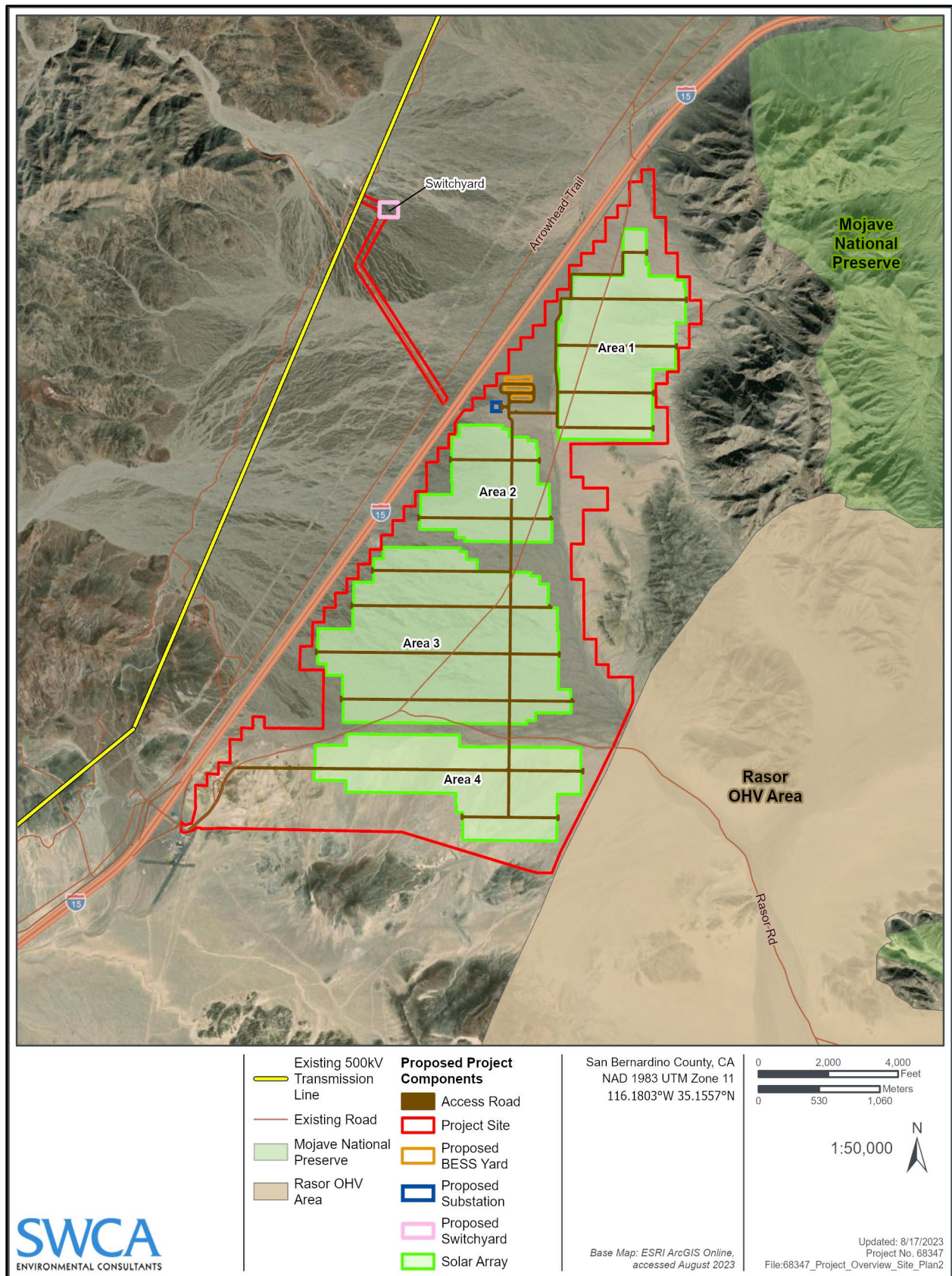


Figure 2-7. Project overview site plan.

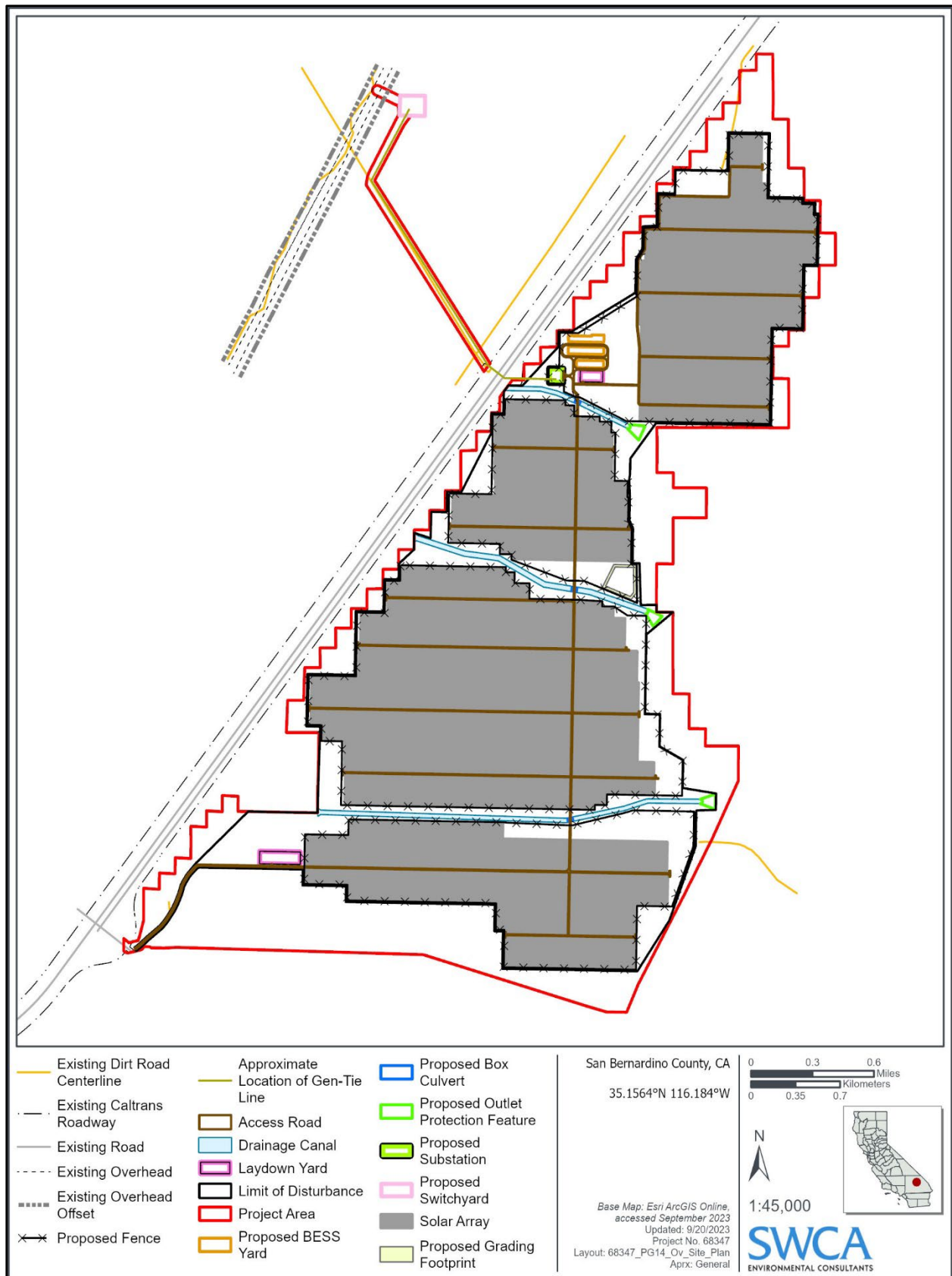


Figure 2-8. Existing and proposed conditions.



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Figure 2-9. Simulated view from west looking east at I-15 and constructed project.

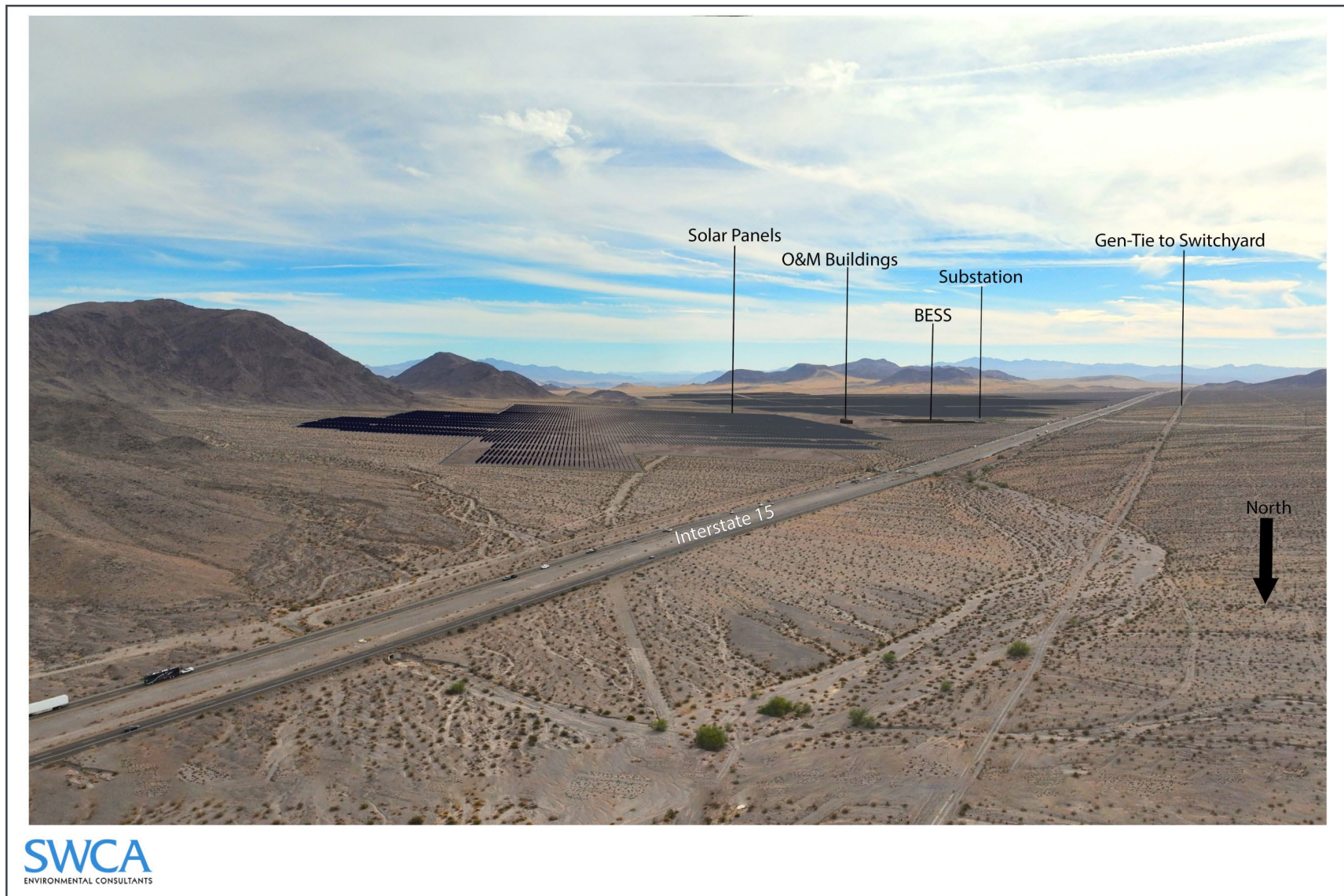


Figure 2-10. Simulated view from northwest, facing east across I-15 to project site.

2.4.1 Solar Panel Arrays and Support Structures

2.4.1.1 SOLAR PANEL ARRAYS

Solar cells, also called photovoltaic (PV) cells, convert sunlight directly into electricity (voltage), which is called the “PV effect.” PV cells are located on panels; rows of solar panels form an array. The PV modules are uniformly dark in color, non-reflective/anti-reflective glass coating, and designed to be highly absorptive of all light that strikes their glass surfaces. Arrays are mounted onto single axis solar trackers that rotate throughout the day to increase the solar irradiance received by the solar panels. Each single axis tracker includes framing members to support the solar panels as well as bearings and a single motor with a wireless connection to a control panel responsible for moving the tracker. For the project, thousands of solar trackers would be interconnected to form a utility-scale PV system. The solar panel arrays would be organized into Area 1, Area 2, Area 3, and Area 4 on the southeast side of I-15, as shown in Figure 2-7.

2.4.1.2 SUPPORT AND MOUNTING STRUCTURES

The single-axis solar tracker would be supported by steel piles (e.g., cylindrical pipes, H-beams, helical ground screws, or similar), which would be driven into the soil using pile/vibratory/rotary driving technique. Driven pier foundations are a “concrete-free” foundation solution that would result in minimal site disturbance and facilitate site reclamation during decommissioning. Most pier foundations would be driven to approximate depths of 6 to 12 feet deep depending upon the required embedment depth. The piles would be spaced 10 to 15 feet apart. The array panels would be elevated at least 1 foot above the design flood elevation and approximately 6 to 12 feet tall, depending on site topography.

2.4.1.3 ELECTRICAL CONNECTION SYSTEM

The solar facility would be designed to be available to operate at its maximum possible output (based on meteorological conditions) at least 99 percent of the time. Availability is the duration of time that the entire plant will be able to perform its intended task. It is calculated as a ratio expressed in percentage where the numerator is the number of hours when the system as a whole is either (1) ready to charge the BESS (during idle/standby periods); (2) is charging the BESS; or (3) actively exporting electrons directly to the point of interconnection (rather than first to the BESS), all divided by the total number of hours in the period. Typically, both planned and unplanned outages are subtracted from the availability calculation numerator to calculate actual availability for a period. The availability calculation denominator can be the total amount of time in the day, week, month or, most commonly, year where availability is being calculated. For further clarity, availability is not the same as a typical generating plant’s capacity factor, which accounts for annual criteria such as the plant’s actual energy MWh output (numerator) versus the plant’s nameplate capability to produce MWh over a full year (denominator), and which is usually based on the general assumption that the relevant plant will always operate at baseload. The solar facility is expected to have an annual and lifetime capacity factor of 20 to 40 percent.

The proposed solar-generating equipment has a proven track record of reliability based on multiple gigawatts of power plants using this technology permitted, financed, installed, and operating across North America. Power capacity would be sized to ensure full capacity output up to 50 degrees Celsius and down to -20 degrees Celsius to withstand climactic extremes. The solar facility would provide around 1,000 gigawatt hours (GWh) of electricity per year. The solar facility would operate for approximately 4,000 hours per year (daylight hours). Operation and maintenance procedures would be consistent with manufacturers and industry standard practices to maintain the useful life of the plant components.

Solar panels would be electrically connected using string wiring secured to the panel support system. String wiring terminates at PV array combiner boxes or load break disconnect boxes, which are lockable electrical boxes mounted on or near an array's support structure. Output wires from combiner boxes would be routed along an underground trench system approximately 3 to 6 feet deep and 1 to 6 feet wide, including trench and disturbed area, to the central inverter pads. Inverters are a key component of solar PV power-generating facilities because they convert the solar panel's direct current (DC) power generated by the solar panel into alternating current (AC) power and step up the voltage. The output voltage of the inverters would be stepped up to 600 to 1200V DC to 34.5kV AC power and transmitted by underground collection lines to the project substation.

2.4.2 Substation

The 140,000-square-foot high-voltage substation would be located adjacent to Area 1 and Area 2 on a raised gravel pad and would have a maximum height of 35 feet (see Figure 2-7 and Figure 2-8). The substation would include the main Generation Step Up (GSU) transformer, high-voltage circuit breakers, switches, meters, instrumentation transformers, relay equipment, a control enclosure, and related equipment. The substation equipment would be mounted on concrete foundations and steel structures (hot dip galvanized or weathering steel).

The substation is where all the underground 34.5-kV collection lines running from the arrays are combined and the voltage is then stepped up to 500 kV via the GSU for use with the transmission network. All interconnection equipment, including the control room, would be installed aboveground on concrete foundations and steel structures within the substation footprint. Transformers would utilize radiators with passive and active fans for airflow to dissipate heat in the substation transformers. A permanently gated, 8-foot-high chain-link fence with three-strand barbed wire meeting National Electric Safety Code requirements would be constructed around the substation.

Power to the substation control enclosure would be provided primarily by a station service transformer (roughly 50 kilovolt amps [kVA]) located within the substation yard. This transformer will be fed from the medium voltage bus within the substation yard. The control enclosure would be equipped with a backup battery and an energy management system capable of powering the control enclosure for 48 hours in the event of an outage. In the event of a prolonged outage, a secondary station service power connection will be provided via connection to the Chaves 12 KV circuit running parallel to the I-15, which is part of the SCE Kramer 220/115 kV system. Power from the 12 kV circuit will be provided via an overhead distribution line.

2.4.3 Switchyard

The switchyard would be set on an approximately 234,300-square-foot raised gravel pad and would have a maximum height of 100 feet. The switchyard would be located 0.8-mile northwest of I-15, adjacent to the LADWP Mead-Adelanto 500-kV transmission line ROW. The switchyard would include the High Voltage Bus Structure, high-voltage circuit breakers, switches, instrumentation transformers, relay equipment, a control enclosure, and related equipment. The switchyard equipment would be mounted on concrete foundations and steel structures (hot dip galvanized or weathering steel). A permanently gated, 8-foot-high chain-link fence with three-strand barbed wire meeting National Electric Safety Code requirements would be constructed around the switchyard.

Power to the switchyard control enclosure would be provided primarily by a station service transformer (roughly 50 kVA) located within the switchyard. To meet reliability standards, there will be two station

service transformers, primary and backup. The control enclosure would be equipped with a backup battery and an energy management system capable of powering the control enclosure for 48 hours in the event of an outage. In the event of a prolonged outage, a secondary power source will be provided via an underground connection to Kramer 115-kV sub-transmission line owned by SCE, which runs parallel to I-15.

The foundation of the substation and switchyard would include both concrete pads and concrete piers. Foundation design considerations include the area-specific geotechnical characteristics, ice and wind loading, short circuit forces, seismic forces, and more as required by industry best practices, Institute of Electrical and Electronics Engineers standards, and regional requirements. Foundation and structural design would take into consideration all seismic and flood considerations for the Project-specific location.

The switchyard was sited to minimize the gen-tie length. The revised substation location was chosen to optimize the transmission and distribution losses and capital expenditures.

2.4.4 Gen-tie Line

The approximately 200 foot wide, 1-mile long 500 kV gen-tie line would run from the project substation, just southeast of I-15, to the switchyard and then to the point of interconnection with the existing LADWP Mead-Adelanto transmission line. The approximately 1-mile 500-kV gen-tie line would be designed in accordance with LADWP design standards including required right-of-way (ROW) width. The gen-tie line has been sited to minimize overall distance and avoid unnecessary road and pipeline crossings, where possible. The gen-tie would be designed in accordance with LADWP design standards including required right-of-way width. The gen-tie would also use approximately eleven tubular steel pole support structures and approximately six lattice towers, all of which would be approximately 160 feet high. More or less towers and pole support structures may be required to be utilized by LADWP design standards during final design. A small segment of the gen-tie line, approximately 450 feet, would cross I-15. If this crossing segment of the gen-tie line runs underground in a bore, then on either end of this underground section there would be riser towers and transition to overhead tower structures. Alternatively, the gen-tie line may be placed overhead the I-15 rather than underground. The project includes both overhead and underground facilities which will conform to both CPUC General Order (GO) 98 and 128. CPUC GO 128 is applicable to the 34.5 kV elements of the project which are largely underground. CPUC GO 98 is applicable to the overhead electrical facilities, primarily segments of the 500 kV gen-tie that are not underground. The project will be designed in accordance with the required GO's both with respect to grounding, duct banks, derates, clearances, and soil resistivity and general conditions.

2.4.5 Transmission System

The project does not require the need to construct any new or additional electrical transmission system components off-site. Existing infrastructure surrounding the site includes two high-voltage electric transmission lines, an electrical distribution line, wireless cellular telephone towers, two fiber-optic cables, and two fuel pipelines. The two high voltage electrical transmission lines to the west of I-15 are a 115-kV subtransmission line owned by Southern California Edison and the Mead-Adelanto 500-kV transmission line operated by LADWP. The project would interconnect into and bisect the LADWP's 500-kV Marketplace-Adelanto Transmission Line 1 as the primary POI, which has ample unused capacity therefore eliminating the need for new transmission lines to be constructed off-site. The project would interconnect at the 500 kV level due to the size of the project. The 500 kV gen-tie line has been sited to minimize overall distance and avoid unnecessary road and pipeline crossings, where possible.

2.4.6 Battery Energy Storage System (BESS)

A BESS absorbs, holds, and then reinjects energy from the PV system into the electrical grid. The project is anticipated to include up to 300 MW/1200 MWh of energy for dispatch into the local electrical grid via the same point of interconnection as the solar arrays. The BESS would be located adjacent to the substation and Area 1. Eighteen acres of the project site would be utilized for the BESS throughout the project site at full buildout.

2.4.6.1 BATTERIES

Individual lithium-ion or similar cells form the core of the BESS and are assembled in sealed battery modules. The battery modules would be installed in self-supporting racks electrically connected either in series or parallel to each other. The operating rack-level DC voltage currently ranges between 700 and 1,500 volts (V). The individual battery racks are connected in series or a parallel configuration to deliver the BESS energy and power rating.

2.4.6.2 BATTERY ENERGY STORAGE SYSTEM ENCLOSURE AND CONTROLLER

The BESS containers would house the batteries described above, as well as the BESS unit controllers. There would also be a BESS Site Energy Management System controller, located in a pad mount enclosure within the BESS yard. The BESS site controller is a multilevel control system for the battery modules, power conversion system, medium-voltage system, and takes commands from the Plant SCADA controller which regulates overall plan output. The controllers ensure that the BESS effectively mimics conventional turbine generators when responding to grid emergency conditions. The BESS enclosure would also house required heating, ventilation, and air conditioning (HVAC) and fire protection systems. The battery storage containers would be built using standard International Organization for Standardization (ISO) shipping containers, and each would measure approximately 20 feet in length, 6 feet in width, and 8 feet in height, although other smaller form-factor structures exist that may be used.

The safety system would include a fire detection, alarm, and suppression control system that would be triggered automatically when the system senses imminent fire danger. A fire suppression control system would be provided within each on-site battery enclosure. The safety system would use either a waterless evaporating fluid, a sustainable clean agent (not a hydrofluorocarbon clean agent), or an alternative suppression agent, such as an inert gas. The control system would also notify the project operators and could be configured to notify local first responders as well.

2.4.7 Operation and Maintenance Area Facilities

2.4.7.1 BUILDINGS

Three buildings related to operations, maintenance, and storage would be constructed as part of the project. One building would be 2,400 square feet, and the other two buildings would each be 5,000 square feet in area. All buildings would be painted BLM color scheme Sudan Brown. These buildings would be in the northwest portion of the site next to the BESS facilities. All of these facilities would be monitored by on-site O&M personnel and/or remotely.

The project would power the O&M buildings via a 480-V circuit from the BESS Auxiliary Power distribution system. This circuit will be fed from the collector substation and transformed to 480 volts via an auxiliary transformer mounted at the BESS yard. Power will be distributed via 480-V switchgear at the BESS yard. Power distribution will be via underground cables. Backup power to the O&M facilities would be via a local microgrid. This system would consist of solar PV panels mounted to the roof of the O&M buildings, a backup battery providing 24 hours of standby power, and an automatic transfer switch. This connection removes the need to have an emergency generator as part of the proposed project.

2.4.7.2 PARKING AREAS

A 13,200-square-foot parking area would be located adjacent to the buildings described above, in the southwest corner of the site. They would be composed of compacted soil covered with filter fabric and 4-12" of compacted Class II aggregate base. The parking areas are not expected to exceed approximately 0.33 acre, or 13,200 square feet. Parking would be provided for the anticipated employees during project operation, for visitors, and for other equipment anticipated to be on-site at any time.

2.4.7.3 ACCESS ROADS

Primary operational access to the project site would be provided via the existing Rasor Road, that runs from I-15 eastward to the Rasor OHV recreation area (Figure 2-11). The portion of Rasor Road on BLM land would serve as the entrance and primary access road within the site and is approximately 0.4-mile in length. The project would improve, maintain and slightly re-route in places this portion of Rasor Road up to 26 feet wide and minor improvements will be made within both Caltrans and San Bernardino County right-of-way to improve the road conditions so that heavy trucks can utilize the route.

Rasor Road will be permanently open to the public during both project construction and operation. In order to allow public access to the Rasor OHV recreation area. Rasor Road would continue to serve as the main access point for the public into the Rasor OHV recreation area. During project construction and operation, the public would access the Rasor OHV area by traveling through the on-site portion of Rasor Road that has been improved, maintained and aligned to avoid solar panels throughout the project site. Rasor Road would be located between Array 3 and Array 4 and would continue to allow public access to the Rasor OHV recreation area. The solar arrays would be fenced and gated to ensure no public access to the project facilities.

Currently, Arrowhead Trail splits off of Rasor Road and runs north-south. During project construction and operation, Arrowhead Trail would be closed permanently. The project would construct internal access road(s) which lead to the substation and BESS and between the solar arrays. These internal access roads would be up to 26 feet wide and include a 50-foot turning radius at the project boundary.

Northwest of I-15, the project would use an existing travel route (CL 8847 and CL7682 from Zzyzx Road). CL 8847 and CL7682 are existing roadways that are publicly accessible. These roadways would not require any improvements during project construction or operation. As an alternative, the project may also construct and use a new temporary exit off southbound I-15 near the gen-tie corridor to access the gen-tie line corridor and switchyard.

All new on-site access roads would consist of compacted native material and would be graded as necessary but would generally follow the existing terrain covered with filter fabric and 4 to 12 inches of compacted Class II aggregate or amended with Class II aggregate only where native soils are not suitable for heavy traffic. Larger boulders that could impede vehicle access would be removed. These permanent access roads would be compacted to meet load requirements for vehicle traffic over the life of the project.

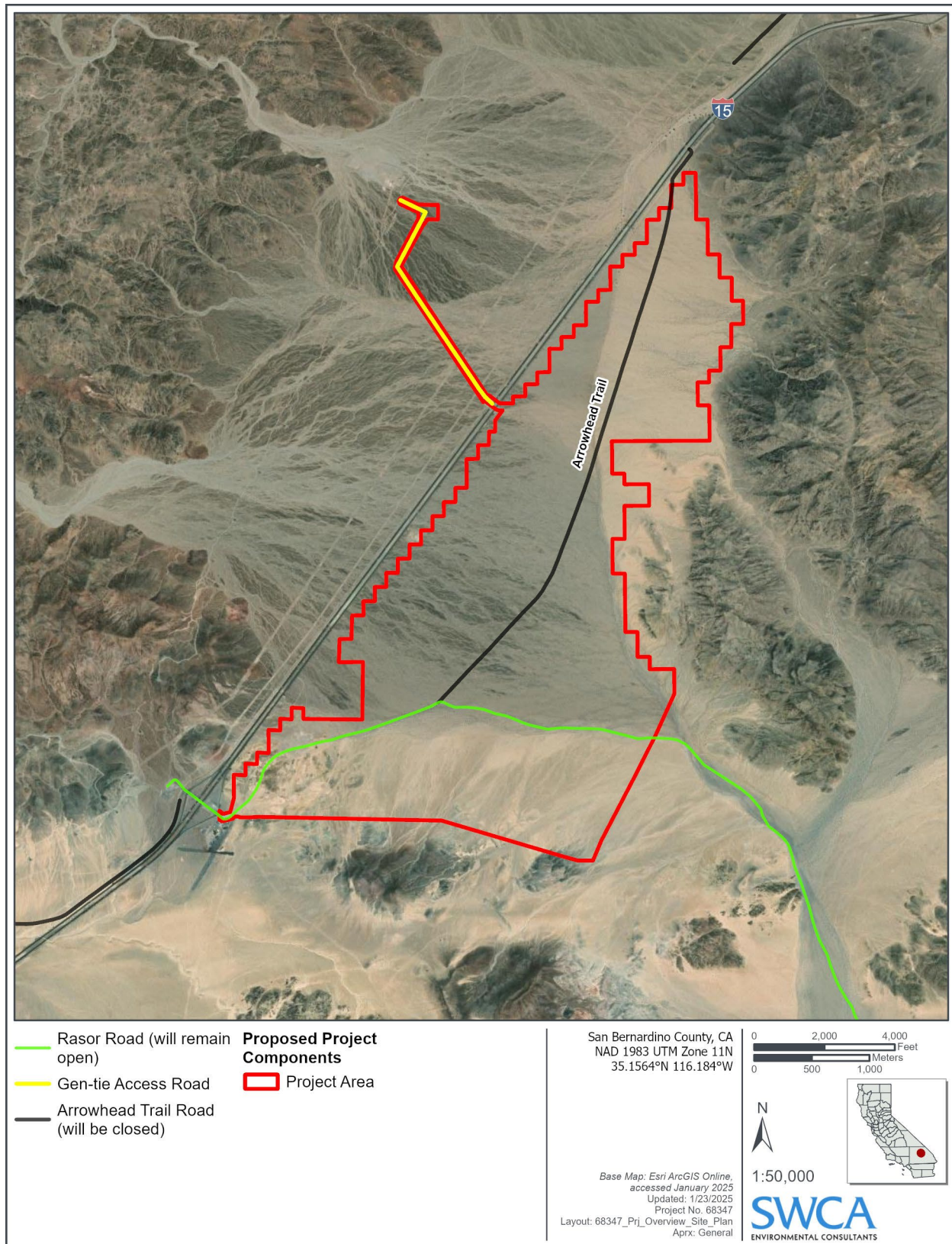


Figure 2-11. Existing and proposed roadways.

2.4.7.4 SITE SECURITY AND FENCING

All project components would be surrounded by warning signage, perimeter security fencing, desert tortoise exclusionary fencing, and perimeter security cameras. Combined security and desert tortoise fencing would be installed surrounding each individual array field and extend to include the substation and BESS area. A permanently gated, 8-foot-high chain-link fence with three-strand barbed wire meeting National Electric Safety Code requirements would be constructed around the substation and the switchyard. The line posts and terminal posts of the fence would be buried up to 3.5 feet deep, and the distance between posts would be approximately 10 feet. All permanent tortoise exclusionary fencing would be constructed in accordance with Chapter 8, Desert Tortoise Exclusion Fence, of the USFWS's 2009 Desert Tortoise Field Manual (USFWS 2009).

2.4.7.5 LIGHTING

During construction, lighting would be strategically located for safety and security in the construction trailer staging area, parking area, and around site security facilities. Lighting would be located on temporary service poles. Power for the lights would come from the proposed distribution line or construction office trailer generator. Lighting is not planned for construction activities; however, if required, it would be limited to the locations and amounts needed to ensure safety. It would be focused downward, shielded, and directed toward the interior of the site to minimize light exposure to areas outside the construction area.

During operation and maintenance, lighting would be provided at the Rasor Road site entrance, O&M buildings, substation, and switchyard. Some portable lighting also could be required for essential nighttime maintenance activities or troubleshooting in the event of an outage event. All lighting would be kept to the minimum required for safety and security; sensors, motion detectors, and switches would be used to keep lighting turned off when not required. All lights would be hooded and directed to minimize backscatter and off-site light. All lighting would be compliant with San Bernardino County Dark Skies Ordinance.

During site closure and decommissioning, safety and security lighting would be provided using a combination of the installed lighting system and portable lighting, if required. As with the other project phases, lighting would be focused downward, shielded, and directed so as to minimize light exposure to areas outside the work area.

2.4.8 Landscaping

The project would plant a variety of native and drought tolerant trees and shrubs along the western boundary of the project site. There would be approximately 30 acres of landscaped areas on-site, including up to 5 acres of irrigated landscaped areas. Irrigation would occur as needed.

The Applicant would maintain existing native vegetation to the extent possible. However, project construction may require that existing desert scrub vegetation be removed from portions of the project area. Additional acreage would be cleared of vegetation to allow for installation of buildings, the substation, access roads, fencing, and collector lines. Surface treatments, such as grading, disking, or mowing, can create potential habitat for non-native or invasive species that infiltrate the area. The Applicant has prepared Pesticide Use Proposals (PUPs) and an Integrated Weed Management Plan (IWMP) to minimize impacts from pesticides and invasive weeds.

2.4.9 *Drainage and Erosion Control*

Grading of up to 2,059 acres and other types of ground treatment would be conducted outside of existing major drainage channels and would not involve substantial changes to site topography. Once construction is complete, the topography beneath the solar panels would generally be the same as the baseline condition except in areas where soil has been compacted or rocks and isolated surface undulations have been removed by grading. Native vegetation would be allowed to reestablish naturally and would be trimmed during operation as necessary.

Security fencing would not be used in the major drainage channels in between the array fields to minimize impacts to wildlife corridors and stormwater flow. If needed along larger drainages, breakaway fencing would consist of a driven post with detachable connections just above ground level, which allow the fencing to yield to the force of a storm event without damage to the embedded portion of the post. Following such an event, the fence would be reattached to the post. The entrance to each access road along the perimeter would include a security gate.

The design of the array fields would avoid placing solar panels within the stormwater flow corridors downstream of the existing culverts under I-15 so that flows from the culverts would continue to follow existing braided flow channels. Three drainage channels would be constructed between the array fields. Each channel would be approximately 3 feet below grade and vary in width and length. Approximately ten temporary sediment basins of varying sizes and depths would be constructed adjacent to the drainage channels and throughout the site and removed at the conclusion of construction.

Development within the channels would be limited to access road crossings and potential subsurface collector lines. Approximately twelve box culverts and eight low-water crossings would be installed at the intersection of access roads and drainage channels, and permanent protection berms would be constructed along the edges of the arrays near these flow corridors to prevent occasional side channel flows from entering the array fields. Temporary and permanent fiber rolls would also be installed on slopes before they transition into steeper slopes to control runoff. All fiber rolls would be made of natural materials and weed free.

2.4.10 *Solid Waste and Hazardous Materials Management*

Construction would generate solid waste. As part of the project, a Waste Management Plan has been completed. A full-time crew would be responsible for maintaining site cleanliness during construction, including collecting trash at the temporary construction facility and the various work fronts. All trash would be placed in containers with secure lids. All hazardous and non-hazardous waste would be stored in appropriate containers for off-site disposal. All waste generated during construction would be stored in wind-proof and wildlife-proof containers that periodically would be transported to an off-site disposal facility authorized to accept the waste. During construction, portable sanitary facilities would be located in the project area and maintained by a local contractor.

During operations and maintenance, some PV panels would require replacement due to breakage or other damage or to take advantage of new technologies or address degradation of electrical capacity. Removed PV panels would be recycled or disposed of in accordance with applicable local, state, and federal standards and regulations.

Hazardous materials that may be used and stored during construction and/or operations and maintenance could include gasoline and diesel fuel, paints, thinners, solvents, sealants, lubricants, hydraulic fluids, herbicides. Facility transformers would contain non-polychlorinated biphenyl (PCB)-rated dielectric fluid. Due to the non-hazardous nature of these transformer fluids, secondary containment is not required.

Facility breakers may contain SF6 gas insulating fluid depending on final design but will comply with California Air Resources Board regulations. The Waste Management Plan outlines the nonhazardous and hazardous waste streams associated with construction and operation of the project. The Waste Management Plan also identifies the waste disposal sites that may be feasibly used for disposal, including name, location, classification, daily and annual permitted capacity, daily or annual amounts of waste currently being accepted, estimated closure dates and remaining capacity and a description of any enforcement action taken by local or state agencies due to waste disposal activities.

Hazardous materials would be stored within secondary containment to control any potential leaks of oils, grease, fuels, and other hazardous materials stored at the project site. All potential contaminants would be stored and used at least 50 feet from any defined or constructed channels or basins at all times. If quantities exceed regulatory thresholds, a spill prevention control and countermeasure (SPCC) plan would be developed prior to project construction in accordance with applicable regulations and would include a facility diagram that would identify the location and contents of hazardous materials containers; potential equipment failures; containment and diversionary structures; facility drainage; personnel, training, and spill prevention procedures; and emergency contact information. Diversionary structures meeting the requirements of the SPCC plan would be provided for oil-containing equipment, including transformers, at the project site. Transformers would be inspected on a regular basis to detect and respond to any leakage.

All use, storage, transport, and disposal of hazardous materials associated with the project would be done in strict accordance with federal, state, and local regulations and guidelines. Employees would be trained in the appropriate protocol for notification and cleanup of hazardous materials. Additionally, the site would be supplied with adequate spill containment kits and personal protective equipment in case of a release. Construction equipment and maintenance trucks would be maintained at all times to minimize leaks of motor oils, hydraulic fluids, and fuels. No extremely hazardous materials would be produced, used, stored, or disposed of as a result of the project.

Most of the fuel required by construction and operation staff vehicles and engines would be procured at commercial gas stations in the local area, such as at the service station at Rasor Road or in Baker. A limited amount of #2 diesel and gasoline petroleum fuels (approximately 500 gallons each) may be stored in the staging areas in above grade steel tanks with secondary containment. In addition, every transformer in the substation would have concrete oil containment. In the case that a leak occurs or a transformer fails, oil containment would be made to capture and store oil from transformers. The purpose of containment would be to keep transformer oil out of the ground. Material Safety Data Sheets for the hazardous materials that are expected to be used and/or stored on-site would be retained at the on-site office.

2.5 Construction Activities

The following sections provide details about the timeline and process for construction of the project. Once construction is complete, the project would operate for approximately 40 years. Construction would begin in the second quarter of 2026, and initial operation would begin in the fourth quarter of 2027. Full-scale commercial operation is anticipated to begin by the second quarter of 2028.

2.5.1 Construction Schedule and Workforce

Construction of the project is anticipated to begin in the second quarter of 2026 and occur over an approximately 18-month period and consist of overlapping construction stages. Stage 1 would include

mobilization, site preparation as required, grading as required, fencing, preparation of roads and laydown areas, and installation of measures in the Stormwater Pollution Prevention Plan (SWPPP) as well as erosion control features. Stage 2 would include installation of solar array structural components including piles, racking systems, and foundations. Stage 3 would include installation and makeup of electrical equipment including trenching to install cables and installation of the solar and BESS inverters, solar panels, battery storage systems, gen-tie, switchyard and ancillary equipment, and would also include trenching activities to install cables and other electrical equipment. Stage 4 would include inspections, testing, and commissioning. The approximate duration of the states is as follows: Stage 1 would be from months 1 to 8, Stage 2 would be from months 4 to 12, Stage 3 would occur during months 10 to 16, and Stage 4 would occur during months 15 to 18. An average of 200 construction workers would operate daily on-site, with an anticipated 300 construction workers during peak construction activities.

The typical construction work schedule is expected to be from 6:00 a.m. to 6:00 p.m., Monday through Friday. However, to meet schedule demands or to reduce impacts, it may be necessary to work early mornings, evenings, or on weekends during certain construction phases. The work schedule may be modified throughout the year to account for changing weather conditions (e.g., starting the workday earlier in the summer months to avoid work during the hottest part of the day for health and safety reasons). If construction work takes place outside these typical hours, activities would comply with San Bernardino County standards for construction noise levels. For safety reasons, certain construction tasks, including final electrical terminations, must be performed after dark when no energy is being produced. The project would use restricted nighttime task lighting during construction. Lighting would include only what is needed to provide a safe workplace, and lights would be focused downward, shielded, and directed toward the interior of the site to minimize light exposure outside the construction area.

2.5.2 *Preconstruction Activities (Stage 1)*

Prior to construction, all contractors, subcontractors, and other on-site personnel would receive Worker Environmental Awareness Program (WEAP) training regarding the appropriate work practices necessary to effectively understand and implement the biological commitments in the project description, implement the mitigation measures, comply with applicable environmental laws and regulations, avoid and minimize impacts, and understand the importance of these resources and the purpose and necessity of protecting them.

Qualified biologists would conduct preconstruction surveys for sensitive species. Sensitive resource areas would be flagged so they are avoided or appropriately managed during construction. Preconstruction field survey work would include identifying precise locations of the project site boundary and desert tortoise and security fencing. Construction staging areas would be established for storing materials, construction equipment, and vehicles. These features would be subsequently staked in the field. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction limits. All off-road construction vehicle travel, fence installation, and staging area establishment would be surveyed and/or monitored by qualified biologists, archaeologists, and tribal monitors, as appropriate. The preconstruction field surveys would be conducted during daylight hours, and vary in length and timing, depending on the species found on-site. The proposed WEAP training would be required before a worker would be allowed to work on the site. These trainings would also occur on a continuous basis during construction. Onsite water wells would be drilled during Stage 1.

2.5.3 *Site Preparation (Stage 1)*

As shown in Figure 2-12, approximately 2,059 acres throughout the site would be disturbed. Grubbing and grading would be required at roads, laydown areas, BESS yard, substation yard, and switchyard to level rough or undulating areas, including around roads and laydown areas, as well as the BESS yard,

substation yard, and switchyard. Grubbing and grading would also be required to prepare soils for concrete foundations for substation equipment, inverters, energy storage systems, and the operations and maintenance buildings. Grubbing would involve the removal of vegetation from the construction site, while grading would include earthwork to achieve a certain base or slope. Mowing, minimal grubbing, and grading may also be required in the array areas to prepare the site to receive pile foundations. There would be approximately 630,000 cubic yards of cut and 180,100 cubic yards of fill, thus requiring approximately 449,900 cubic yards of cut on-site. The 449,900 cubic yards of net cut would be distributed throughout the project disturbed area.

Per Mojave Desert Air Quality Management District Rule 403, as part of project construction, the applicant would develop a Dust Control Plan that describes all applicable dust control measures to address construction-related dust (Mojave Desert Air Quality Management District 2020). Further, a SWPPP or SWPPP-equivalent document required by the Lahontan Regional Water Quality Control Board (RWQCB) would be prepared by a qualified engineer or erosion control specialist and would be implemented before construction. The SWPPP would be designed to reduce potential impacts related to erosion and surface water quality during construction activities and throughout the life of the project. It would include project information and best management practices (BMPs). The BMPs would include dewatering procedures, stormwater runoff quality control measures, concrete waste management, stormwater detention, watering for dust control, and construction of perimeter silt fences, as needed.

2.5.4 Solar Array Assembly and Construction (Stage 2)

Construction of the solar arrays would begin with the installation of array support posts, which would be driven into the soil using a pile/vibratory/rotary driving technique to a depth of approximately 6 to 12 feet. Single-axis solar tracking structures would be fastened to the support piles. Once the support structures are in place, solar panels would be attached to the support frame. The assembled groups of solar panels would be wired together into strings through connectors on the back of the modules. Assembled panel sections would then be connected to combiner boxes located throughout the arrays that would deliver power to the inverter. Output wires from combiner boxes would be routed along an underground trench system approximately 3 to 6 feet deep and 1 to 6 feet wide, to the central inverter skid. Central inverters would be mounted on concrete pads or driven piles. Central inverters would be brought in by tractor-trailers through the Rasor Road site entrance and delivered directly to the mounting pad sites where they are placed by mobile crane.

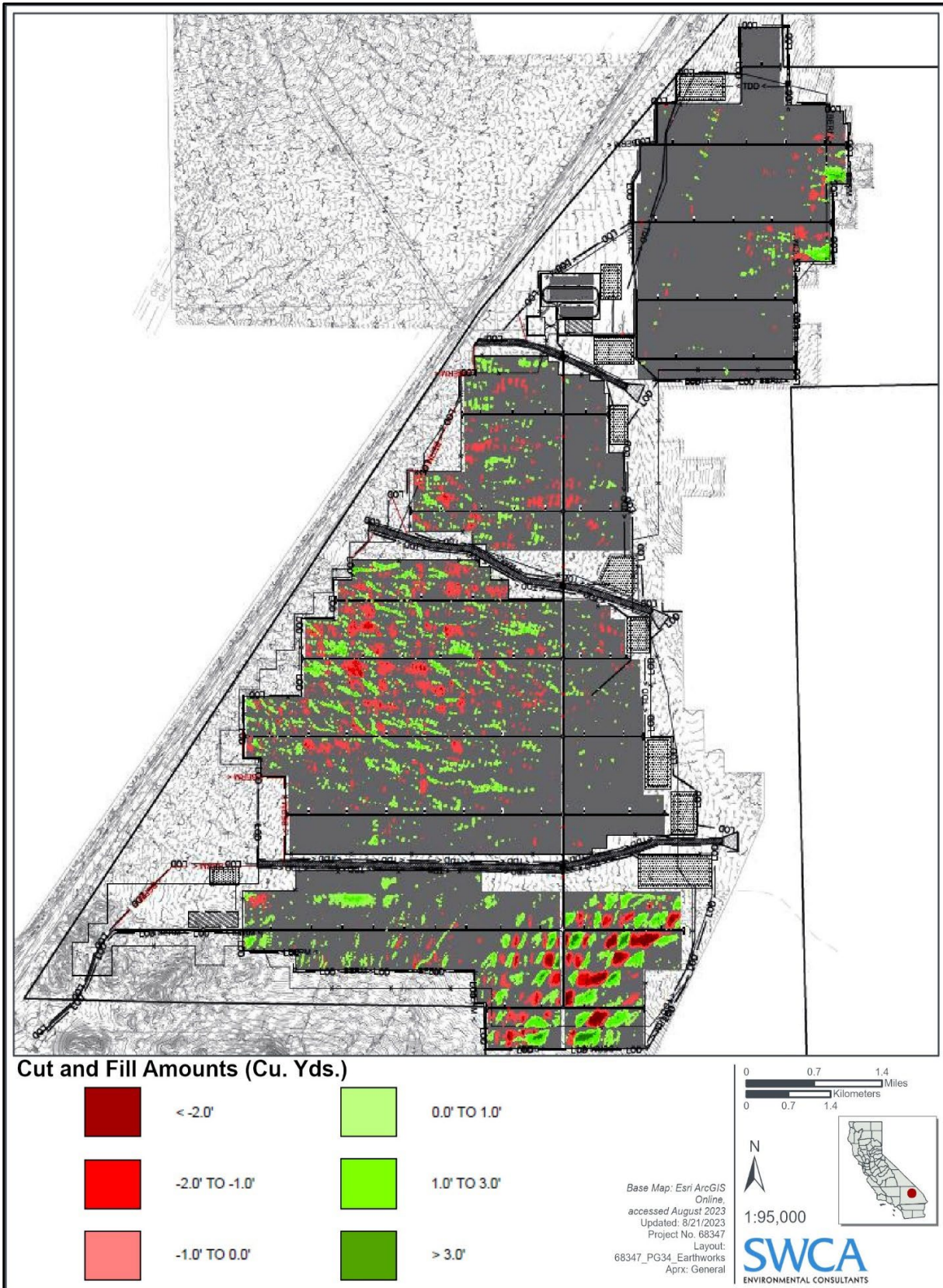


Figure 2-12. Proposed earthwork.

2.5.5 Substation, Switchyard, and Gen-tie Construction (Stage 3)

Construction of the project substation, switchyard, gen-tie and interconnection to the Mead-Adelanto 500-kV transmission line would occur concurrently with the construction of the solar arrays. To construct the 500kV transmission line connection from the project switchyard to the existing Mead-Adelanto line, approximately, one tower would be removed from the existing line, and multiple new tower structures would be constructed adjacent to the removed tower. The new towers would carry the 500-kV transmission line into and out of the new switchyard. The sequence of construction would be to install the new towers and equipment, string the new line, then request and outage to cut in the new line to the existing Mead-Adelanto line.

The project gen-tie line from the switching station to the project substation would be installed using concrete caisson foundations or driven poles. Upon installation of all poles, the line insulators and switches would be installed. Upon installation of all line equipment, the conductors would be strung along the poles.

The substation and switchyard would be graded and compacted to an approximately level grade and raised above the adjacent grade to prevent flooding. Upon completion of the raised pad, concrete foundations and underground cabling, and a grounding grid would be installed including a grounding grid as required by the project design and applicable standards. Upon completion of the underground work, steel structures would be installed to mount equipment. Upon completion of the structures, substation equipment would be installed including transformers, switches, breakers, and control enclosures. Upon completion of equipment installation wiring and terminations at all equipment will be performed. Upon completion of all wiring, testing of equipment will be performed.

The approximately 1-mile 500-kV gen-tie line would be designed in accordance with LADWP design standards including required right-of-way (ROW) width. The gen-tie would also use approximately eleven tubular steel pole support structures and approximately six lattice towers, all of which would be approximately 160 feet high. More or less towers may be required to be constructed in compliance with LADWP design standards, during final engineering. A small segment of the gen-tie line, approximately 450 feet, would cross I-15 in an underground bore, and on either end of this underground section there would be riser towers and transition to overhead tower structures. Alternatively, the gen-tie may cross I-15 overhead, rather than underground.

2.5.6 Electrical Construction Activities (Stage 3)

Buried electrical lines for DC array wiring and AC wiring between inverters and transformers would then be installed using trenching machines. The trenches would be approximately 3 to 6 feet deep and 1 to 6 feet wide. The trenched areas would be backfilled and compacted after the cables are laid into place. It is anticipated that the solar panels would require one washing during the construction phase prior to energizing and performance testing of the arrays in order to remove the dust that has accumulated on the panels during construction.

The medium-voltage collection cables would be trenched at depths up to 4 to 8 feet using a trenching machine. The trenches would be approximately 12 to 36 inches wide. Multiple trenches may be placed adjacent to each other, depending on the number of collector circuits in a particular location. The cables would be placed within the trenches in layers (as necessary) followed by backfill and compaction operation. Alternatively, a single pass trenching and cable installation machine could be used to automate the cable placement and backfill process. The main trenching operations would be for installation of DC

cables from the combiner boxes to the inverter skids and installation of AC collector circuits between inverter skids and the substation. The collector cable would be installed by circuit in conduits, with each circuit contained in a single 6-inch-diameter conduit (typical) spaced approximately 10 feet on center. The exact locations would be determined during detailed design.

2.5.7 Construction Equipment and Materials

Standard construction equipment would be used during construction, including earth-moving equipment (e.g., bulldozers, excavators, backhoes) and road-building equipment (e.g., compactors, scrapers, graders). Construction equipment would include air compressors, all-terrain passenger vehicles, backhoes, cranes, a drill rig, tractor-trailers, flat-bed trucks, telehandlers, pick-up trucks, pile drivers, trenchers, portable generators, and water trucks. Construction equipment and maintenance trucks would be maintained at all times to minimize leaks of motor oils, hydraulic fluids, and fuels. No extremely hazardous materials are currently anticipated to be produced, used, stored, or disposed of as a result of the project.

Most of the fuel required by construction and operation staff vehicles and engines would be procured at commercial gas stations in the local area, such as at the service station at Rasor Road or in Baker. A limited amount of #2 diesel and gasoline petroleum fuels (approximately 500 gallons each) would be stored in the staging areas in above-grade steel tanks with secondary containment.

Concrete would be required for building or structure footings and foundations and pads for inverters, transformers, water tank footings, and substation equipment. In areas where driven support posts are not practical for the solar arrays, pre-drilling and installation of posts with sand slurry may be used.

2.5.8 Construction Vehicle Access and Traffic

A Construction Traffic Control Management Plan has been prepared for the Project. All construction materials would be delivered by truck. Most truck traffic would occur on designated truck routes and major streets. Construction traffic would include periodic truck deliveries of materials and supplies, equipment, recyclables, trash, and other truck shipments, as well as construction worker commuting vehicles. Most construction equipment and vehicles would be brought to the site at the beginning of each construction phase during construction mobilization and remain on-site throughout the duration of the construction phase for which they were needed. Generally, the equipment and vehicles would not be driven on public roads while in use for the project. Equipment will be brought to site on trailers with permitted load as required by Caltrans.

The project is anticipated to generate a maximum of 600 daily vehicle trips from construction workers, 200 daily vehicle trips from heavy duty trucks and 34 daily vehicle trips from water trucks. The project would use a just-in-time delivery system with supplies and components delivered on a schedule to minimize on-site storage needs.

2.5.9 Construction Water Supply and Use

Project construction would take place over approximately 18 months. Water would be needed primarily for dust control and soil compaction during the first 90 days of grading activities, with small amounts used for sanitary and other purposes. The water for the project would be supplied from up to five newly constructed onsite groundwater wells or, alternatively or in addition, from an existing private offsite groundwater well. If the offsite source is used, this water would be trucked in from this well and stored in three permanent water storage tanks to support project operations. The existing offsite water well that

would be utilized is located at 58502 Death Valley Road, Baker, California 92309, approximately 11 miles northeast of the project site.

During Stage 1 and Stage 2 of construction, which includes the 90-day grading period, the project would require approximately 200,000 gpd, or approximately 336 acre-feet per year (af/yr). Water requirements in the second year of construction are expected to be less than 110 af/yr, or half of the requirement of the first year of construction.

Five temporary water tanks of 100,000 gallons would be brought on-site by truck to store water in anticipation of construction water needs. The tanks would be housed on trailers located along access roads or within areas that have been cleared for installation of project components. The tanks may be moved around the site as construction progresses and would be used to fill on-site water trucks. The temporary water storage tanks would be removed after construction. Water used for construction would be supplied from up to five newly-constructed onsite groundwater wells or, alternatively or in addition, from an existing offsite groundwater well.

2.6 Operation and Maintenance

The project would begin operation in 2027 and operate 7 days a week, 365 days a year, with an approximately 40-year anticipated lifespan. Operational needs at the site include monitoring and optimizing the power generated by the solar arrays and interconnection with the transmission lines, operating the Supervisory Control and Data Acquisition (SCADA) system, troubleshooting the collector lines and repairing damaged cables, connections, or equipment, performing preventative maintenance per manufacturer recommendations, and conducting panel-washing activities periodically through the year. Additional maintenance would be required to maintain the administrative buildings, fencing and signage, roadways, and other ancillary facilities at the site. The project will hire local workforce as available to perform operations and maintenance.

2.6.1 Operation and Maintenance Workforce

The project substation would be uncrewed during operation; however, a workforce of approximately 2 to 4 personnel would visit the substation on an as needed basis for maintenance, equipment operation, and/or security. The project would be remotely controlled, eliminating the need for permanent on-site employees. Final staffing levels and configuration would be based on the final site configuration and early operating and maintenance experience. The facility would not be accessible to the public, and access will be infrequent and limited to authorized personnel.

2.6.2 Automated Facility Control and Monitoring System

The project would be operated and monitored by means of a SCADA system located in the control building. Sensors located at each inverter, BESS, project weather station, project switches, and breakers would report operational parameters. Data access and the project PV and BESS systems would be controlled, either on-site or remotely, through a high-security system. The non-conductive fiber-optic communications cable would be co-located with the low-voltage DC and AC wiring to reduce environmental impacts. Personnel communication would use two-way radio/receptor stations, which would require a Federal Communications Commission (FCC) license.

2.6.3 Operational Water Supply and Use

Project operation would require water for potable use, dust control, panel washing, and fire protection. The water for the project would be supplied from up to five newly constructed onsite groundwater wells or, alternatively or in addition, from an existing private offsite groundwater well. If the offsite source is used, this water would be trucked in from this well and stored in three permanent water storage tanks to support project operations.

Water would be used to clean the PV panels; dust and dirt build-up reduces the amount of incoming solar radiation striking the active PV layer within the panel. To reduce this effect, panel washing would be conducted three times per year over a 3-week period during operations, or additionally as necessitated. The water would drain by gravity to panel-washing trucks for use. Panel washing would require approximately 2.8 af (912,384 gallons) of water per year. In total, an estimated 5.6 af/yr of water would be used for panel washing, dust control and suppression during operation.

Three 10,000-gallon water tanks would be located throughout the site near the operation and maintenance building, BESS, and adjacent to the solar arrays. The water tanks would provide storage of water used for fire suppression. The tank would not require a regular supply of water because the water would be withdrawn only in the event of a fire. The tank would be monitored periodically and refilled as needed to replace evaporative losses. For fire suppression water supply, the project would conform to County requirements, which incorporate National Fire Protection Association (NFPA) Standards 1142 and 13 by reference and provide minimum requirements for fire suppression water supply where no public water supply is available (Standard 1142) and sprinkler systems (Standard 13).

2.7 Decommissioning and Site Reclamation

When the project reaches the end of its useful life, structures and equipment would be removed for reuse or sold as scrap, and the land surface would be reclaimed. A Decommissioning and Site Reclamation Plan has been prepared for the project. Because site conditions are likely to change over the life of the project, and to ensure that the decommissioning and site reclamation plan addresses all necessary conditions, the draft will be finalized and approved by the BLM before decommissioning and reclamation activities begin.

Upon decommissioning, aboveground structures would be dismantled and removed from the site. Where required by the BLM, concrete pads or foundations would be demolished, and rubble would be removed to an off-site disposal facility authorized to accept the waste. Belowground facilities may be disconnected at the surface and left in place in conformance with guidance and approval from the BLM. New project access roads and corridors would be closed, with the exception of Razor Road, which would remain accessible.

Decommissioning of the substation and switchyard would involve deconstruction of structures. Salvaged materials would be recycled to the extent possible. Material that cannot be recycled would be transported for disposal in authorized landfills. Underground cabling and conduit may be left in place. The substation and office/storage areas would be graded to approximate the natural contour.

The applicant would prepare and implement a final closure and reclamation plan addressing removal of structures and site restoration in conformance with BLM requirements at the time of decommissioning. Construction hours and site cleanliness practices would be approximately the same during decommissioning as during construction.

Gen-Tie Overhead I-15 Crossing Visual Simulation

 Date: **10-2-24**
 Photo Time: **12:08 pm**
Sunny

Good Poor

Sun Azimuth:

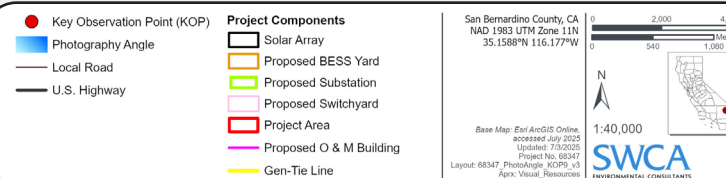
Lighting Angle on Project: **Side Lit**

Wind: 0 mph

Cloud Cover: 0 %

Temperature (°F): **93°F**

Simulation was prepared using information provided by client. Locations, colors, and heights may vary based on final engineering and design.



Approximate Distance to Nearest Transmission Pole:

0.25 mile

Solar Panel

West **East**

12 ft

PM panel position Midday panel position AM panel position

Gen-Tie Monopole

160 ft

SWCA[®]
ENVIRONMENTAL CONSULTANTS

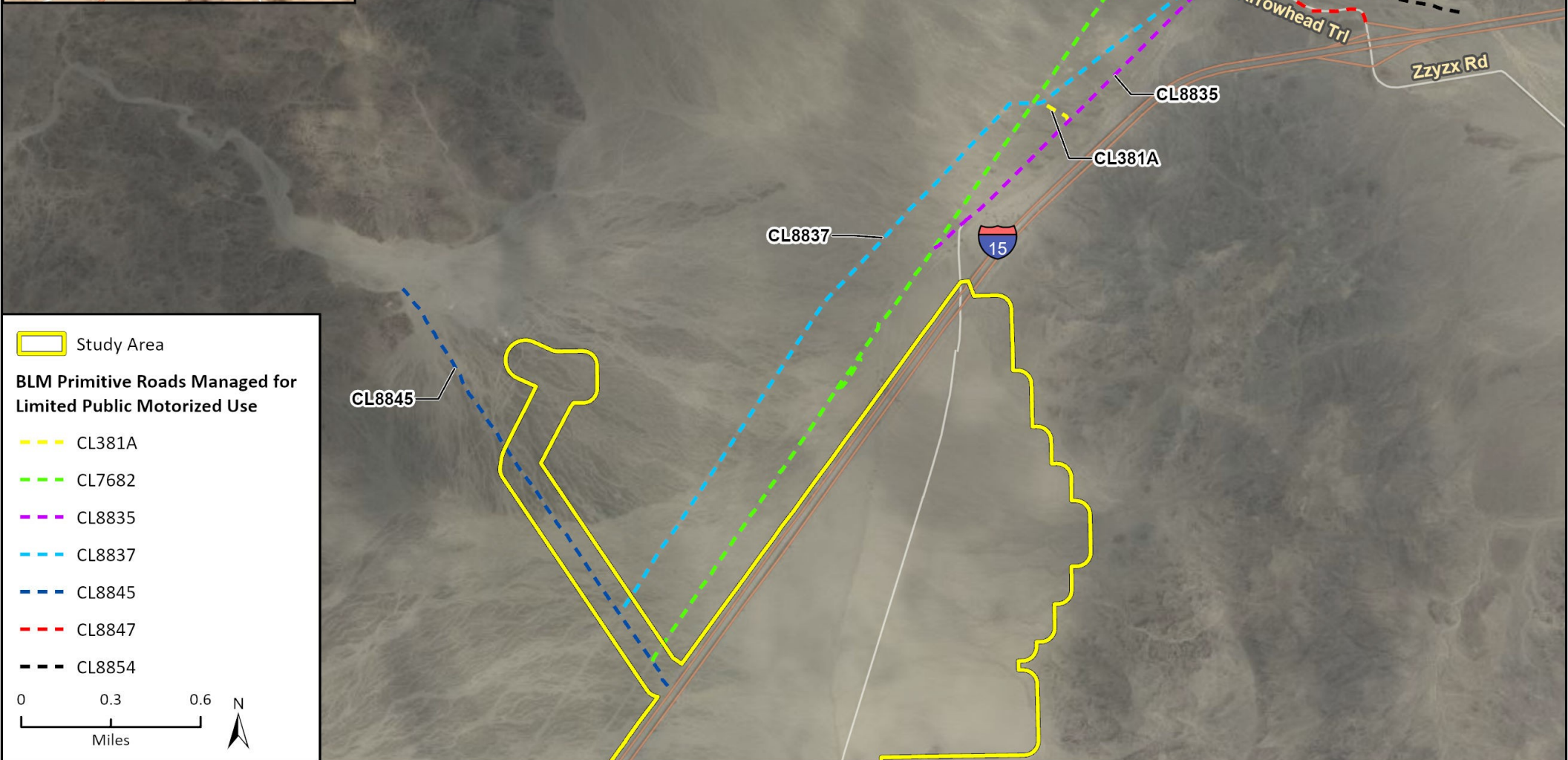
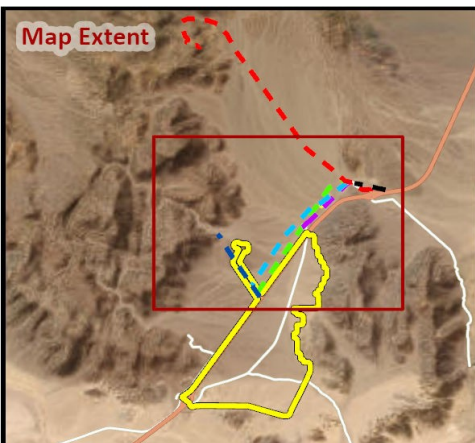


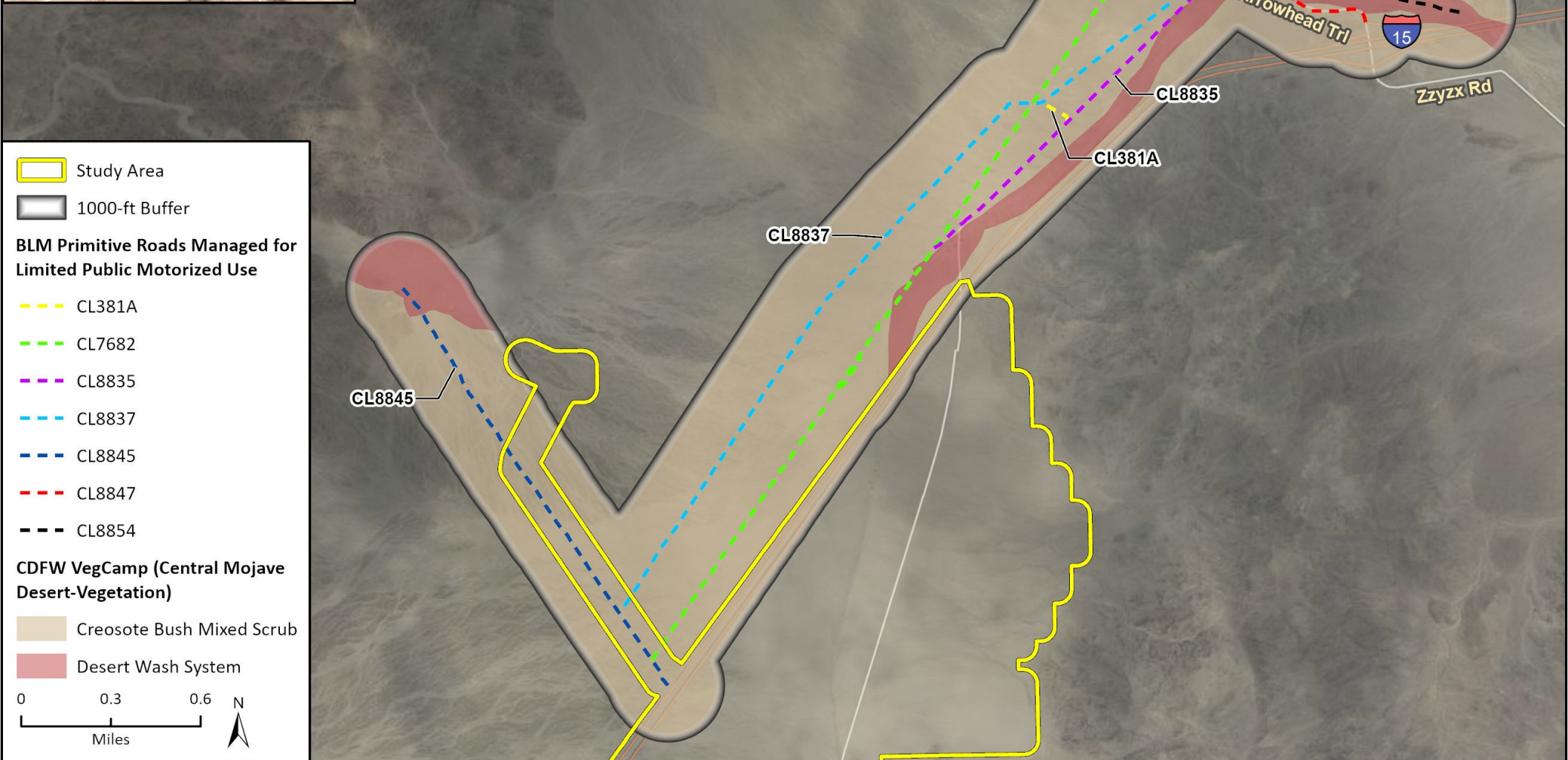
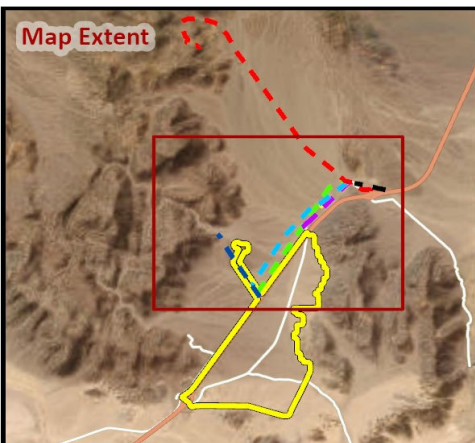
KOP 10: View from Interstate 15 looking southwest - Existing Condition

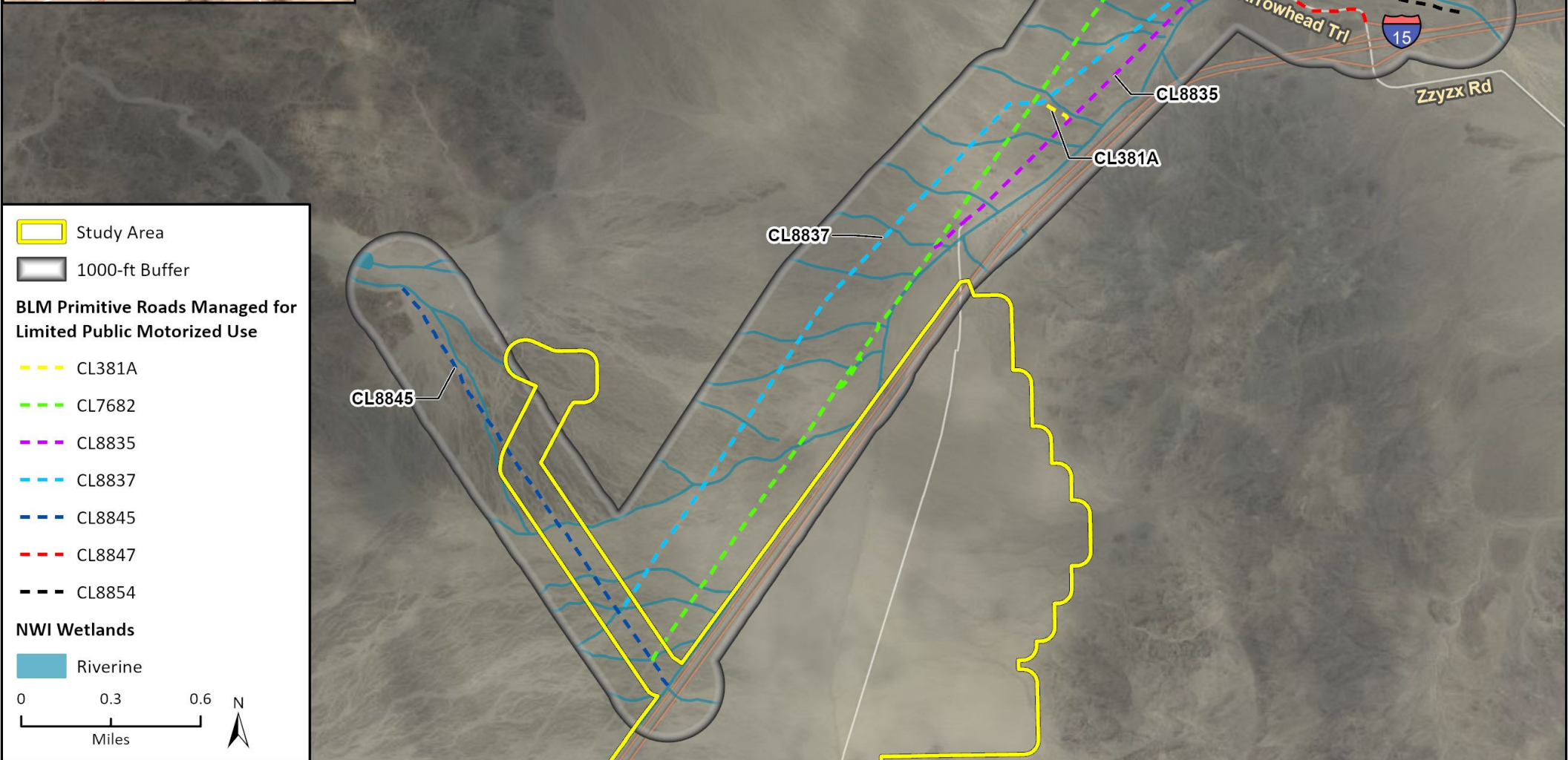
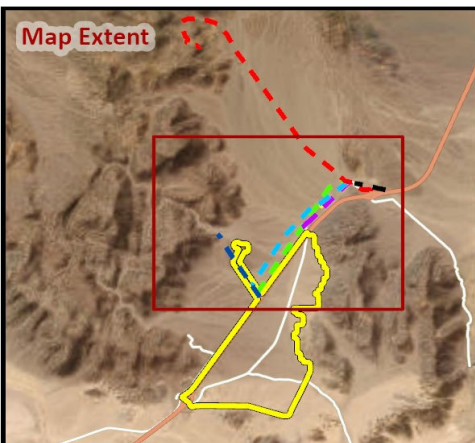


KOP 10: View from Interstate 15 looking southwest - Simulated Condition (Panels facing west)

**Access Road Figures
(REV 1 DR BIO-2)**







Executive Summary Figure 1-1
(REV 1 DR ES-1)

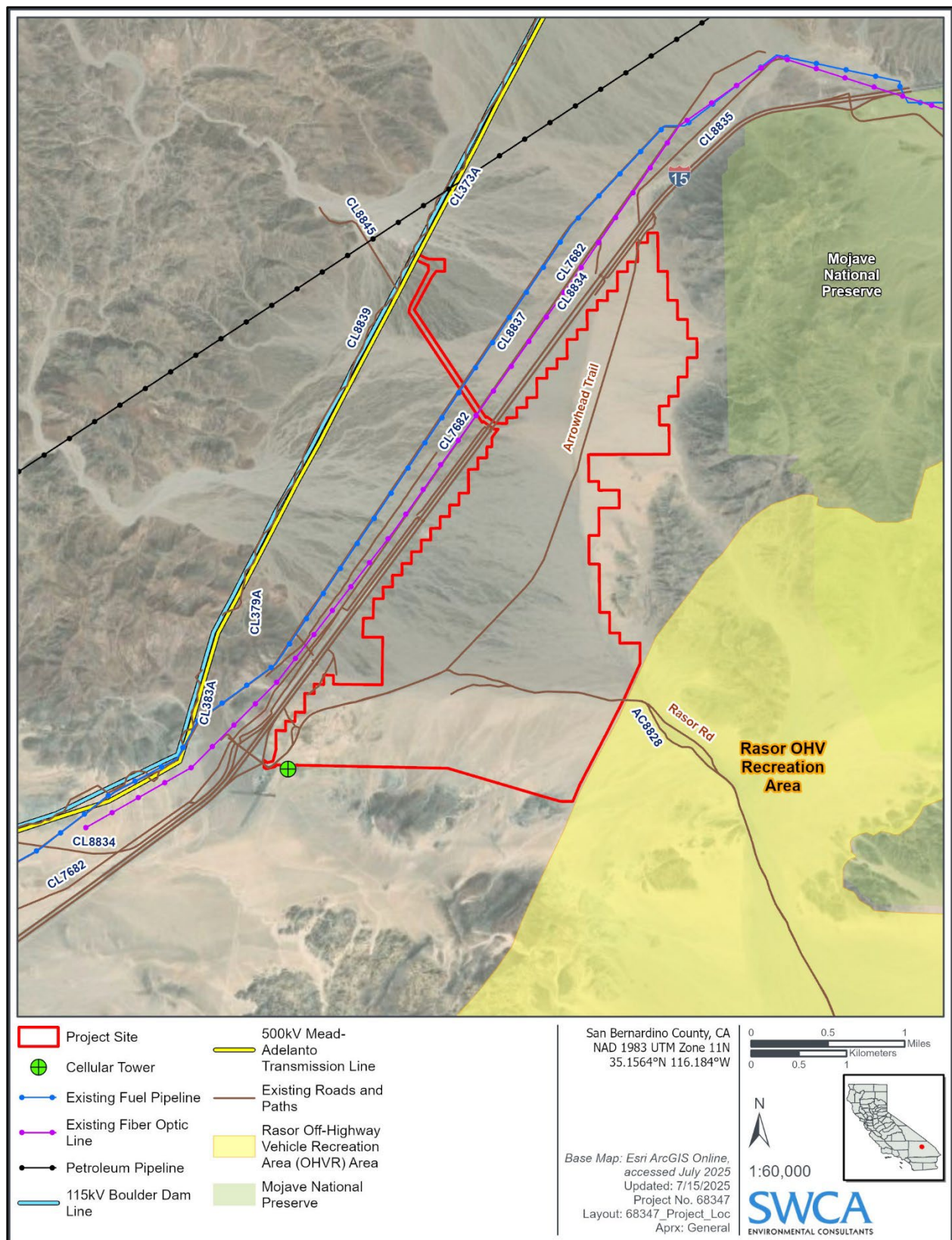


Figure 1-1. Project site location and existing conditions pre-construction.