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Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Chorizanthe spinosa	Mojave spineflower	None/None/4.2	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, Playas; Alkaline (sometimes)/annual herb/Mar–July/20–4,265	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Claytonia peirsonii ssp. *peirsonii*	Peirson's spring beauty	None/None/1B.2	Subalpine coniferous forest, Upper montane coniferous forest; Granitic, Metamorphic, Scree, Talus/perennial herb/(Mar) May–June/4,955–9,005	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Clinopodium mimuloides	monkey-flower savory	None/None/4.2	Chaparral, North Coast coniferous forest; Mesic, Streambanks/perennial herb/June–Oct/1,000–5,905	Not expected to occur. Suitable micro-habitats (mesic and streambanks) for the species are not present in the Study Area.
Diplacus johnstonii	Johnston's monkeyflower	None/None/4.3	Lower montane coniferous forest (disturbed areas, gravelly, roadsides, rocky, scree)/annual herb/May–Aug/ 3,200–9,580	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub; Flood deposited terraces and washes/annual herb/Apr–June/ 655–2,490	Not expected to occur. Suitable micro-habitats (Flood deposited terraces and washes) for the species are not present in the Study Area.
Erigeron breweri var. *jacinteus*	San Jacinto Mountains daisy	None/None/4.3	Subalpine coniferous forest, Upper montane coniferous forest; Rocky/ perennial rhizomatous herb/June–Sep/ 8,860–9,515	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Eriogonum umbellatum var. *minus*	alpine sulfur-flowered buckwheat	None/None/4.3	Subalpine coniferous forest, Upper montane coniferous forest; Gravelly/ perennial herb/June–Sep/ 5,905–10,065	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3	Chaparral, Lower montane coniferous forest; Gravelly (sometimes), Sandy (sometimes)/annual herb/Apr–June/ 4,005–6,005	Not expected to occur. The Study Area is below the elevation range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Frasera neglecta	pine green-gentian	None/None/4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest/perennial herb/May–July/4,595–8,205	Not expected to occur. The Study Area is below the elevation range of the species.
Galium angustifolium ssp. *gabrielense*	San Antonio Canyon bedstraw	None/None/4.3	Chaparral, Lower montane coniferous forest; Granitic, Rocky (sometimes), Sandy (sometimes)/perennial herb/ Apr–Aug/3,935–8,695	Not expected to occur. The Study Area is below the elevation range of the species.
Galium angustifolium ssp. *gracillimum*	slender bedstraw	None/None/4.2	Joshua tree "woodland", Sonoran desert scrub; Granitic, Rocky/perennial herb/ Apr–June (July)/425–5,085	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Galium jepsonii	Jepson's bedstraw	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; Granitic, Gravelly (sometimes), Rocky (sometimes)/perennial rhizomatous herb/July–Aug/5,055–8,205	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Galium johnstonii	Johnston's bedstraw	None/None/4.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland, Riparian woodland/perennial herb/ June–July/4,005–7,545	Not expected to occur. The Study Area is below the elevation range of the species.
Goodmania luteola	golden goodmania	None/None/4.2	Meadows and seeps, Mojavean desert scrub, Playas, Valley and foothill grassland; Alkaline (sometimes), Clay (sometimes)/annual herb/Apr–Aug/ 65–7,220	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Heuchera abramsii	Abrams' alumroot	None/None/4.3	Upper montane coniferous forest (rocky)/perennial rhizomatous herb/ July–Aug/9,185–11,485	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Heuchera caespitosa	urn-flowered alumroot	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Riparian forest (montane), Upper montane coniferous forest; Rocky/perennial rhizomatous herb/May–Aug/3,790–8,695	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; Gravelly (sometimes), Sandy (sometimes)/ perennial herb/Feb–July (Sep)/ 230–2,660	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Hulsea vestita ssp. *gabrielensis*	San Gabriel Mountains sunflower	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; Rocky/perennial herb/May–July/ 4,920–8,205	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Hulsea vestita ssp. *parryi*	Parry's sunflower	None/None/4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest; Carbonate (sometimes), Granitic (sometimes), Openings, Rocky/perennial herb/ Apr–Aug/4,495–9,500	Not expected to occur. The Study Area is below the elevation range of the species.
Imperata brevifolia	California satintail	None/None/2B.1	Chaparral, Coastal scrub, Meadows and seeps, Mojavean desert scrub, Riparian scrub; Mesic/perennial rhizomatous herb/Sep–May/0–3,985	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Juglans californica	Southern California black walnut	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous tree/Mar–Aug/ 165–2,955	Not expected to occur. This conspicuous species was not observed in the Study Area.
Juncus duranii	Duran's rush	None/None/4.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest; Mesic/perennial rhizomatous herb/July–Aug/ 5,800–9,200	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Lepechinia fragrans	fragrant pitcher sage	None/None/4.2	Chaparral/perennial shrub/Mar–Oct/ 65–4,300	Not expected to occur. This conspicuous species was not observed in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	Chaparral, Coastal scrub/annual herb/ Jan–July/5–2,905	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Leptosiphon aureus	Golden linanthus	None/None/4.2	Chaparral, Cismontane woodland, Valley and foothill grassland/annual herb/Apr—May/5-2,300	Present. Numerous observations of the species were mapped within the gen-tie portion of the Study Area
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; Openings/perennial bulbiferous herb/ Mar–July (Aug)/100–5,905	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Lilium parryi	lemon lily	None/None/1B.2	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest; Mesic/perennial bulbiferous herb/ July–Aug/4,000–9,005	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Linanthus concinnus	San Gabriel linanthus	None/None/1B.2	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest; Openings, Rocky/annual herb/ Apr–July/4,985–9,185	Not expected to occur. The Study Area is below the elevation range of the species.
Loeflingia squarrosa var. *artemisiarum*	sagebrush loeflingia	None/None/2B.2	Desert dunes, Great Basin scrub, Sonoran desert scrub; Sandy/annual herb/Apr–May/2,295–5,295	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Lupinus albifrons var. *johnstonii*	interior bush lupine	None/None/4.3	Chaparral, Lower montane coniferous forest; Decomposed granitic/perennial shrub/May–July/4,920–8,205	Not expected to occur. The Study Area is below the elevation range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Lupinus elatus	silky lupine	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest/ perennial herb/June–Aug/ 4,920–9,845	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Lupinus peirsonii	Peirson's lupine	None/None/1B.3	Joshua tree "woodland", Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest; Gravelly, Rocky/ perennial herb/Apr–June/3,280–8,205	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Lycium torreyi	Torrey's box-thorn	None/None/4.2	Mojavean desert scrub, Sonoran desert scrub; Rocky, Sandy, Streambanks, Washes/perennial shrub/(Jan–Feb)Mar–June (Sep–Nov)/-165–4,005	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Malacothamnus davidsonii	Davidson's bush-mallow	None/None/1B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous shrub/June–Jan/ 605–3,740	Not expected to occur. This conspicuous species was not observed in the Study Area.
Monardella australis ssp. *gabrielensis*	San Gabriel Mountains monardella	None/None/1B.2	Broadleafed upland forest, Chaparral, Lower montane coniferous forest; Granitic, Openings/shrub/July–Sep/ 5,245–7,215	Not expected to occur. The Study Area is below the elevation range of the species.
Monardella australis ssp. *gabrielensis*	San Gabriel Mountains monardella	None/None/1B.2	Broadleafed upland forest, Chaparral (montane), Lower montane coniferous forest; Granitic, Openings/shrub/July–Sep/5,250–7,220	Not expected to occur. The Study Area is below the elevation range of the species.
Monardella exilis	Mojave monardella	None/None/4.2	Chenopod scrub, Desert dunes, Great Basin scrub, Joshua tree "woodland", Lower montane coniferous forest, Mojavean desert scrub, Pinyon and juniper woodland; Sandy/annual herb/ Apr–Sep/1,970–6,725	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Monardella viridis	green monardella	None/None/4.3	Broadleafed upland forest, Chaparral, Cismontane woodland/perennial rhizomatous herb/June–Sep/ 330–3,315	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Mucronea californica	California spineflower	None/None/4.2	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; Sandy/annual herb/Mar–July (Aug)/0–4,595	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Muhlenbergia californica	California muhly	None/None/4.3	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadows and seeps; Mesic, Seeps, Streambanks/perennial rhizomatous herb/June–Sep/330–6,560	Not expected to occur. Suitable micro-habitats (mesic, seeps, and streambanks) for the species are not present in the Study Area.
Muilla coronata	crowned muilla	None/None/4.2	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland/perennial bulbiferous herb/Mar–Apr (May)/ 2,200–6,430	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Navarretia fossalis	spreading navarretia	FT/None/1B.1	Chenopod scrub, Marshes and swamps (shallow freshwater), Playas, Vernal pools/annual herb/Apr–June/ 100–2,150	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Nemacladus secundiflorus var. *robbinsii*	Robbins' nemacladus	None/None/1B.2	Chaparral, Valley and foothill grassland; Openings/annual herb/Apr–June/ 1,150–5,580	Low potential to occur. The species was initially assessed as having high potential due to the presence of suitable in the Study Area and recent local records (Calflora 2025); however, the species was not observed during focused rare plant surveys.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland/perennial stem/ Apr–June (Aug)/1,390–5,905	Present. Four individuals were identified in the gen-tie portion of the Study Area during the 2023 focused rare plant surveys.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	Vernal pools/annual herb/Apr–Aug/ 50–2,165	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Oreonana vestita	woolly mountain-parsley	None/None/1B.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest; Gravelly (sometimes), Talus (sometimes)/ perennial herb/Mar–Sep/ 5,300–11,485	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Packera ionophylla	Tehachapi ragwort	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; Granitic, Rocky/perennial herb/ June–July/4,920–8,860	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Perideridia pringlei	adobe yampah	None/None/4.3	Chaparral, Cismontane woodland, Coastal scrub, Pinyon and juniper woodland; Clay (often), Serpentine/ perennial herb/Apr–June (July)/ 985–5,905	Not expected to occur. Suitable micro-habitats (clay and serpentine soils) for the species are not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Phacelia mohavensis	Mojave phacelia	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland; Gravelly (sometimes), Sandy (sometimes)/ annual herb/Apr–Aug/4,595–8,205	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	Chaparral, cismontane woodland, Coastal scrub, Riparian woodland; gravelly benches, dry stream bottoms, Sandy/perennial herb/ (July) Aug–Nov (Dec)/0–6,885	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Quercus durata var. *gabrielensis*	San Gabriel oak	None/None/4.2	Chaparral, Cismontane woodland/ perennial evergreen shrub/Apr–May/ 1,475–3,280	Not expected to occur. This conspicuous species was not observed in the Study Area.
Quercus engelmannii	Engelmann oak	None/None/4.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland/perennial deciduous tree/ Mar–June/165–4,265	Not expected to occur. This conspicuous species was not observed in the Study Area.
Selaginella asprella	bluish spike-moss	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest, Upper montane coniferous forest; Granitic, Rocky/perennial rhizomatous herb/July/5,250–8,860	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Senecio astephanus	San Gabriel ragwort	None/None/4.3	Chaparral, Coastal scrub; Rocky, Slopes/perennial herb/May–July/ 1,310–4,920	Not expected to occur. The Study Area is outside the range of the species.
Sidotheca caryophylloides	chickweed oxytheca	None/None/4.3	Lower montane coniferous forest (sandy)/annual herb/July–Sep (Oct)/3,655–8,530	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

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Stylocline masonii	Mason's neststraw	None/None/1B.1	Chenopod scrub, Pinyon and juniper woodland; Sandy/annual herb/ Mar–May/330–3,935	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Symphyotrichum greatae	Greata's aster	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland; Mesic/perennial rhizomatous herb/ June–Oct/985–6,590	Not expected to occur. Suitable micro-habitat (mesic conditions) for the species is not present in the Study Area.
Syntrichopappus lemmonii	Lemmon's syntrichopappus	None/None/4.3	Chaparral, Joshua tree "woodland", Pinyon and juniper woodland; Gravelly (sometimes), Sandy (sometimes)/ annual herb/Apr–May (June)/ 1,640–6,005	Low potential to occur. The species was initially assessed as having high potential due to the presence of suitable in the Study Area and recent local records (Calflora 2025); however, the species was not observed during focused rare plant surveys.
Thysanocarpus rigidus	rigid fringepod	None/None/1B.2	Pinyon and juniper woodland; Dry, Rocky, Slopes/annual herb/Feb–May/ 1,965–7,215	Not expected to occur. Herbarium records for the species are only from San Diego and Riverside counties.
Yucca brevifolia	western Joshua tree	None/SC/CBR	Great Basin grassland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland, Sonoran desert scrub, Valley and foothill grassland/perennial leaf succulent/Apr–May/1,310–6,560	Not expected to occur. This conspicuous species was not observed in the Study Area.

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SC: State candidate for listing
SE: State listed as endangered
SR: State designated as rare
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere

2B: Plants rare, threatened, or endangered in California but more common elsewhere
4: Plants of limited distribution
CBR: Considered by Rejected for a CRPR
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20% - 80% of occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat)

Plant References

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Special-Status Wildlife

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Invertebrates				
Bombus crotchii	Crotch's bumble bee	None/CSL	Open grassland and scrub communities supporting suitable floral resources	Moderate potential to occur. The species may nest and forage in the Study Area; however, 2024 focused surveys for the species conducted in the Study Area were negative for the species.
Branchinecta lynchi	vernal pool fairy shrimp	FT/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	FC/None	Wind-protected tree groves with nectar sources and nearby water sources	Not expected to occur (overwintering). Suitable habitat for the species is not present in the Study Area; however, the species may be transient through the area during migration.
Euphydryas editha quino	quino checkerspot butterfly	FE/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Not expected to occur. The Study Area is outside the current range of the species.
Glyptostoma gabrielense	San Gabriel chestnut	None/None	Native to a narrow strip of the front range of the San Gabriel Mountains about 15 miles (24 km) long near Pasadena, California, where it inhabits riparian canyons and other areas with sufficient seasonal moisture	Not expected to occur. The Study Area is outside the current range of the species.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Helminthoglypta fontiphila	Soledad shoulderband	None/None	known only from Little Rock Creek Canyon on the north flank of the San Gabriel Mountains and from the Santa Clara River in Soledad Canyon	Not expected to occur. The Study Area is outside the current range of the species.
Helminthoglypta traskii pacoimensis	Pacoima shoulderband	None/None	Known only from Pacoima Canyon on the west slope of the San Gabriel Mountains	Not expected to occur. The Study Area is outside the current range of the species.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Fish				
Catostomus santaanae	Santa Ana sucker	FT/None	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	FE/FP, SE	Slow-moving and backwater areas	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gila orcuttii	arroyo chub	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rhinichthys gabrielino	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rana boylii pop. 6	foothill yellow-legged frog - south coast DPS	FE/SE	Rocky streams and rivers with open banks in forest, chaparral, and woodland	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rana draytonii	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rana muscosa	mountain yellow-legged frog	FE/SE	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Taricha torosa (Monterey Co. south only)	California newt	None/SSC	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Reptiles				
Actinemys pallida	southwestern pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Anniella pulchra/ Anniella stebbinsi/ Anniella spp.	northern California legless lizard/ southern California legless lizard/ California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. Suitable habitat is present throughout the Study Area and there are recent records in the region; however, moist sandy or loose, loamy soils are limited in the Study Area to beneath the larger California junipers due to the expected higher moisture content of the soil.
Arizona elegans occidentalis	California glossy snake	None/SSC	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils	Low potential to occur. Suitable habitat is present throughout the Study Area.
Aspidoscelis tigris stejnegeri	Coastal whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas	Low potential to occur. Suitable habitat is present throughout the Study Area; however, the Study Area is in the northern limits of the species.
Diadophis punctatus modestus	San Bernardino ring-necked snake	None/None	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gopherus agassizii	Mojave desert tortoise	FT/ST	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Not expected to occur. Suitable habitat for the species is not present in the Study Area, which is also outside the range of the species.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Moderate potential to occur. Suitable habitat is present throughout the Study Area and there are recent nearby records.
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Not expected to occur (nesting). Suitable habitat for the species is not present in the Study Area.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Moderate potential to occur. Suitable habitat is present throughout the Study Area.
Aquila chrysaetos (nesting and wintering)	golden eagle	None/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to nest in the Study Area. Low potential for wintering and as a transient during foraging and migration. There is a 1965 record for nesting by the species to the south of the Study Area in Aliso Canyon.
Artemisiospiza belli belli	Bell's sage sparrow	None/WL	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Moderate potential to occur. Suitable habitat is present throughout the Study Area.
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/CSL	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur in the Study Area. The Study Area is outside of the predicted habitat for the species (CDFW 2024b) and no diagnostic sign of the species was observed during the many surveys of the Study Area

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Buteo regalis (wintering)	ferruginous hawk	None/WL	Winters and forages in open, dry country, grasslands, open fields, agriculture	Low potential to occur. Marginal wintering habitat is present in the Study Area but local wintering records of the species are from the Antelope Valley, north of the Study Area.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur for nesting in the Study Area but may occur as a transient during migration.
Charadrius (Anarhynchus) montanus (wintering)	mountain plover	BCC/SSC	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Falco mexicanus (nesting)	prairie falcon	None/WL	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Geococcyx californianus	greater roadrunner	None/None	Include areas dominated by creosote, mesquite, chaparral, and tamarisk, as well as grasslands, riparian woodlands and canyons; nest sites are 3 to 10 feet or more off the ground, on a horizontal branch or in the crotch of a sturdy bush, cactus, or small tree	Occurs. The species was observed in the Study Area during the surveys and nesting habitat is found in the California juniper woodland. The species is included in this table since it is considered a Los Angeles County sensitive bird species (Los Angeles Audubon 2009).

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Gymnogyps californianus	California condor	FE/FP, SE	Nests in rock formations, deep caves, and occasionally in cavities in giant sequoia trees (*Sequoiadendron giganteus*); forages in relatively open habitats where large animal carcasses can be detected	Not expected to occur for nesting. Suitable nesting habitat for the species is not present in the Study Area. The species could be a transient in the area for foraging.
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Present. An individual was observed in 2023, suitable habitat for the species is present in the Study Area, and there are recent local records.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Toxostoma lecontei	LeConte's thrasher	BCC/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Mammals				
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Low potential to occur for roosting and may forage over the Study Area. Suitable roosting habitat (trees) for the species is present in the Study Area.
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/None	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. In Los Angeles County, records of the species are from the eastern desert foothills of the San Gabriel Mountains.
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. Suitable habitat is present throughout the Study Area; however, the Study Area is in the northern limits of the species.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Myotis thysanodes	fringed myotis	None/None	Drier woodlands (oak, pinyon–juniper, and ponderosa pine), desert scrub, mesic coniferous forest, grassland, and sage–grass steppe; sea level to 9,350 ft; roosts in buildings, mines, rocks, cliff faces, bridges, and large, decadent trees and snags	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Myotis volans	long-legged myotis	None/None	Primarily coniferous forests, but also seasonally in riparian and desert habitats; roosts in crevices in cliffs, caves, mines, buildings, exfoliating tree bark, and snags	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Myotis yumanensis	Yuma myotis	None/None	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Neotamias speciosus speciosus	lodgepole chipmunk	None/None	Lodgepole pine forests	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Perognathus inornatus	San Joaquin pocket mouse	None/None	Open grassland and scrub areas on fine-textured soils	Not expected to occur. In Los Angeles County, records of the species are from the foothills of the Liebre Mountains.
Puma concolor (Southern California/Central Coast Evolutionarily Significant Unit)	mountain lion	None/CSL	Require large areas of relatively undisturbed habitats with adequate connectivity; these often consist of pine forests, riparian and oak woodlands, streams, chaparral, and grasslands, though they are also known to occur in desert habitats	High potential to occur. The Study Area is part of large areas of relatively undisturbed habitats with adequate connectivity so it is expected that the species could use the Study Area as part of a home range. State Route 14 may reduce connectivity between the San Gabriel and Sierra Pelona mountains but not prohibit it. The species is not expected to have natal dens in the Study Area since females typically avoid establishing a den near human activity (Center for Biological Diversity and the Mountain Lion Foundation 2019)

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Taxidea taxus	American badger	None/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils; needs sufficient food, friable soils and open, uncultivated ground; preys on burrowing rodents and digs burrows	Low potential to occur. Suitable habitat is present in the Study Area but no individuals were observed and no diagnostic sign (i.e., burrows or digs with the species' conspicuous claw marks) were observed during the extensive surveys. There is one record within 20 miles of the Study Area from 1930 at Lake Los Angeles (CDFW 2025). There is one 2021 iNaturalist record approximately 8.6 miles to the west near Agua Dulce (iNaturalist 2025).
Xerospermophilus mohavensis	Mohave ground squirrel	None/ST	Desert scrub habitats including those dominated by creosote bush and burrobush, desert sink scrub, and desert saltbush scrub	Not expected to occur. Suitable habitat for the species is not present in the Study Area and it is outside the range of the species.

Status Legend
Federal
BCC: Bird of Conservation Concern (U.S. Fish and Wildlife Service)
FC: Candidate for federal listing as threatened or endangered
FE: Federally listed as endangered
FT: Federally listed as threatened
State
FP: California Fully Protected Species
SE: State listed as endangered
SSC: California Species of Special Concern
ST: State listed as threatened
CSL: Candidate for State Listing
WL: CDFW Watch List Species

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Plant and Wildlife Compendia

The following compendia documents the plant and wildlife species that were observed during the surveys for the Project.

Plants

Gymnosperms and Gnetophytes

CUPRESSACEAE—CYPRESS FAMILY

Juniperus californica—California juniper

EPHEDRACEAE—EPHEDRA FAMILY

Ephedra californica—California joint fir

Ephedra viridis—Mormon tea

Eudicots

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

APIACEAE—CARROT FAMILY

Lomatium mohavense—Mojave desertparsley

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia acanthicarpa—flatspine bur ragweed

Ambrosia salsola var. *salsola*—burrobrush

Artemisia ludoviciana—white sagebrush

Artemisia tridentata ssp. *parishii*—big sagebrush

Artemisia tridentata ssp. *tridentata*—basin big sagebrush

Artemisia tridentata—big sagebrush

Chaenactis artemisiifolia—white pincushion

Chaenactis fremontii—pincushion flower

Chaenactis glabriuscula—yellow pincushion

Corethrogyne filaginifolia—sand-aster

Encelia actoni—Acton's brittle brush

Encelia farinosa—brittle bush

Encelia frutescens—button brittlebush

Ericameria brachylepis—chaparral goldenbush

Ericameria linearifolia—narrowleaf goldenbush

Ericameria nauseosa var. *hololeuca*—rubber rabbitbrush

Ericameria pinifolia—pinebush

Eriophyllum confertiflorum var. *confertiflorum*—golden-yarrow

Eriophyllum pringlei—Pringle's woolly sunflower

Gutierrezia californica—California match weed

Lasthenia glaberrima—smooth goldfields

Lasthenia gracilis—needle goldfields

Layia glandulosa—whitedaisy tidytips

Layia platyglossa—coastal tidytips

Malacothrix glabrata—smooth desertdandelion

Matricaria discoidea—disc mayweed

Senecio flaccidus—threadleaf ragwort

Stephanomeria pauciflora—brownplume wirelettuce

Tetradymia stenolepis—Mojave cottonthorn

Uropappus lindleyi—Lindley's silverpuffs

BORAGINACEAE—BORAGE FAMILY

Amsinckia douglasiana—Douglas' fiddleneck

Amsinckia menziesii—Menzies' fiddleneck

Cryptantha angustifolia—Panamint cryptantha

Cryptantha intermedia—Clearwater cryptantha

Harpagonella palmeri—Palmer's grapplinghook

Nemophila menziesii—baby blue eyes

Phacelia crenulata var. *ambigua*—purplestem phacelia

Phacelia distans—distant phacelia

Phacelia fremontii—Fremont's phacelia

Phacelia tanacetifolia—lacy phacelia

Pholistoma membranaceum—white fiestaflower

BRASSICACEAE—MUSTARD FAMILY

* *Hirschfeldia incana*—shortpod mustard

* *Sisymbrium altissimum*—tall tumblemustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia echinocarpa—Wiggins' cholla

Opuntia basilaris var. *basilaris*—beavertail pricklypear

Opuntia basilaris var. *brachyclada*—short-joint beavertail

Opuntia littoralis—coast prickly pear

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex argentea—silverscale saltbush

Atriplex canescens—fourwing saltbush

Chenopodium californicum—California goosefoot

Grayia spinosa—spiny hop sage

CUCURBITACEAE—GOURD FAMILY

Marah macrocarpa—Cucamonga manroot

EUPHORBIACEAE—SPURGE FAMILY

Euphorbia albomarginata—whitemargin sandmat

FABACEAE—LEGUME FAMILY

Acmispon glaber—deer weed

Acmispon maritimus var. *maritimus*—coastal bird's-foot trefoil

Acmispon parviflorus—desert deervetch

Lupinus bicolor—miniature lupine

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

Salvia apiana—white sage

Salvia carduacea—thistle sage

Salvia *columbariae*—chia

Salvia dorrii var. *pilosa*—purple sage

Scutellaria mexicana—Mexican bladdersage

LOASACEAE—LOASA FAMILY

Mentzelia ravenii—no common name

MONTIACEAE—MONTIA FAMILY

Calyptridium monandrum—common pussypaws

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia*—California four o'clock

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia contorta—plains evening primrose

Eulobus californicus—California suncup

* *Oenothera biennis*—common evening primrose

OROBANCHACEAE—BROOM-RAPE FAMILY

Castilleja exserta ssp. *exserta*—exserted Indian paintbrush

PAPAVERACEAE—POPPY FAMILY

Eschscholzia californica—California poppy
Eschscholzia minutiflora—pygmy poppy
Platystemon californicus—creamcups

PLANTAGINACEAE—PLANTAIN FAMILY

Penstemon spectabilis—showy penstemon

POLEMONIACEAE—PHLOX FAMILY

Eriastrum densifolium—giant woollystar

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum—California buckwheat
Rumex hymenosepalus—canaigre dock

RANUNCULACEAE—BUTTERCUP FAMILY

Delphinium parishii—desert larkspur

SOLANACEAE—NIGHTSHADE FAMILY

Lycium cooperi—peach thorn

Monocots

AGAVACEAE—AGAVE FAMILY

* *Agave americana*—American century plant
Hesperoyucca whipplei—chaparral yucca

POACEAE—GRASS FAMILY

* *Avena fatua*—wild oat
Bromus carinatus—California brome
* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft brome
* *Bromus madritensis* ssp. *rubens*—red brome
* *Bromus tectorum*—cheatgrass
Elymus elymoides—squirreltail
Festuca microstachys—small fescue
Hordeum jubatum—foxtail barley
* *Hordeum murinum*—mouse barley
Melica imperfecta—smallflower melicgrass
Poa secunda—onesided bluegrass
* *Schismus arabicus*—Arabian schismus
Stipa speciosa—desert needlegrass

THEMIDACEAE—BRODIAEA FAMILY

Dichelostemma capitatum ssp. *capitatum*—bluedicks

Wildlife

Invertebrate

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Junonia coenia—common buckeye

PIERIDAE—WHITES AND SULFURS BUTTERFLIES

Pieris rapae—cabbage white

Reptile

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis longipes—western fence lizard

Uta stansburiana elegans—western side-blotched lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris tigris—Great Basin whiptail

Bird

ICTERIDAE—BLACKBIRDS

Icterus bullockii—Bullock's oriole

Icterus cucullatus—hooded oriole

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus lawrencei—Lawrence's goldfinch

Spinus psaltria—lesser goldfinch

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis saya—Say's phoebe

Tyrannus verticalis—western kingbird

Tyrannus vociferans—Cassin's kingbird

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Calypte costae—Costa's hummingbird

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay

Corvus corax—common raven

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Toxostoma redivivum—California thrasher

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Streptopelia decaocto*—Eurasian collared-dove

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

HIRUNDINIDAE—SWALLOWS

Stelgidopteryx serripennis—northern rough-winged swallow

TURDIDAE—THRUSHES

Sialia currucoides—mountain bluebird

Sialia mexicana—western bluebird

REMIZIDAE—PENDULINE TITS AND VERDINS

Auriparus flaviceps—verdin

PARULIDAE—WOOD-WARBLERS

Setophaga coronata—yellow-rumped warbler

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus—cactus wren
Salpinctes obsoletus—rock wren
Thryomanes bewickii—Bewick's wren

PASSERELLIDAE—NEW WORLD SPARROWS

Artemisiospiza belli—Bell's sparrow
Chondestes grammacus—lark sparrow
Melozone crissalis—California towhee
Passerculus sandwichensis—savannah sparrow
Zonotrichia leucophrys—white-crowned sparrow

Mammal

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

LEPORIDAE—HARES AND RABBITS

Lepus californicus—black-tailed jackrabbit
Sylvilagus bachmani—brush rabbit

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel
Spermophilus (*Otospermophilus*) *beecheyi*—California ground squirrel

* signifies introduced (non-native) species

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Attachment 15

Appendix 3.2I– Photo Exhibit

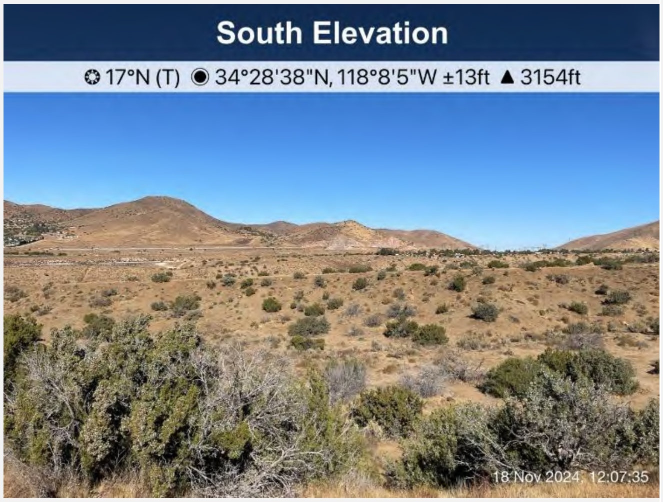


Photo 1. Photo displays California juniper woodland. This vegetation community is present throughout the gen-tie route vicinity. Photo taken from southern slopes, facing north. November 18, 2024.

Photo 2. Photo displays fourwing saltbush scrub, the second most abundant vegetation community on the site. Photo taken from center of site, in valley south of Foreston Drive, facing west by southwest. January 11, 2023.

Photo 3. Photo displays big sagebrush vegetation community south of railroad tracks in western portion of study area. Facing northwest. January 6, 2023.

Photo 4. Photo displays disturbed Mormon tea scrub vegetation community, within the northern portion of the study area. Facing northeast. January 6, 2023.

Photo 5. Photo displays disturbed habitat in far western project area, facing southwest. January 6, 2023.

Photo 6. Photo displays California buckwheat vegetation community, present on the southern slope of the railroad berm. Facing west. June 12, 2024.

Photo 7. Photo shows California sagebrush community on the slopes north of the SCE substation, in the northern portion of the study area. Facing west by northwest. November 19, 2024.

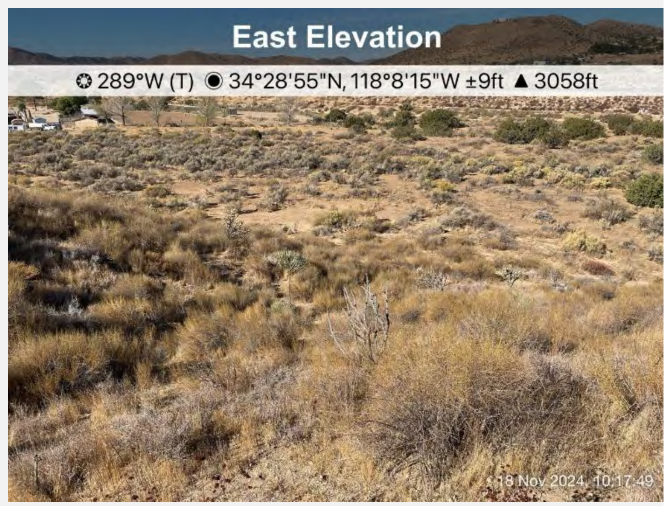


Photo 8. Photo shows cheesebush scrub community on slopes south of Foreston Drive. Facing west. November 18, 2024.

Photo 9. Photo shows Wild oats and annual brome grasslands. vegetation community east of the Vincent Substation. Facing west. January 12, 2023.

Photo 10. Photo shows short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*) individual in southern portion of study area. May 2, 2023.

Photo 11. NWW-1b at OHWM form point, looking upstream. January 6, 2023.

Photo 12. NWW-2 at OHWM form point, looking downstream. January 11, 2023.

Photo 13. NWW-2 at OHWM form point, looking upstream. January 11, 2023.

Photo 14. NWW-2 near Carson Mesa Road. January 6, 2023.

Photo 15. NWW-3 at OHWM form point, looking upstream.

Photo 16. NWW-3 at OHWM form point, looking downstream.

Photo 17. NWW-4 at OHWM form point, looking upstream.

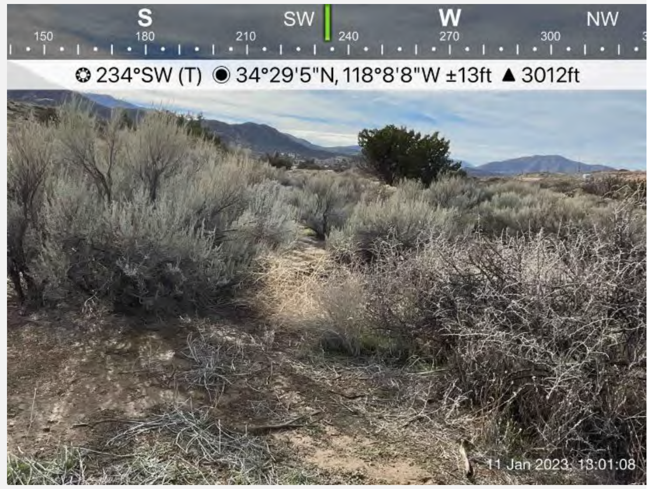


Photo 18. NWW-4 at its downstream terminus.

Photo 19. NWW-5 at OHWM form point, looking downstream.

Photo 20. NWW-5 at OHWM form point, looking upstream.

Photo 21. NWW-5 near its terminus at equestrian property.

Photo 22. NWW-6 at OHWM form point, looking downstream.

Photo 23. NWW-6 at OHWM form point, looking upstream.

Photo 24. NWW-7 at OHWM form point, looking downstream.

Photo 25. Representative photo of Swale-3.

Photo 26. Representative photo of Swale-5.

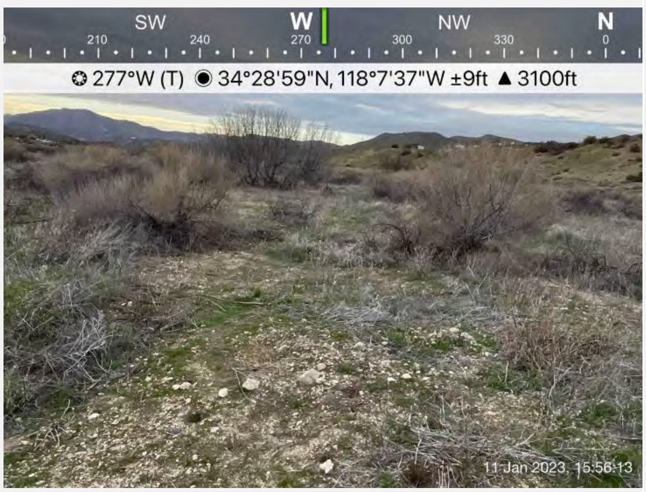


Photo 27. Representative photo of Swale-6.

Photo 28. Representative photo of Erosional Feature-1.

Photo 29. Representative photo of Erosional Feature-2.

Photo 30. Representative photo of Erosional Feature-3.

Attachment 16

Appendix 3.2K– Completed 1602 Lake and Streambed Alteration Agreement Application Package

Attribute	Answer
General Information	
Applicant	Garrett Lehman, Director
Additional Contacts	
Project Name	Prairie Song Reliability Project
Organization	Prairie Song Reliability Project LLC
Designated Representative	Michael Cady - Dudek
Project Location and Category	
Project Location	
Project Name	Prairie Song Reliability Project
Does the project site have a physical address? (select one)	☐ Yes | ☒ No
GPS Coordinates	34.485487 °, -118.138757 ° - BESS portion of the Project
County	Los Angeles
Property APN	3056-017-007, 3056-017-020, 3056-017-021, 3056-019-013, 3056-019-026, 3056-019-037, 3056-019-040, 3056-015-008, 3056-015-023, 3056-017-026, 3056-017-904, 3056-017-905, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, 3056-015-802, 3056-015-008, 3056-015-023, 3056-017-016, 3056-017-022, 3056-017-026, 3056-017-027, 3056-017-028, 3056-027-007, 3056-027-031, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, 3056-015-802 See Attachment B for figures showing the Project location.
Project Category	
Project Category (select one)	☒ New Construction | ☐ Replace/Remove Existing Structure | ☐ Repair/Maintain/Operate Existing Structure
Work Type (select one)	☐ Bank stabilization – bioengineering/recontouring | ☐ Bank stabilization – rip-rap/retaining wall/gabion | ☐ Boat dock/pier | ☐ Boat ramp | ☐ Bridge | ☐ Channel clearing/vegetation management | ☐ Culvert | ☐ Dam | ☐ Debris basin | ☐ Diversion structure: weir or pump intake (obsolete) | ☒ Filling of wetland, river, stream, or lake | ☐ Geotechnical survey | ☒ Grading | ☐ Habitat enhancement – revegetation/mitigation | ☐ Levee | ☐ Low water crossing | ☒ Road/trail | ☐ Sand & gravel operations | ☐ Sediment removal – pond, stream, or marina | ☐ Sediment removal: flood control | ☐ Storm drain outfall structure | ☒ Temporary stream crossing | ☐ Utility crossing: horizontal directional drilling | ☐ Utility crossing: jack/bore | ☐ Utility crossing: open trench | ☐ Water diversion with facility | ☐ Water diversion without facility | ☐ Other (Describe other work type)
Does this project address any of the following: hazardous fuels reduction, fuel breaks, wildfire	☐ Yes | ☒ No

Attribute	Answer
prevention, vegetation treatment or vegetation management for fire management? (select one)	
Affected Body of Water	
River, Stream, or Lake Affected	Unnamed tributaries and isolated streams
Waterbody tributary	Santa Clara River
Will water be present during the proposed work period in the river, stream, or lake: (select one)	☐ Yes | ☒ No
If "Yes", will the proposed project require work in the wetted portion of the channel?	☐ Yes | ☒ No If “Yes”, attach a plan to divert water around the project site and dewater the work site that specifies the method, volume rate, and timing of the diversion on the Documents and Maps form.
Wild and Scenic Rivers Act (WSRA)	
Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes | ☒ No | ☐ Unknown
Project Description, Term, and Impacts	
Project Description and Details	
Is the 'Property Owner' the same person as the 'Applicant Proposing Project?	☒ Yes | ☐ No
If “No”, outline the following contact information for the ‘Property Owner’: Name Business Agency Mailing Address Phone Number Email	N/A
Describe the Project in Detail	The project proposes to construct, operate, and eventually repower or decommission the up to 1,150-megawatt Prairie Song Reliability Project (Project) located on up to approximately 107 acres in unincorporated Los Angeles

Attribute	Answer
	County. The primary components of the Project include a containerized battery energy storage system facility utilizing lithium-iron phosphate cells, or similar technology, operations and maintenance buildings, an on-site Project substation, a 500-kilovolt overhead generation interconnection transmission line, and interconnection facilities within the existing Southern California Edison-owned and operated Vincent Substation. See Attachment C, Project Description, for full project objectives.
Describe Equipment and Machinery	Tractors, loaders, backhoes, excavator, rubber-tired dozer, rollers, air compressors, cranes, forklift, bore/drill rigs, trenchers, pumps, welders, rough terrain forklifts, skid steer loaders, concrete/industrial saws
Will part or all of this project be funded with one of the following CDFW-managed grants? (select one)	☐ Fish Restoration Grant Program (FRGP) | ☐ Cannabis Restoration Grant Program | ☐ Prop 1 Grant | ☐ Prop 68 Grant | ☐ Greenhouse Gas Grant (GHG) | ☐ Wildlife Conservation Board (WCB) Grant | ☒ N/A
Water Rights(s), Water Diversion(s) & Reservoir(s)	
Does the project have an associated water right(s)? (select one) ▪ If "Yes", how many project water rights are included in the project?	☐ Yes | ☒ No
Does the project include any water diversion(s)? (select one) ▪ If "Yes", how many water diversions will be included in the project?	☐ Yes | ☒ No
Does the project include a reservoir(s)? (select one) ▪ If "Yes", how many reservoir(s) will be included in the project?	☐ Yes | ☒ No
Commercial Cannabis Cultivation	
Does any part of the project include remediation at a cannabis cultivation site? (select one)	☐ Yes | ☒ No

Attribute	Answer
Are you seeking documentation to submit to the Department of Cannabis Control (DCC) for the purpose of commercial cannabis cultivation licensing? (select one)	☐ Yes | ☒ No
Agreement Term	
Agreement Term Requested	☒ Regular Term (5 years or less) | ☐ Long Term (Greater than 5 years)
Project Term	
Specify both the year the project activities will begin and the year the project activities will end. Be advised CDFW may restrict work within a stream or lake to the dry season of the year. Consequently, you may want to include more than one season of possible operation in your project proposal.	Beginning Year: 2027 Ending Year: 2069
Seasonal Work Period	
Specify the time period you intend to work on the project (e.g., August 1 to October 15). If the work period will exceed one year, specify the work period for each year of the project (e.g., Work Period 1, February 10 to March 31; Work Period 2, August 1 to October 15; Work Period 3, February 10 to March 31; etc.). CDFW may restrict project work to certain periods depending on rainfall, fish migration, wildlife breeding or nesting season, or other resource concerns. Specify the estimated number of days of	Construction Start Date: 3/2027 Construction End Date: 4/2029

Attribute	Answer
actual work days for each seasonal work period.	
Impacts to River, Stream, or Lake	
Describe Impacts	0.33~~0.04~~ acre of NWW-1a, NWW-1b, NWW-1c, NWW-1d, NWW-5, and NWW-9~~NWW-1a, NWW-1b, and part of NWW-1c~~ would be permanently filled in during grading to create a level area for the construction of the battery energy storage system and substation portions of the Project and access roads for the gen-tie portion. ~~0.19~~0.33 acre of NWW-2, NWW-5, Swale-1, and Swale-3~~NWW-5, NWW-2, Swale-1, and Swale-3~~ could be temporarily impacted during the construction of the gen-tie (due to potential pull areas) and the trenching of the underground optical ground wire use for telecommunication by the project. ~~None of the tower pads of access roads to the pads would impact the features in the area.~~ See Attachment B Figure 4 for the Project's impact on jurisdictional waters.
Impacts to Special-Status Species	
Will there be any foreseeable impacts to any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site? (select one)	☐ Yes | ☒ No
If "Yes", list each species and describe the habitat	
Source(s) Identify the source(s) of information (e.g., biological surveys, environmental documents, etc.) that support a "Yes" or "No" answer for the previous question.	The Biological Resources section of the Project's CEC "Opt-In" application contains the results of the biological studies conducted for the Project.
Impacts to Trees and Vegetation	
Will the project affect any trees or vegetation?	☒ Yes | ☐ No
Describe	*Atriplex canescens* Association and *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association, *Ephedra viridis* Association, *Juniperus californica / Adenostoma fasciculatum - Eriogonum*

Attribute	Answer
Identify the type(s) of tree(s) or vegetation that will be affected by the project.	*fasciculatum* Association, *Juniperus californica* / herbaceous Association, Artemisia *tridentata - Ericameria* nauseosa Association, *Artemisia tridentata* Association, *Atriplex canescens* Association
Environmental Review	
California Environmental Quality Act	
Has a CEQA lead agency been determined? (select one)	☒ Yes │ ☐ No
CEQA Lead Agency	California Energy Commission (CEC)
Agency Contact Person	Lisa Worrall
Phone Number	916-661-8367
Email	Stepsiting@energy.ca.gov
Has a draft or final document been prepared for the project pursuant to CEQA? (select one)	☒ Yes │ ☐ No The project is filing through the CEC "Opt-In" certification process (Assembly Bill 205).
If "Yes", outline the type of environmental document. Include a copy of the CEQA document and all notices in the Documents and Map section.	☐ Notice of Exemption (NOE) │ ☐ Negative Declaration (ND) │ ☐ Mitigated Negative Declaration (MND) │ ☒ Environmental Impact Report (EIR) │ ☐ Timber Harvest Plan (THP)/Non-Industrial Timber Management Plan (NTMP)
State Clearinghouse Number (if applicable)	The project is filing through the CEC "Opt-In" certification process (Assembly Bill 205).
Has a CEQA Notice of Determination (NOD) been completed for the project? (select one) If "Yes", attach the NOD in the Documents and Map section. If "No", explain why the NOD has not been completed.	☐ Yes │ ☒ No The project is filing through the CEC "Opt-In" certification process (Assembly Bill 205).
Has a CEQA Mitigation, Monitoring, Reporting Plan (MMRP) been completed for the project? (select one)	☐ Yes │ ☒ No The project is filing through the CEC "Opt-In" certification process (Assembly Bill 205).

Attribute	Answer
If “Yes”, attach the MMRP in the Documents and Map section. If “No”, explain why the MMRP has not been completed.	
Has a CEQA filing fee been paid pursuant to Fish and Game Code section 711.4? (select one) If “Yes”, attach a copy of the CEQA filing fee receipt in the Documents and Map section. If “No”, explain why the CEQA filing fee hasn’t been paid.	☐ Yes ☒ No The project is filing through the CEC "Opt-In" certification process (Assembly Bill 205).
If the project described in this notification is not the “whole project", or action pursuant to CEQA, briefly describe the entire project. If the project described in the notification is the entire project, insert the following statement in this box: “The project described in the notification is the entire project.”	The project described in the notification is the entire project.
National Environmental Policy Act (NEPA)	
Has a draft or final document been prepared for the project pursuant to the National Environmental Policy Act (NEPA)? (select one)	☐ Yes ☒ No
If “Yes”, outline the type of environmental document. Include a copy of the document in the Documents and Map section.	☐ Categorical Exclusion ☐ Environmental Assessment (EA) ☐ Finding of No Significant Impact (FONSI) ☐ Environmental Impact Statement (EIS)
Measures to Protect Fish, Wildlife, and Plant Resources	
Sediment/Erosion Control	The Project’s grading plans will include details on the location and type of BMPs necessary to reduce the potential for Project-induced erosion and scour, including temporary BMPs to be implemented during construction (per the

Attribute	Answer
	statewide Construction General Permit), and permanent BMPs to be installed and maintained (per the County BMP Design Manual). The exact location and type of temporary BMPs to be installed during construction depend on site-specific conditions, construction schedule, and proposed activities, all of which are outlined in the construction SWPPP that will be prepared for the Project. Typical temporary BMPs used for similar projects include energy dissipaters, silt fences, fiber rolls, gravel/sand bags, construction road stabilization, and stabilized construction entrances. As the Project-specific SWPPP is prepared, the location, type, and number of specific BMPs may be refined based on the final designs to most effectively achieve the objective of reducing turbidity and other pollutant loads in stormwater runoff. The provisions of the CGP ensure that site-specific conditions are taken into consideration when developing construction SWPPPs, that personnel developing and implementing construction SWPPPs are qualified, and that BMPs are adequately monitored and maintained.
Avoidance/Minimization Measures	During Construction: Potential temporary indirect impacts to the drainages in the project site and downstream waters could result from construction activities and will include potential impacts from the generation of fugitive dust and the potential introduction of chemical pollutants (including herbicides). Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration and transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect wetlands/ jurisdictional waters. The release of chemical pollutants can reduce the water quality downstream and degrade adjacent habitats. However, during construction, erosion-control measures will be implemented as part of the storm water pollution prevention plan (SWPPP) for the Project. Because the entirety of the Project development footprint will be graded at one time but construction will occur over time in phases, the erosion measures will be maintained until all graded areas are constructed/landscaped. Prior to the start of construction activities, the Contractor is required to file a Permit Registration Document with the State Water Resources Control Board in order to obtain coverage under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for earthwork that results in the disturbance of 1 acre or more of total land area. The required SWPPP will mandate the implementation of best management practices to reduce or eliminate construction-related pollutants in the runoff, including sediment, for all exposed soils. During Operation: Once constructed, the proposed BESS facility will result in a substantial increase in impervious surfaces at the site, currently entirely pervious, which could potentially result in discharge of polluted stormwater runoff. Potential sources of polluted runoff include incidental spills of petroleum products and hazardous substances from maintenance vehicles and equipment. The proposed substation and BESS will be constructed on a raised pad and runoff from this area will drain southwest into catch basins located across the site. A storm sewer network will route water from the catch basins into underground infiltration chambers and infiltration trenches. Infiltration trenches along the southern end of each drainage area connected to the chamber system will aid in meeting the infiltration volume requirement. The infiltration facilities will be sized to store and infiltrate the

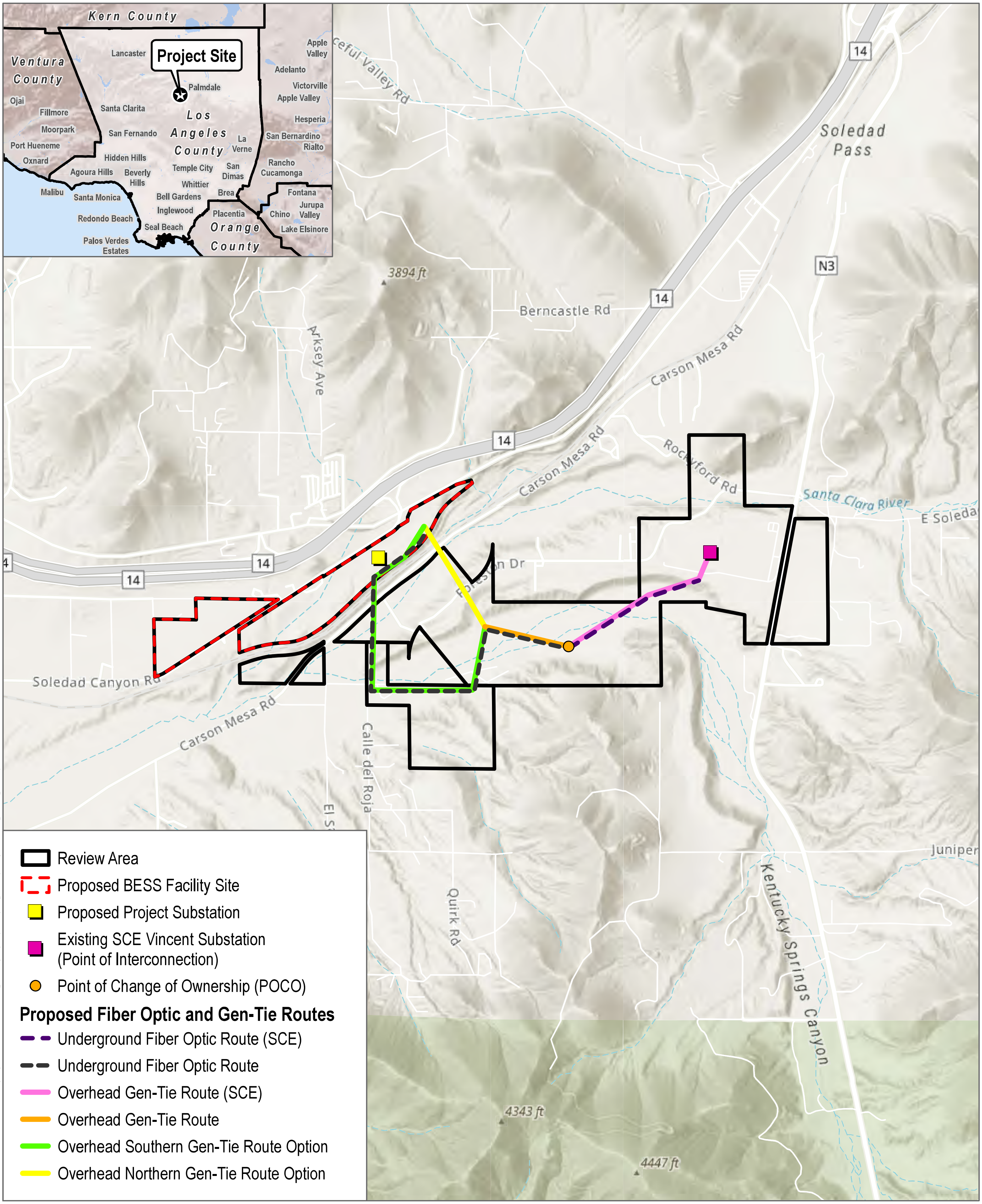
Attribute	Answer
	difference in runoff between existing and proposed conditions up to the 50-year 24-hour storm event for the two (2) drainage areas on site. Each gen-tie pad will manage stormwater runoff using shallow infiltration basins.
Mitigation/Compensation Measures	**Temporary Impact Restoration:** The temporary impacts to streams would be restored. Prior to ground disturbing activities, a qualified biologist shall be retained to prepare a Habitat Mitigation and Monitoring Plan (HMMP) detailing the specific approach for each type of habitat restoration and establishment area in the Conservation Area, and short-joint beavertail transplant location, and will outline detailed performance standards and monitoring requirements for each; following the monitoring and reporting methods and performance standards listed below. The HMMP shall be submitted to and approved by the CEC prior to the onset of Project-related ground-disturbing activities. The acreages allotted for on-site establishment apply to approximately ~~32~~26 acres within the Conservation Area that includes ~~0.19~~0.33 acres of ephemeral streams. ~~A minimum of 70~~Up to 136 California juniper will be planted. The HMMP shall set out measures for habitat restoration/enhancement implementation, including but not limited to: ▪ Identification of proposed plant materials ▪ Signage in the habitat restoration area ▪ Schedule for habitat restoration/enhancement work ▪ Use of pesticides and elimination of non-native vegetation ▪ Habitat monitoring and reporting ▪ Performance standards **Preservation of Streams:** Mitigation for the Project requires the establishment of a conservation area that will preserve up to ~~0.97~~ approximately 2.3 acres of acres of unimpacted streams in the parcels associated with the gen-tie routes. **No Net Loss:** Mitigation for up to approximately ~~1.77~~ 0.99 acres of jurisdictional waters shall be implemented through off-site acquisition, such as mitigation bank credits, and/or turnkey projects with mitigation banks (as approved by the CEC) following the issuance of permits from the U.S. Army Corps of Engineers, and Los Angeles Regional Water Quality Control Board, as applicable, and those agencies approval of the mitigation bank, and prior to the issuance of the grading permit. A turnkey mitigation project (establishment of the riparian habitat) will be used should credits not be available at the time of the jurisdictional waters permitting.

Attribute	Answer
Prior Notifications, Orders, and Permits	
Prior Notifications and/or Agreements	
Identify any notification previously submitted to, or Lake or Streambed Alteration Agreement previously issued by, CDFW for the project described in this notification. Include a copy of the previously submitted notification and/or agreement in the Documents and Maps form. If applicable, list the following: Name of Applicant: Notification Number: Date:	Not Applicable
Prior Orders, Notice, and/or Violations	
If this notification is being submitted in response to a court or administrative order or notice, or a notice of violation issued by CDFW, complete this section for each order, notice, or violation. Include a copy of each order, notice, or violation in the Document and Maps form. If applicable, list the following: Person who Directed you to Submit: Agency that Directed you to Submit: Describe Circumstances:	Not Applicable
Local, State, and/or Federal Permits	
List any local, state, and/or federal permits required for the project and	Regional Water Quality Control Board Water Quality Certification / Waste Discharge Requirements

Attribute	Answer
mark whether applied or issued. Include a copy of each permit that has been issued in the Documents and Maps form. You are responsible for obtaining all necessary permits and authorizations from CDFW and other agencies before beginning any project described in the notification. If applicable, list the following: Permit Name: Permit Type: If the permit was applied for or issued: Date issued/applied:	
Documents and Maps	
Maps/Photos	
Project Site Map	See Attachment B, Figure 1
Project Aerial View Map	See Attachment B, Figure 4
Project Site Photo(s)	See Attachment D, Photo E
Studies and Mapping	
Has a biological study been completed for the project site? (select one) If "Yes", include a copy of the document in the Documents and Map section.	☒ Yes | ☐ No The Biological Resources section of the Project's CEC "Opt-In" application contains the results of the biological studies conducted for the Project.
Has one or more technical studies (e.g., engineering, hydrologic, geologic, or geomorphological) been completed for the project for project site? (select one) If "Yes", include a copy of the documents in the Documents and Map section.	☒ Yes | ☐ No The appendices of the Project's CEC "Opt-In" application contains the engineering, hydrologic, geologic, or geomorphological studies for the Project.

Attribute	Answer
Have fish or wildlife resources or waters of the state been mapped or delineated on the project site? (select one) If "Yes", include a copy of the document in the Documents and Map section.	☒ Yes | ☐ No See Attachment D
Additional Documents and Maps	
Upload Attachments, Documents, Maps, etc.	See Attachments B-D
Fees Schedule	
Notification Fees	
Project Name	Prairie Song Reliability Project
Project Cost Range	Regular Term: ☐ < $5,000 | ☐ $5,000 to less than $10,000 | ☐ $10,000 to less than $25,000 | ☐ $25,000 to less than $100,000 | ☐ $100,000 to less than $200,000 | ☐ $200,000 to less than $350,000 | ☒ $350,000 or more
	Long Term: ☐ Base Fee | ☐ < $5,000 | ☐ $5,000 to less than $10,000 | ☐ $10,000 to less than $25,000 | ☐ $25,000 to less than $100,000 | ☐ $100,000 to less than $200,000 | ☐ $200,000 to less than $350,000 | ☐ $350,000 to less than $500,000 | ☐ $500,000 or more
Actual Project Cost	TBD
Payment Information	
Payment Method	☐ Check/Money Order | ☐ Credit Card If check/money order, outline the following information: Name of the Bank/Institution: Check/Money Order #: If credit card, CDFW's online internet sales system will provide a document number after completing the transaction. Outline the document number:
Acknowledgment and Signature	
Site Inspection	
First Contact this Person to Schedule Site Visit	Garrett Lehman, Director

Attribute	Answer
Outline method of contact, contact name and information	
Electronic Signature	
Application to be electronically signed by the Applicant or Designated Representative.	



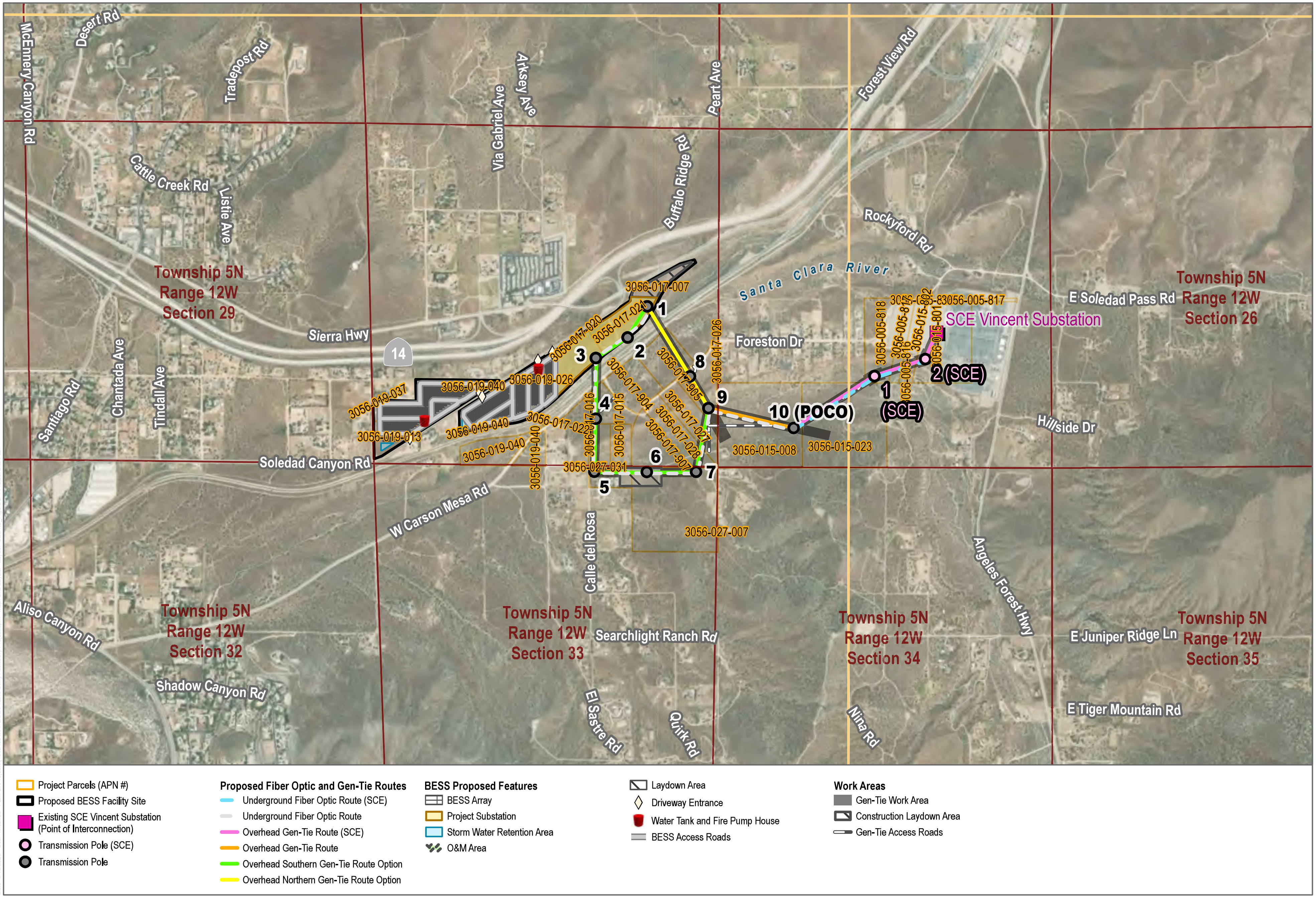
SOURCE: World Topographic

0 1,000 2,000 Feet

FIGURE 1

Regional Map

Prairie Song Reliability Project - Aquatic Resources Delineation Report

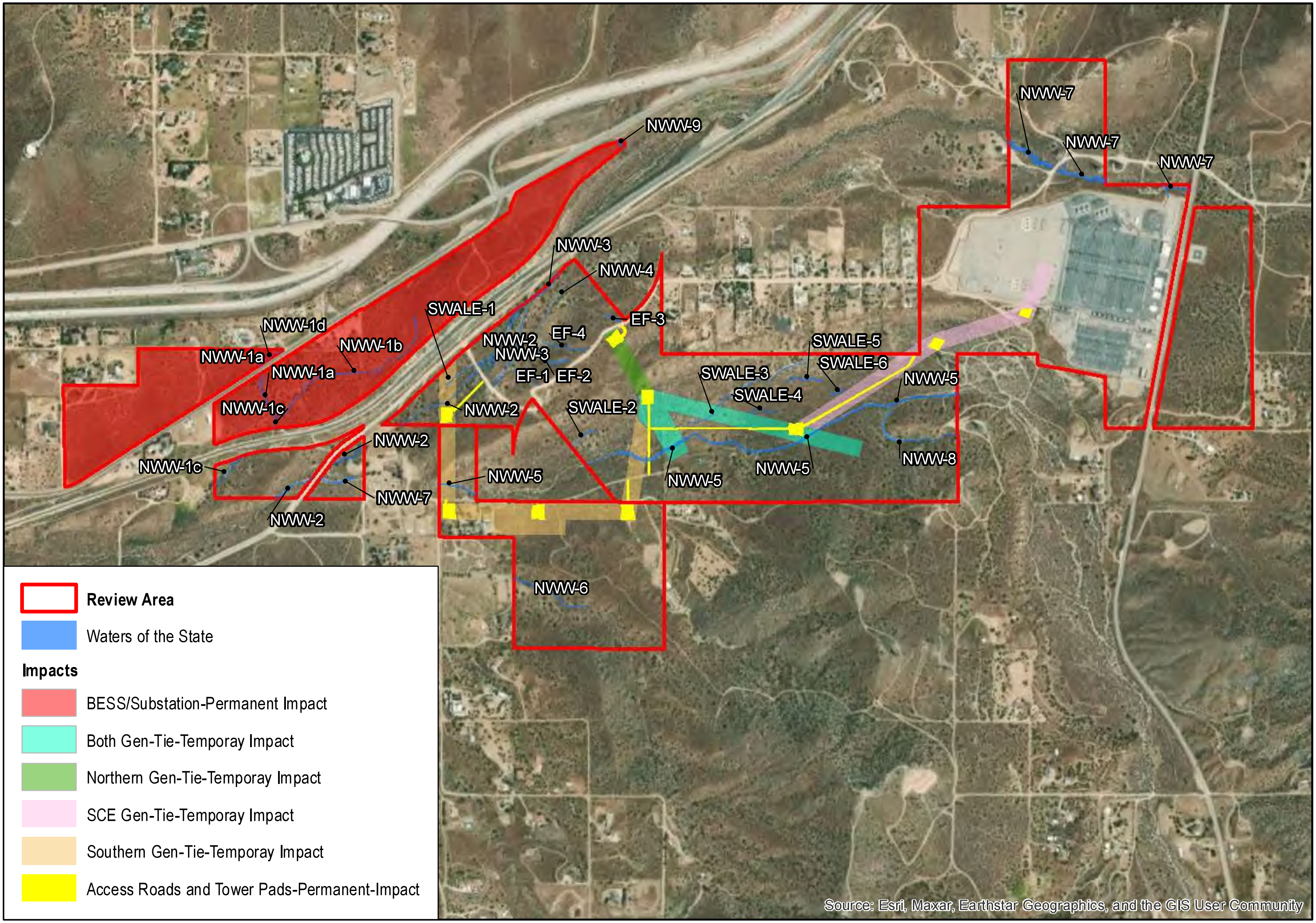


SOURCE: World Imagery; Los Angeles County
Acton & Pacifico Mountain Quadrangle

DUDEK

0 500 1,000 Feet

FIGURE 2
Project Site Plan
Prairie Song Reliability Project



Review Area

Waters of the State

Impacts

BESS/Substation-Permanent Impact

Both Gen-Tie-Temporay Impact

Northern Gen-Tie-Temporay Impact

SCE Gen-Tie-Temporay Impact

Southern Gen-Tie-Temporay Impact

Access Roads and Tower Pads-Permanent-Impact

SOURCE: Alliance 2025

0 550 1,100 Feet

DUDEK

Jurisdictional Water Impacts

Prairie Song Reliability Project

2 Project Description

Prairie Song Reliability Project LLC, a Delaware limited liability company (Applicant), a subsidiary of Coval Infrastructure DevCo LLC, a Delaware limited liability company, proposes to construct, operate, and eventually repower or decommission the up to 1,150-megawatt (MW) Prairie Song Reliability Project (Project) located on up to approximately 107 acres in unincorporated Los Angeles County. The primary components of the Project include a containerized battery energy storage system (BESS) facility utilizing lithium-iron phosphate cells, or similar technology, operations and maintenance (O&M) buildings, an on-site Project substation, a 500-kilovolt (kV) overhead generation interconnection (gen-tie) transmission line, and interconnection facilities within the existing Southern California Edison (SCE)-owned and operated Vincent Substation.

Electrical energy will be transferred from the existing power grid to the Project for storage and from the Project to the power grid when additional electricity is needed. The Project will provide additional capacity to the electrical grid to assist with serving load during periods of peak demand by charging when demand is low and discharging when demand is high. This operating principle increases the integration of additional intermittent renewable energy, such as wind and solar, in California's energy mix and reduces the need to operate natural gas power plants. The Project will also serve as an additional local/regional capacity resource that will enhance grid reliability, particularly to the Los Angeles Basin local reliability area and may allow for the deferral or avoidance of regional transmission facilities.

The Project will be remotely operated and monitored year-round as well as supported by on-site O&M staff seven (7) days a week. The Project will be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians will inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

2.1 Project Location

The Project will be located in unincorporated Los Angeles County (County), California south of State Route 14 approximately three (3) miles northeast of the center of the unincorporated community of Acton. The Project site is within the Los Angeles County-designated Community Standard District of Action. The Project is within the USGS 7.5-minute Acton and Pacifico Mountain Quadrangles, Township 5N, Range 12W, Sections 27, 28, 33 and 34. The BESS site is comprised of Assessor's Parcel Numbers (APNs) 3056-017-007, 3056-017-020, 3056-017-021, 3056-019-013, 3056-019-026, 3056-019-037, and 3056-019-040. Development of the BESS facility will occur on an area of land sandwiched between two (2) existing transportation corridors, the Antelope Valley Freeway (State Route 14) to the north and Los Angeles County Metropolitan Transportation Authority (LACMTA)-owned Southern Pacific Railroad lines and Carson Mesa Road to the south, that are approximately 1,200 feet apart.

The Project will utilize one (1) of two (2) potential gen-tie routes. Either route will extend south and east from the Project substation, crossing Southern Pacific Railroad tracks and West Carson Mesa Road, and then proceed northeast to the Point of Interconnection (POI) at the Vincent Substation. The Northern Gen-Tie Route is approximately 1.1 miles long, and will be sited on APNs 3056-015-008, 3056-015-023, 3056-017-026, 3056-017-904, and 3056-017-905, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, and 3056-015-802. The Southern Gen-Tie Route is approximately 1.8 miles long, and will be sited on APNs 3056-015-008, 3056-015-023, 3056-017-016, 3056-017-022, 3056-017-026, 3056-017-027, 3056-017-028, 3056-027-007, 3056-027-031, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, and 3056-015-802. The Project will also include three (3) fiber optic telecommunications lines: one (1) will be installed aboveground on the gen-tie structures (along whichever gen-tie route is ultimately selected), and the other two (2) will be installed underground within the Southern Gen-Tie Route corridor. The two (2) other fiber optic lines will be installed underground within the Southern Gen-Tie Route corridor regardless of which Gen-Tie Route corridor option is selected. The Project's interconnection facilities will be located within the SCE Vincent Substation. Land uses in the immediate vicinity of the Project include undeveloped and rural lands, multiple high-voltage transmission lines and an electrical substation, paved and rural roads, State Route 14, and railroad lines.

The nearest municipality to the Project site is the City of Palmdale, which is located approximately four (4) miles to the northeast. There are a few single-family residences adjacent to the BESS facility Site's northern and western boundaries as well as a few other single-family residences in the vicinity of the gen-tie line.

2.2 Project Objectives

The Project's principle Basic Objectives include the following:

- Construct and operate an up to 1,150MW BESS facility in Los Angeles County with an interconnection utilizing available system capacity at the existing SCE Vincent Substation to balance intermittent renewable generation and serve as an additional capacity resource that will enhance grid reliability.
- Provide new energy storage capacity to assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program and Senate Bills 100 and 1020, which require renewable energy sources and zero-carbon resources to supply 60% of all retail sales of electricity to California end-use customers by December 31, 2030, 90% of all retail sales of electricity to California end-use customers by December 31, 2035, 95% of all retail sales of electricity to California end-use customers by December 31, 2040, and 100% of all retail sales of electricity to California end-use customers by December 31, 2045.
- Provide new energy storage capacity to assist the State of California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035.
- Provide storage capacity to help balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation predominately from emissions free power sources and deliver it back to the grid when demand exceeds real-time generation supply.
- Offer energy storge to curtail dispatch and displace the need for additional fossil fuel based generating stations needed to serve peak demand periods when intermittent renewable sources may be inadequate or unavailable. The additional storage capacity may allow for the deferral or avoidance of regional transmission facilities.
- Provide energy storage of sufficient size, power, capacity, scale, and location to assist California utilities in meeting obligations under the California Public Utilities Commission's (CPUC's) Mid-Term Reliability Procurement and upcoming Reliability and Clean Power Procurement Program Requirements.
- Develop an electricity storage facility in close proximity to a utility grid-connected substation with existing capacity available for interconnection for charging and discharging and the ability to deliver capacity to the load to minimize environmental impacts.
- Secure a location to allow the stored energy to relieve grid congestion, and enhance electricity reliability, without requiring the construction of substantial new regional transmission infrastructure or network upgrades.

- Construct and operate a battery energy storage facility in Los Angeles County, resulting in economic benefits to the County, creating prevailing wage construction jobs, and facilitating local community benefits.
- Locate and gain site control of site large enough and well-suited to support development of the Project's 1,150MW and up to 9,200MWh battery energy storage.
- Develop an energy storage project that is in close proximity to existing electrical infrastructure and the Vincent Substation, to avoid and minimize potential impacts from long 500kV gen-tie lines.
- Locate a site to accommodate a gen-tie line of reasonable length to the POI and the ability to deliver power to the Los Angeles Basin local reliability area during peak demand.
- Locate near existing roadways and related infrastructure where available and feasible for construction and O&M access.

2.3 Project Components

The Project will include construction, O&M, and eventual decommissioning of an up to 1,150MW BESS. A 500kV gen-tie connecting the Project substation to the POI within the existing SCE Vincent Substation, will facilitate charging and discharging to the electrical grid.

2.3.1 General Facility Description, Design, and Operation

The BESS facility will include the following primary components (refer to Section 2.3.2, Transmission and Interconnection Description, Design, and Operation for a detailed description of the gen-tie line and interconnection components of the Project):

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)
- Medium voltage (MV) Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Detention Facilities
- Site Security and Fencing
- Fire Detection and Suppression System
- Operations and Maintenance Building
- Existing Distribution Line Reroute

Project components are described in the following subsections. Figure 2-1, Project Site Plan, shows the Project layout. The Project's site plan package is provided in Appendix 2A, and the Project's conceptual landscape plan is included as Appendix 2B. Table 2-1 summarizes the preliminary dimensions of major BESS facility components, and Table 2-2 summarizes the preliminary footprint/disturbance acreage associated with the BESS facility.

Table 2-1. Preliminary Dimensions of Major BESS Facility Components

Component	Quantity	Approximate Dimensions
BESS Enclosures	2,035*	20 ft × 8 ft × 9.5 ft (L × W × H)
PCS	517*	20 ft × 8 ft × 9.5 ft (L × W × H)
MV Collection system	—	Buried in trenches up to 10 ft × 10 ft (W × D)
Project Substation Area	1	2,545 ft × 440 ft (L × W); seven (7) 150 ft (H) (lightning masts)
Control Building	1	27 ft W × 95 ft L × 10 ft H (to ceiling)
Access Roads	—	26 ft (W) internal radii 55 ft minimum
Fire Water Tanks	2	33 ft in Diameter × 16 ft H
Laydown Yards	3	Variable
Stormwater Detention Facilities	2	Variable
Security Wall	—	Minimum 8 ft H block wall topped with 1 ft of barbed/razor wire
Operations and Maintenance Building	2	20 ft × 60 ft × 15 ft (L × W × H)

Notes: BESS = battery energy storage system; PCS = power conversion system; MV = medium voltage.

* The number of BESS enclosures and PCS units will depend on the manufacturer selected. The total number of BESS enclosures and PCS units may increase or decrease in the final design. It is also possible that the BESS units ultimately procured may incorporate the PCS units within the BESS enclosures.

Table 2-2. Preliminary Footprint of BESS Facility

Component	Permanent Disturbance
BESS Yards	30.0 acres
Project Substation	23.1 acres
Access Roads	7.9 acres
Laydown Yards	1.0 acres
Stormwater Detention Facilities	4.1 acres
*Other**	*4.7 acres*
Total+	**70.8 acres**

Notes: BESS = battery energy storage system.

* Other areas include maximum grading limits. The analyses assume that all areas used for the BESS facility are permanently disturbed.

+ The total permanent disturbance acreage is a conservative estimate, and final designs may require fewer acres. Underground components within the BESS facility will be located within the footprint of above ground disturbance areas.

2.3.1.1 Battery Energy Storage System

The energy storage facility will utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common presently being lithium iron phosphate (LFP) cells, or similar. LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology. By the time the Project reaches the procurement stage, it is possible for other battery cell technology with proven safety and performance records to be suitable for the Project. Although the number and dimensions of the containers may change (as it does between LFP technology providers), the technology ultimately procured will result in potential environmental impacts substantially similar to, or less than, those analyzed based on this Project Description. The Sungrow Power Titan II has been selected for this project application as a representative BESS enclosure. Sungrow Power Titan II design and operation information is used in this application to set maximum potential impact envelopes, for site design and modeling analysis, and to set baseline safety standards. A final manufacturer for the BESS enclosures will be selected during the detailed design process post-certification. The Project will provide defensible space by setting back all BESS enclosures at least 100 feet from the property boundary.

The BESS enclosures will be prefabricated off site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure will include battery packs on racks, a battery management system, fire detection systems, thermal management systems (either liquid or air cooled depending final selected technology), and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures will not exceed 15 feet in height.

Over the life of the project the storage capacity of the battery cells will naturally degrade. The project will implement an augmentation strategy to maintain the contractually required capacity of the system. Augmentation will entail either a capacity maintenance approach of adding/replacing individual battery modules in the existing BESS yard or designing the BESS system to incorporate space for additional BESS enclosures for later augmentation. The Project design and analysis front loads the work for the Project augmentation and assumes that it will install the end-of-life capacity at the start of construction. This assumption is made to capture augmentation impacts during construction instead of trying to assume the augmentation schedule for the Project. Equipment type/specifications, capacity agreements, and tax incentives can all change how and when augmentation is completed. Front loading augmentation to occur during construction creates a conservative case for the analysis of potential impacts that could arise from augmentation and sets a maximum impact envelope for the Project. During Project operations, the Project analysis assumes that one (1) crane and one (1) forklift will operate in support of augmentation once every 3 to 5 years for 8 hours per day.

2.3.1.2 Power Conversion System

A PCS is a packaged and integrated, or assembled, system consisting of a bi-directional inverter, MV transformers, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. A PCS functions to both convert between DC/AC and change the voltage level from the MV collection voltage to the working voltage of the BESS enclosures.

The PCS will convert electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. Each PCS will also include transformers that convert the AC side output of the inverter between low and medium AC voltage to increase the overall efficiency of the BESS. Inverters within the PCS units will be unattended systems designed to operate in all conditions. The inverters will be monitored and controlled remotely, and there will be on-site disconnects for use in case of an emergency or a situation requiring unscheduled maintenance.

PCS units will be installed on concrete foundations or steel piles and connected to multiple BESS enclosures with wiring and cables installed underground. All outside electrical equipment will be housed in the appropriate National Electrical Manufacturers Association-rated enclosures.

2.3.1.3 MV Collection System

The MV collection system will include multiple components that connect the PCS units to the Project substation including underground conductor circuits, switchboards, switchgear, and panels at 34.5kV. The conductors for the MV collection system will be installed underground during construction using trenching.

To connect the portion of the BESS yard north of Soledad Canyon Road to the Project substation, which is located south of Soledad Canyon Road, a portion of the MV collection system will need to be located underground within Soledad Canyon Road. A 180~~26~~ foot-wide underground corridor will house the MV collection system as it traverses the road.~~ The 26 foot wide corridor within Soledad Canyon Road will also house the proposed water line that will serve the O&M buildings (see the discussion in Section 2.3.1.10 for details regarding the O&M water line).~~ The MV collection lines~~and water line proposed within~~ under Soledad Canyon Road will be installed ~~underground~~ using horizontal directional drilling, will be inside six (6) in conduit, covered by a minimum of 42 inches, and spaced 10 feet apart. ~~trenching.~~

2.3.1.4 Project Substation

The Project substation will include six (6) main power transformers (MPTs). When the BESS facility is charging, power from the regional electric transmission grid will be stepped down from 500kV to 34.5kV and sent from the Project substation through the MV collection system and PCS units into the battery packs within the BESS enclosures. When the BESS facility is discharging, power from the battery packs within the BESS enclosures will be sent to the PCS units, stepped up to 34.5kV, and transported to the Project substation through the MV collection system before being stepped up to 500kV at the MPTs and delivered back to the regional electric transmission grid. A control building will be installed within the Project substation area and contain an energy management system, metering, and telecommunication equipment for communication with SCE/California Independent System Operator (CAISO) facilities and to support remote Project operations monitoring. The Project substation area will also include seven (7) static masts, up to 150 feet tall, for lightning protection.

2.3.1.5 BESS Facility Access Roads

The Project's roadway system will utilize existing roads wherever available and feasible and include new facility access roads and driveways, a perimeter road, and internal access roads. All new access roads, driveways, internal and perimeter roads will be bladed, compacted, and surfaced with asphalt. All internal roadways and private driveways will be constructed to meet access requirements for construction, O&M, and emergency response.

2.3.1.6 Laydown Yards

The Project will include up to three (3) laydown yards for equipment and material staging and storage during construction. These areas will also be used for worker parking during construction. The primary laydown yard will be located in the northernmost portion of the BESS site. The primary laydown yard will be bladed, compacted, and surfaced with aggregate, while an additional laydown yard to facilitate construction of the gen-tie line will be cleared of vegetation and surfaced with aggregate or other soil stabilizing materials. Landscape fabric may also be installed under the surface of all laydown yards to prevent vegetation growth, if required to comply with fire prevention standards. The O&M building and required number of parking spaces for O&M staff will be constructed within the primary laydown following construction of the BESS facility components.

The proposed Project's preliminary layout, earthwork volumes, and Project component dimensions assumed for environmental analyses in subsequent chapters are conservatively large to allow for design flexibility within the project footprint and Project schedule preservation.

2.3.1.7 Stormwater Detention Facilities

Regulatory standards require that volumes and flow rates of stormwater discharge after construction are not to exceed pre-development conditions. Stormwater generated on-site will flow to underground stormwater detention chambers located in the southwestern portions BESS facility site (Figure 2-1, Project Site Plan). Stormwater treatment and storage sizing will be designed to hold the anticipated runoff from a 100-year, 24-hour storm event in compliance with applicable regulations. After a rainfall event, stormwater will infiltrate into the subgrade underneath the stormwater chambers. If the design capacity of the stormwater chambers is exceeded, however, stormwater may be stored in available upstream areas such as catch basins, infiltration trenches, or drain as sheet flow from the surface.

2.3.1.8 Site Security

The BESS facility site will be enclosed with a minimum 8-foot-tall block wall topped with 1 foot of three-strand barbed wire or razor wire. The wall will be installed on the outside of the perimeter roads. The wall will be required to prevent unauthorized access and to comply with human health and safety regulations. Gates will be installed at various access points along the wall and equipped with locks and knox boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site. The wall will serve a dual purpose for security and off-site noise reduction (see Section 3.7, Noise).

Lighting will only be in areas where it is required for safety, security, or operations. Controlled security lighting no more than 28 feet tall will be installed at the Project substation and around the BESS yards, in accordance with applicable requirements and regulations. Permanent motion-sensitive, directional security lights will be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras will be placed on site and monitored 24/7.

2.3.1.9 Fire Detection and Suppression System

Fire protection will include multiple fire detection systems on-site and within the individual BESS enclosures. Each BESS enclosure will have a fire rating in conformance with the California Fire Code 2022. In addition, each BESS enclosure will contain an onboard battery management system that monitors the appropriate state of individual battery cells and relays information 24/7 and an internal Fire Alarm Control Panel that will identify which units have incidents and will notify first responders. In the event of an anomaly, the system is designed to shut down and mitigate the hazard.

The Project's fire protection design will comply with California Fire Code 2022, Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). BESS enclosures will be Underwriters Laboratories (UL) listed, tested, and certified to the most rigorous international safety standards. UL independently tests equipment for compliance with the latest fire safety code requirements, and the methods were developed to minimize fire risk and safety concerns about battery storage equipment raised by fire departments and building officials in the United States.

Faults, mechanical damage, or manufacturing defects in lithium-ion batteries can cause thermal runaway, which can lead to fires or other hazards. Should a thermal runaway event occur, the BESS enclosures are designed and constructed in such a way that fire will not propagate from one enclosure to a neighboring enclosure. The Project's BESS enclosures, as part of the testing and listing process, will be subjected to destructive testing including fire testing. The Project's BESS enclosures will include the following UL certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification).
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification).
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification).
- UL 9540A – Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.
- IEC 62619 – Standard for Battery Safety in Stationary Applications.

The BESS facility ingress/egress and circulation will be designed to comply with LA County's Draft fire regulations. Each portion of the BESS facility (the BESS yards north and south of Soledad Canyon Road.) will have primary and secondary access points. The BESS yard north of Soledad Canyon Road. will have a primary access point in the southwest corner of the site and a secondary access point in the northwest corner of the site, near the O&M buildings and laydown yard. The BESS yard south of Soledad Canyon Road. will have a secondary access point directly across from the secondary access point for the northern BESS yard and a primary access point that is approximately 1,030 feet east of the secondary access point. There will also be an access point for the Project Substation that is approximately 340 feet east of the BESS yard primary access point, in the approximate middle of the Project area that is south of Soledad Canyon Road. All access points will have Knox boxes and will connect to roads that are 26 feet wide (see Appendix 2A Fire Safety and Water Circulation Plan PSR-BE-201).

Water for fire defense will be provided via an on-site well that will serve two (2) 40,000-gallon water tanks. There will be a separate water tank and booster pump in each of the BESS yards. The water tanks will serve hydrants located throughout the BESS yards. Hydrants were specifically located to be no more than 300 feet apart throughout the BESS yards. The project commissioned a fire water supply assessment that concluded that the maximum amount of water necessary to fight a fire on the site would be 15,000 gallons (see Appendix 3.17A). The project will provide 40,000 gallons of water at each BESS yard.

The fire water line system has been highlighted in PSR-BE-201. PSR-BE-201 shows the existing well in the south BESS yard and the water line connection to the water tank in that same yard (approximately 245 feet to the northeast of the existing well). The water tank and associated pumphouse serve as the distribution point for the fire water line. Three (3) lines leave the pumphouse. Two (2) fire water lines support the hydrant system in the south BESS yard. The loops follow the road and surround each of the BESS blocks. The third fire water line runs southwest along the northern road in the south BESS yard until it comes to the first responder secondary entrance. The fire water line then heads north and crosses Soledad Canyon Road along the northeastern side of the two (2) opposing first responder secondary entrances. Once in the north BESS yard, the fire water line heads back southwest along the southern road in the north BESS yard for approximately 1,030 feet. The fire water line then heads north and connects to the pump house and water tank in the north BESS yard. There are two (2) fire water lines that exit the pump house in the north BESS yard that serve the hydrants that are spaced along access roads and surround the BESS blocks.

The Los Angeles County Fire Department will review and comment on the facility fire protection and suppression plans.

2.3.1.10 Operations and Maintenance Building

O&M buildings will be constructed for the Project's anticipated 16 full-time operations staff and is planned to be in the easternmost portion of the BESS yard north of Soledad Canyon Road. The O&M buildings will include parking, outside equipment and laydown areas, basic offices, meeting rooms, washroom facilities and climate-controlled storage for certain equipment and materials. An existing groundwater well will provide water for washroom and a septic system will provide for sanitary facilities. The existing groundwater well is located south of Soledad Canyon Road on APN 3056-019-026. To serve the O&M buildings and fire water needs, which are located north of Soledad Canyon Road, an underground water line will be constructed from the existing groundwater well to the O&M buildings as shown in Figure 2-1, Project Site Plan. A portion of the water line will be located within Soledad Canyon Road as shown in Figure 2-1, Project Site Plan. ~~As discussed above in Section 2.3.1.3,~~ The water line will run under Soledad Canyon Road along the northeast edge of the opposing first responder secondary access points between the north and south BESS yards. The water line will be covered by a minimum of 24 inches of material. The water line will be installed via horizontal directional drilling. ~~the portion of the water line that crosses Soledad Canyon Road will be sited within the proposed 26-foot-wide corridor that will also house the MV collection system as it crosses the road. Like the MV collection system within the road, the water line will be installed using trenching. The O&M buildings will be powered via a distribution line from the Project substation.~~

2.3.1.11 Existing Distribution Line Reroute

There is currently an SCE overhead electrical distribution line that bisects the southern portion of the BESS facility site. The distribution line consists of wooden poles with a cross bar carrying the distribution lines. The Project plans to reroute this line around the BESS facility site using similar distribution poles and wires. The Project will alter the existing distribution line route from where it enters the property on the south side of the BESS facility site. The Project will install approximately nine (9) poles similar to the existing poles, outside of the BESS facility site wall, along the southern and western boundary of the BESS facility site south of Soledad Canyon Road until they connect with Soledad Canyon Road. At Soledad Canyon Road, the new distribution line will tie into the existing distribution line at the western boundary of the southern BESS facility site (See Appendix 2A Distribution Line Reroute PSR-SE-103).

2.3.2 Transmission and Interconnection Description, Design, and Operation

The Project will be interconnected to the regional electrical transmission grid via an approximately 1.1-mile-long or 1.8-mile-long new single-circuit 500kV gen-tie line within an up-to 150-foot-wide corridor between the Project substation and the SCE Vincent Substation. The Applicant will construct and own the portion of the gen-tie line between the Project substation and the Point of Change of Ownership (POCO) transmission structure (see Figure 2-1, Project Site Plan, site layout Pole 10), and SCE will construct and own the remaining portion of the gen-tie from the POCO to the POI within the Vincent Substation. The Project's transmission and interconnection facilities will include the following components:

- 500kV Gen-Tie Line including Transmission Structures and Conductors
- Fiber Optic Telecommunications Utility Poles and Fiber Optic Lines
- Access Paths
- Temporary Work Areas
- Interconnection Facilities within Existing SCE Vincent Substation Footprint (SCE constructed and owned)

The proposed route was selected to minimize the number of existing utility crossings, cross existing utilities at the optimum locations, minimize the total gen-tie line length and number of transmission structures required, minimize the number of turning structures required, and enter the Vincent Substation as close as possible to the POI. The proposed transmission structures were sited to avoid potential impacts to environmental resources. Project components associated with transmission and interconnection facilities are described in the following subsections. Figure 2-2, Transmission Line Route, shows the gen-tie routes, scattered rural residences, scenic areas (scenic drives and the Los Angeles National Forest), and existing transmission lines within 1 mile of the proposed routes. There are no parks or recreational areas within 1 mile of the proposed routes. Table 2-3 summarizes the preliminary dimensions of major transmission components, and Table 2-4 summarizes the preliminary new ground disturbance area associated with construction of the transmission and interconnection facilities (Southern Gen-Tie scenario). Section 3.13, Visual Resources, includes photographic simulations of a representative above ground section of the gen-tie route prior to construction and after construction.

Table 2-3. Preliminary Dimensions of Major Transmission Components

Component	Quantity	Approximate Dimensions
500kV Gen-Tie Line	1	Applicant Owned: North: 3,500 ft long / South: 7,300 ft long
		SCE Owned: 2,800 ft long
Substation Bay Dead-End Transmission Structure	1	Applicant Owned: 170 ft tall
		SCE Owned: n/a
Angled Dead-End Transmission Structure	up to 7	Applicant Owned: 175 ft tall to 195 ft tall
		SCE Owned: n/a
Tangent Delta Transmission Structure	1	Applicant Owned: 155 ft tall (Northern Gen-Tie Route) to 180 ft tall (Southern Gen-Tie Route)
		SCE Owned: n/a
Lattice Tower Transmission Structure	2	Applicant Owned: n/a
		SCE Owned: 234 ft tall to 243 ft tall
Conductors	1	Applicant Owned: North: 30,800 ft / South: 63,000 ft
		SCE Owned: 16,000 ft
Overhead Shield Wire	1	Applicant Owned: North: 3,600 ft / South: 7,300 ft
		SCE Owned: 2,900 ft
Fiber Optic Cables on Gen-Tie Structures	1	Applicant Owned: North: 3,600 ft / South: 7,300 ft
		SCE Owned: 2,900 ft
Fiber Optic Cables Underground	2	Applicant Owned: 12,000 ft
		SCE Owned: 5,700 ft
Transmission Structure Access Path	Varies	26 ft wide
Transmission Line Corridor	1	150 ft wide

Notes: kV = kilovolt; SCE = Southern California Edison; gen-tie = generation interconnection.

Table 2-4. Approximate New Ground Disturbance Area Associated with Transmission and Interconnection Facilities

Component	Permanent Disturbance	Temporary Disturbance
Applicant Portion		
Transmission Structure Pads	2.48 acres	—
Transmission Structure Access Path	1.14 acres	—
Laydown Area	—	4.23 acres
Tension and Pulling Sites (i.e., Gen-Tie Work Area)	—	19.4 acres
Applicant Total	**3.62 acres**	**~23.63 acres**
SCE Portion		
Transmission Structure Pad	0.3 acres	—
Transmission Structure Access Path	0.5 acres	—
Tension and Pulling Sites (i.e., Gen-Tie Work Area)	—	8.99 acres
SCE Total	**0.8 acres**	**8.99 acres**

Note: gen-tie = generation interconnection; SCE = Southern California Edison.

2.3.2.1 500kV Gen-Tie Line

The 500kV gen-tie line will originate at the Project substation within the BESS facility site and extend south and east, crossing Southern Pacific Railroad tracks and West Carson Mesa Road, as close to perpendicular as possible, and then proceed northeast to the POI at the Vincent Substation. The Project proposes a Northern Gen-Tie Route and Southern Gen-Tie Route. The Applicant understands a crossing agreement with LACMTA will be required prior to construction. LACMTA requires a crossing agreement application to include a 90% design package. This will be provided as the Project design progresses. The Project expects to submit the application in 2026.

The interconnecting 500kV transmission single-circuit configuration will be overhead. The gen-tie line will be constructed with either monopole tubular steel poles or steel lattice towers. Gen-tie structures will be at least 155 feet tall, with a maximum height of 243 feet. There will be a total of approximately 1 monopole or steel lattice tower structures. The total number of gen-tie structures will be determined by the final design of the gen-tie line. The Project transmission facilities will be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) where feasible. Transmission facilities will also be evaluated for potential collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of Art in 2012* (APLIC 2012).

The POCO will be located on APN 3056-015-023 (see Pole 10 within Figure 2-1, Project Site Plan). The POCO is the point where the conductors of the Generation Tie-Line are attached to the Last Structure, which will be connected on the side of the last project owned structure (Last Structure) facing Vincent Substation. The project shall own and maintain the Last Structure, the conductors, insulators and jumper loops from such Last Structure to the Interconnection Customer's Large Generating Facility. SCE will own and maintain the Vincent Substation, as well as all towers, transmission lines, circuit breakers, disconnects, relay facilities and metering within the Vincent Substation, together with the line drop, in their entirety, from the Last Structure to Vincent Substation. SCE will own the insulators that are used to attach the project-owned conductors to the Last Structure.

The conductor from the site to the POCO is planned to be triple bundle 795 Drake or equivalent. The conductor from the POCO to the Vincent Substation will be double bundle 2156 Bluebird or equivalent.

Table 2-3 includes the approximate number and dimensions of the different types of transmission structures that will be used.

2.3.2.2 Transmission Structure Access Path

Where possible, the transmission structure access path will utilize existing access roads to minimize new ground disturbance. A transmission structure access path up to 26 feet wide will be located within portions of the transmission corridor outside of the BESS facility and Vincent Substation footprints and generally follow the centerline of the gen-tie.

2.3.2.3 Telecommunication Facilities

The facility will be designed with a comprehensive Supervisory Control and Data Acquisition (SCADA) System to allow remote monitoring of facility operation and/or remote control of critical components. The fiber optic or other cabling required for the monitoring system typically will be installed in buried conduit within the access road or planned trenching leading to a SCADA system cabinet at the Project substation. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard-wired connections to locally available commercial service providers.

The Project's SCADA system will interconnect to an external fiber optic network or fixed wireless service at the Project substation and will require installation of buried fiber optic cables underground or fixed wireless antennas. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard-wired connections to locally available commercial service providers, so no additional disturbance associated with telecommunications is anticipated. As such, the Project will not require any substantial construction efforts regarding telecommunications facilities and structures. No relocation of existing telecommunication structures will occur.

Telecommunications equipment will be installed between the control building at the Project substation and the Vincent Substation to facilitate communication with SCE/CAISO facilities. To achieve communication requirements with the Vincent Substation, the project will involve the following:

- Install optical ground wire on the Generation Tie-Line to provide one (1) of three (3) telecommunication paths required for the line protection scheme, the remote terminal units. A minimum of eight (8) strands within the optical ground wire shall be provided for SCE's exclusive use into Vincent Substation.
- Install appropriate single-mode fiber optic cable from the Project Site to a point near the POCO to the Vincent Substation to provide the second telecommunication path required for the line protection scheme and the RAS. A minimum of eight (8) strands within the single-mode fiber optic cable shall be provided for SCE's exclusive use. The telecommunication path shall meet the Applicable Reliability Standards criteria for diversity.
- Install appropriate single mode fiber optic cables from the Project Site to a point designated by SCE near the Vincent Substation to provide a third telecommunication path required for the Generation Tie-Line protection scheme. A minimum of eight (8) strands within the single mode fiber optic cable shall be provided

for SCE's exclusive use. The telecommunication path shall meet the Applicable Reliability Standards criteria for diversity.

- Own, operate and maintain all three (3) telecommunication paths (including optical ground wire, any fiber-optic cables, and appurtenant facilities) up to the POCO.

In addition to the telecommunications equipment installed by the Project, SCE will install the following equipment:

- Lightwave, channel, and associated equipment (including terminal equipment), supporting protection and the remote terminal unit requirements at the Project Site and Vincent Substation for the interconnection of the Project. Notwithstanding that certain telecommunication equipment, including the telecommunications terminal equipment, will be located on the Interconnection Customer's side of the POCO, SCE shall own, operate and maintain such telecommunication equipment as part of the SCE's Interconnection Facilities.
- Install appropriate length of fiber optic cable, including conduit and vaults, from the Vincent Substation 500kV switchrack to extend the fiber optic cable and conduit into the communication room at Vincent Substation. The 2021 Reassessment Study assumed the installation of approximately 250 feet of underground fiber optic cable and associated conduit, and one (1) 4' × 4' × 6' vault to extend the fiber optic cable into the communication room at Vincent Substation. The actual location and length of fiber optic cable and conduit, and location and number of vaults, will be determined during final engineering of SCE's Interconnection Facilities.
- Install appropriate length of fiber optic cable, including conduit and vaults, to extend the Project's second diverse telecommunications from the point designated by SCE near the SCE's Vincent Substation into the communication room at Vincent Substation. The 2021 Reassessment Study assumed the installation of approximately 250 feet of underground fiber optic cable and associated conduit, and one (1) vault to extend the Project's diverse telecommunications into the communication room at Vincent Substation. The actual location and length of fiber optic cable and conduit, and location and number of vaults, will be determined during final engineering of the SCE's Interconnection Facilities.
- Install appropriate length of fiber optic cable, including conduit and vaults, from the point designated by the SCE to extend the Project's third diverse fiber optic cable to into the communication room at Vincent Substation. The 2021 Reassessment Study assumed the installation of approximately 950 feet of underground fiber optic cable and associated conduit, and one (1) 4' × 4' × 6' vault to extend the fiber optic cable into the communication room at Vincent Substation. The actual location and length of fiber optic cable and conduit, and location and number of vaults, will be determined during final engineering of the Participating TO's Interconnection Facilities.

To meet these requirements, the Applicant and SCE will install one (1) of the three (3) fiber optic lines aboveground on the gen-tie structures. The two (2) other fiber optic lines will be installed underground within trenches anticipated to be up to 4 feet wide within the Southern Gen-Tie Route corridor and separated by at least 25 feet. The two (2) other fiber optic lines will be installed underground within the Southern Gen-Tie Route corridor regardless of which Gen-Tie Route corridor option is selected. Where the underground fiber optic line leaves the BESS facility site it will be installed via horizontal directional drilling underneath the railroad tracks. Horizontal directional drilling is a trenchless construction technique used to install underground utilities like pipelines and conduits without disturbing the surface. The Applicant understands a crossing agreement with LACMTA will be required prior to construction. LACMTA requires a crossing agreement application to include a 90% design package. This will be provided as the Project design progresses. The Project expects to submit the application in 2026.

2.3.2.4 Interconnection Facilities within Existing SCE Vincent Substation Footprint

To facilitate interconnection of the BESS facility to the electric transmission grid, SCE will need to install one (1) 500kV dead end structure, nine (9) 500kV coupling capacitor voltage transformers, three (3) 500kV line drops, three (3) line current relays, and one (1) 500kv line position which includes the following equipment: seven (7) 500kV circuit breakers, seven (7) 500kV disconnect switches, 84 insulators, and two (2) breaker failure backup relays. No additional network upgrades outside of the Vincent Substation are necessary to interconnect the project to the grid.

2.3.2.5 Transmission System Impact Studies

The Project will interconnect to SCE's transmission system within the CAISO planning area. CAISO identified two (2) potential Affected Systems from the QC12 Phase I Interconnection Study: California Department of Water Resources and Los Angeles Department of Water and Power.

The Applicant has contacted both potential affected systems and both have responded that the Project will not have any negative impact on their systems (see Confidential Appendix 2C).

The Applicant filed an Interconnection Request with CAISO in the Cluster 12 Interconnection Request window. CAISO, in cooperation with SCE, prepared the Phase I Interconnection Study (January 15, 2020), and Phase II Interconnection Study (November 20, 2020). The Applicant entered into a Large Generator Interconnection Agreement with CAISO and SCE on January 28, 2022. The Project's Phase I and II Interconnection Studies are included in Confidential Appendix 2C.

2.3.2.6 California Public Utilities Commission General Orders

Because SCE is an investor-owned electric utility, the SCE Improvements described above, are regulated by CPUC. CPUC General Orders (GO) cover regulatory requirements for investor-owned electrical utilities.

The Project will comply with applicable GOs, including GO 95 (Rules for Overhead Electric Line Construction) and GO 128 (Rules for Construction of Underground Electric Supply and Communications Systems).

2.3.2.7 Transmission System Design

One-line diagrams for the Project substation are included in Appendix 2A Single Line PSR-SE-001. The one-line diagrams include all equipment ratings including the bay arrangement of the circuit breakers, disconnect switches, buses, transformers, and other equipment that will be required for the Project interconnection at the Project site.

A one-line diagram for the Project's interconnection at the SCE Vincent Substation is included in Confidential Appendix 2C, specifically within Appendix A of the Large Generator Interconnection Agreement (Page 106 of 137).

Table 2-5 below, Transmission System Design/Safey and Nuisance Regulations, identifies transmission system design laws, regulations, ordinances, and standards; adopted local, regional, state, and federal land use plans; and leases and permits applicable to the Project.

The applicant plans on installing triple bundle 795 Drake or equivalent from the BESS to the POCO. Depending on the selected route, the length of the applicant's conductor will be either 30,800 feet for the Northern Route or 63,000 feet for the Southern Route. These lengths represent the total conductor length of all phases along the applicant's portion of the 500 kV route (North: 3,500 feet long/South: 7,300 feet long). In determining the line type, the Project assumed a Max Operating Temperature of 212 degrees Fahrenheit as well as the other inputs from the Phase II SCE design. The allowable ampacity of the original conductor was 1,485 amps. The current conductor design has an ampacity of 3,396 amps. Allowable ampacity affects how much energy the line can carry, so an increase in ampacity equates to an increase in carrying capacity. Triple bundle 795 Drake will be located vertically along monopoles in the applicant-owned portion of the gen-tie route (see figures in Appendix 2 PSR-TL-005 through PSR-TL-008).

SCE plans on installing double bundle 2156 Bluebird or equivalent from the POCO to the Vincent Substation. SCE will install approximately 16,000 feet of conductor on their towers. This length represents the total conductor length of all phases along the SCE portion of the 500 kV route (2,800 feet long). SCE has sized the double bundle 2156 Bluebird to meet the carrying capacity requirements for the Project and will locate the conductor vertically along tower in the SCE-owned portion of the gen-tie route (see figures in Appendix 2 PSR-TL-009).

Table 2-5. Transmission System Design/Safety and Nuisance Regulations

Item	Title
CPUC GO-95	Rules for Overhead Electric Line Construction
NESC	National Electrical Safety Code (NESC)
GO-128	Rules for Construction of Underground Electric Supply and Communication Systems
GO-131-D	Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California
Decision 93-11-013	California Public Utilities Commission (CPUC) EMF Decision
CPUC GO-52	Construction and Operation of Power and Communication Lines for the Prevention or Mitigation of Inductive Interference
ASCE 48-19	Design of Steel Transmission Structures
ASCE 74	Guidelines for Electrical Transmission Line Structural Loading
ASCE 113	Substation Structure Design Guide
FAA 70/7460	Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space
IEEE 81	Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System
IEEE 525	Guide for the Design and Installation of Cable Systems in Substations
IEEE 605	Guide for Bus Design in Air Insulated Substation
IEEE 691	Guide for Transmission Structure Foundation Design and Testing
IEEE 738	Standard for Calculating the Current-Temperature Relationship of Bare Overhead Conductors
IEEE 1127	Guide for the Design, Construction, and Operation of Electric power Substations for Community Acceptance and Environmental
IEEE 1427	Guide for Recommended Electrical Clearances and Insulation Levels in Air Insulated Electrical Power Substations
IEEE 1863	Guide for Overhead AC Transmission Line Design

Table 2-5. Transmission System Design/Safety and Nuisance Regulations

Item	Title
47 CFR 15.25, "Operating Requirements, Incidental Radiation	Prohibits operations of any device emitting incidental radiation that causes interference to communications; the regulation also requires mitigation for any device that causes interference
Title 14 CFR, Part 77, "Objects Affecting Navigable Airspace"	Describes the criteria used to determine whether a "Notice of Proposed Construction or Alteration" (FAA Form 7460-1) is required for potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1M, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting of obstructions as identified by FAA Regulations Part 77

2.3.2.8 Transmission Line Safety and Nuisance

The electrical effects of high-voltage transmission lines fall into two (2) broad categories: corona effects and field effects. Corona is a luminous discharge due to ionization of the air surrounding a conductor around the surface of an energized conductor and associate hardware when the voltage gradient exceeds a certain critical value during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. Corona is a function of the voltage of the line, the diameter of the conductor, and the condition of the conductor and hardware surface. Corona performance is predicted using empirical equations from high-voltage line measurements. The methodology has been validated for predicting corona-induced noise and interference. The electric field gradient is the rate at which the electric field changes and is directly related to the line voltage and the geometric configuration of the line. Field effects are the voltages and currents that may be induced in nearby conducting objects. A transmission line's inherent electric and magnetic fields cause these effects. Operating power lines produce electric and magnetic fields commonly referred to as an electromagnetic field (EMF). The EMF produced by the AC electrical power system in the U.S. has a frequency of 60 hertz, meaning that the intensity and orientation of the field changes 60 times per second. The electric field (EF) is expressed in V/m or kV/m, and magnitudes are often given in root-mean-square (rms) units. Magnetic field is generated by electrical currents. Transmission lines create time-varying magnetic fields measured in Gauss (G) or milligauss (mG). Electric fields are calculated using an imaging method, while magnetic fields are obtained by summing fields from currents in all conductors, assuming balanced three-phase currents

Corona from a transmission line may result in the production of audible noise (AN), radio influence voltage (RIV) and television interference.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface and, hence, lower corona than smaller conductors, everything else being equal. Also, irregularities (such as nicks and scrapes on the conductor surface) or sharp edges on conductors and insulators hardware concentrate the electric field at these locations and, thus, increase corona at these spots. Similarly, contamination on the conductor surface such as dust or insects can cause irregularities that are a source for corona. Raindrops, snow, fog, and condensation are also sources of irregularities.

2.3.2.8.1 Audible Noise, Corona Losses, and EMF Model Results

EMFs, audible noise, and radio and television interference near power lines vary regarding the line design, line loading, distance from the line, and other factors. Electric fields, corona, audible noise, and radio and television interference depend on line voltage and not on the level of power flow. The calculations were made under maximum operating voltage. The line design includes triple-bundled 795 thousands of circular mils (kcmil) ACSR Drake conductors on monopole structures and double-bundled 2156 kcmil ACSR Bluebird conductors on SCE lattice towers. Table 2-6 shows the audible noise under fair weather, max audible noise under foul weather, and the Environmental Protection Agency's 55 day–night average sound level criteria.

Table 2-6. 500kV Audible Noise

Gen-Tie Design	Max Audible Noise at Edge of Right of Way (dBA)	Normal Audible Noise at Edge of Right of Way (dBA)	EPA 55 day-night sound level criteria (dBA)
SCE Owned Lattice Tower	55.1	30.1	48.5
Delta Monopole	51.0	26.0	
Deadend Monopole	49.6	24.6	

Source: Appendix 2D and 2E.
Notes: gen-tie = generation interconnection; dBA = A-weighted decibels; SCE = Southern California Edison.

Corona losses are estimated to range from .52 Watts/m -.913 Watts/m under fair weather conditions and 74.5 Watts/m – 130.5 Watts/m under foul weather conditions. One (1) study calculated radio interference induced by corona from a 500kV three-phase transmission line at approximately 45 decibels above 1 microvolt per meter (dB[1μV/m]3; henceforth referred to as dB) at approximately 88 feet (27 meters) away from the outermost phase of a transmission line (Tejada-Martinez et al. 2019). Measured radio interference was generally similar to calculated values particularly for conductors strung on towers horizontally but was found to be closer to 50 dBuV/m for conductors strung on towers in a vertical manner. Two (2) other studies of 500kV transmission lines at the same distance from center phase calculated radio interference at approximately 30 dB to generally below 60 dB, except for when subconductors were spaced closely together, depending on the geometric parameters (e.g., conductor size, conductor spacing) (El Dein 2013; Phaiboon et al. 2000). As discussed above, wet weather and other conditions (e.g., debris build up on conductors) can affect corona and therefore radio interference, with higher interference anticipated in wetter weather. The 500kV transmission lines would be engineered and installed so as to avoid harmful interference with radio or other transmissions.

The magnetic field is proportional to line loading (amperes), which varies as demand for electrical power varies and as generation from the generating facility is changed by the system operators to meet changes in demand. The magnetic field at the edge of the gen-tie right-of-way is expected to range from 99.09 mG to 171.29 mG. The electric field at the edge of the right-of-way is expected to range from 0.342 kilovolts/meter (kV/m) – 1.777 kV/m).

Overall, construction and operation of the Project, including the interconnection of the facility with SCE's transmission system, are not expected to result in increases in EMF levels, corona, radio interference, or audible noise and mitigation would not be required.

2.4 Construction

The following sections detail the approximate construction schedule and workforce, construction activities, estimated water use, and materials handling proposed by the Project.

2.4.1 Schedule and Workforce

The Project is anticipated to be built over an approximately 20-month period from the onset of site preparation activities through energization. Following energization, testing and commissioning will take place over 6 months. Initial mobilization and site preparation is anticipated to begin no later than March 2027 and testing and commissioning is anticipated to conclude no later than April 2029. The commercial operation date (COD) is expected shortly following the completion of testing and commissioning in June 2029. It is anticipated that construction crews will work 8 hours to 10 hours per day, with work occurring Monday through Friday. Overtime, night work, and weekend work will be used only as necessary to meet the Project schedule or complete time-sensitive or safety critical work. All work schedules will comply with applicable California labor laws and County regulations. Estimated durations of construction activities are presented in Table 2-7.

Table 2-7. Estimated Construction Activity Duration

Construction Activity	Estimated Duration	Estimated Timeframe
Demolition	2 weeks	3/1/2027–3/12/2027
Site Preparation	1.5 months	3/1/2027–4/15/2027
Substation Site Preparation	2 weeks	4/16/2027–4/30/2027
Civil Work and Grading	4 months	5/1/2027–8/31/2027
Substation Civil Work and Grading	1 month	9/1/2027–9/30/2027
Paving	1.5 months	8/15/2027–9/30/2027
Battery Enclosure/PCS Installation	12 months	10/1/2027–10/1/2028
Project Substation Installation	8 months	2/1/2028–10/1/2028
Gen-Tie Foundations and Structure Erection	4 months	2/1/2028–5/31/2028
Gen-Tie Line Stringing and Pulling	1 month	6/1/2028–7/1/2028
SCE Interconnection Facility Upgrades within Vincent Substation	6 months	4/1/2028–10/1/2028
Testing and Commissioning	6 months	10/2/2028–4/1/2029

Note: PCS = power conversion system.

2.4.2 Sequencing

During construction activities, multiple crews will be working on the site with various equipment and vehicles. The daily number of construction workers (consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) will range from approximately 50 to 250 workers, depending on the phase of construction. It is estimated that construction will require the vehicle trips and equipment listed in Table 2-8.

Table 2-8. BESS Project – Construction Equipment and Usage Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips[1]	Equipment Type	Quantity	Usage Hours
Demolition	10	4	6	Rubber tired dozer	1	10
				Concrete/Industrial Saws	1	10
				Tractors/Loaders/ Backhoes	2	10
Site Preparation	242	12	24	Tractors/Loaders/ Backhoes	2	10
				Excavator	2	10
				Rubber tired dozer	2	10
Substation Site Preparation	242	12	100	Tractors/Loaders/ Backhoes	1	10
				Excavator	1	10
				Rubber tired dozer	1	10
Grading	242	12	524	Graders	2	10
				Tractors/Loaders/ Backhoes	2	10
				Rollers	2	10
Substation Grading	242	12	486	Graders	1	10
				Tractors/Loaders/ Backhoes	1	10
				Rollers	1	10
Paving	16	0	0	Pavers	2	10
				Paving Equipment	2	10
				Rollers	2	10
Battery Enclosure/ PCS Installation	121	12	20	Air Compressors	1	10
				Cranes	1	10
				Forklift	1	10
				Tractors/Loaders/ Backhoes	1	10
Substation Installation	121	12	4	Aerial Lifts	1	10
				Air Compressors	1	10
				Bore/Drill Rigs	1	10
				Forklift	1	10
				Trenchers	1	10
Gen-Tie Foundation and Tower Erection	121	12	0	Air Compressors	1	10
				Cranes	1	10
				Forklifts	1	10
				Pumps	1	10
				Welders	1	10

Table 2-8. BESS Project – Construction Equipment and Usage Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips[1]	Equipment Type	Quantity	Usage Hours
Gen-Tie Stringing and Pulling	121	12	0	Aerial Lift	1	10
				Tractors/Loaders/ Backhoes	1	10
SCE Interconnection Facility Upgrades	121	12	0	Air Compressors	4	10
				Cranes	2	10
				Excavators	2	10
				Rough Terrain Forklifts	2	10
				Skid Steer Loaders	2	10
				Tractors/Loaders/ Backhoes	2	10
				Trencher	1	10
Testing and Commissioning	242	12	0	NA	NA	NA
Decommissioning	242	12	20	Concrete/Industrial Saws	2	10
				Cranes	2	10
				Rubber Tired Dozers	2	10
				Tractors/Loaders/ Backhoes	2	10

Notes: PCS = power conversion system; gen-tie = generation interconnection; SCE = Southern California Edison.

1 The average daily haul truck trips for each phase consider phase durations from Table 2-7.

* The Project layout depicted in Figure 2-1, Project Site Plan, shows the "End of Life" configuration of the BESS, meaning it shows the equipment layout after all augmentation units are implemented. The numbers in this table conservatively assume that foundations and BESS equipment installation related to augmentation occurs during initial construction of the facility. Construction of foundations and BESS equipment installation for augmentation may occur during O&M periodically within the BESS facility footprint.

2.4.3 Site Preparation

Environmental clearance surveys will be performed at the Project site prior to commencement of construction activities. The limits of construction disturbance areas delineated in the final approved engineering design packages will be surveyed and staked. Initial ground disturbing activities in preparation for construction will include installation of erosion and sediment control measures prior to start of major earthwork activities. Rough grading and grubbing/vegetation removal will be performed where required to accommodate site drainage and allow construction equipment to access the site. Detention chambers and stormwater facilities will be created for hydrologic control. The construction contractor will be required to incorporate applicable best management practices (BMPs) including the guidelines provided in the California Stormwater Quality Association's Construction BMP Handbook (CASQA 2024), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Stabilized construction entrances and exits will be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation will be consistent with applicable BMPs and the Antelope Valley Air Quality Management District's Fugitive Dust Rules. Site preparation will involve the removal and proper disposal of existing debris that will unduly interfere with Project construction or the health and safety of on-site personnel. Dust-minimizing techniques will be employed, such as placement of wind control fencing, application of water, and application of dust suppressants. All applicable governmental requirements and BMPs will be incorporated into the construction activities for the Project site.

Vegetation on the site will be removed where necessary to ensure the BESS facility is free from combustible vegetation to allow for fire protection and defensible space. Where feasible, in compliance with fire protection requirements, vegetation root mass within appropriate portions of the BESS facility lease area on the outside of the perimeter and substation access roads will be left in place for soil stabilization. However, the environmental analyses in subsequent sections conservatively assume that all areas within the maximum anticipated grading limits of the BESS facility will be permanently disturbed.

2.4.4 Site Grading and Civil Work

Following site preparation activities, grading and civil work will commence. Construction activities during this phase will include excavation and grading of the Project site. Preliminary designs conservatively assume that grading will include up to approximately 175,410 cubic yards (cy) of cut and up to approximately 625,095 cy of fill, resulting in a net of 449,685 cy of fill. Blasting is not expected but may be required if large boulders are encountered during excavation and grading. Fill material requirements will be satisfied by offsite borrow pits or quarries.

Conventional grading will be performed throughout the Project site but minimized to the maximum extent feasible to reduce unnecessary soil movement. Land-leveling equipment, such as a smooth steel drum roller, will be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Following major civil work within the BESS facility site, site access roads and driveways, the perimeter and substation access roads, and interior roadways to access the laydown areas and BESS yards will be graded, compacted, and surfaced with gravel or paving. Once the roadways have been constructed, the Project perimeter fence and access gates will be constructed.

2.4.5 Foundations and Underground Equipment Installation

Following completion of major site grading and civil work, equipment foundations and below grade equipment will be installed. A grounding grid and underground conduit will be installed below grade beneath the Project substation area and BESS components. Typical ground grids consist of direct-buried copper conductors with copper-clad ground rods arranged in a grid pattern. After installation of the grounding grid, the area will be backfilled, compacted, and leveled followed by application of an aggregate rock base. A containment area within the MPT foundations will be sized to hold the full volume of oil within the MPTs. The MPT foundations within the substation area are anticipated to be concrete slab foundations poured into excavations up to 7 feet deep. Foundations for the control building, static masts, other aboveground substation equipment, O&M buildings, BESS enclosures, PCS units, DC/DC converters, and BESS auxiliary transformers and panels are anticipated to be slab on grade, or pile foundations embedded up to 24 feet below ground level. Depending on soil conditions, the piles may be drilled or driven and set with a slurry. However, some of these Project components may be installed on concrete slab foundations depending on the geotechnical conditions at the final locations.

Additional underground work will include trenching for the placement of underground electrical and communications lines, including the MV collection system, AC and DC cables, and fire alarm cable. The wires will either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application

2.4.6 BESS and Project Substation Equipment Installation

Where possible, major equipment will be delivered directly to its permanent location and offloaded directly into place with a crane or heavy equipment. Where staging or sequencing does not allow, equipment will be stored at one of the laydown areas near its permanent location and installed at a later date. Major aboveground equipment will be the MPTs and other Project substation components, control building, BESS enclosures, PCS units, DC/DC converters, BESS auxiliary transformers and panels, and material for the O&M buildings.

Electrical work will include installing cables, terminations, and splices. Electrical wiring will be installed underground, at-grade, and above ground, depending on the application and location. The wires will either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application.

2.4.7 Gen-Tie Structure Erection

Environmental clearance surveys will be performed within the gen-tie corridor prior to commencement of construction activities. The gen-tie corridor boundaries, gen-tie centerline, telecommunications route centerlines, and transmission structure access path will be surveyed and flagged. Initial activities will include the installation of erosion and sediment control measures and materials, and preparation of the transmission structure and fiber optic utility pole work areas. The transmission structure access path may be bladed, compacted, and surfaced with gravel where necessary to facilitate transmission structure deliveries and construction equipment access. The surface of the access path will be at-grade to allow water to sheet flow across the gen-tie corridor, as it currently does. Overland travel and temporary construction activities associated with the gen-tie and telecommunications facilities may occur anywhere within the 150-foot-wide transmission corridor. Vegetation at the transmission and fiber optic utility pole work areas will be trimmed, mowed, or removed. At locations where gen-tie line structures and fiber optic utility poles will be installed, minor cuts may be required where the foundation will be installed.

Cast-in-place concrete foundations will be installed by placing reinforcing steel and a structure stub or anchor bolt cage into the foundation hole, positioning the stub, and encasing it in concrete. Each transmission structure foundation will be set on anchor bolts on top of the foundation with cranes. Holes will be excavated using a truck-mounted drill rig or standalone auger rig. Poles will be delivered on a flat-bed trailer and hoisted into place with a crane. The annular space between the poles and holes will be backfilled with concrete or soil. Excavated spoil material not used for backfilling will be spread around the structure work areas.

2.4.8 Gen-Tie Stringing and Pulling

For a conductor pulling location, the distance needed behind the dead-end structures should be equal to or greater than a 3:1 ratio (300 feet needed for a 100-foot-tall structure), or as recommended by the conductor manufacturer, to mitigate potential damage to the conductor during installation. The width of the pulling area is consistent with the 150-foot-wide Gen-Tie corridor. The pulling area will need to be relatively flat since trucks, trailers and various other small vehicles will need room to maneuver for placement of materials and equipment. The area will be cleared of any brush or obstacles, to facilitate unobstructed travels. For the wire end of a pull, there will be a minimum of two (2) 53-foot-long semi-trailers side by side, loaded with three (3) conductor reels each. One (1) trailer will be feeding the conductor to a tensioner, as the other trailer will be utilized for replacement of empty reels, and then facilitate a continuation of pulling efforts. The tensioner will be approximately the size of a semi-trailer and is responsible for tensioning the conductor during installation. A heavy-duty forklift or a large size all-terrain crane will be needed to support placement/removal of reels to the wire trailers, due to size and weight. After conductor installation, a bulldozer will be used to secure the installed conductors during application of additional tensions for the sagging process. The pulling equipment utilized is comparable in size/quantity to equipment utilized to support the new conductor reels. Pulling equipment utilizes multiple reels of high-tension pulling cables, mounted to semi-trailers, to support the new conductor placement into position on the structures. Pulling sites are depicted as Gen-Tie Work areas in Figure 2-2, Transmission Line Route.

A helicopter may be used to complete gen-tie stringing and pulling where the gen-tie crosses the railroad. For this portion of the stringing and pulling work it is assumed that a MD600 helicopter would be used for up to three (3) 10-hour days consisting of 1 day for mobilization, 1 day for stringing and pulling, and 1 day for demobilization. For the purposes of project analysis, it is anticipated that the helicopter would facilitate pulling of conductors and shield wires from proposed transmission structures No. 1 to No. 9 if the Northern Gen-Tie Route is selected, and transmission structures No. 3 to No. 5 if the Southern Gen-Tie Route is selected (please see Figure 2-2, Transmission Line Route, for transmission structure numbering). Helicopter use would be supported by one (1) approximately 150-foot by 100-foot landing zone. Landing zones would primarily be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters. The landing zone is anticipated to be located at the main laydown area but may need to shift to one (1) of the other two (2) laydown areas depending on the sequencing of construction.

2.4.9 SCE-Owned Gen-Tie Segment and Interconnection Facilities within Vincent Substation Footprint

SCE will construct the segment of the gen-tie between the POCO and the POI within the SCE Vincent Substation, and the fiber optic routes between the POCO and the SCE control building within the Vincent Substation footprint. The Applicant will bring the fiber optic cables to underground pull boxes at the POCO structure, and SCE will install the segment of the fiber optic cables between the POCO and control building in conduit placed in underground trenches. The trenches are anticipated to be up to 4 feet wide, and the trenches for the redundant routes will need to be at least 25 feet apart to meet SCE's diverse path requirements. It is anticipated that SCE will install the trenches within the access road to the angled dead-end structure outside the Vincent Substation fence line. However, SCE may install the cables within existing roadways or other pre-disturbed areas along the perimeter of the substation fence depending on final design and routing.

SCE will also construct the interconnection upgrades within the Vincent Substation footprint at the POI. These upgrades are described in Section 2.3.2.4 above.

2.4.10 Construction Water Use

Construction water is anticipated to be purchased from a local water purveyor and trucked to the site. During construction, an estimated 18 million gallons (approximately 55 acre-feet) of untreated water will be required for common construction-related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used during ingress and egress of on-site construction vehicle equipment traffic and during the construction of the Project. A sanitary water supply line will not be required during construction because restroom facilities will be portable units, serviced by licensed providers, and water and sewage from the restroom facilities will be stored in on-site tanks and serviced by trucks. Drinking water will be provided via portable water coolers.

2.4.11 Solid and Non-hazardous Waste

The Project will produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation waste. This waste will be segregated, where practical, for recycling. Non-recyclable waste will be placed in covered dumpsters, located in project laydown areas, and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III (non-hazardous waste) landfill.

2.4.12 Hazardous Materials

The hazardous materials used for construction will be typical of most construction Projects of this type. Materials may include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies. A hazardous materials business plan will be prepared prior to commencement of construction activities. The hazardous materials business plan will include a complete list of all materials used on site and information regarding how the materials will be transported and in what form they will be used. This information will be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During Project construction, material safety data sheets for all applicable materials present at the site will be made readily available to on-site personnel.

2.4.13 Hazardous Waste

Small quantities of hazardous waste will most likely be generated over the course of construction. This waste may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers will be trained to properly identify and handle all hazardous materials. Hazardous waste will be either recycled or disposed of at a permitted and licensed treatment, recycling, or disposal facility in accordance with law. All hazardous waste shipped off site will be transported by a licensed hazardous waste hauler.

2.4.14 Commissioning

As part of Project construction activities, and after installation, equipment will be tested and commissioned. Commissioning work will be completed by qualified personnel, and in accordance with various codes, standards and specifications including IEEE, Institute of Electrical and Electronic Engineers, NEC National Electrical Code (NFPA 70), NETA International Electrical Testing Association, specific provisions of NFPA National Fire Protection Association, and the relevant OEM / manufacturers installation and commissioning manuals. Documentation necessary for commissioning will include (but is not limited to) complete sets of electrical plans, itemized equipment descriptions, control narratives, and other procedural requirement such as persons or entities to notify when equipment has become available for acceptance tests.

Commissioning will include testing of mechanical, electrical, fire protection, and other systems at substantial completion. Systems to be commissioned and tested include (but are not limited to) BESS enclosures, PCS units, auxiliar service transformers, MV collection system, DC cables, SCADA systems, power backup systems, and fire protection system. Performance testing will also be completed to ensure charge and discharge performance of the systems as designed and in accordance with the utility requirements. Full details of the commissioning activities will be made available in a commissioning plan, prepared by the BESS supplier and construction contractor and reviewed by the Engineer of Record, as part of the construction documentation package.

2.5 Operations and Maintenance

Once constructed, the Project will be available to operate 7 days per week, 365 days per year. The facility will be remotely monitored and operated by an Owner contracted O&M provider, by means of a NERC-CIP compliant remote operations center. Project operations will be monitored remotely through the SCADA system and by the Project's anticipated full-time operations staff members. It is estimated that there will be four (4) full-time staff members for remote monitoring and 16 full-time operations staff members on site.

On-site maintenance will be required, which will include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. During operation of the Project substation, O&M staff will visit the substation periodically for switching and other operation activities. Light duty maintenance trucks will be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one (1) major maintenance inspection will take place annually. Even when considering routine maintenance and augmentation activities, the project expects to provide no less than a 96% annual availability factor to the grid.

Batteries within utility-scale BESS facilities degrade with use over time, leading to a loss of capacity. To maintain the Project's capacity in compliance with interconnection requirements and commercial contracts, periodic augmentation by installing new batteries and related equipment within the Project site will occur to maintain the capacity over an approximate 40-year life. As batteries slowly lose their capacity to store energy, extra batteries will be installed at the beginning of the Project and at several intervals through the Project life, which is referred to as augmentation. Augmentation is expected to occur in order to maintain an annual lifetime capacity of 9,200MWh. If the project were to discharge for 8 hours daily and have an annual availability of 96% then the Project would have an annual capacity factor of approximately 32%. The Project's final augmentation strategy will be determined by market based contracting requirements. Augmentation may include constructing new foundations, installing BESS equipment on the foundations, and completing electrical work within the existing Project footprint. The preliminary site layout depicted on Figure 2-1, Project Site Plan, shows an "end of life" configuration, meaning it shows the equipment layout after all augmentation units are implemented. The construction sequencing and equipment usage assumptions in Tables 2-5 and 2-6 above, and environmental analyses in subsequent chapters, conservatively assume that all initial BESS equipment and augmentation BESS equipment are constructed at the same time.

2.5.1 Solid and Non-hazardous Waste

The Project will produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning electrical materials, empty containers, and other miscellaneous solid waste, including typical refuse generated by workers. Most of these materials will be collected and delivered back to the manufacturer or to recyclers. Non-recyclable waste will be placed in covered dumpsters, located near the O&M buildings, and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

2.5.2 Hazardous Materials

Limited amounts of hazardous materials will be stored or used on the site during operations, including diesel fuel, gasoline, and motor oil for vehicles; refrigerant within the BESS enclosures; mineral oil to be sealed within the transformers; and lead-acid-based batteries for emergency backup. Appropriate spill containment and cleanup kits will be maintained during operation of the Project. A spill prevention control and countermeasures plan will be developed for site operations.

2.5.3 Hazardous Waste

Fuels and lubricants used in operations will be subject to the spill prevention control and countermeasures plan to be prepared for the proposed Project. Solid waste, if generated during operations, will be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

2.6 Decommissioning

In general, the BESS will be recycled at the expiration of the Project's life (estimated to be 40 years). Most parts of the proposed system are recyclable. Batteries include lithium, which degrades but can be recycled or repurposed. Steel, wood, and concrete from the decommissioned facilities will be recycled. Metal and scrap equipment and parts that do not have free-flowing oil may be sent for salvage. Materials 3 feet or more below the ground surface will be left in place.

Fuel, hydraulic fluids, and oils will be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks and vessels will be rinsed and transferred to tanker trucks. Other items that are not feasible to remove at the point of generation, such as smaller container lubricants, paints, thinners, solvents, cleaners, batteries, and sealants, will be kept in a locked utility structure with integral secondary containment that meets Certified Unified Program Agencies and Resource Conservation and Recovery Act requirements for hazardous waste storage until removal for proper disposal and recycling. It is anticipated that all oils and batteries will be recycled at an appropriate facility. Site personnel involved in handling these materials will be trained to properly handle them. Containers used to store hazardous materials will be inspected regularly for any signs of failure or leakage. Additional procedures will be specified in a Hazardous Materials Business Plan closure plan submitted to the Certified Unified Program Agencies. Transportation of the removed hazardous materials will comply with regulations for transporting hazardous materials, including those set by the Department of Transportation, the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol, and California State Fire Marshal. See Appendix F, Decommissioning Plan, for additional information.

2.7 Project Site Selection

The Project site and related facilities were selected taking into consideration engineering constraints, site geology, environmental impacts, water, waste and fuel constraints, and electric transmission constraints, among other factors. The Project location was selected, in part, due to it being large enough to support development of the Project, its close proximity to existing electrical infrastructure and the Vincent Substation, thereby minimizing the length of the proposed gen-tie line to the POI and ability to deliver power to the Los Angels Basin local reliability area during peak demand, and because it is located immediately adjacent to existing roadways for construction and O&M access.

The Project is uniquely suited to help California achieve its GHG reduction requirements and support LA Basin reliability requirements. The Vincent substation is located at a key point in the electrical grid, Service Path 26, which enables it to deliver energy from renewable resources outside of the LA Basin Resource Area to meet LA Basin Local Capacity Requirements (LCR), with tie lines into the Western and Eastern LA Basin. LCR refers to the minimum amount of local generation capacity needed within specific areas to meet reliability criteria, particularly in areas where transmission constraints limit the ability to import power and is a critical metric for understand energy needs which are necessary to meet future grid demand. The LA Basin LCR is increasing, primarily due to load growth. The 2024-2025 Transmission Plan shows that peak load in the SCE Main area is forecasted to grow from 25,265MW in 2026 to 27,929MW in 2034 (CAISO 2025a), representing a 9.5% increase over 8 years. The 2026 LCR Tech Study also shows that the local capacity needed in the LA Basin is expected to increase from 5,812MW in 2026 to 7,226MW in 2030, which is an approximate 20% increase in required capacity in 4 years. Compared with the 2025 LCR study, demand for the LA Basin is 429MW higher than last year's forecast and the forecasted LCR needs have increased by 1,689MW due to load forecast increase (CAISO 2025b). In addition, CAISO is projecting that there will be a total potential curtailment of 1,300 gigawatt hours of wind and solar from the SCE North area in 2034, absent storage availability (CAISO 2025a). Locating this important energy storage ~~e~~ Project ~~at~~ with efficient and environmentally sound access to the Vincent Substation provides the Project with the ability to help reduce wind and solar curtailment while also supporting the growing LCR needs in the LA Basin, allowing stored resources to be dispatched when needed.

The Project site was selected in furtherance of the Project Objectives detailed in Section 2.2 above. The site selection criteria are discussed in detail in Chapter 4, Alternatives.

2.8 References

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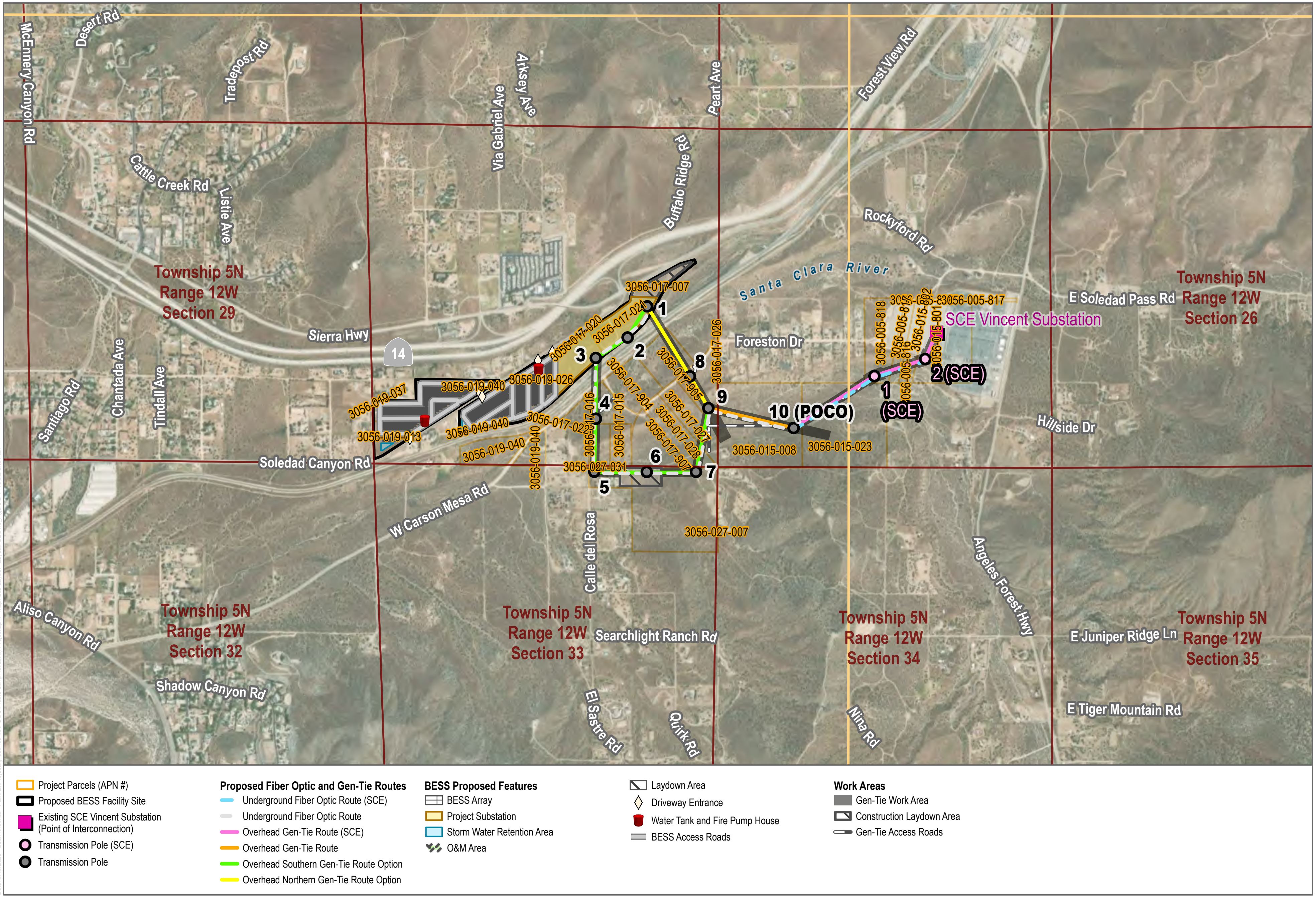

SOURCE: World Imagery; Los Angeles County
Acton & Pacifico Mountain Quadrangle

DUDEK

0 500 1,000 Feet

FIGURE 2-1

Project Site Plan

Prairie Song Reliability Project

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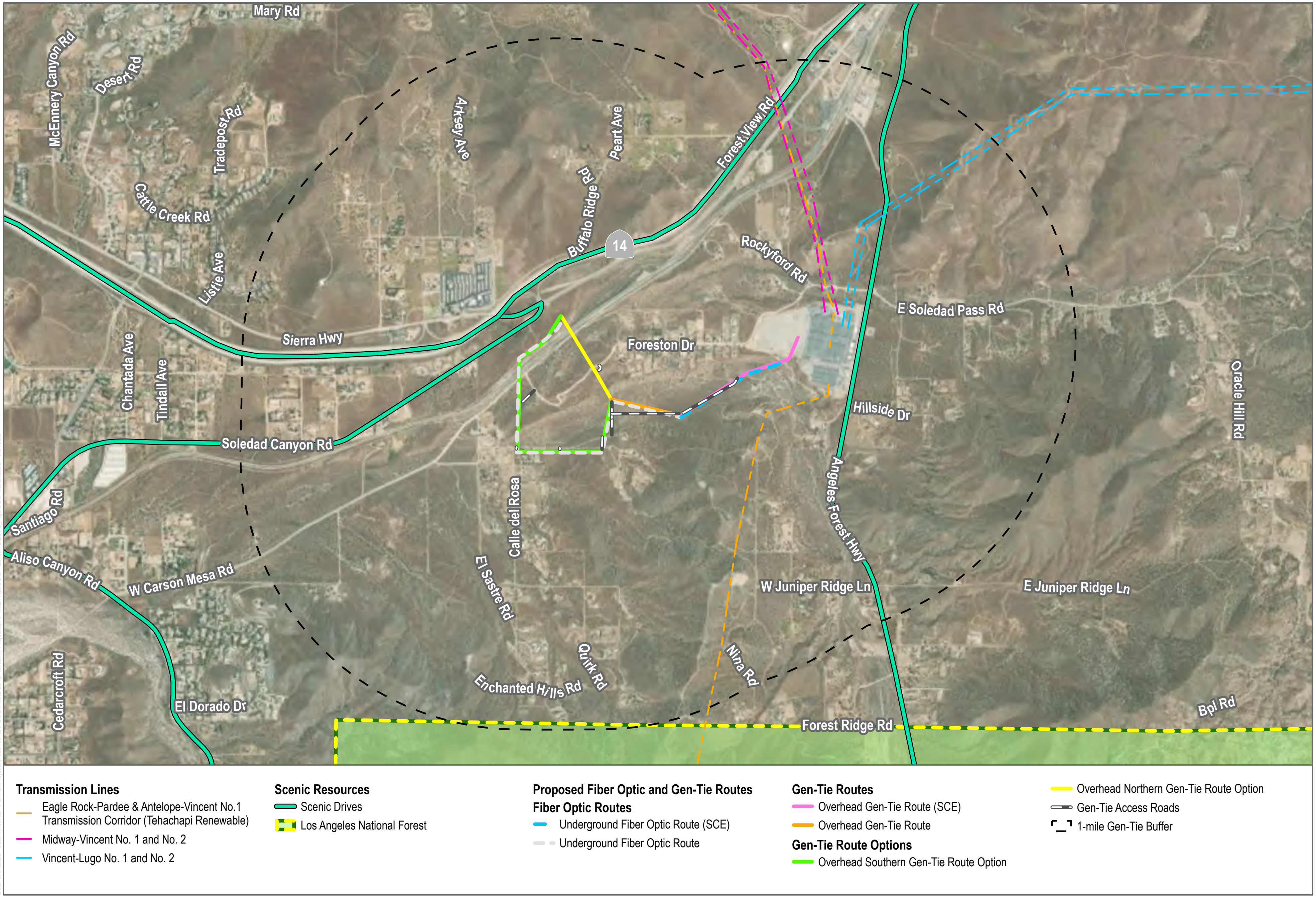

SOURCE: Los Angeles County; USFWS; CEC

DUDEK

0 1,000 2,000 Feet

FIGURE 2-2

Transmission Line Route

Prairie Song Reliability Project

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DRAFT

Aquatic Resources Delineation Report

Prairie Song Reliability Project

OCTOBER 2025

Prepared for:

PRAIRIE SONG RELIABILITY PROJECT, LLC
Contact: Garrett Lehman

Prepared by:

DUDEK

225 S. Lake Ave, Suite 225-M210
Pasadena, California 91101
Contact: Michael Cady

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TABLES

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APPENDICES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
ARDR	Aquatic Resources Delineation Report
CDFW	California Department of Fish and Wildlife
NWW	non-wetland water
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
Project	Water Resources Operations & Maintenance Building Project
RWQCB	Regional Water Quality Control Board
SDAM	Streamflow Duration Assessment Method
USACE	U.S. Army Corps of Engineers
WET	wetland

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1 Introduction

This Aquatic Resources Delineation Report (ARDR) was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). This ARDR and supporting appendices provide the 20 items listed in the Minimum Standards. This report presents the results of the jurisdictional aquatic resource delineation conducted by Dudek staff for the Prairie Song Reliability Project (Project) in unincorporated Los Angeles County, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter–Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (collectively defined as jurisdictional aquatic resources).

1.1 Disclaimer Statement

This ARDR presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified Review Area using current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this ARDR are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. A request for USACE Jurisdictional Determination is provided as Appendix A.[1]

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1.[2] Access to the Review Area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the Review Area.[3] Prairie Song Reliability Project, LLC is the project applicant and landowner.

Table 1. Contact Information

Project Applicant	Prairie Song Reliability Project, LLC	Agent	Dudek
Contact Name	Garrett Lehman	Contact Name	Michael Cady
Address		Address	~~225 S Lake Ave Suite 225 M210, Pasadena, CA 91101~~
Phone		Phone	~~626-204-9841~~
Email		Email	~~mcady@dudek.com~~

1 Minimum Standards Item 1 (Request for Jurisdictional Determination)
2 Minimum Standards Item 2 (Contact Information)
3 Minimum Standards Item 3 (Site Access Statement)

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2 Review Area Description and Landscape Setting

The approximately 531-acre Review Area for the proposed Project is in unincorporated Los Angeles County, California, south of the Antelope Valley Freeway (State Route 14) approximately three (3) miles northeast of the center of the unincorporated community of Acton. The Review Area is within the U.S. Geologic Survey 7.5-minute Acton and Pacifico Mountain Quadrangles, Township 5N, Range 12W, Sections 27, 28, 33 and 34. The BESS site is comprised of Assessor Parcel Numbers (APNs) 3056-017-007, 3056-017-020, 3056-017-021, 3056-019-013, 3056-019-026, 3056-019-037, and 3056-019-040. Development of the battery energy storage system (BESS) facility will occur on an area of land sandwiched between two existing transportation corridors, State Route 14 to the north and Southern Pacific Railroad lines and Carson Mesa Road to the south, which are approximately 1,200 feet apart. The Project will utilize one of two potential 500-kilovolt (kV) overhead generation interconnection (gen-tie) transmission lines to connect with the existing Southern California Edison (SCE) owned and operated Vincent Substation. Either route will extend south and east from the Project substation, crossing Southern Pacific Railroad tracks and West Carson Mesa Road, and then proceed northeast to the point of interconnection at the Vincent Substation. The northern gen-tie route is approximately 1.1 miles long, and will be sited on APNs 3056-015-008, 3056-015-023, 3056-017-026, 3056-017-904, and 3056-017-905, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, and 3056-015-802. The Southern Gen-Tie Route is approximately 1.8 miles long, and will be sited on APNs 3056-015-008, 3056-015-023, 3056-017-016, 3056-017-022, 3056-017-026, 3056-017-027, 3056-017-028, 3056-027-007, 3056-027-031, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, and 3056-015-802. (see Figure 1, Project Location).[4,5]

The site can be accessed from State Route 14 North by taking exit 27 and continuing straight on to Soledad Canyon Road. The BESS portion of the Review Area can be accessed from Soledad Canyon Road. To access the gen-tie portion of the Review Area, continue south on Soledad Canyon Road and take a left (east) onto Aliso Canyon Road and then a left (north) onto Carson Mesa Road. Stay on Carson Mesa Road to the intersection with Foreston Drive.[6]

2.1 Geology and Topography

The Project site is located within the Transverse Ranges Geomorphic Province. The Transverse Ranges are characterized by an east-west trending series of steep mountain ranges and valleys (CGS 2002). The east-west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California, hence the name "Transverse." The province extends offshore to include San Miguel, Santa Rosa, and Santa Cruz islands. Its eastern extension, the San Bernardino Mountains, has been displaced to the south along the San Andreas Fault. Intense north-south compression by tectonic forces is squeezing the Transverse Ranges. As a result, this is one of the most rapidly rising regions on earth. Great thicknesses of Cenozoic (younger than 66 million years old) petroleum-rich sedimentary rocks have been folded and faulted, making this one of the important oil producing areas in the United States.

4 Minimum Standards Item 10 (Description of Existing Field Conditions)
5 Minimum Standard Item 14 (Site Location Map)
6 Minimum Standards Item 4 (Directions)

The proposed BESS facility site portion of the Review Area has an approximately 4% slope increasing from the southwest to the northeast direction. The approximate elevations of the BESS facility site range from 2,980 to 3,140 feet. The proposed gen-tie route portions of the Review Area traverse flat terrains and rolling hill topographies. The elevation at the proposed Gen-Tie structures ranges from 3,010 to 3,125 feet.

2.2 Soils

Five soil units in four soil series and one land type have been mapped in the Review Area and are described below (USDA 2024a) [7]: Greenfield sandy loam, 2 to 9 percent slopes; Hanford coarse sandy loam, 0 to 2 percent slopes; Hanford coarse sandy loam, 9 to 15 percent slopes; Hanford sandy loam, 2 to 9 percent slopes; Terrace escarpments; and Vista coarse sandy loam, 30 to 50 percent slopes. Soil types within the Review Area are shown Figure 2, Soils. Only Hanford coarse sandy loam, 0 to 2 percent slopes has been determined to be hydric (USDA 2025b).

Greenfield Series: The Greenfield series consists of deep, well drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Greenfield soils are on alluvial fans and terraces and have slopes of 0 to 30 percent. The soils are well drained, with slow to medium runoff and moderately rapid permeability. Vegetation typically consists of annual grass, forbs, some shrubs, and scattered oak trees.

Hanford Series: The Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Hanford soils are on stream bottoms, floodplains and alluvial fans and have slopes of 0 to 15 percent. The soils are well drained, with negligible to low runoff and moderately rapid permeability. Vegetation typically consists of annual grasses and associated herbaceous plants.

Terrace Escarpments: Terrace escarpments are short, moderately steep to steep faces or breaks that separate the terraces from the lower-lying alluvial fans. Slopes range from 15 to 45 percent. Runoff is medium to rapid, and the hazard of erosion is moderate to high. The surface is generally coarse sandy loam and vegetation typically consists of annual grasses and forbs.

Vista Series: The Vista series consists of moderately deep, well drained soils that formed in material weathered from decomposed granitic rocks. Vista soils are on hills and mountainous uplands and have slopes of 2 to 85 percent. The soils are well drained, with slow to rapid runoff and moderately rapid permeability. Vegetation typically consists of annual grass and forbs and shrubs.

2.3 Vegetation

Vegetation communities and land uses within the Study Area were mapped in the field using the Environmental Systems Research Institute (Esri) Collector, a mobile data collection application, on a digital aerial-based background (Esri 2025). Following completion of the fieldwork, all vegetation linework was finalized using Esri ArcGIS software and GIS coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover type within the study area was determined. Vegetation communities within the study area were mapped using CDFW's List of Vegetation Alliances and Associations (or California Natural Community List) (CDFW 2025), which is based on A Manual of California Vegetation, Second Edition (Sawyer et al. 2009) and A Manual of California

7 Minimum Standards Item 13 (Soil Descriptions)

Vegetation, Online Edition (CNPS 2025), where feasible, with modifications made to accommodate the lack of conformity of the observed communities (e.g., developed/disturbed land cover types) using Oberbauer et al. (2008) and Jones and Stokes (1993). Vegetation communities were classified based on site factors, descriptions, distribution, and characteristic species present within an area. Each natural community was mapped to the association level, where feasible.

Table 2. Vegetation Communities and Land Covers in the Review Area

Alliance	Association	Acres
Native Communities		
Cheesebush – sweetbush scrub	*Ambrosia salsola - Larrea tridentata*	0.82
	Ambrosia salsola Association	3.99
Fiddleneck - phacelia fields	*Amsinckia menziesii - Erodium* spp.	2.25
California sagebrush – (purple sage) scrub	*Artemisia californica - Eriogonum fasciculatum*	15.40
Big sagebrush	*Artemisia tridentata - Ericameria nauseosa*	18.64
	Artemisia tridentata - Eriogonum fasciculatum	3.98
	Artemisia tridentata	0.58
	Artemisia tridentata ssp. *parishii*	8.58
Fourwing saltbush scrub	*Atriplex canescens*	94.03
Mormon tea scrub	*Ephedra viridis*	23.92
Rubber rabbitbrush scrub	*Ericameria nauseosa - Juniperus californica /* herb	20.06
	Ericameria nauseosa	8.87
California buckwheat scrub	*Eriogonum fasciculatum*	12.40
	Eriogonum fasciculatum var. *foliolosum - Juniperus californica*	5.24
California buckwheat – Parish's goldeneye scrub	*Eriogonum fasciculatum* rock outcrop	4.28
California walnut groves	*Juglans californica / annual herbaceous*	0.89
California juniper woodland	*Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum*	34.77
	Juniperus californica / herbaceous	126.21
	Juniperus californica / Eriogonum fasciculatum - Artemisia californica	0.48
	Subtotal	*385.39*
Naturalized (Non-Native)		
Avena spp. – *Bromus* spp.	*Avena barbata - Bromus hordeaceus*	3.28
Bromus rubens – Schismus (arabicus, barbatus)	*Bromus rubens* - mixed herbs	3.17
	Subtotal:	*6.45*
Land Cover Types		
Disturbed habitat	Not applicable	30.72
Urban/Developed	Not applicable	108.14
	Subtotal:	*138.86*
	Total:	**530.71**

Notes: Totals may not sum due to rounding.

2.4 Watershed

The Study Area is in the Santa Clara subbasin (HUC 18070102), Headwaters Santa Clara River watershed (HUC 1807010201), and primarily Kentucky Springs Canyon – Santa Clara River subwatershed, with the western most area of the Project overlapping into the Arrastre Canyon – Santa Clara River subwatershed. The Santa Clara River is the primary natural surface water feature in the vicinity of the Study Area. The Santa Clara River is the largest natural river remaining in Southern California, and travels through two counites, Los Angeles and Ventura (Kennedy/Jenks Consultants 2014). The northern portion in Los Angeles County is largely classified as an intermittent stream/river and only contains flowing water during certain times of the year (USGS 2023; USCR IRWMP 2014).

2.5 Climate

The Review Area is near the interface of the San Gabriel Mountains and the Mojave Desert, as such it has an arid climate that averages 10.42 inches of rain annually (WRCC 2025). The hot season is from mid~~-October~~ March to mid-November, with an average daily high temperature above 85°F. The cool season lasts from mid-November to mid-~~early~~ March~~-6~~, with an average daily high temperature below 63°F.

2.6 Review Area Alterations, Current and Past Land Use

Land uses in the immediate vicinity of the Review Area include undeveloped and rural lands, multiple high-voltage transmission lines,~~ and~~ an electrical substation, paved and rural roads, State Route 14, and railroad lines. There are a few single-family residences adjacent to the BESS site's northern and western boundaries as well as a few other single-family residences in the vicinity of the gen-tie line routes.

3 Investigation Methods[8]

This chapter describes the investigation methods for this jurisdictional delineation conducted by Dudek biologists Eilleen Salas (2023: January 6, 11, 23 and February 12 and 19; 2024: November 18; 2025: August 30) and Tracy Park (2024: November 19 and December 7)[9]. Prior to conducting the jurisdictional delineation, U.S. Fish and Wildlife Service's National Wetlands Inventory data (USFWS 2024) was reviewed to determine if the Review Area contains any features mapped by the U.S. Fish and Wildlife Service. Site-specific topographical data was reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. Current vegetation mapping was reviewed to assess whether the Review Area supports hydrophytic vegetation and potential wetlands. No wetland or riparian vegetation communities were mapped in the Review Area. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device. Remote sensing was not used for the delineation.[10]

3.1 U.S. Army Corps of Engineers

The USACE wetlands delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with ESRI Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the OHWM Manual.[11]

Wetland Determination Forms were completed for certain points within drainages or vegetation communities where a predominance of hydrophytic vegetation was present; hydrology, vegetation, and soils were assessed to determine whether USACE three-parameter wetlands were present. USACE OHWM Forms were completed at representative cross-sections of non-wetland waters to capture their characteristics and widths. All data forms can be found in Appendix B.[12]

3.2 Regional Water Quality Control Board

Wetland waters of the state regulated by the RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2021). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). ~~Due to the arid conditions of the Review Area, n~~Non-wetland waters were delineated to the ~~OHWM mark at the~~ top of bank and are concurrent with CDFW jurisdictional limits~~, if present~~.

8 Minimum Standards Item 19 (Methods)
9 Minimum Standards Item 8 (Dates of Field Work)
10 Minimum Standards Item 12 (Statement Regarding Use of Remote Sensing)
11 Minimum Standards Item 5 (Use of 1987 Manual, Regional Supplement, and OHWM guide)
12 Minimum Standards Item 18 (Data Forms)

3.3 California Department of Fish and Wildlife

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

4 Aquatic Resource Narrative

This chapter describes the aquatic resources that occur in the Review Area.[13] Nine stream features, six swales, and three erosional features were delineated within the Review Area.

4.1 Waters of the United States (USACE)

Approximately 3.09 acres of non-wetland waters potentially regulated by USACE are present in the Review Area (Figure 4, Potential Jurisdictional Aquatic Resources).[14] Table 5 provides a detailed summary of aquatic resources delineated within the Review Area. Table ~~5~~ 3 ~~also~~ includes descriptions of the features identified within the Review Area; Cowardin type, if available (Cowardin et al. 1979; USACE 2024b); any OHWM indicators present; location; and acreage/linear feet.[15] A copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is not submitted with this ARDR because Table 5 provides all of the information requested.[16] Photos of the potential aquatic features delineated within the Review Area and additional areas reviewed for the presence of these resources are provided in Appendix C.[17] The locations of these photos are shown in Figure 4 and Appendix D, Mapbook.

Table 3. USACE Aquatic Resource Summary for the Review Area

Feature Name	Cowardin Code[1]	OHWM Indicators	Location (Latitude/Longitude; Decimal Degrees)	Acres	Linear Feet
Non-Wetland Waters					
NWW-1a	Not Mapped	BBS, CVC	34.483209°, -118.143593°	0.08	498
NWW-1b	R4SBA	BBS, CVC	34.483824°, -118.141114°	0.17	1,782
NWW-1c	R4SBA	BBS, CVC	34.482575°, -118.143315°	0.05	457
NWW-1d	Not Mapped	BBS, CVC	34.484208°, -118.143470°	0.02	236
NWW-2	R4SBA	BBS, CVC	34.483081°, -118.138260°	0.30	2,615
NWW-3	Not Mapped	BBS, CVC	34.484381°, -118.136232°	0.07	1,050
NWW-4	Not Mapped	BBS, CVC	34.485641°, -118.134995°	0.02	783
NWW-5	R4SBA	BBS, CVC	34.482206°, -118.127602°	1.47	5,503
NWW-6	R4SBC	BBS, CVC	34.478606°, -118.135623°	0.14	761
NWW-7	R4SBA	BBS, CVC	34.488883°, -118.120250°	0.77	1,818
NWW-8	Not Mapped	BBS, CVC	34.482193°, -118.124414°	0.18	1,022
NWW-9	R4SBC	BBS, CVC	34.489469°, -118.133062°	0.03	145
			Grand Total	~~3.09~~3.34	~~15,267~~17,266

Notes: Totals may not sum due to rounding; USACE = U.S. Army Corps of Engineers; OHWM = ordinary high-water mark; NWW = non-wetland water; N/A = not applicable; BBS = break in bank slope; CVC = change in vegetation cover

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2024b).

13 Minimum Standards Item 6 (Aquatic Resource Narrative)
14 Minimum Standards Item 7 and Item 16 (Delineation Maps)
15 Minimum Standards Item 9 (Table Listing All Aquatic Resources)
16 Minimum Standards Item 15 (ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet)
17 Minimum Standards Item 17 (Ground Photos)

NWW-1a

NWW-1a is located within the BESS portion of the Review Area and its headwaters are located to the north of SR 14 and conveyed beneath the highway via culverts. Waters conveyed by the feature enter the Review Area from a culvert beneath Soledad Canyon Road. NWW-1a merges with NWW-1b in the Review Area to become NWW-1c. NWW-1c becomes undefined to the southwest of the Review Area. The soil type associated with NWW-1a is Greenfield sandy loam, 2 to 9 percent slopes and the associated vegetation communities are *Atriplex canescens* Association and *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association.

NWW-1b

NWW-1b is located entirely within the BESS portion of the Review Area. The feature merges with NWW-1a in the Review Area to become NWW-1c. NWW-1c becomes undefined to the southwest of the Review Area. NWW-1b has been classified as R4SBA, which means it is a riverine feature that is intermittent and has a streambed that is temporarily flooded for brief periods. The soil type associated with the feature is Greenfield sandy loam, 2 to 9 percent slopes and the associated vegetation communities are *Atriplex canescens* Association, *Ephedra viridis* Association, *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association, and *Juniperus californica* / herbaceous Association.

NWW-1c

NWW-1c is formed from waters from NWW-1a and NWW-1b and it exits the Review Area shortly after the merger. The feature goes beneath the railroad tracks to the south via a culvert and waters are then conveyed on a maintained dirt road before reentering the Review Area. NWW-1c becomes undefined to the southwest of the Review Area. The feature has been classified as R4SBA, which means it is a riverine feature that is intermittent and has a streambed that is temporarily flooded for brief periods. The soil types associated with NWW-1c are Greenfield sandy loam, 2 to 9 percent slopes and Terrace escarpments. The associated vegetation communities are Artemisia *tridentata - Ericameria* nauseosa Association, *Atriplex canescens* Association, and *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association.

NWW-1d

NWW-1d is within the BESS and is formed from waters that flow off of Soledad Canyon Road and the developed properties north of Soledad Canyon Road. NWW-1d connects with NWW-1a at the Project boundary at Soledad Canyon Road. The soil type associated with NWW-1a is Greenfield sandy loam, 2 to 9 percent slopes. The associated vegetation community is *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association.

NWW-2

NWW-2 is found in the gen-tie portion of the Review Area. Its headwaters are located less than three miles to the east-northeast of the Review Area in the upper Soledad Canyon. NWW-2 has been classified as R4SBA, which means it is a riverine feature that is intermittent and has a streambed that is temporarily flooded for brief periods. The feature loses a defined OHWM downstream of the Review Area at the intersection of Carson Mesa Road and Searchlight Ranch Road and does not connect with the Santa Clara River. The soil type3 associated with NWW-2 are Hanford coarse sandy loam, 2 to 9 percent slopes and Terrace escarpments. The associated vegetation communities are *Atriplex canescens* Association, *Ericameria nauseosa - Juniperus californica* / herb Association, *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association, and *Juniperus californica* / herbaceous Association.

NWW-3

NWW-3 is found entirely within the gen-tie portion of the Review Area. The feature loses it defined OWHM at a maintained dirt road. The soil type associated with NWW-3 is Hanford coarse sandy loam, 2 to 9 percent slopes and Terrace escarpments. The associated vegetation communities are *Ericameria nauseosa - Juniperus californica /* herb Association and *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association, and *Juniperus californica* / herbaceous Association.

NWW-4

NWW-4 is found entirely within the gen-tie portion of the Review Area. The feature loses it defined OWHM within the Review Area. The soil type associated with NWW-4 is Hanford coarse sandy loam, 2 to 9 percent slopes. The associated vegetation community is *Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum* Association.

NWW-5

NWW-5 is the main drainage feature of Kentucky Springs Canyon and is within the gen-tie portion of the Review Area. The feature loses its defined OHWM to the west of the Review Area at a residential/equestrian property but then has a defined OHWM between that property and Carson Mesa Road. It is expected that waters from NWW-5 flow across Carson Mesa Road and into NWW-2. NWW-5 has been classified as R4SBA, which means it is a riverine feature that is intermittent and has a streambed that is temporarily flooded for brief periods. The soil types associated with NWW-5 are Hanford coarse sandy loam, 2 to 9 percent slopes and Terrace escarpments. The associated vegetation communities are *Artemisia tridentata* Association, *Atriplex canescens* Association and *Juniperus californica* / herbaceous Association.

NWW-6

NWW-6 is found entirely within the gen-tie portion of the Review Area. The feature loses its defined OHWM to the at a residential/equestrian property adjacent to the Review Area. NWW-6 has been classified as R4SBC, which means it is a riverine feature that is intermittent and has a streambed that is seasonally flooded. The soil types associated with NWW-6 are Hanford coarse sandy loam, 2 to 9 percent slopes and Terrace escarpments. The associated vegetation community is *Juniperus californica* / herbaceous Association.

NWW-7

NWW-7 is found in the portion of the Review Area north of the Vincent Substation and is an upstream portion of NWW-2. The soil types associated with the feature are Hanford coarse sandy loam, 2 to 9 percent slopes and Terrace escarpments. The associated vegetation communities are *Artemisia tridentata - Ericameria nauseosa Association*, *Artemisia tridentata* ssp. *parishii* Association, and *Ericameria nauseosa* Association.

NWW-8

NWW-8 is found in the southeast portion of the Review Area and within the gen-tie portion of the Review Area. The water source is from water flowing off an existing transmission line road and through NWW-8 into NWW-5. The soil types associated with the feature are Terrace escarpments; Hanford coarse sandy loam, 2 to 9 percent slopes; Vista coarse sandy loam, 30 to 50 percent slopes; and Hanford coarse sandy loam, 0 to 2 percent slopes. The associated vegetation communities are *Juniperus californica* / herbaceous Association and *Atriplex canescens* Association.

NWW-9

NWW-9 passes through the northeastern corner of the BESS portion of the Review Area. Its headwater are located north of SR-14 and waters are conveyed beneath SR-14 and Sierra Highway via culverts. NWW-9 continues to the south of the BESS site and joins with a stream outside of the Review Area between Sierra Highway and the railroad tracks. This feature then appears to lose its definition along the railroad track. The soil types associated with the feature are Terrace escarpments and Hanford coarse sandy loam, 9 to 15 percent slopes. The associated vegetation communities are *Eriogonum fasciculatum* Association and *Ephedra viridis* Association.

4.2 Waters of the State (RWQCB)

All the features described in Section 4.1, Waters of the United States, have been identified as waters of the state. These features are subject to regulation by the RWQCB under the Porter–Cologne Water Quality Control Act. In addition, six swales (not displaying OHWM indicators but potentially carrying sheet flows across the landscape due to topographic relief) and three erosional features were mapped in the gen-tie portion of the Review area and are subject to regulation by the RWQCB). These swales and erosional are excluded from potential USACE jurisdiction due to their lack of OHWM indicators. Table ~~6~~ 4 lists all features within the Review Area that are subject to RWQCB regulation and are shown on Figure 5, Potential Jurisdictional Aquatic Resources – RWQCB/CDFW, and Appendix D.

Table 4. RWQCB Aquatic Resource Summary for the Review Area

Feature Name	Location (Latitude/Longitude; Decimal Degrees)	Acreage	Linear Feet
Non-Wetland Waters (NWW)			
NWW-1a	34.483209°, -118.143593°	0.09~~0.08~~	498
NWW-1b	34.483824°, -118.141114°	0.18~~0.17~~	1,782
NWW-1c	34.482575°, -118.143315°	0.06~~0.05~~	457
NWW-1d	34.484208°, -118.143470°	0.02	236
NWW-2	34.483081°, -118.138260°	0.35~~0.30~~	2,615
NWW-3	34.484381°, -118.136232°	0.14~~0.07~~	1,050
NWW-4	34.485641°, -118.134995°	0.02~~0.02~~	783
NWW-5	34.482206°, -118.127602°	1.36~~1.47~~	5,503
NWW-6	34.478606°, -118.135623°	0.14~~0.14~~	761
NWW-7	34.488883°, -118.120250°	0.77~~0.77~~	1,818
NWW-8	34.482193°, -118.124414°	0.18	1,022

Table 4. RWQCB Aquatic Resource Summary for the Review Area

Feature Name	Location (Latitude/Longitude; Decimal Degrees)	Acreage	Linear Feet
NWW-9	34.489469°, -118.133062°	0.03	145
	Non-Wetlands Subtotal:	*3.34~~3.09~~*	*17,266~~20,071~~*
Swales			
Swale-1	34.483790°, -118.137852°	0.01	323
Swale-2	34.481982°, -118.134586°	~~0.10~~0.04	628
Swale-3	34.483361°, -118.129572°	0.06	1,339
Swale-4	34.482888°, -118.128773°	0.04	283
Swale-5	34.483666°, -118.127604°	0.08	355
Swale-6	34.483388°, -118.126555°	0.04	167
	Swales Subtotal:	*~~0.33~~0.27*	*~~3,094~~2,753*
Erosional Feature (EF)			
EF-1	34.483730°, -118.135892°	0.03	283
EF-2	34.484118°, -118.135162°	0.09	368
EF-3	34.485159°, -118.133296°	0.03	167
EF-4	34.484484°, -118.134687°	0.05	495
	Erosional Feature Subtotal:	*~~0.15~~0.20*	*~~819~~1,322*
	Grand Total	**~~3.56~~3.80**	**~~23,984~~21,341**

Notes: Totals may not sum due to rounding RWQCB = Regional Water Quality Control Board; NWW = non-wetland water.

Swales

Six swale features were observed in various locations within the Review Area. These swales are characterized by unvegetated soils that lack bed and bank topography or a continuous defined OWHM and did not have connectivity with any non-wetland water features. Thus, these features are determined to not be potential waters of the U.S. but could be considered waters of the state.

Erosional Features

~~Three~~ Four erosional features were observed alongside existing gravel access road. These areas contained a more defined bed and bank; however, areas "upstream and/or downstream" were evaluated and showed no evidence of an OHWM. It was determined that these features were not natural drainages, but, rather, were created artificially due to erosion from waters flowing off the existing dirt road. Thus, the features were determined to not be potential waters of the U.S. but could be considered waters of the state.

4.3 CDFW Jurisdiction

All the features described in Section 4.1 were identified as streambeds potentially regulated by CDFW. In addition, the six swales and four erosional features in the Review Area described in Section 4.2 are also potentially regulated by CDFW. These areas are shown in Figure 5 and Appendix D.

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5 Conclusions

Based on the jurisdictional delineation and review of relevant information provided in this ARDR, 3.09 acres of non-wetland waters ~~are~~ potentially regulated by USACE were delineated within the Review Area. However, the features in the area have no downstream connectivity with relatively permanent water or traditional navigable water. Additionally, the features are ephemeral features that only have water flowing during and briefly following storm events. The delineation of NWW-2 on January 11, 2023 was conducted the day after a 2.38-inch rain event and no water was flowing through the feature. The non-wetland waters may also be regulated by the RWQCB, ~~and~~ CDFW, and CEC.

This ARDR can be used by the regulatory agencies to determine if they would regulate the features described herein. The GIS data for the delineation can be provided digitally. [18]

18 Minimum Standards Item 20 (Digital Data)

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6 References

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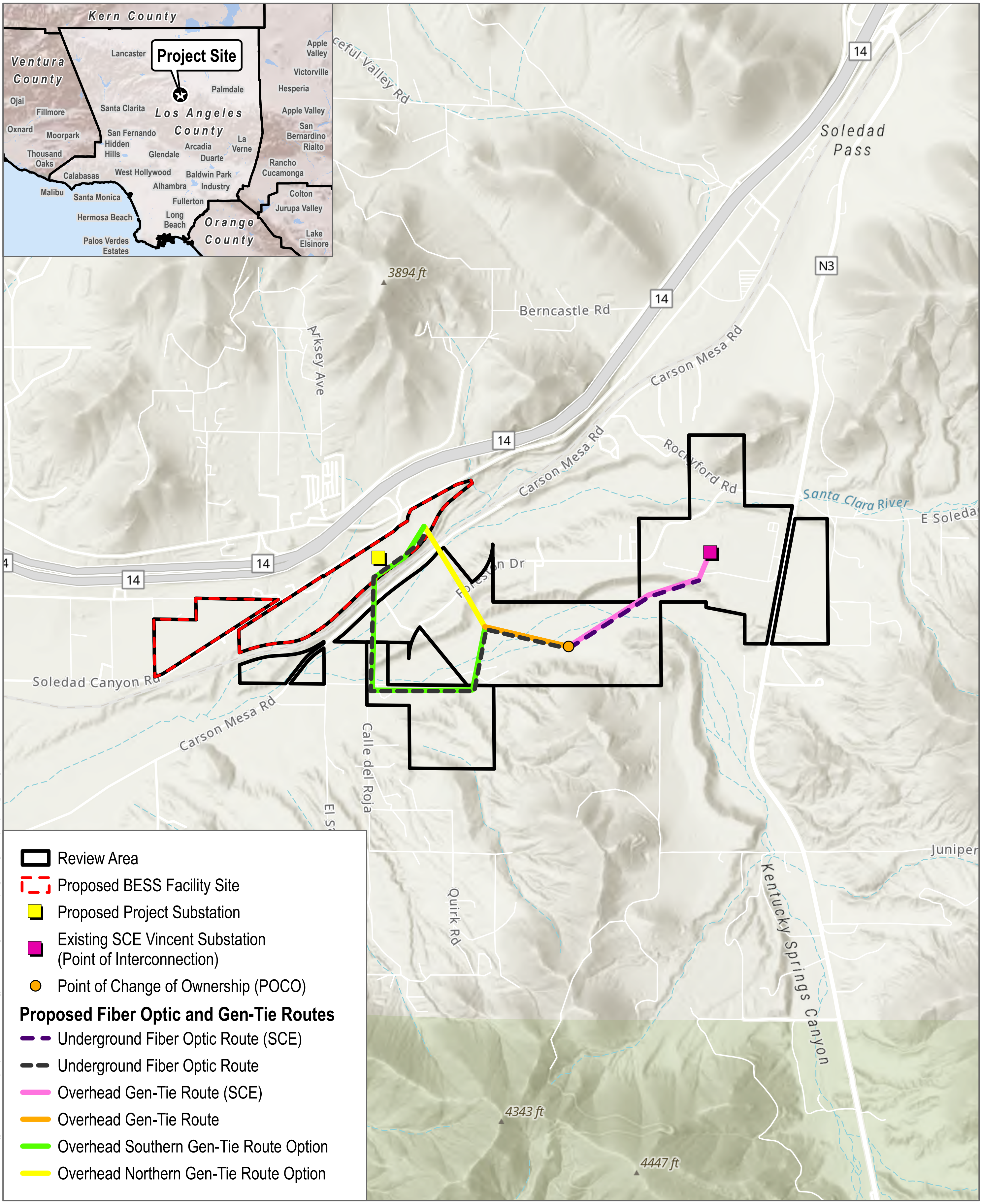

SOURCE: World Topographic

DUDEK

0 1,100 2,200 Feet

FIGURE 1
Regional Map
Prairie Song Reliability Project

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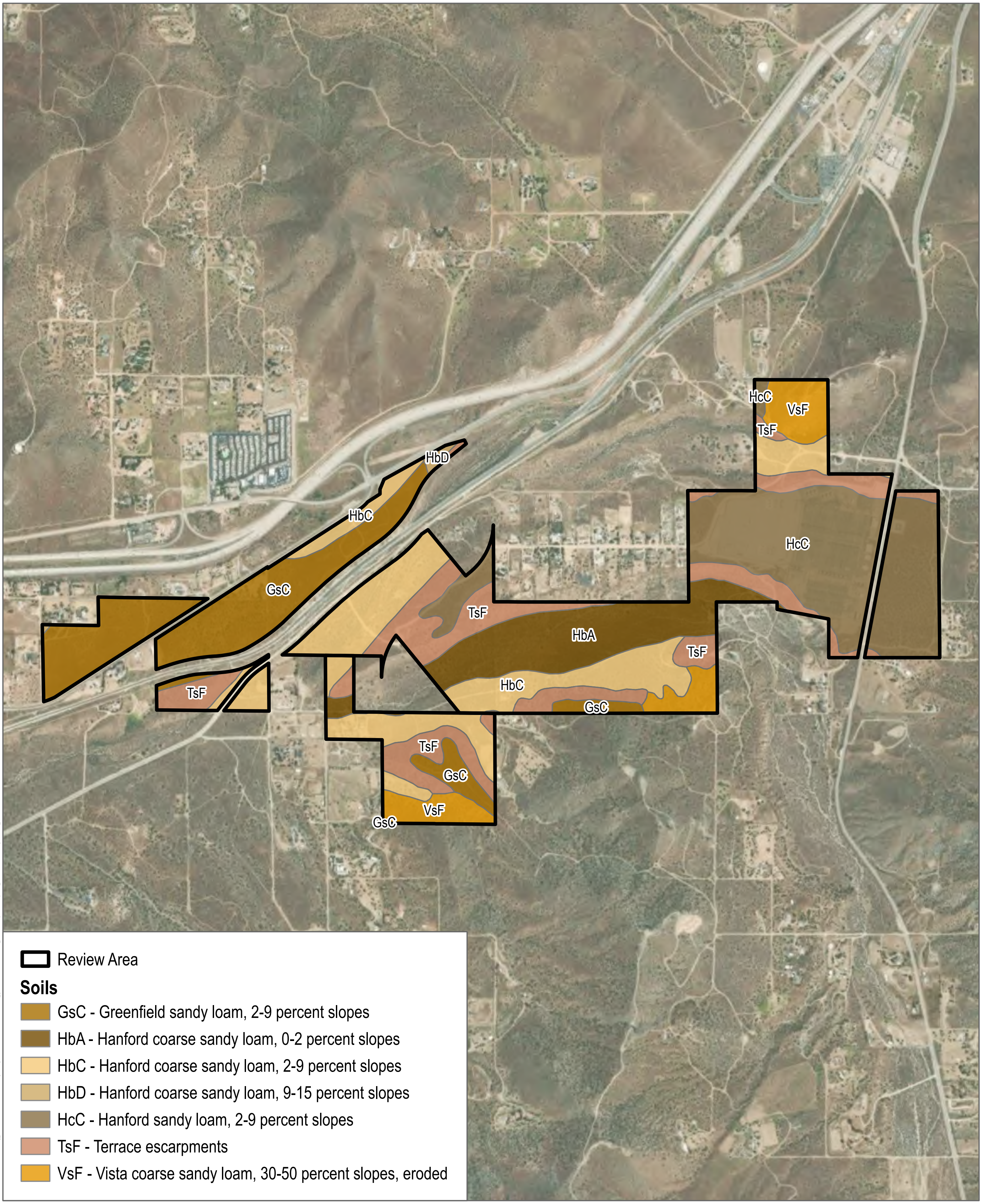

SOURCE: World Imagery; USDA

DUDEK

0 750 1,500 Feet

FIGURE 2

Soils

Prairie Song Reliability Project

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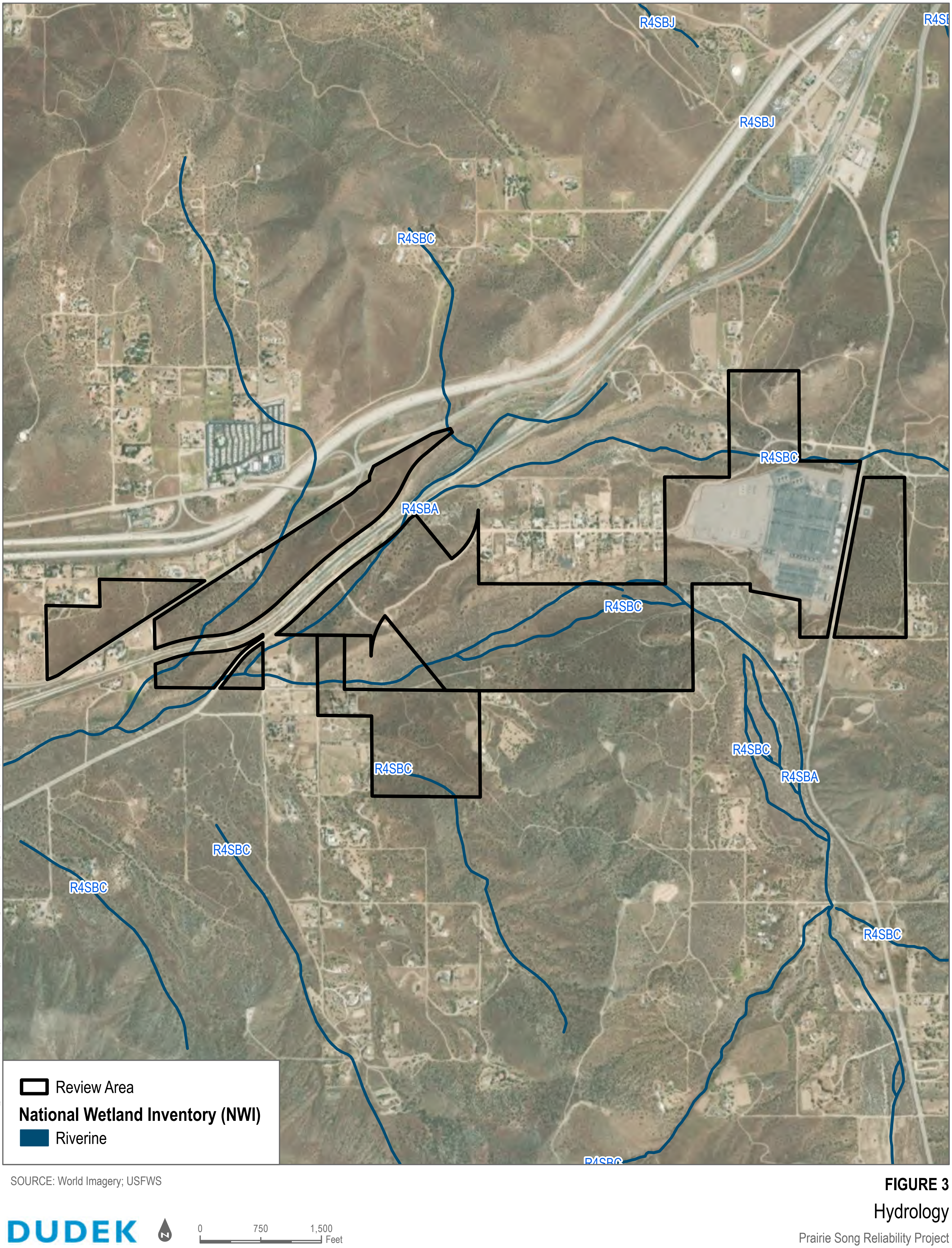

SOURCE: World Imagery; USFWS

DUDEK

FIGURE 3

Hydrology

Prairie Song Reliability Project

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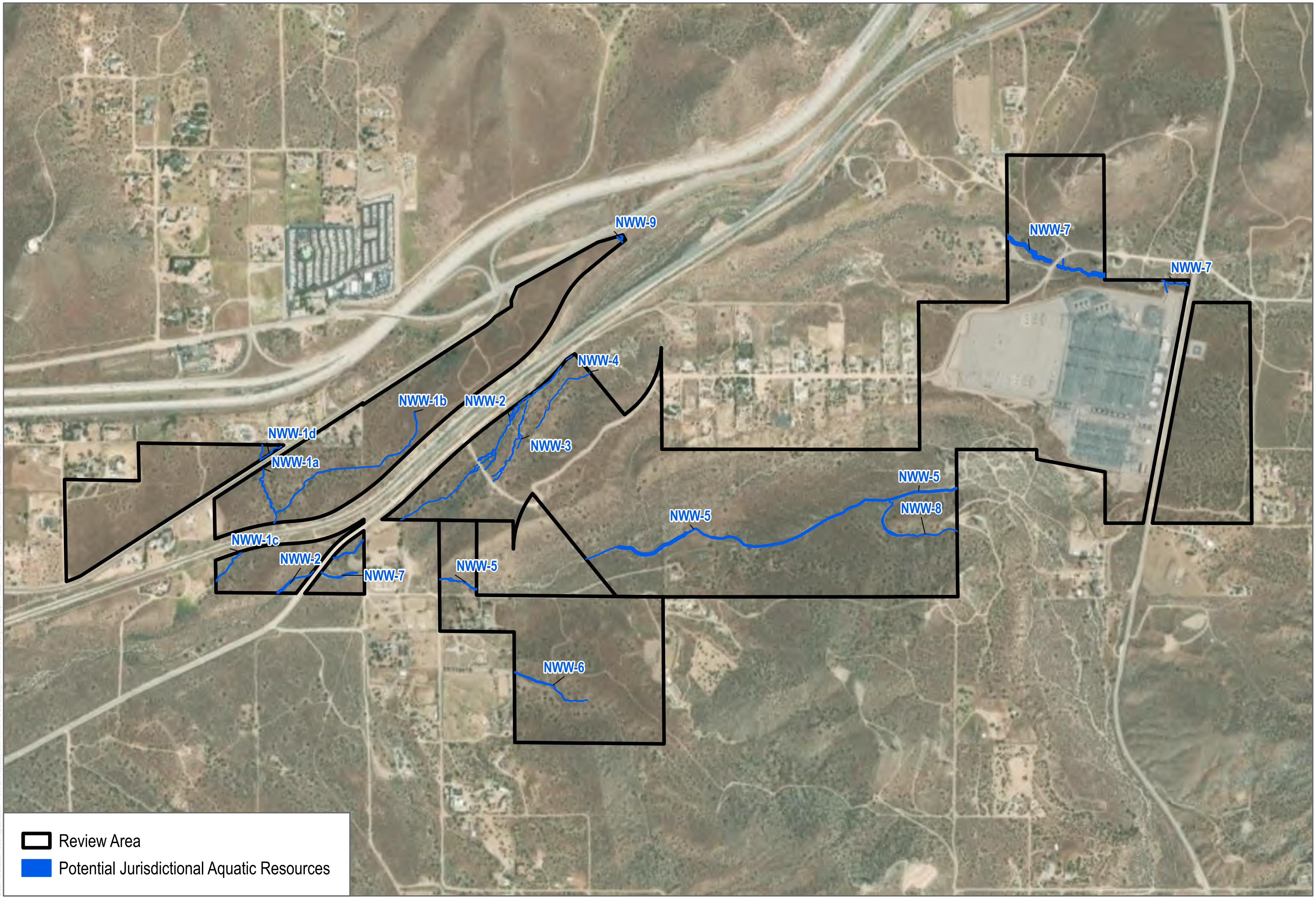

SOURCE: World Imagery

DUDEK

0 550 1,100 Feet

FIGURE 4

JD - USACE

Prairie Song Reliability Project

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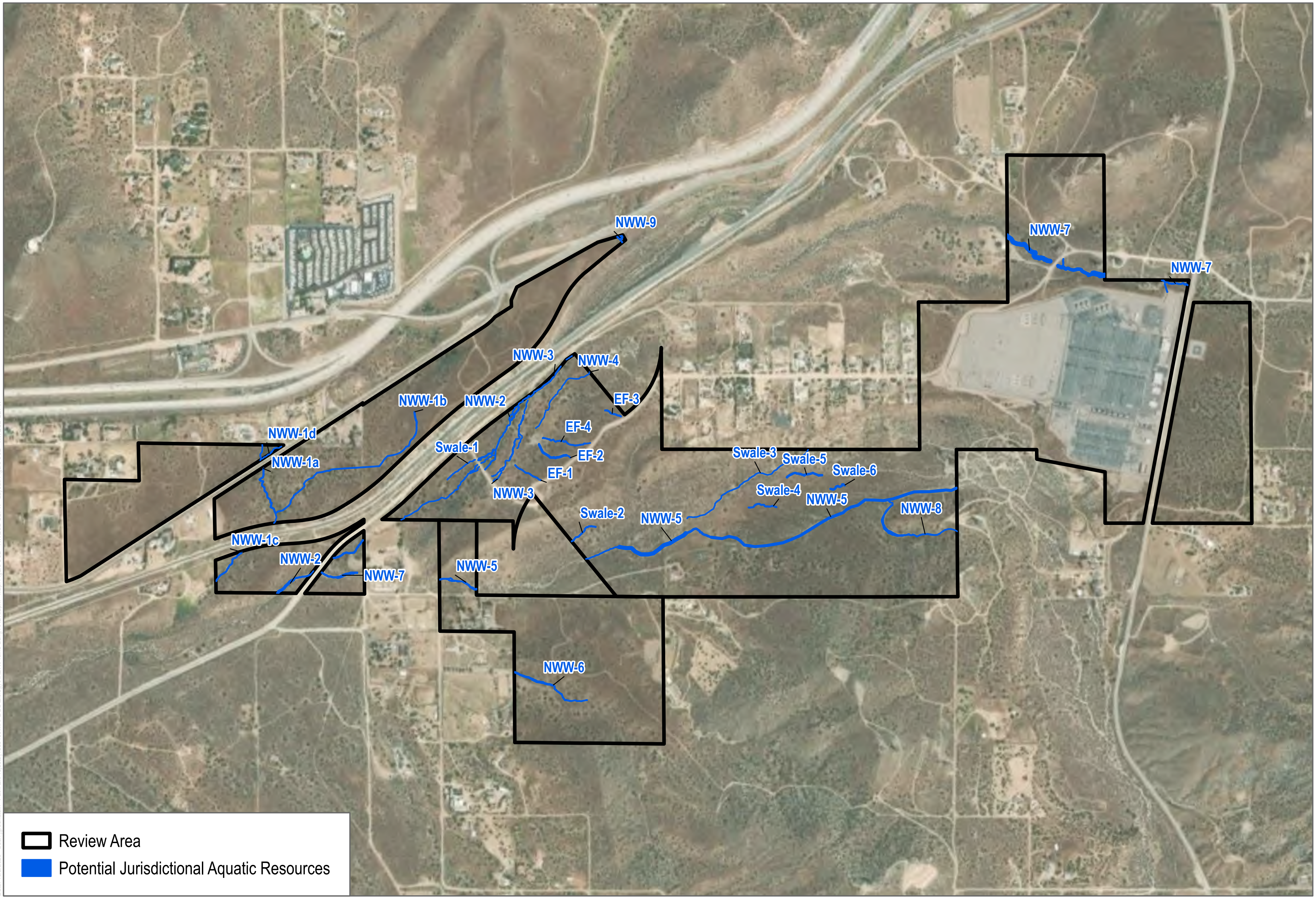

SOURCE: World Imagery

DUDEK

0 550 1,100 Feet

FIGURE 5

JD - RWQCB/CDFW

Prairie Song Reliability Project

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Appendix A
Request for a Jurisdictional Determination

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: ________________________________
  (Street Address)
  City/Township/Parish: Acton County: Los Angeles State: CA
  Acreage of Parcel/Review Area for JD: ___________
  Section: ______ Township: _______ Range: _______
  Latitude (decimal degrees):___________ Longitude (decimal degrees): ___________
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ☐ I currently own this property. ___ I plan to purchase this property.
  ☑ I am an agent/consultant acting on behalf of the requestor.
  ☐ Other (please explain): ____.
- Reason for request: (check as many as applicable)
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ☐ A Corps JD is required in order to obtain my local/state authorization.
  ☑ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ☐ I believe that the site may be comprised entirely of dry land.
  ☐ Other: ____
- Type of determination being requested:
  ☑ I am requesting an approved JD.
  ☐ I am requesting a preliminary JD.
  ☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: ___________________________________ Date: _________________

- Typed or printed name: Michael Cady
  Company name: Dudek
  Address: 225 S Lake Ave Suite 225-M210,
  Pasadena, CA 91101
  Daytime phone no.: 626 204 9841
  Email address: mcady@dudek.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix B
Data Forms

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

OMB Control No. 0710-XXXX

Approval Expires:

Project ID #: NWW-1a	Site Name: Prairie Song Reliability Project	Date and Time: 1/6/2023
Location (lat/long): 34.483209°, -118.143593°	Investigator(s): Max Murray	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: ____________

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

No recent floods or droughts. The area is natural open space.

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Waters conveyed by the feature enter the Review Area from a culvert beneath Soledad Canyon Road. The soil type associated with NWW-1a is Greenfield sandy loam, 2 to 9 percent slopes and the associated vegetation communities are Atriplex canescens Association and Juniperus californica / Adenostoma fasciculatum - Eriogonum fasciculatum Association.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** x
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____________
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., poofs, riffles, steps, etc.):*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - [x] *vegetation absent to:* woody shrubs
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators?

Describe:
None

Step 4 Is additional information needed to support this determination?

- [ ] Yes
- [x] No

If yes, describe and attach information to datasheet:

Project ID #: NWW-1a

Step 5 Describe rationale for location of OHWM

The OHWM is defined at the break of an incised bank so streambed.

Additional observations or notes

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☐ Yes ☒ No If no, explain why not: See Appendix C

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 **Site overview from remote and online resources** **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed.
What is the current flow level based on season or nearby gages?
Consider the elevation of the indicator relative to the current flow.
If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and relieability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilites for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

Appendix C

Review Area Photos

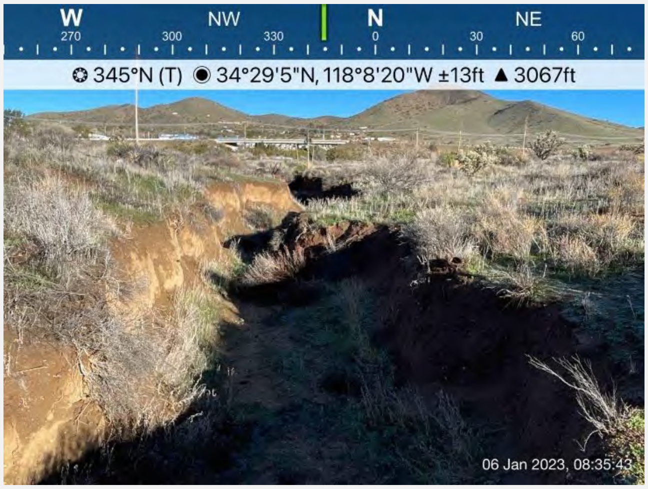


Photo 1. NWW-1b at OHWM form point, looking upstream.

Photo 2. NWW-2 at OHWM form point, looking downstream.

Photo 3. NWW-2 at OHWM form point, looking upstream.

Photo 4. NWW-2 near Carson Mesa Road.

Photo 5. NWW-3 at OHWM form point, looking upstream.

Photo 6. NWW-3 at OHWM form point, looking downstream.

Photo 7. NWW-4 at OHWM form point, looking upstream.

Photo 8. NWW-4 at its downstream terminus.

Photo 9. NWW-5 at OHWM form point, looking downstream.

Photo 10. NWW-5 at OHWM form point, looking upstream.

Photo 11. NWW-5 near its terminus at equestrian property.

Photo 12. NWW-6 at OHWM form point, looking downstream.

Photo 13. NWW-6 at OHWM form point, looking upstream.

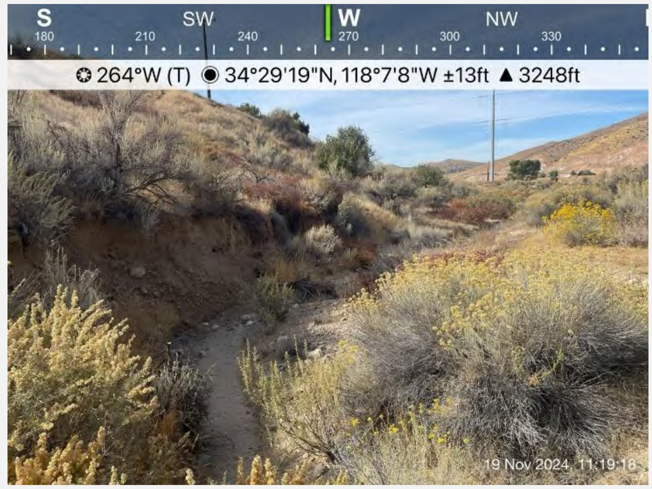


Photo 14. NWW-7 at OHWM form point, looking downstream.

Photo 15. Representative photo of Swale-3.

Photo 16. Representative photo of Swale-5.

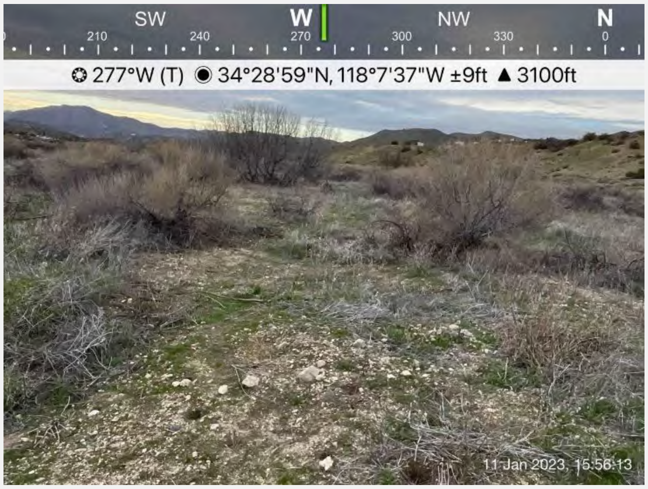


Photo 17. Representative photo of Swale-6.

Photo 18. Representative photo of Erosional Feature-1.

Photo 19. Representative photo of Erosional Feature-2.

Photo 20. Representative photo of Erosional Feature-3.

Photo 21. Representative photo of NWW-1a north of Soledad Canyon Road.

Photo 22. Representative photo of NWW-1d.

Photo 23. Representative photo of NWW-8.

Appendix D
Mapbook

SOURCE: Bing Maps 2021, Open Streets Map 2019.

0 30 60 Feet 1 inch = 61 feet

EF-1
Potential Jurisdictional Waters
Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 37.5 75 Feet 1 inch = 75 feet

EF-2

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

EF-3

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 15 30 Feet

1 inch = 38 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

EF-4

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 55 110 Feet

1 inch = 112 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

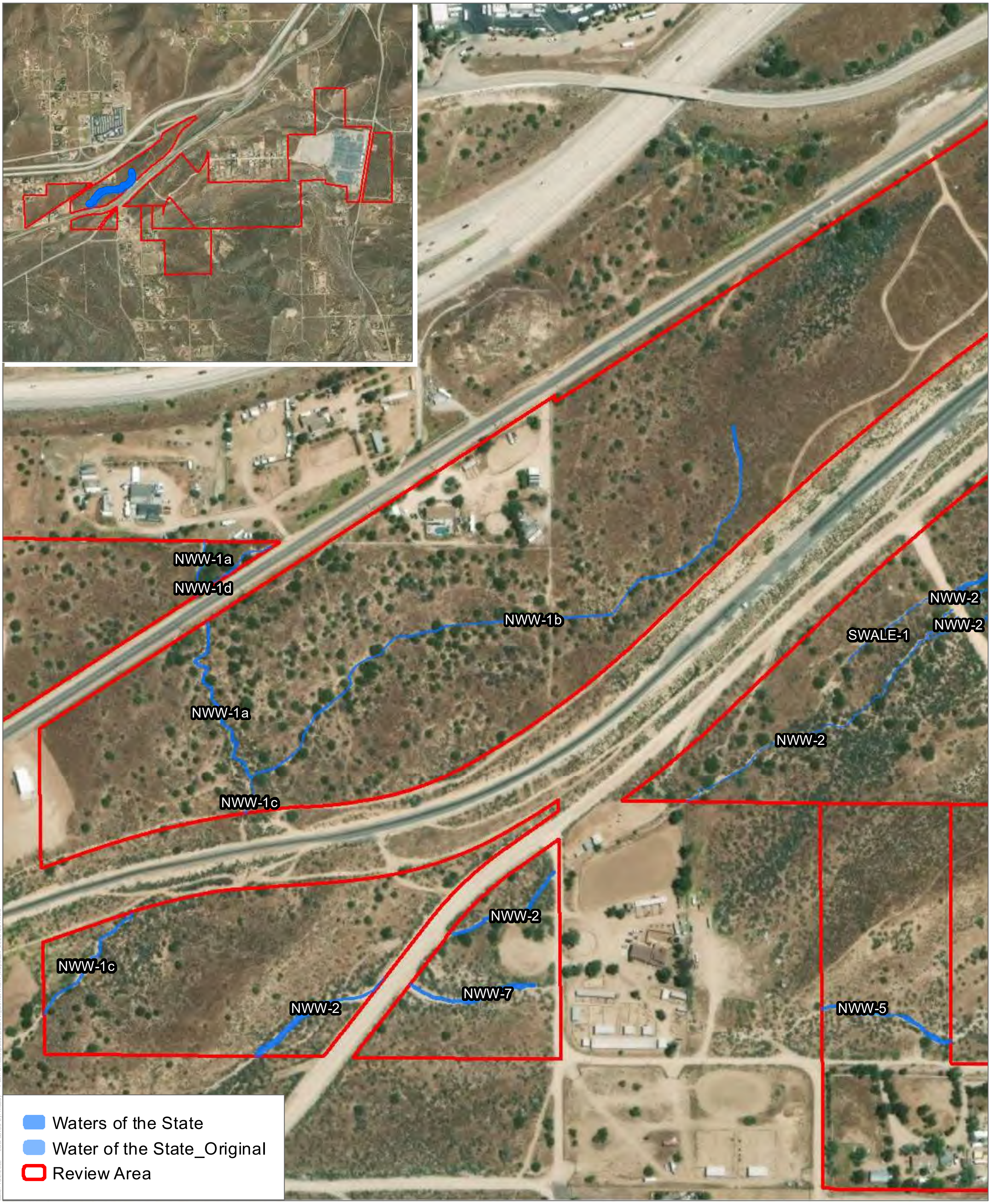
DUDEK

0 65 130 Feet 1 inch = 132 feet

NWW-1a

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

NWW-1b

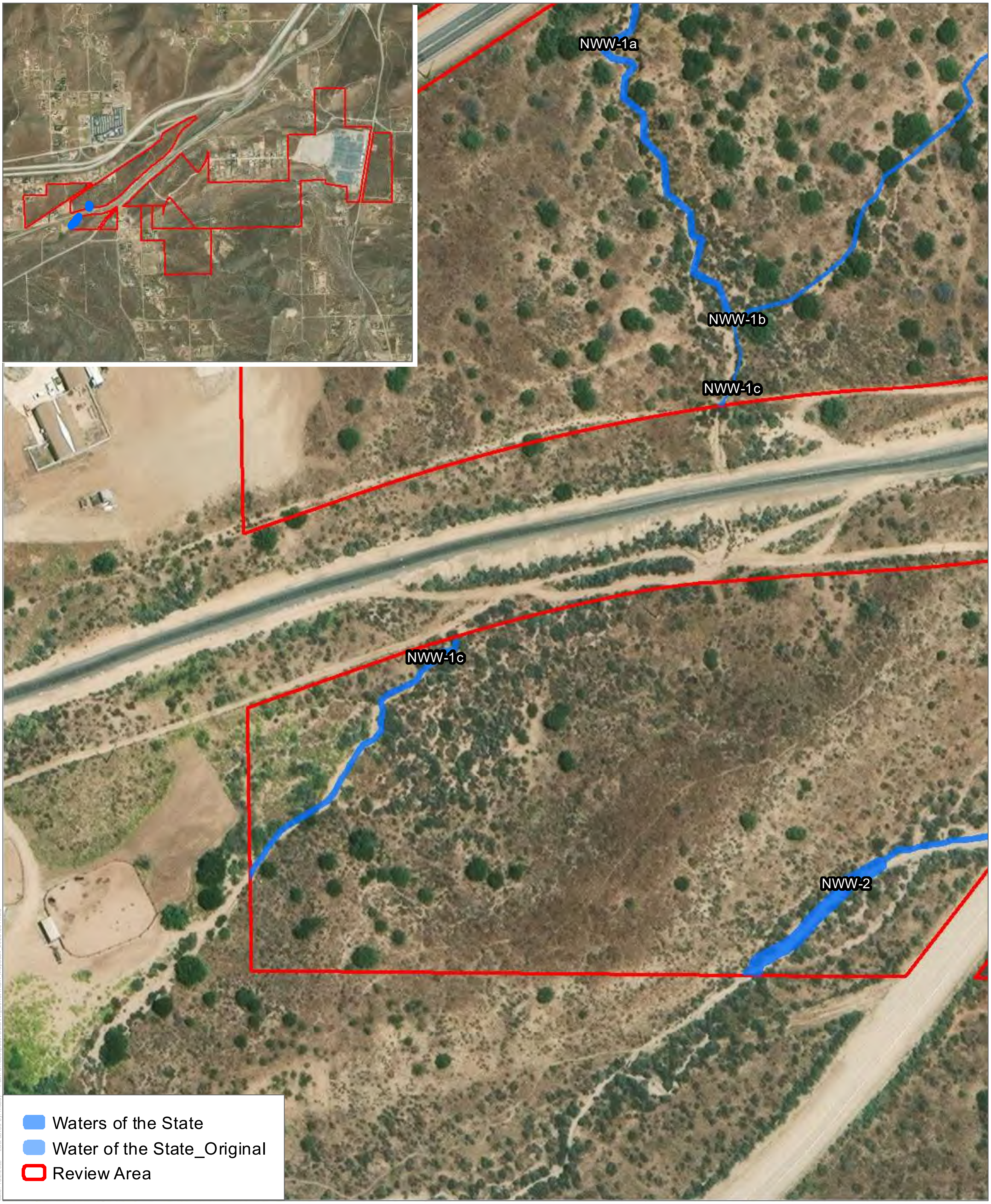
Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 165 330 Feet

1 inch = 330 feet



SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 70 140 Feet 1 inch = 141 feet

NWW-1c

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

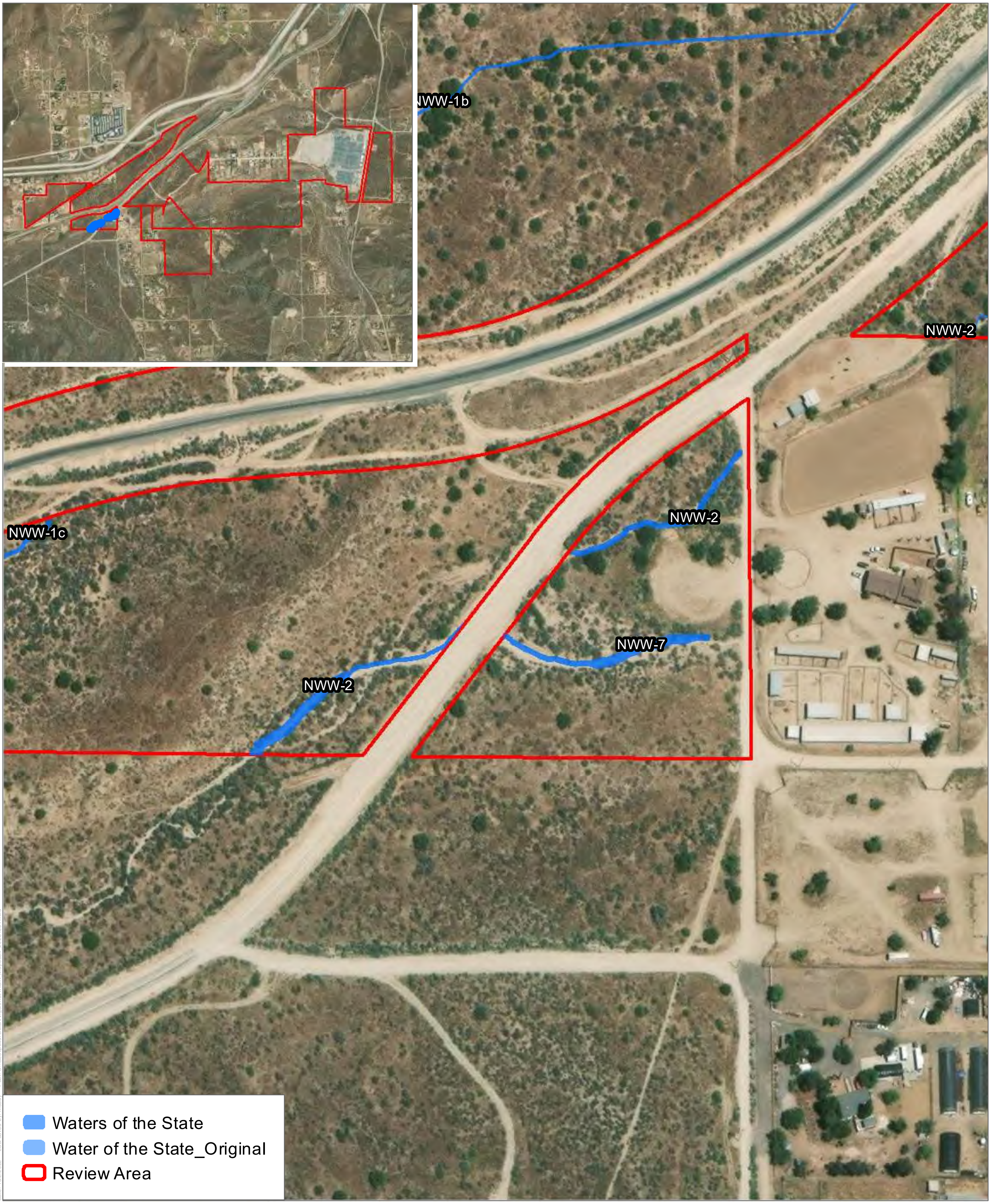
0 20 40 Feet

1 inch = 49 feet

NWW-1d

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 100 200 Feet 1 inch = 202 feet

NWW-2

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

NWW-2

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 65 130 Feet 1 inch = 132 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

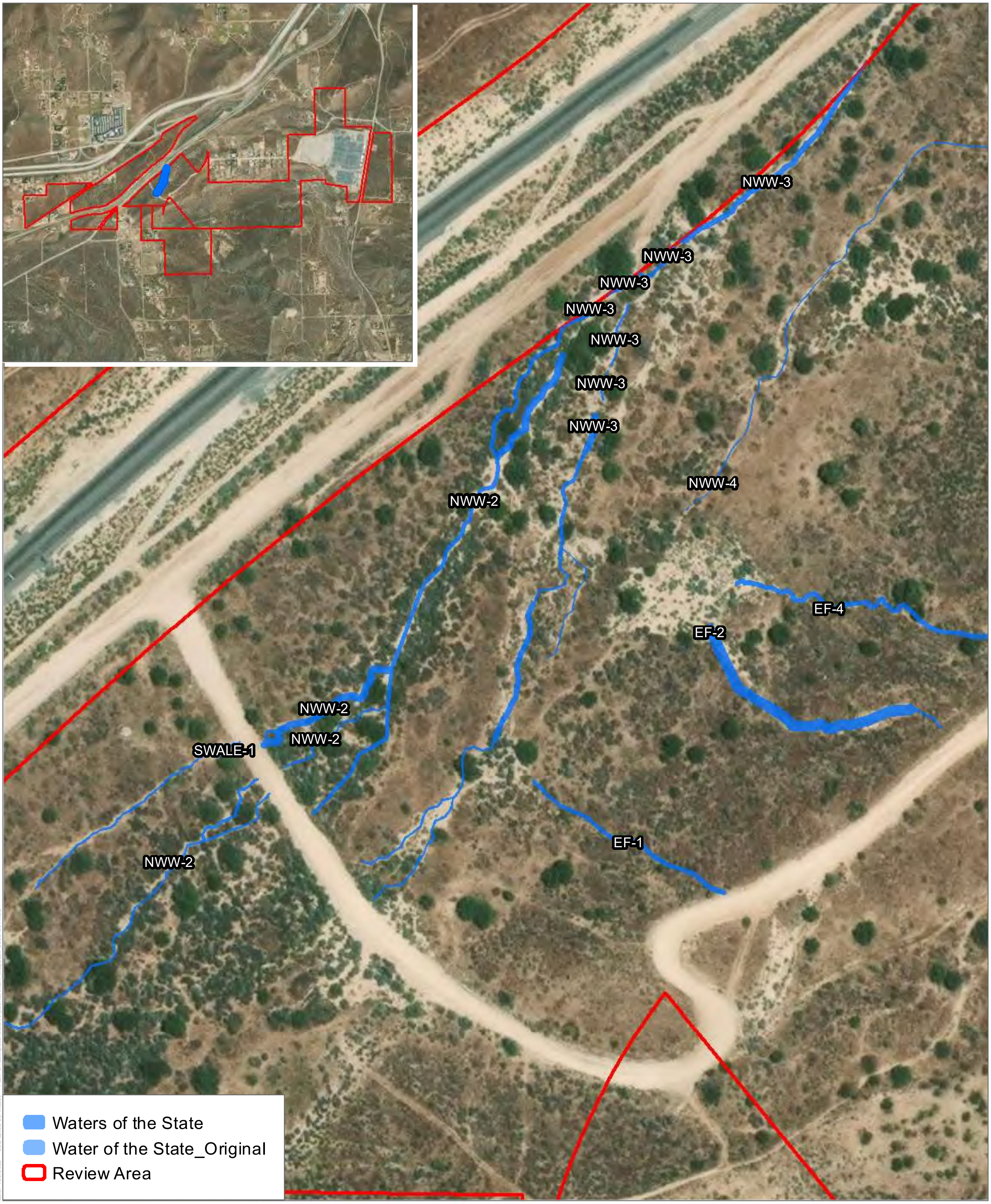
DUDEK

0 90 180 Feet 1 inch = 183 feet

NWW-2

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

NWW-3

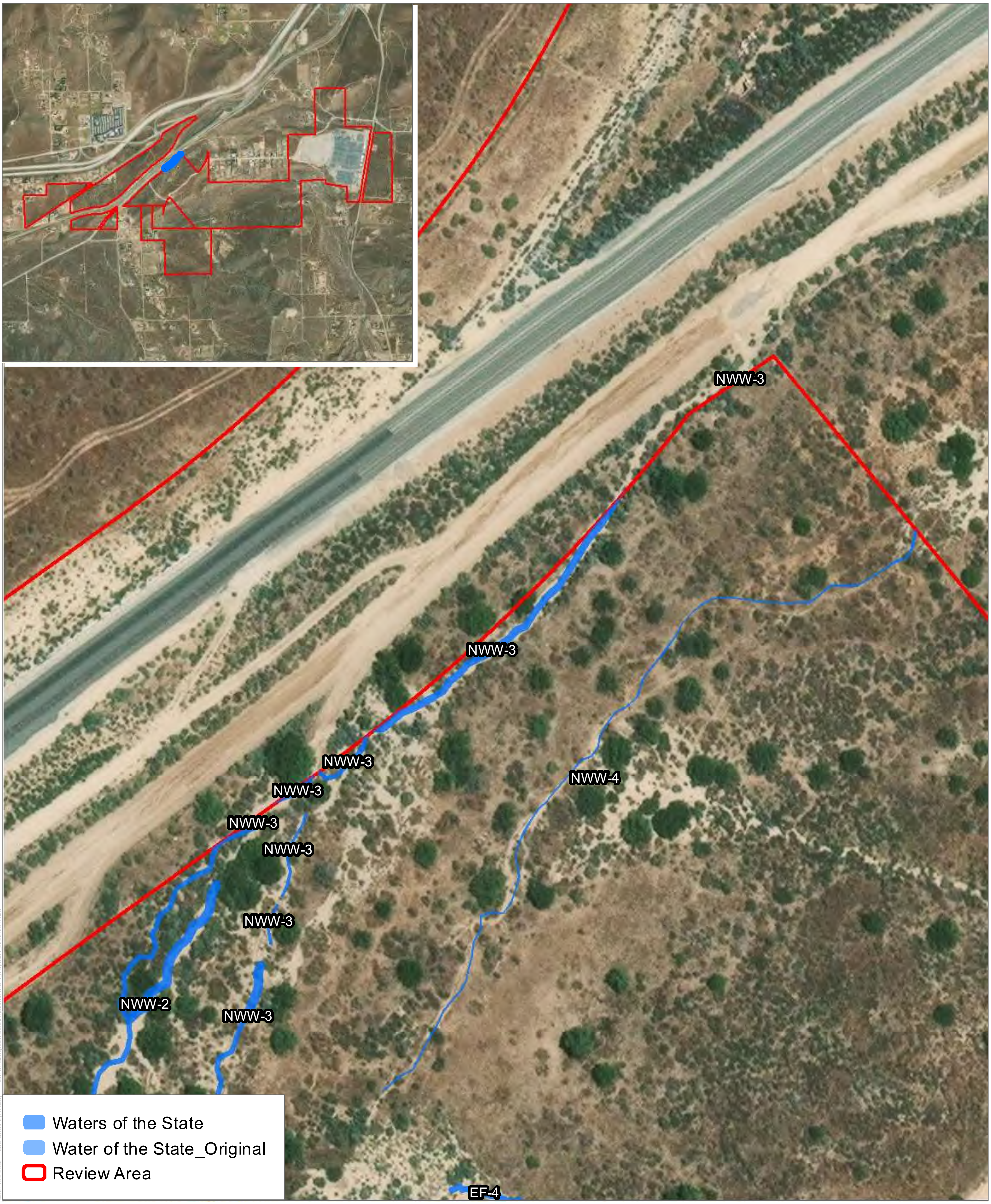
Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 75 150 Feet

1 inch = 156 feet



SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

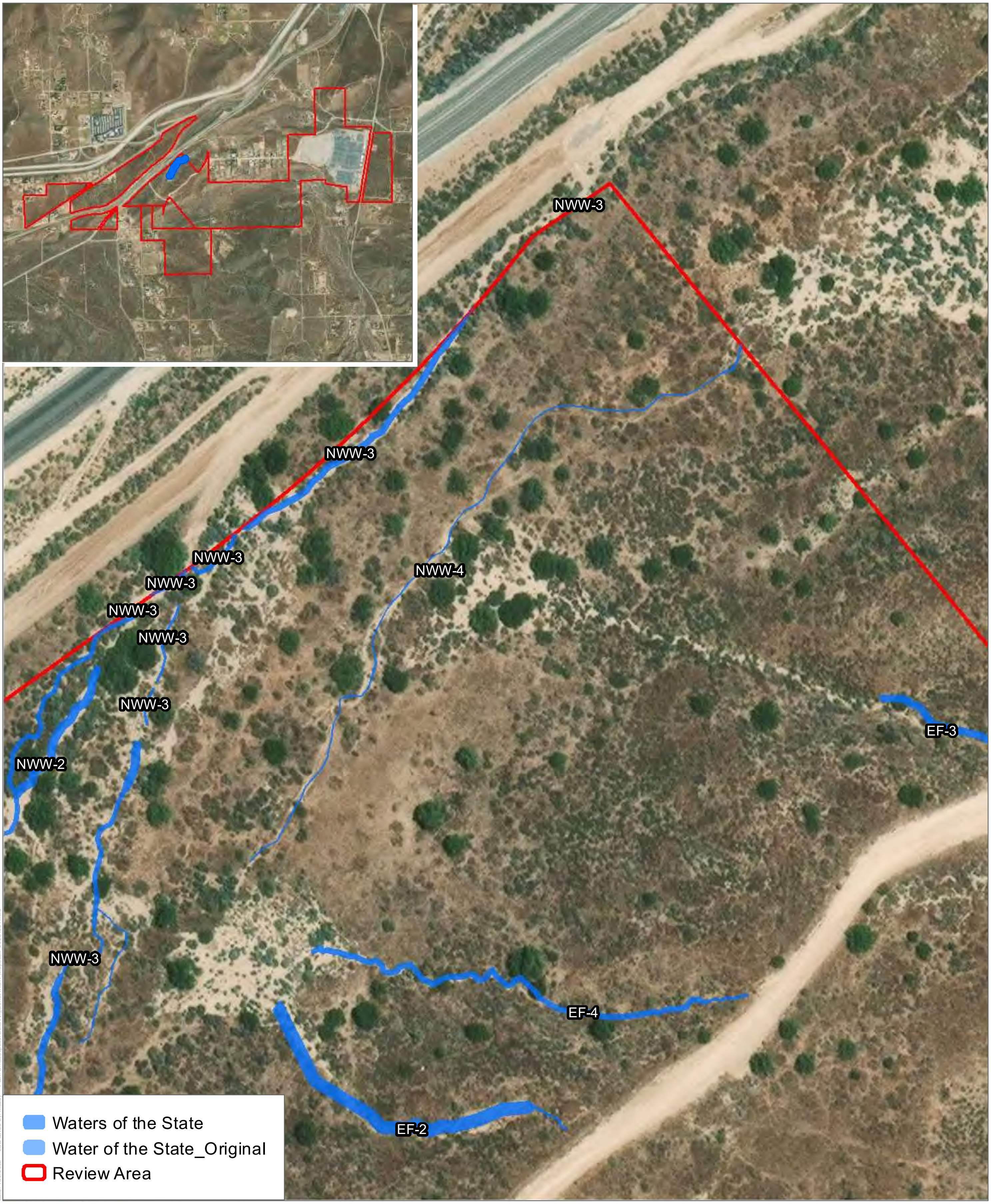
0 55 110 Feet

1 inch = 116 feet

NWW-3

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

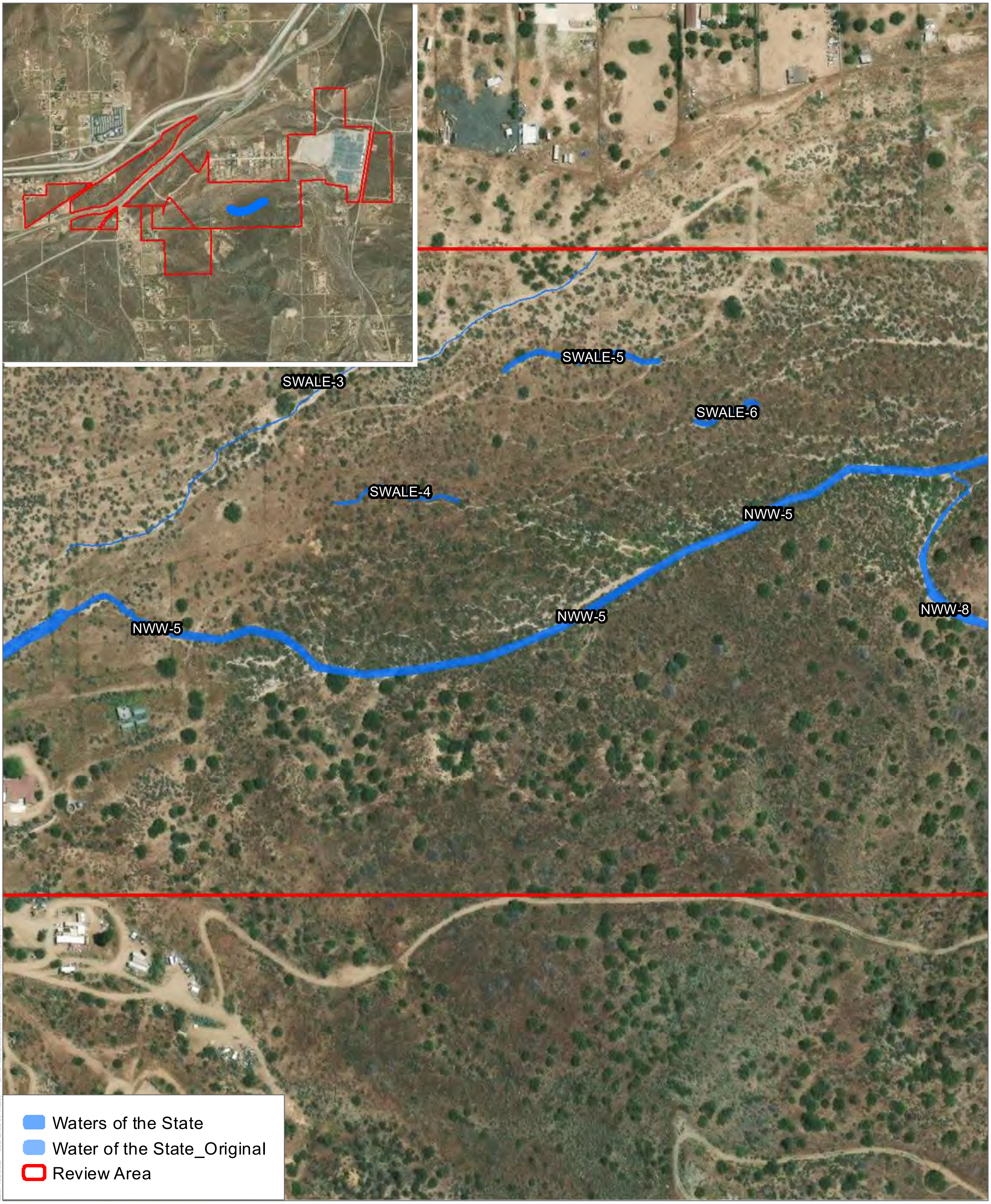
DUDEK

0 62.5 125 Feet 1 inch = 126 feet

NWW-4

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 130 260 Feet 1 inch = 262 feet

NWW-5

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

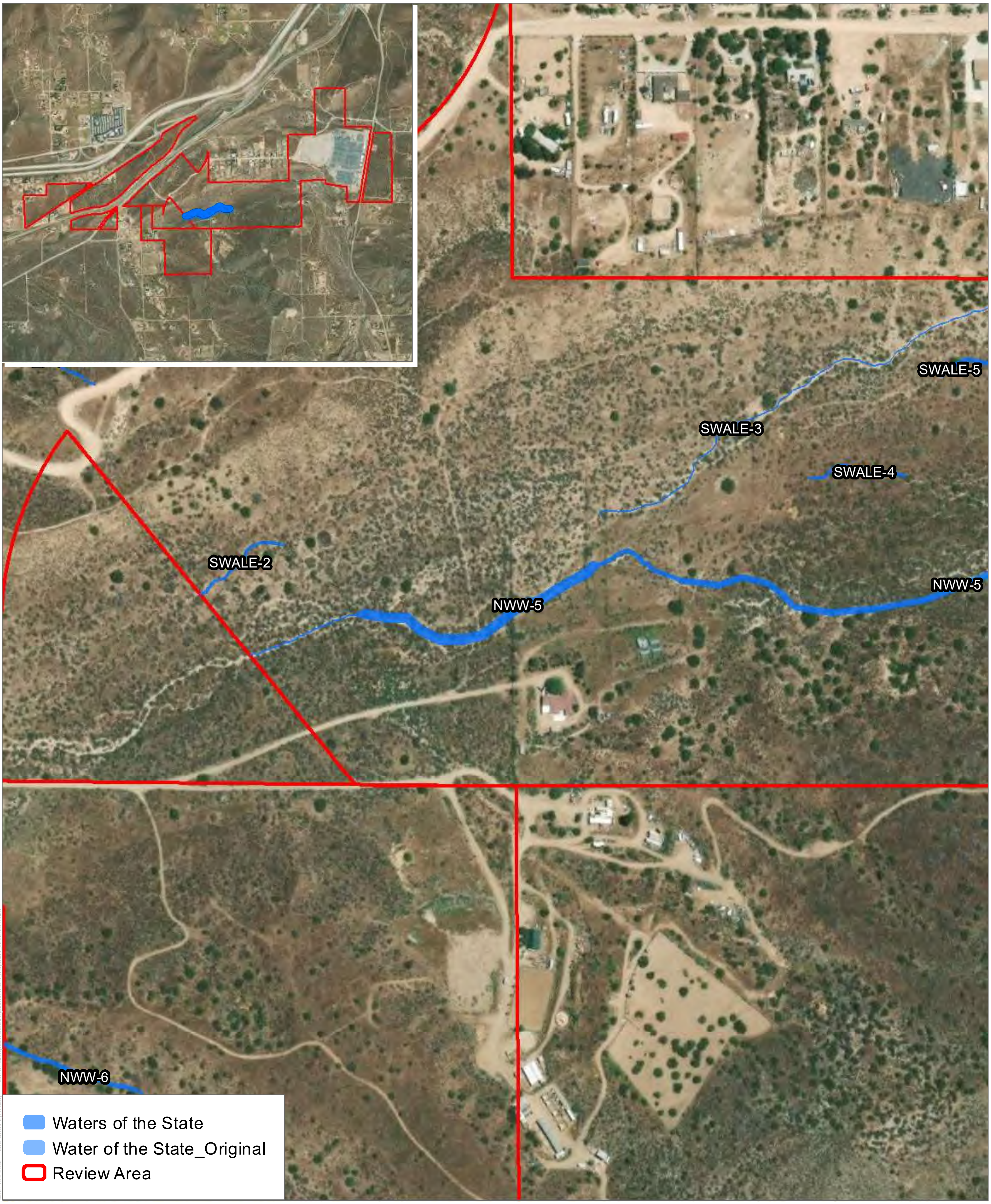
0 40 80 Feet

1 inch = 87 feet

NWW-5

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

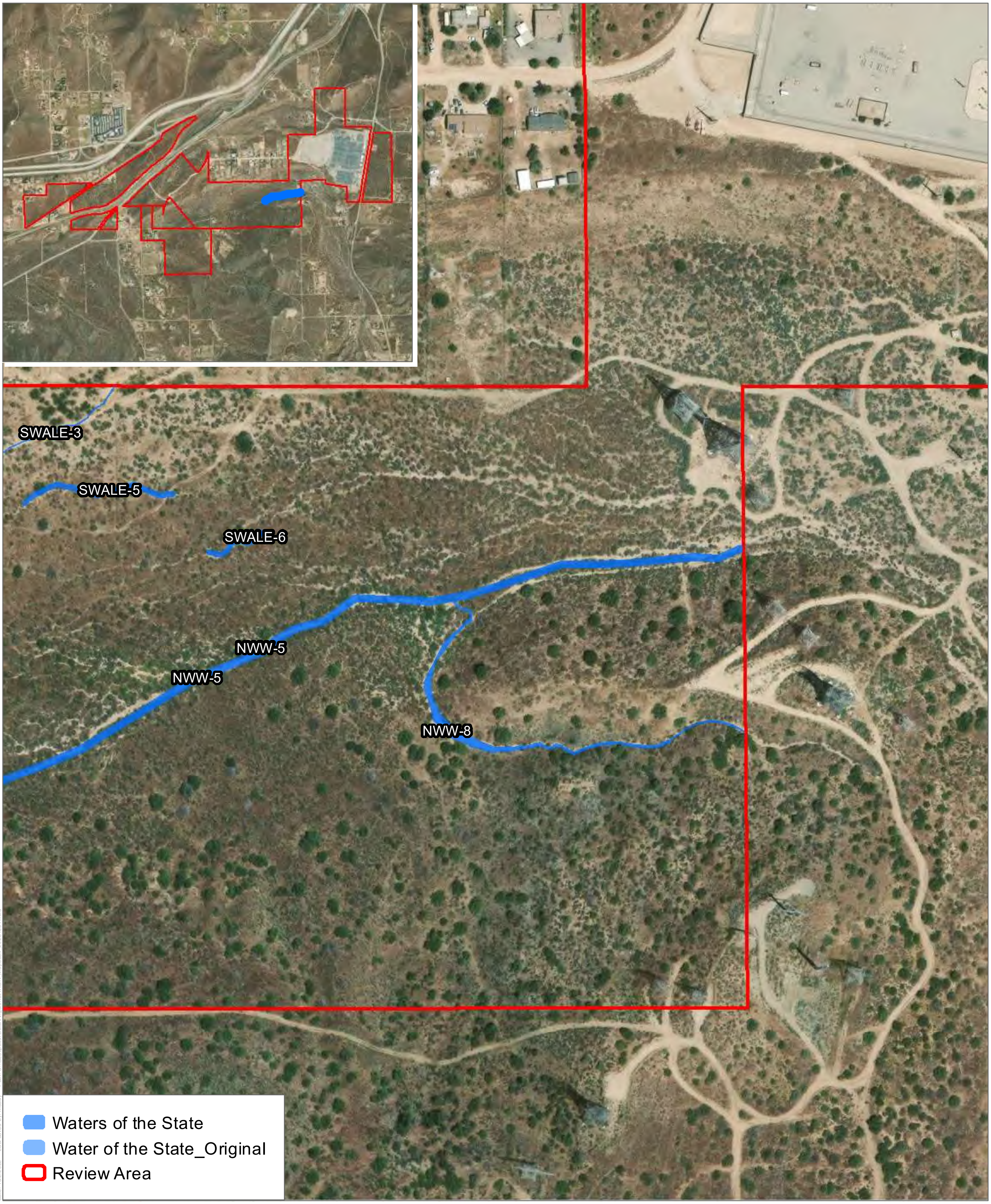
0 165 330 Feet

1 inch = 333 feet

NWW-5

Potential Jurisdictional Waters

Prairie Song Reliability Project



SOURCE: Bing Maps 2021, Open Streets Map 2019.

NWW-5

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 137.5 275 Feet 1 inch = 272 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 85 170 Feet 1 inch = 168 feet

NWW-6

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

NWW-7

Potential Jurisdictional Waters

Prairie Song Reliability Project

0 40 80 Feet

1 inch = 85 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 212.5 425 Feet 1 inch = 419 feet

NWW-7

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 87.5 175 Feet

1 inch = 177 feet

NWW-8

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

0 5 10 Feet

1 inch = 15 feet

NWW-9

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

SWALE-1

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 30 60 Feet

1 inch = 65 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

SWALE-2

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 25 50 Feet

1 inch = 57 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 140 280 Feet 1 inch = 283 feet

SWALE-3

Potential Jurisdictional Waters

Prairie Song Reliability Project

SOURCE: Bing Maps 2021, Open Streets Map 2019.

SWALE-4

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 30 60 Feet

1 inch = 66 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

SWALE-5

Potential Jurisdictional Waters

Prairie Song Reliability Project

DUDEK

0 40 80 Feet

1 inch = 84 feet

SOURCE: Bing Maps 2021, Open Streets Map 2019.

DUDEK

0 15 30 Feet

1 inch = 35 feet

SWALE-6

Potential Jurisdictional Waters

Prairie Song Reliability Project

Attachment 17

Appendix 3.2L – Correspondence with Los Angeles County Planning

Erin Phillips

From:	Joseph Decruyenaere <jdecruyenaere@planning.lacounty.gov>
Sent:	Monday, September 8, 2025 10:19 AM
To:	Erin Phillips
Cc:	Michael Cady
Subject:	RE: Prairie Song - Sensitive Local Native Resource

Hi Erin,

The SLNR list is a work in progress. There are a few plant communities noted in the SEA Ordinance Implementation Guide: Big sagebrush shrubland, juniper woodland, and pinyon-juniper woodland.

As far as individual plant species go, it's a case of not necessarily knowing what's rare until you find something that seems surprising, so it's hard to give you an exhaustive list. I would include *Petalonyx thurberi* and *Cylindropuntia echinocarpa*, which are Mojave Desert affiliates that have range extensions along the river.

I would recommend being on the lookout for species that just seem unusual. Steve Boyd's flora of the Liebre Mountains (which includes the Santa Clara River as its southern limit) might be a good guide in this since he provides indication of relative abundance within the range. Anything he notes as being "scarce" or "local" should be looked at more closely at CCH or iNaturalist to see if it is relatively rare or common, or if it seems to be part of an isolated population.

The Boyd Liebre flora is available here: "Liebre Mountains Flora" by Steve Boyd. There is also a flora of the San Gabriel Mtns by Mistretta, but I don't know if that includes scarcity information.

Hope that helps,
Joe

JOSEPH DECRUYENAERE (he/him/his)
SENIOR BIOLOGIST, Environmental Planning and Sustainability
[redacted]
Email: jdecruyenaere@planning.lacounty.gov

From: Erin Phillips <ephillips@dudek.com>
Sent: Thursday, September 4, 2025 3:34 PM
To: Joseph Decruyenaere <jdecruyenaere@planning.lacounty.gov>
Cc: Michael Cady <mcady@dudek.com>
Subject: Prairie Song - Sensitive Local Native Resource

Hi Joe,

Mike and I are the consultants preparing the Opt In Application for the Prairie Song Reliability Project on behalf of the applicant. The project is in Acton near the existing SCE Vincent Substation. We received a set of data requests from the California Energy Commission in response to our initial application submittal earlier this summer. One of the data requests asks that we correspond with you on the County's definition of "Sensitive Local Native Resource." Can you provide a list of sensitive local native resources that we should be aware of as we update the biological resources deliverables associated with the Opt In application? The full data request from the Energy Commission is provided below. Let us know if any questions. We appreciate your correspondence on this matter.

California Code of Regulations, title 20, Appendix B (g) (13) (A) (vi) requires the Opt-In application include a discussion of locally significant species that are rare or uncommon in a local context, such as county or region, or is so designated in local or regional plans, policies, or ordinances. Significant Ecological Areas (SEAs) are officially designated areas within Los Angeles County that contain irreplaceable biological resources.

As defined in subsection 22.102 (HH) of the SEA Ordinance, "Sensitive Local Native Resources" include species identified by the Los Angeles (LA) County Department of Regional Planning to be rare or uncommon in the county or within a specific SEA, due to, but not limited to, being at the outer limits of their known range, having declining populations in the region, occurring in naturally small populations, being dependent on habitat that is declining in size and quality, having few records within the region, or having historically been abundant in the region, but for which there are no recent records.

Subsection 22.102 (FF) (3) identifies Sensitive Local Native Resources as a SEA Resource Category 3 classification. As stated in the SEA Implementation Guide (Los Angeles County Planning 2020; Appendix B, pg. 112), the county-wide list for native plant species that meet the definition of "Sensitive Local Native Resources" is currently in development; however, staff is aware that the list has been developed to a degree that currently allows the County to identify certain SEA areas that currently support or potentially support these resources.

Additionally, the SEA Implementation Guide (Los Angeles County Planning 2020; Appendix B. pg. 112) describes that avian species on the Audubon Society's "Los Angeles County Sensitive Bird List" should be considered as "Sensitive Local Native Resources" in all SEAs. The list of species defined as sensitive in Los Angeles County can be found at: https://planning.lacounty.gov/wp-content/uploads/2022/11/LACountys-Sensitive-Bird-Species.pdf.

DR BIO-20. Please provide documentation, including copies of any correspondence, of whether the applicant coordinated with the LA County biologist at the LA County Department of Regional Planning to determine if there are any known native plant species occurrences that meet the definition of "Sensitive Local Native Resource" within survey area for the generation tie-line.

If it is determined that native plant species are known to be present, that were not previously addressed, please update the potential for the species to occur accordingly in the "Special-Status Plants" table in Appendix 3.2B of the Application.

Additionally, if it is determined that any avian species meeting the definition of "Sensitive Local Native Resource" are not already listed in the table and have the potential to occur within 10 miles of the project area, please resubmit the "Special- Status Wildlife" table in Appendix 3.2B to reflect with the potential to occur within 10 miles of the project area. Please submit a clean and redline and strikethrough version of both tables.

Erin Phillips
Project Manager

DUDEK 45
45 Years of Impactful Projects

[redacted]
dudek.com

Attachment 18

Section 3.10, Socioeconomics RFI - Redline Version

3.10 Socioeconomics

This section describes the potential social and economic effects of the Prairie Song Reliability Project (Project) arising from construction and operation of the battery energy storage system (BESS). The Project will consist of an up to 1,150-megawatt (MW) containerized BESS facility using lithium-iron phosphate cells, or similar technology, operations and maintenance (O&M) buildings; a Project substation; a 500-kilovolt (kV) overhead generation interconnection (gen-tie) transmission line; and interconnection facilities within the existing Southern California Edison (SCE) owned and operated Vincent Substation. This discussion considers Project-related effects to population, housing, public services, utilities, and county tax revenue within the Project vicinity and region, and evaluates the economic benefits that will arise from the Project. This evaluation of socioeconomics includes the following elements:

- Section 3.10.1 describes the socioeconomic environment that might be affected by the BESS.
- Section 3.10.2 provides an environmental analysis of construction and operation of the Project.
- Section 3.10.3 evaluates any potential cumulative effects from the Project.
- Section 3.10.4 describes mitigation measures that will be implemented to avoid potential impacts.
- Section 3.10.5 discusses the applicable laws, ordinances, regulations, and standards.
- Section 3.10.6 lists the agencies involved and agency contacts.
- Section 3.10.7 discusses permits and permit schedules.
- Section 3.10.8 lists reference materials used in preparing this section.

The following environmental setting and impact evaluation is based in part on the following Project-specific technical reports:

- Appendix 3.10A – Prairie Song Reliability Project Economic and Public Revenue Impact Study, prepared by Economic & Planning Systems, dated June 12, 2025 (hereinafter “Socioeconomics Report”).
- Appendix 3.10B – Letter from the Los Angeles/Orange Counties Building and Construction Trades Council re: Affirming the Strength and Readiness of California’s Skilled Labor.

A summary of the socioeconomics evaluation is provided in the table below.

		Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:					
1	Induce substantial growth or concentration of population?	☐	☐	☒	☐
2	Displace a large number of people or impact existing housing?	☐	☐	☒	☐
3	Result in substantial adverse impacts on the local economy and employment?	☐	☐	☐	☒ (beneficial impact)

		Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
4	Create adverse fiscal impacts on the community?	☐	☐	☐	☒ (beneficial impact)
5	Result in substantial adverse impacts on educational facilities?	☐	☐	☒	☐
6	Result in substantial adverse impacts on the provision of utility services?	☐	☐	☒	☐
7	Result in substantial adverse impacts associated with the provision of public services?	☐	☐	☒	☐

3.10.1 Environmental Setting

The Project site is in northern Los Angeles County within the foothills of the Sierra Pelona Mountains and at the edge of the Antelope Valley of the western Mojave Desert. The nearest municipality to the Project site is the City of Palmdale, which is approximately 4 miles to the northeast. Land uses in the immediate vicinity of the Project site include undeveloped and rural lands, multiple high-voltage transmission lines and an electrical substation, paved and rural roads, State Route 14, and railroad lines. The majority of the Project site is currently undeveloped, with the exception of a small portion of the area developed as rural residential.

The region of influence for purposes of evaluating the socioeconomic impacts associated with the Project is Los Angeles County, given that the Project site is in an unincorporated area of Los Angeles County.

3.10.1.1 Population

The social characteristics and trends of the County of Los Angeles (County) reported below are based on historical, current, and projected changes in population. The California Department of Finance estimates that the County's 2024 population is 9,824,091. The population of the County increased by less than 1% from 2010 to 2024. This equates to a net increase of 5,486 people from 2010 to 2024. The County's population is expected to decrease through 2050, with a net loss of 271,093 people, or 2.8% of the population, over the next 25 years (DOF 2024). Table 3.10-1 and Table 3.10-2 summarize the historical, current, and projected population changes and percent change over time.

Table 3.10-1. Historical, Current, and Projected Population

Area	2010	2015	2020	2024	2030 Projected	2040 Projected	2050 Projected
Los Angeles County	9,818,605	10,072,887	10,014,009	9,824,091	9,723,289	9,693,049	9,552,998
California	37,253,956	38,810,306	39,538,223	39,128,162	39,694,960	40,914,063	41,686,419

Source: DOF 2024.

Table 3.10-2. Population Percent Change in Project Region and the State

Area	2010–2024	2024–2030 Projected	2030–2040 Projected	2040–2050 Projected
Los Angeles County	0.06%	−1.03%	−0.31%	-1.44%
California	5.03%	0.40%	3.07%	1.89%

Sources: Appendix 3.10A; DOF 2024.

3.10.1.2 Housing

The permanent housing stock in Los Angeles County in 2024 was 3,696,408 units (Table 3.10-3). Approximately 55% of the County's housing stock is single-family units, 44% is multi-family units, and 2% is mobile homes. The state has a larger percentage of single-family units, representing 65% of the total housing stock, where multi-family homes represent 32% and mobile homes 4%. The vacancy rates for the County and state are 4.8% and 6.4%, respectively (DOF 2024).

Table 3.10-3. California Department of Finance 2024 Housing Estimates

Area	Total Units	Single-Family	Multi-Family	Mobile Homes	Vacancy Rate
Los Angeles County	3,696,408	2,018,199	1,621,906	56,303	4.8%
California	14,824,827	9,541,239	4,744,173	539,415	6.4%

Source: DOF 2024.

Table 3.10-4 summarizes the total estimated temporary housing units in Los Angeles County. This analysis defines temporary housing as housing units that provide transitional or short-term accommodation for individuals and families, including multi-family units, hotels and motels, and mobile homes. According to the California Department of Finance, there are more than 1.6 million multi-family units and more than 56,000 mobile homes in Los Angeles County, with a vacancy rate of 4.8%. This results in an estimated available supply of 78,195 multi-family housing units and 2,714 mobile home units (DOF 2024). Additionally, there are more than 27,000 economy class hotel units in Los Angeles County, according to CoStar, with a 66% vacancy rate, resulting in an estimated 9,224 units available for use (CoStar 2025). Altogether, the County has an estimated 90,133 available units for temporary housing.

Table 3.10-4. 2024 Temporary Housing Estimates

Accommodation Type	Estimated Units	Vacancy Rate	Estimated Supply
Multi-Family Units[1]	1,621,906	4.8%	78,195
Hotel/Lodging[2]	27,128	34.0%	9,224
Mobile Homes[3]	56,303	4.8%	2,714
		Total Units	**90,133**

Sources: CoStar 2025; DOF 2024.
Notes:
1. Multi-family unit estimates are sourced from the California Department of Finance (DOF), as seen in Table 3.10-3.
2. Hotel/Lodging is based on a 12-month occupancy rate of economy class hotels in Los Angeles County from 2024.
3. Mobile home estimates are sourced from DOF, as seen in Table 3.10-3.

3.10.1.3 Economy and Employment

The County's economy is distinct in its size and diversity, supporting more than 6.8 million jobs in 2023 and generating an estimated $950 million in gross domestic product based on IMPLAN[1] data from 2023 (see Appendix 3.10A for modeling). Table 3.10-5 displays the breakdown of 2023 County employment and gross domestic product by industry.

Table 3.10-5. Los Angeles County Employment and Economic Output by Industry

North American Industry Classification System Industry Type	Total Employment[1]		Gross Domestic Product/Value Added[2]	
	Number	Percent of Total	Amount	Percent of Total
Agriculture, Forestry, Fishing, and Hunting	6,546	0.1%	$332	0.0%
Mining, Quarrying, and Oil and Gas Extraction	6,048	0.1%	$1,062	0.1%
Utilities	15,521	0.2%	$13,310	1.4%
Construction	258,540	3.8%	$28,344	3.0%
Manufacturing	331,696	4.9%	$78,647	8.3%
Wholesale Trade	238,072	3.5%	$57,422	6.0%
Retail Trade	492,408	7.2%	$54,881	5.8%
Transportation and Warehousing	399,511	5.9%	$37,382	3.9%
Information	269,236	4.0%	$97,158	10.2%
Finance and Insurance	349,092	5.1%	$48,740	5.1%
Real Estate and Rental and Leasing	456,973	6.7%	$127,033	13.4%
Professional, Scientific, and Technical Services	602,439	8.8%	$104,388	11.0%
Management of Companies and Enterprises	77,264	1.1%	$13,089	1.4%
Administrative and Support and Waste Management and Remediation Services	415,842	6.1%	$29,228	3.1%
Educational Services	154,253	2.3%	$11,272	1.2%
Health Care and Social Assistance	890,277	13.1%	$68,322	7.2%
Arts, Entertainment, and Recreation	250,302	3.7%	$29,793	3.1%
Accommodation and Food Services	525,730	7.7%	$37,122	3.9%
Other Services (except Public Administration)	484,689	7.1%	$26,056	2.7%
Government Enterprises	57,247	0.8%	$9,310	1.0%
Administrative Government	531,746	7.8%	$77,029	8.1%
Total	**6,813,432**	**100%**	**$949,922**	**100%**

Source: Appendix 3.10A.

Notes:

1. Includes both wage and salary employment and proprietor employment.
2. Dollar values shown in millions. Value added is equal to gross domestic product, capturing the wealth created by industry activity.

[1] IMPLAN (Impact Analysis for Planning) software is an input/output model that draws on data collected by the IMPLAN Group LLC from several state and federal resources, including the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the U.S. Census Bureau. The model is used widely for estimating economic impacts across a wide variety of industries and economic settings (see Appendix 3.10A for modeling).

Table 3.10-6 presents annual unemployment rates in Los Angeles County and statewide from 2014 to 2024 based on data from the California Employment Development Department. Statewide unemployment rates are used as a baseline for assessing change on the county level. Following the 2008 Recession, unemployment remained high in 2014, with statewide rates at 7.6% and rates in Los Angeles County slightly higher at 8.2%. The County's labor market steadily improved, and by 2019, unemployment had declined to approximately 4.5%, while the statewide rate decreased to 4.1%. However, the COVID-19 pandemic led to another sharp rise in unemployment, with rates surging to 12.4% in Los Angeles County and 10.2% statewide. Between 2019 and 2024, unemployment rates gradually approached pre-pandemic levels, down to 5.7% in the County and 5.4% statewide (CEDD 2025).

The California Department of Transportation projects a gradual increase in unemployment rates of less than 0.5 percentage points through 2035, reaching approximately 6% in both Los Angeles County and statewide. Overall, County unemployment trends closely follow statewide patterns, with California maintaining slightly lower unemployment rates (Caltrans 2023).

Table 3.10-6. Historical, Current, and Projected Unemployment Rates

Year[1]	Los Angeles County	California
2014	8.2%	7.6%
2015	6.7%	6.3%
2016	5.3%	5.5%
2017	4.8%	4.8%
2018	4.7%	4.3%
2019	4.5%	4.1%
2020	12.4%	10.2%
2021	9.0%	7.3%
2022	5.0%	4.3%
2023	5.0%	4.8%
2024	5.7%	5.4%
Projected 2030	5.8%	4.9%
Projected 2035	6.0%	5.9%

Sources: CEDD 2025; Caltrans 2023.
Note:
1. Unemployment rates from 2014 to 2024 are sourced from the California Employment Development Department, and projected unemployment rates are sourced from the California Department of Transportation (Caltrans).

3.10.1.3.1 Availability of Skilled Workers by Craft

Table 3.10-7 presents 2023 American Community Survey 5-year Estimates of Public Use Microdata Sample (PUMS) data for the County's construction labor force (U.S. Census 2023). The California Employment Development Department indicates that the County's most recent unemployment rate (December 2024) is 5.7% (CEDD 2025). Applying this rate to the County's 296,944 construction workers, an estimated 16,909 workers are currently unemployed and will be available during the Project's construction phase. The Project requires 303 full-time equivalent (FTE) workers, assuming FTE workers work an average of 2,080 hours. As such, the County's existing construction labor force has a sufficient number of unemployed workers to meet demand across all craft positions. In addition, a letter from the Los Angeles/Orange Counties Building and Construction Trades Council demonstrates that there are more than 160,000 skilled tradespeople and approximately 23,000 apprentices available for dispatch to construction jobs, and specifically references the proposed Project (see Appendix 3.10B).

Table 3.10-8 presents 2023 PUMS data for the County's workforce in occupations needed for Project operation (U.S. Census 2023). Using the same California Employment Development Department's unemployment rate of 5.7%, it is estimated that 2,809 workers will be locally available out of the workforce of 49,275 in the selected occupations to work on the Project. Annual operations will require 20 annual FTE operational workers. Based on the labor availability in the County and labor demanded for the Project, the County will have a sufficient number of locally available unemployed workers to fulfill the needs of Project operations.

Table 3.10-7. Los Angeles County Construction Labor Force

Construction Occupations	Los Angeles County Labor Force	Projected Available County Labor Force[1]
Construction Managers	27,782	1,584
First-Line Supervisors of Construction Trades and Extraction Workers	16,283	928
Boilermakers	135	8
Carpenters	36,110	2,058
Carpet, Floor, and Tile Installers and Finishers	6,236	355
Cement Masons, Concrete Finishers, and Terrazzo Workers	1,410	80
Construction Laborers	100,456	5,726
Construction Equipment Operators	4,722	269
Drywall Installers, Ceiling Tile Installers, and Tapers	6,291	359
Electricians	27,723	1,580
Glaziers	1,293	74
Insulation Workers	564	32
Painters and Paperhangers	25,066	1,429
Pipelayers	939	54
Plumbers, Pipefitters, and Steamfitters	18,908	1,078
Plasterers and Stucco Mason	1,477	84
Roofers	5,892	336
Sheet Metal Workers	3,713	212
Structural Iron and Steel Workers	1,991	113
Solar Photovoltaic Installers	1,092	62
Brickmasons, Blockmasons, Stonemasons, and Reinforcing Iron and Rebar Workers	2,476	141
Helpers, Construction Trades	1,601	91
Construction and Building Inspectors	3,215	183
Other Construction and Related Workers	1,269	72
Total Construction Labor Force	**296,644**	**16,909**

Sources: Appendix 3.10A; U.S. Census 2023.

Note:

1. California Employment Development Department's unemployment rate for Los Angeles County (5.7%) is applied to the current County workforce.

Table 3.10-8. Los Angeles County Operations Labor Force

Operations Occupations	Los Angeles County Labor Force	Projected Available County Labor Force[1]
First-Line Supervisors of Mechanics, Installers, and Repairers	4,716	269
Other Electrical and Electronic Equipment Mechanics, Installers, and Repairers	386	22
Maintenance Workers, Machinery	571	33
Industrial and Refractory Machinery Mechanics	7,442	424
Electrical Power-Line Installers and Repairers	1,760	100
Telecommunications Line Installers and Repairers	3,854	220
Precision Instrument and Equipment Repairers	2,301	131
Maintenance and Repair Workers, General	19,384	1,105
Helpers—Installation, Maintenance, and Repair Workers	919	52
Other Installation, Maintenance, and Repair Workers	7,942	453
Total Operations Labor Force	**49,275**	**2,809**

Sources: Appendix 3.10A; U.S. Census 2023.
Note:
1. California Employment Development Department's unemployment rate for Los Angeles County (5.7%) is applied to the current County workforce.

3.10.1.4 Fiscal Resources

The local agency with taxing power over the Project site is the County because the Project site is in unincorporated Los Angeles County. Table 3.10-9 presents the County's total change in net position for fiscal year (FY) 2023 and FY 2024. In 2024, the County collected $33 billion in revenue, an increase of just under 10% from $30.10 billion in 2023. The County's expenses decreased by less than 1% in 2024, from $30.90 billion in 2023 to $30.86 billion in 2024. The County had a negative net position in 2023 of $810 million, but a positive change in net position in 2024 with $2.15 billion (excluding excess and transfers) (County of Los Angeles 2024a).

Table 3.10-10 shows the County's General Fund financing sources in FY 2023–2024 and FY 2024–2025. As shown, State Aid is the largest source of revenue for the County's General Fund, making up more than 30% of its total available revenues. Property taxes are the second largest revenue source, accounting for more than 25% of General Fund revenues in both fiscal years shown. Total General Fund revenue is anticipated to increase in FY 2024–2025 from the previous year due to general increases across all sources of revenues (County of Los Angeles 2024a).

Table 3.10-9. Los Angeles County Change in Net Position – Total Activities

Item	Fiscal Year 2023	Fiscal Year 2024
Revenue		
Program Revenues		
Charges for Services	$4,342,851	$4,757,465
Operating Grants and Contributions	$14,134,795	$15,578,862
Capital Grants and Contributions	$64,023	$58,660

Table 3.10-9. Los Angeles County Change in Net Position – Total Activities

Item	Fiscal Year 2023	Fiscal Year 2024
General Revenues		
Taxes	$10,297,844	$10,811,926
Unrestricted Grants and Contributions	$632,188	$679,353
Investment Income	$347,504	$863,672
Miscellaneous	$278,413	$253,977
Total Revenues	**$30,097,618**	**$33,003,915**
Expenses		
General Government	$1,626,902	$1,884,559
Public Protection	$10,535,212	$10,040,684
Public Ways and Facilities	$543,472	$585,307
Health and Sanitation	$6,906,927	$8,032,810
Public Assistance	$10,390,815	$9,426,531
Education	$154,258	$173,303
Recreation and Cultural Services	$588,735	$534,164
Interest on Long-Term Debt	$161,604	$178,369
Total Expenses	**$30,907,925**	**$30,855,727**
Change in Net Position[1]	**($810,307)**	**$2,148,188**

Sources: Appendix 3.10A; County of Los Angeles 2024a.
Notes: Values shown in thousands.
1. Excludes excess (deficiency) before transfers.

Table 3.10-10. Los Angeles County General Fund Revenue Sources

Total Available Financing by Source	Fiscal Year 2023/2024 Actual		Fiscal Year 2024/2025 Final	
	Amount	Percent	Amount	Percent
Property Tax Revenues	$7,757	27%	$7,952	26%
Other Taxes	$269	1%	$228	1%
Licenses, Permits, and Franchises	$86	0%	$76	0%
Fines, Forfeits, and Penalties	$188	1%	$147	0%
Use of Money and Property	$652	3%	$425	1%
State Aid	$8,792	31%	$10,092	33%
Aid from Federal Government	$5,888	21%	$5,797	19%
Aid from Local Government Agencies	$30	0%	$61	0%
Charges for Services	$3,362	12%	$3,484	11%
Other Revenue	$245	1%	$188	1%
Other Financing Sources	$1,348	5%	$2,254	7%
Total	**$28,615**	**100%**	**$30,704**	**100%**

Sources: Appendix 3.10A; County of Los Angeles 2024b.
Note: Values shown in millions.

3.10.1.5 Education

The Acton–Agua Dulce Unified School District is the school district that serves the Project site and surrounding area. The Acton–Agua Dulce Unified School District was established in 1881, serves students over a 200-square-mile radius, and includes one elementary school, one junior high school, and one high school. Current enrollment is 12,875 students. Approximately 3,329 students are enrolled in kindergarten (transitional kindergarten) through Grade 5, approximately 1,694 students are enrolled in Grades 6 through 8, and approximately 7,852 students are enrolled in Grades 9 through 12 (CDE 2025).

3.10.1.6 Public Services and Facilities

This section describes public services and facilities in the Project area (Los Angeles County). Local governments with a large enough tax base provide public emergency services to their residents. In areas where the tax base is too small to create emergency service agencies, the responsibility for providing such services falls to the corresponding county. The three primary emergency service functions provided by local governments are police, fire, and emergency medical services. As their primary goal, these public service agencies share a role in protecting the safety of people and their property.

3.10.1.6.1 Law Enforcement

The Los Angeles County Sheriff's Department is the largest Sheriff's Department in the United States, with nearly 18,000 sworn staff operating out of 23 stations throughout Los Angeles County. The Project site falls within the Palmdale Sheriff's Station coverage area. The response time to an emergency call from the Project site depends on availability and proximity of sheriff's deputies at the time dispatch receives the emergency call. The Palmdale Sheriff's Station is the nearest station to the Project site and is located at 750 East Avenue Q, Palmdale, California 93550, approximately 8.8 road miles from the Project site (Los Angeles County Sheriff's Department 2025).

The California Highway Patrol provides uniform traffic law enforcement throughout the state. The Project site falls within the Southern Division of the California Highway Patrol. Specifically the California Highway Patrol's Antelope Valley office (2041 West Avenue I, Lancaster, CA 93536) is responsible for patrolling approximately 30 miles of State Route 14 from Acton, California, to the Kern County line, and approximately 1,400 miles of unincorporated roadways in various communities throughout the Antelope Valley, including Angeles Forest Highway, Angeles Crest Highway, State Route 138, and State Route 18 (California Highway Patrol 2025).

3.10.1.6.2 Fire Protection

The County of Los Angeles Fire Department is responsible for the protection of 4 million residents across 60 cities and the unincorporated areas of the County. The County of Los Angeles Fire Department conducts a wide range of emergency operations, including firefighting, emergency medical services, dispatch, air and wildland fire services, lifeguard services, urban search and rescue, hazardous materials response, and homeland security. The closest fire station to the Project site is County of Los Angeles Fire Department Station 80, located at 1533 W. Sierra Highway, Acton, California 93510, approximately 0.7 road miles from the Project site (County of Los Angeles Fire Department 2025). As discussed in more detail in Section 3.16, Wildfire, total response time, including call and turnout time, from Station 80 is calculated at roughly 4.32 minutes to the entrance of the BESS facility. All response calculations are based on an average response speed of 35 miles per hour, consistent with nationally recognized National Fire Protection Association (NFPA) 1710.

3.10.1.6.3 Emergency Response

Emergency Medical Services (EMS) in Los Angeles County is administered by the Los Angeles County EMS Agency. The EMS Agency has one of the largest EMS systems in the United States, with more than 18,000 certified EMS personnel employed by fire departments, law enforcement, ambulance companies, hospitals, and private organizations. The EMS Agency is responsible for implementing the local EMS system. First responders include the County of Los Angeles Fire Department, which responds to emergency calls in the unincorporated County areas and provides initial emergency medical aid. Transportation to hospital or other facilities in the unincorporated County is provided by the 38 licensed basic life support ambulance operators, 16 licensed advanced life support ambulance operators, 16 licensed critical care transport operators, and two licensed ambulette operators in the EMS Agency system (Los Angeles County EMS Agency 2025). The County of Los Angeles Fire Department will likely be the first responder and has an estimated response time of 4.32 minutes (from Station 80 to the Project site), it is expected that the response time from the nearest hospital (Palmdale Regional Medical Center) to the Project site will be 13 to 15 minutes (Google Maps 2025).

3.10.1.6.4 Medical Facilities

The Palmdale Regional Medical Center is the nearest hospital to the Project site, at 38600 Medical Center Drive, Palmdale, California 93551, approximately 9.5 road miles from the Project site (Google Maps 2025). Palmdale Regional Medical Center features 190 licensed acute care beds, inpatient and outpatient surgery, an Advanced Primary Stoke Center, cardiac services featuring a STEMI Receiving Center (heart attack), and a 35-bed 24-hour emergency department (Palmdale Regional Medical Center 2025).

3.10.1.6.5 County Libraries

The Los Angeles County Library system serves 3.4 million residents across 3,000 square miles through its 86 libraries, four Cultural Resource Centers, and a mobile fleet of 15 vehicles. The nearest library to the Project site is the Acton–Agua Dulce Library, at 33792 Crown Valley Road, Acton, California 93510, approximately 4.2 miles from the Project site (Los Angeles County Library 2025).

3.10.1.6.6 Parks and Recreation

The Project is located within the Antelope Valley Area Plan (AVAP) area, which includes goals and policies to ensure residents can enjoy access to parks and recreational facilities (Los Angeles County Department of Regional Planning 2015). Applicable AVAP policies include the following:

Policy PS 8.1: Maintain existing parks to ensure attractiveness and safety and make improvements as necessary. Ensure adequate funding on an ongoing basis.

Policy PS 8.2: Provide recreational activities at parks that serve all segments of the population.

Policy PS 8.3: Provide new parks as additional development occurs or as the population grows, with a goal of four acres of parkland for every 1,000 residents.

Policy PS 8.4: Prioritize new parks for existing park deficient communities.

Policy PS 8.6: Within rural town center areas, promote the inclusion of parks, recreational facilities, and other gathering places that allow neighbors to meet and socialize.

Additionally, the County of Los Angeles Department of Parks and Recreation Strategic Plan (Los Angeles County Parks and Recreation 2023) was developed to create a greener, sustainable, thriving Los Angeles County park system that is centered in equity, well-being, and access for all residents. The Strategic Plan includes a discussion of the County's Parks Needs Assessment (PNA) tool, which analyzes the existing state of park access across the County. The PNA study showed that over half the County's population lives in an area designated as "High Need" or "Very High Need," determined by factors of available park acreage, walkable access, and park size relative to population density. The Project is located within the Unincorporated Acton/Unincorporated South Antelope Valley Area, which the PNA identified as having a "Very Low Need," with an average of 52 acres per 1,000 residents (Los Angeles County of Parks and Recreation 2023). The PNA underwent a focused update in 2022 to identify and address regional recreation, rural recreation, and conservation and restoration needs; this update is referred to as the PNA+ (Los Angeles County Parks and Recreation 2025a). The Project is located in an area identified by the PNA+ as a Priority Area for Increasing Access to Regional Recreation (Los Angeles County Parks and Recreation 2025a). These areas have high levels of social and transportation barriers, health and environmental vulnerability, low proximity to regional recreation sites, and low visitorship rates to these sites.

The Los Angeles County Department of Parks and Recreation maintains 181 parks (Los Angeles County Parks and Recreation 2025a). The nearest maintained facility to the Project site is Acton Park, located at 3751 Syracuse Avenue, Acton, California 93510, approximately 3.8 miles from the Project site. Acton Park is a 12.5-acre passive park which holds seasonal programming such as movie nights and concerts as well as summer day camps for youth (Los Angeles County Parks and Recreation 2025b). The Acton Wash Wildlife Sanctuary is located at 3421 Gillespie Avenue, Acton, California 93510, approximately 2.5 miles from the Project site. The 75-acre sanctuary offers hiking and nature and plant walks (Los Angeles County Parks and Recreation 2025d). Additionally, the nearest entrance to the Angeles National Forest, located on Angeles Forest Highway at Forest Ridge Road, is located approximately 6 miles from the Project site. The Angeles National Forest covers approximately 700,000 acres, offering recreational activities such as camping, picnicking, swimming, fishing, skiing, hiking, horseback riding, mountain biking, and off-highway vehicle riding (USDA 2025).

3.10.1.7 Utilities

A public utility is an organization that maintains the infrastructure for a public service. This section describes public utilities available in the Project area.

3.10.1.7.1 Electricity and Gas

Electricity in the area is provided by SCE. The Project is a BESS, which will draw electricity from the power grid to charge and store electrical energy and discharge it back into the power grid when the stored energy is needed. Power released or captured by the Project will be transferred to and from the SCE Vincent Substation via a newly constructed overhead or underground gen-tie line. The Project will provide several benefits to the power grid, including reducing the need to operate natural gas power plants to balance intermittent renewable generation and serving as an additional capacity resource that will enhance grid reliability.

3.10.1.7.2 Municipal Water

Municipal water in the area is provided by the Los Angeles County Public Works Department. The Project will not require a connection to a municipal water system. Construction water is anticipated to be purchased from a local water purveyor and trucked to the site. During construction, untreated water will be required for common construction-related purposes, including dust suppression, soil compaction, and grading. Dust-control water may be used during ingress and egress of on-site construction vehicle equipment traffic and during the construction of the Project. A sanitary water supply line will not be required during construction because restroom facilities will be portable units serviced by licensed providers, and water and sewage from the restroom facilities will be stored in on-site tanks and serviced by trucks. Drinking water will be provided via portable water coolers.

Operational water will be supplied by an on site well. A municipal connection will not be necessary for operational water requirements.

3.10.1.7.3 Wastewater Discharge

There will be no wastewater discharged as part of the Project. Portable toilets will be used during construction and will be serviced by licensed providers. A septic system will be used for restroom facilities during Project operations.

3.10.2 Impact Analysis

The Socioeconomics Report (Appendix 3.10A) prepared for the Project estimated the economic impacts during the construction and operations phases of the Project, as summarized in this section. All monetary estimates are in constant 2025 dollars.

3.10.2.1 Methodology

The analysis contained in the Socioeconomics Report used an input/output (I/O) modeling framework to quantify the Project's one-time and ongoing contributions to Countywide output, employment, and labor income. The I/O modeling framework is premised on the concept that industries in a geographic region are interdependent in the sense that they purchase output from and supply input to other industries. This regional economic analysis relies on IMPLAN (Impact Analysis for Planning) software, an I/O model that draws on data collected by the IMPLAN Group from several state and federal sources, including the Bureau of Economic Analysis, Bureau of Labor Statistics, and U.S. Census Bureau. The model is used widely for estimating economic impacts across a wide array of industries and economic settings. For this specific analysis, IMPLAN from the 2023 data year was used and shown in 2025 dollars. The geography of analysis is Los Angeles County (see Appendix 3.10A for modeling).

Regional economic impact analysis and I/O models in particular provide a means to estimate total effects stemming from a particular industry or activity, and yield estimates of the number and types of jobs created, the wages associated with those jobs, and the total economic output or "final sales" generated within various industries. I/O models rely on economic "multipliers" that mathematically represent the relationship between the initial change in one sector of the economy and the effect of that change on other interdependent industry sectors. These effects are commonly described as "direct," "indirect," or "induced," and are generally defined as follows:

- The **direct effect** is the initial change in economic activity in a specific industry or sector. For example, economic activities (business revenues, jobs, employee earnings) occurring at the Project site will represent a direct impact on the County's economy.
- The **indirect effect** results from industry-to-industry transactions required to support the direct activity. This effect is a measure of the change in the output of suppliers linked to the industry that is being evaluated. For example, construction of the Project will cause an increase in sales of construction materials, engineering services, and other goods from "business-to-business" suppliers in the County and elsewhere.

Although the Project will create indirect effects in the state overall, for this analysis, only indirect effects within Los Angeles County are estimated.

- The **induced effect** consists of impacts from employee spending in the regional economy. Specifically, the employees of directly and indirectly affected businesses generate this effect by purchasing goods and services in Los Angeles County (e.g., food, clothing, automobiles, health care). As with the indirect effects, there will be additional induced effects felt in the state above and beyond the Countywide effects estimated in this analysis.
- The **total impact** is the sum of the direct, indirect, and induced effects. The total impact measures the overall impact of an activity as it "ripples" through the economy.

This section measures economic significance using common economic metrics, including employment, labor income, output, and value added, as defined below.

- **Full-time equivalent (FTE)** represents the total number of work hours, excluding overtime and holidays, worked by employees divided by the number of compensable hours in a full-time schedule. For example, an employee working 40-hour workweeks through an entire year will be equivalent to one FTE, and an employee working 20 hours weekly through the entire year will have an FTE of 0.5.
- **Employment** estimates the total number of jobs, both full-time and part-time, created as a result of Project construction and operations.
- **Labor income** represents payments to labor in the form of income and fringe benefits (e.g., health, retirement) for both wage and salary positions and proprietors.
- **Value added** represents an alternative and smaller metric of economic activity than economic output. Similar to the concept and definition of gross domestic product often used to report national levels of economic activity, value added counts only the additional economic value added at a particular site or area, excluding the value of any intermediate inputs purchased. As a result, value added equals economic output (described below) minus the value of intermediate inputs. A successful project will cover employee compensation, proprietor income and profit, and tax payments with its value added.
- **Economic output** represents a measure of economic activity calculated as production value or final sales value. This measure indicates the total value of the economic activity, including the value of intermediate inputs (i.e., the goods and services used in the production of final products that are not sold in final-demand markets).

There are two important caveats relevant to the interpretation of IMPLAN model estimates derived in the Socioeconomics Report (Appendix 3.10A). First, the I/O methodology assumes that demand for goods and services by industries or households directly relates to increase in income, and that an increase in demand results in a proportional increase in local supply and employment. This assumes fixed linear relationships between input (resource) use and output, and between income and consumption. This assumption allows for economic modeling and best estimates of economic impacts, recognizing that, in reality, responses to final demand changes may not occur in direct linear proportions.

Second, I/O models assume that local suppliers have sufficient capacity to respond to changes in final demand by increasing their output and hiring additional workers without shifting any production resources (inputs) from other competing needs. This assumption may not hold in areas with tight labor or capital markets because suppliers may find it difficult to obtain the labor or material inputs or other resources necessary to expand production. Although the County's current unemployment rate of approximately 5.7% is low, the large size of the County's labor force suggests that there should be sufficient labor available to support the Project without affecting other businesses.

Furthermore, I/O modeling does not delineate the origin of labor and whether or not the employees supported by projects will reside within the county or region of interest. The Project applicant expects to source construction labor from within a 75-mile radius of the Project site, encompassing all of Los Angeles County.

3.10.2.2 Impact Evaluation Criteria

The evaluation of socioeconomic impacts for the proposed Project is based on the criteria provided in Appendix B, Information Requirements for Application, which is part of Chapter 5, Article 6 of the California Code of Regulations, Title 20: Public Utilities and Energy. Specifically, the Socioeconomics Report prepared for the Project (Appendix 3.10A) addresses the requirements within Sections 7(A) and 7(B) of Appendix B to evaluate the "socioeconomic circumstances of the vicinity and region affected by construction and operation of the project" and "the socioeconomic impacts caused by the construction and operation of the project."

This evaluation of socioeconomic impacts is also based on the criteria provided in the California Environmental Quality Act (CEQA) Checklist (California Code of Regulations, Title 14, Section 15000). Impacts from construction and operation of the Project are determined to be potentially significant if they meet any of the following significance criteria:

- Induce substantial growth or concentration of population
- Displace a large number of people or impact existing housing
- Result in substantial adverse impacts on the local economy and employment
- Create adverse fiscal impacts on the community
- Result in substantial adverse impacts on educational facilities
- Result in substantial adverse impacts on the provision of utility services
- Result in substantial adverse impacts associated with the provision of public services

Other impacts may be significant if they cause substantial change in community interaction patterns, social organization, social structures, or social institutions; substantial conflict with community attitudes, values, or perceptions; or substantial inequities in the distribution of the Project's cost and benefit.

3.10.2.3 CEQA Appendix G Assessment Criteria

Construction Schedule and Workforce

The estimated monthly labor for the 26-month Project construction period is detailed in Table 3.10-11. Aggregate labor demand will fluctuate monthly, ranging from a low of 58 workers at the final commissioning phase to a peak of 230 to 250 workers during months 9 and 11. Following the peak, labor demand will remain elevated through month 18, ranging from 194 to 218 workers, before gradually decreasing in the following months leading up to completion, from a high of 162 workers in month 16 to a low of 58 workers in month 26. These jobs are monthly estimates that represent fractions of FTE. All combined, the number of workers to be employed aggregates to 303 total FTE over the duration of the Project.

The workforce will be concentrated in the early and middle phases of construction, particularly for site work and electrical crews, before tapering off as the Project nears finalization and commissioning. The labor demand is influenced by the specific phases of construction, with certain trades seeing higher demand during different stages. For instance, labor for site work is needed in higher numbers early on, peaking around months 5 and 6 as groundwork and preliminary tasks are prioritized. Electrical labor will ramp up in months 9 through 11, aligning with the installation of electrical systems and integration of the BESS infrastructure, which requires specialized labor.

Table 3.10-11. Monthly Employment Estimates by Craft

~~Employment~~	~~Construction Workforce Projection by Month~~																										~~Total FTE Over Project Duration[1]~~
	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~	~~17~~	~~18~~	~~19~~	~~20~~	~~21~~	~~22~~	~~23~~	~~24~~	~~25~~	~~26~~	
	~~Monthly Workers by Trade[2]~~																										
~~Supervision~~	~~21~~	~~23~~	~~25~~	~~27~~	~~28~~	~~29~~	~~31~~	~~32~~	~~34~~	~~35~~	~~36~~	~~35~~	~~34~~	~~34~~	~~34~~	~~32~~	~~31~~	~~29~~	~~28~~	~~24~~	~~21~~	~~17~~	~~14~~	~~14~~	~~14~~	~~14~~	~~58~~
~~Misc. Crew~~	~~9~~	~~12~~	~~15~~	~~17~~	~~19~~	~~19~~	~~19~~	~~22~~	~~24~~	~~26~~	~~29~~	~~29~~	~~29~~	~~26~~	~~24~~	~~21~~	~~19~~	~~19~~	~~19~~	~~16~~	~~15~~	~~12~~	~~9~~	~~9~~	~~9~~	~~9~~	~~40~~
~~Sitework Crew~~	~~36~~	~~36~~	~~36~~	~~40~~	~~44~~	~~44~~	~~44~~	~~44~~	~~44~~	~~40~~	~~36~~	~~32~~	~~29~~	~~29~~	~~29~~	~~29~~	~~29~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~52~~
~~Foundation Work~~	~~0~~	~~0~~	~~0~~	~~0~~	~~22~~	~~22~~	~~22~~	~~22~~	~~22~~	~~22~~	~~22~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~13~~
~~Commissioning~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~18~~	~~21~~	~~25~~	~~22~~	~~19~~	~~17~~	~~15~~	~~15~~	~~15~~	~~15~~	~~15~~
~~Landscape Crew~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~5~~	~~5~~	~~5~~	~~5~~	~~5~~	~~5~~	~~5~~	~~5~~	~~5~~	~~5~~	~~4~~
~~Sub & T-Line Crew~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~5~~	~~5~~	~~11~~	~~11~~	~~14~~	~~14~~	~~17~~	~~17~~	~~14~~	~~14~~	~~14~~	~~14~~	~~11~~	~~11~~	~~8~~	~~8~~	~~5~~	~~5~~	~~5~~	~~5~~	~~17~~
~~Electrical Crew~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~38~~	~~45~~	~~53~~	~~53~~	~~53~~	~~47~~	~~42~~	~~39~~	~~36~~	~~34~~	~~32~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~39~~
~~Mechanical Crew~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~19~~	~~19~~	~~19~~	~~19~~	~~19~~	~~19~~	~~19~~	~~19~~	~~19~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~14~~
~~Subtotal~~	*~~66~~*	*~~71~~*	*~~76~~*	*~~84~~*	*~~113~~*	*~~114~~*	*~~140~~*	*~~144~~*	*~~192~~*	*~~198~~*	*~~209~~*	*~~182~~*	*~~181~~*	*~~172~~*	*~~162~~*	*~~135~~*	*~~152~~*	*~~122~~*	*~~120~~*	*~~78~~*	*~~68~~*	*~~59~~*	*~~48~~*	*~~48~~*	*~~48~~*	*~~48~~*	*~~253~~*
~~Apprentices~~	*~~13~~*	*~~14~~*	*~~15~~*	*~~17~~*	*~~23~~*	*~~23~~*	*~~28~~*	*~~29~~*	*~~38~~*	*~~40~~*	*~~42~~*	*~~36~~*	*~~36~~*	*~~34~~*	*~~32~~*	*~~27~~*	*~~30~~*	*~~24~~*	*~~24~~*	*~~16~~*	*~~14~~*	*~~12~~*	*~~10~~*	*~~10~~*	*~~10~~*	*~~10~~*	*~~51~~*
~~Total Monthly Workers[2]~~	**~~79~~**	**~~85~~**	**~~91~~**	**~~101~~**	**~~136~~**	**~~137~~**	**~~168~~**	**~~173~~**	**~~230~~**	**~~238~~**	**~~251~~**	**~~218~~**	**~~217~~**	**~~206~~**	**~~194~~**	**~~162~~**	**~~182~~**	**~~146~~**	**~~144~~**	**~~94~~**	**~~82~~**	**~~71~~**	**~~58~~**	**~~58~~**	**~~58~~**	**~~58~~**	**~~3,521~~**
~~Total Workforce in Annual FTE~~	**~~7~~**	**~~7~~**	**~~8~~**	**~~8~~**	**~~11~~**	**~~11~~**	**~~14~~**	**~~14~~**	**~~19~~**	**~~20~~**	**~~21~~**	**~~18~~**	**~~18~~**	**~~17~~**	**~~16~~**	**~~14~~**	**~~15~~**	**~~12~~**	**~~12~~**	**~~8~~**	**~~7~~**	**~~6~~**	**~~5~~**	**~~5~~**	**~~5~~**	**~~5~~**	**~~303~~**

Construction Workforce Projection by Month																												Total FTEs over Project Duration[2]
Monthly Employment by Crew and Occupation[1]	SOC Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Supervision																												
Construction Managers	11-9021	13	14	15	16	17	17	19	19	20	21	22	21	20	20	20	19	19	17	17	14	13	10	8	8	8	8	
First-Line Supervisors of Construction Trades and Extraction Workers	47-1011	8	9	10	11	11	12	12	13	14	14	14	14	14	14	14	13	12	12	11	10	8	7	6	6	6	6	
Subtotal		*21*	*23*	*25*	*27*	*28*	*29*	*31*	*32*	*34*	*35*	*36*	*35*	*34*	*34*	*34*	*32*	*31*	*29*	*28*	*24*	*21*	*17*	*14*	*14*	*14*	*14*	*58*
Misc. Crew																												
Construction Laborers	47-2061	9	12	15	17	19	19	19	22	24	26	29	29	29	26	24	21	19	19	19	16	15	12	9	9	9	9	
Subtotal		*9*	*12*	*15*	*17*	*19*	*19*	*19*	*22*	*24*	*26*	*29*	*29*	*29*	*26*	*24*	*21*	*19*	*19*	*19*	*16*	*15*	*12*	*9*	*9*	*9*	*9*	*40*
Sitework Crew																												
Operating Engineers & Equipment Operators	47-2073	27	27	27	30	33	33	33	33	33	30	27	24	22	22	22	22	22										
Paving, Surfacing, and Tamping Operators	47-2071	9	9	9	10	11	11	11	11	11	10	9	8	7	7	7	7	7										
Subtotal		*36*	*36*	*36*	*40*	*44*	*44*	*44*	*44*	*44*	*40*	*36*	*32*	*29*	*29*	*29*	*29*	*29*										*52*
Foundation Work																												
Cement Masons and Concrete Finishers	47-2051					0	0	0	6	8	10	14																
Reinforcing Iron and Rebar Workers	47-2171					16	16	16	12	12	10	8																
Structural Iron and Steel Workers	47-2221					6	6	6	4	2	2	0																
Subtotal						*22*	*22*	*22*	*22*	*22*	*22*	*22*																*13*

Construction Workforce Projection by Month																												Total FTEs over Project Duration[2]
Monthly Employment by Crew and Occupation[1]	SOC Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Commissioning Crew																												
Electronics Engineers, Except Computer	17-2072																	2	2	2	2	2	2	2	2	2	2	
Electrical and Electronic Engineering Technologists and Technicians	17-3023																	14	17	21	18	15	13	11	11	11	11	
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	49-2095																	2	2	2	2	2	2	2	2	2	2	
Subtotal																		*18*	*21*	*25*	*22*	*19*	*17*	*15*	*15*	*15*	*15*	*15*
Landscape Crew																												
Landscaping & Groundskeeping Workers	37-3011																	4	4	4	4	4	4	4	4	4	4	
Supervisors of Landscaping & Groundskeeping	37-1012																	1	1	1	1	1	1	1	1	1	1	
Subtotal																		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*4*
Sub &T-Line Crew																												
Electrical Power-Line Installers and Repairers	49-9051							4	4	9	9	12	12	15	15	12	12	12	12	9	9	6	6	4	4	4	4	
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	49-2095							1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	
Subtotal								*5*	*5*	*11*	*11*	*14*	*14*	*17*	*17*	*14*	*14*	*14*	*14*	*11*	*11*	*8*	*8*	*5*	*5*	*5*	*5*	*17*
Electrical Crew																												
Electricians	47-2111									38	45	53	53	53	47	42	39	36	34	32								
Subtotal										*38*	*45*	*53*	*53*	*53*	*47*	*42*	*39*	*36*	*34*	*32*								*39*
Mechanical Crew																												
Industrial Machinery Mechanics	49-9041							14	14	14	14	13	13	14	14	14												
HVAC Mechanics	49-9021							0	0	0	0	1	1	0	0	0												
Welders, Cutters, Solderers, and Brazers	51-4121							5	5	5	5	5	5	5	5	5												
Subtotal								*19*	*19*	*19*	*19*	*19*	*19*	*19*	*19*	*19*												*14*
Subtotal Workforce		*66*	*71*	*76*	*84*	*113*	*114*	*140*	*144*	*192*	*198*	*209*	*182*	*181*	*172*	*162*	*135*	*152*	*122*	*120*	*78*	*68*	*59*	*48*	*48*	*48*	*48*	*253*
Apprentices		*13*	*14*	*15*	*17*	*23*	*23*	*28*	*29*	*38*	*40*	*42*	*36*	*36*	*34*	*32*	*27*	*30*	*24*	*24*	*16*	*14*	*12*	*10*	*10*	*10*	*10*	*51*
Total Monthly Workers[2]		**79**	**85**	**91**	**101**	**136**	**137**	**168**	**173**	**230**	**238**	**251**	**218**	**217**	**206**	**194**	**162**	**182**	**146**	**144**	**94**	**82**	**71**	**58**	**58**	**58**	**58**	**3,521**
Total Workforce in Annual FTEs		**7**	**7**	**8**	**8**	**11**	**11**	**14**	**14**	**19**	**20**	**21**	**18**	**18**	**17**	**16**	**14**	**15**	**12**	**12**	**8**	**7**	**6**	**5**	**5**	**5**	**5**	**303**

Source: Appendix 3.10A.

Notes: FTE = full-time equivalent

1. Total FTEs over the duration of the Project construction. Divides each of the number of workers each month by 12 and totals the number of workers each for Project duration.
2. Monthly workers represent FTE fractions.

For operations, the permanent workforce is expected to be 20 FTEs (16 on-site FTE and 4 off-site FTE), as shown in Table 3.10-12. Annual permanent workers will draw from the labor force shown in Table 3.10-8.

Table 3.10-12. Annual Operations and Maintenance Employment

Category	Number of Workers
Annual Permanent Operations	20

Source: Appendix 3.10A.

3.10.2.3.1 Would the project induce substantial unplanned population growth in the area, either directly or indirectly?

Less-than-Significant Impact. Construction of the Project will introduce a temporary increase in workers to the Project area. However, the workers are not anticipated to relocate to the Project area because the workers will likely be residents of Los Angeles County or surrounding counties, and/or will be active on site for only a few months and will not permanently relocate. Peak construction of the Project will occur during months 9 and 11, with a total of 230 to 251 workers expected on site. These jobs are monthly estimates that represent fractions of FTE. During Project operations, the Project will employ 20 annual FTE workers. If non-local operational workers do relocate to the Project area, if will result in a negligible increase in population. Overall, the Project will have negligible to no impact on population growth, and therefore will not directly or indirectly induce substantial unplanned population growth. Impacts will be **less than significant.**

3.10.2.3.2 Would the project displace substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less-than-Significant Impact. The construction phase of the Project is not expected to increase the demand for housing in the area because at least 90% of the labor force is expected to be sourced locally. Construction could induce a temporary increase in demand for housing, but there is sufficient temporary housing to accommodate all the expected construction workforce (see Table 3.10-4). The applicant expects to source construction labor within a 75-mile radius of the Project site, encompassing all of Los Angeles County. The Project will employ 20 FTE workers during the operational phase, who are estimated to be drawn from Los Angeles County. Any operational workers who relocate will result in a minimal impact on demand for housing. There will be a negligible impact on housing during construction and operations of the Project because the Project will not displace a substantial number of existing people or housing, or necessitate the construction of replacement housing elsewhere due to the availability of sufficient housing in the Project area to accommodate the expected construction and operation workforce. Impacts will be **less than significant.**

3.10.2.3.3 Would the project have substantial adverse impacts on the local economy and employment?

Construction Phase

No Impact. Project employment effects for construction and operation are shown in Table 3.10-13. Impacts were modeled using IMPLAN 2023 data from Los Angeles County (see Appendix 3.10A for modeling). Project construction will provide 303 direct jobs, 73 indirect jobs, and 167 induced jobs for a total of 543 jobs. Labor income averages for direct, indirect, and induced employment are approximately $142,500, $90,000, and $69,000, respectively.

Construction will provide a positive temporary impact on the County's economy. Therefore, there will be **no impact** from the Project.

Operation Phase

No Impact. Project operations will generate 20 direct jobs, 13 indirect jobs, and 16 induced jobs for a total of 49 jobs. Estimated average compensation per year for direct, indirect, and induced employment is $182,000, $72,000, and $69,000, respectively. Annual operation and maintenance will result in a positive impact on the County's economy. Therefore, there will be **no impact** from the Project.

Table 3.10-13. Project Employment and Labor Income

Phase and Type of Impact	Employment Number	Labor Income
Construction		
Direct[1]	303	$42,732,000
Indirect	73	$6,549,000
Induced	167	$11,544,000
Annual Operations		
Direct[2]	20	$3,630,000
Indirect	13	$954,489
Induced	16	$1,077,338

Source: Appendix 3.10A.
Notes:
1. Direct employment figures are based on estimated full-time equivalent workers provided by the applicant, and direct compensation is sourced from Southern California Contractors Association Inc. and from the Department of Industrial Relations Wage Determinations.
2. Direct operations employment and their corresponding compensation is provided by the applicant.

3.10.2.3.4 Would the project create adverse fiscal impacts on the community?

No Impact. The applicant is estimated to spend more than $1.73 billion on local purchases,[2] as detailed in Table 3.10-14. The majority of these local purchases will be a result of the applicant establishing a job-site sub-permit with the California Department of Tax and Fee Administration (CDTFA) for all materials and equipment purchases related to Project construction.[3] Consequently, the County will accrue the majority of sales and use tax revenues applicable to Project construction costs. The relevant sales tax rate for these purchases is 5.56%, with 2.06% allocated to the state (per CDTFA-105 REV. 35 [1-25]) and the remaining 3.5% allocated to the County. Construction costs for facilities built by SCE are included in this analysis.[4] However, construction purchases by SCE are not included in the job site address, and therefore are subject to the standard 6% sales tax. Only a portion of these capital costs ($468,896) are estimated to occur locally (in unincorporated Los Angeles County), which is represented in the total $1.73 billion in locally purchased materials. Capital costs not purchased locally—in unincorporated Los Angeles County—are estimated to occur in incorporated Los Angeles County ($19.1 million).

2 For this Project, "local" refers to unincorporated Los Angeles County.
3 The job site sub-permit allows a portion of capital purchases to be made locally, increasing the share of sales tax revenue captured in unincorporated Los Angeles County compared to a scenario without the permit. Capital purchases under the permit are assumed to be greater or equal to $5 million.
4 Construction costs generated by SCE will include the generation interconnect line, transmission towers, fiber-optic infrastructure, and associated equipment necessary to connect the Project to the grid.

Capital purchases in incorporated Los Angeles County jurisdictions will still generate sales tax revenue for the County.

During the construction phase, estimated sales tax from all combined capital purchases will total $97,879,532. Of that total, $36,559,902 will accrue to the state, $190,992 will accrue to incorporated County jurisdictions, and $61,128,638 will accrue to the County. Average annual sales tax from equipment purchases during the operations phase of the Project will total an estimated $1,190,177. Of that total, $751,691 will accrue to the state, $119,841 will accrue to incorporated jurisdictions in Los Angeles County, and $318,645 will accrue to the County. Not shown in this amount is the annual sales tax from personnel spending for operational employees. Although the operational labor force is expected to come from Los Angeles County, these employees may come from either existing positions or the unemployment pool. As such, the sales tax revenue from these workers may or may not represent a new net fiscal impact for the County, and are therefore excluded from the results.

During the 40-year operating period of the Project, the annual average property tax is estimated to generate $6,208,774 from the total 1% ad valorem property tax. Additional bond revenue could average $994,764 based on 2024 and 2025 Tax Rate Area allocations for the Project site. Construction and operational phases of the Project will generate positive tax revenues for the County.

Table 3.10-14. Los Angeles County Fiscal Impacts

Fiscal Impact	Estimated Tax Revenue
Estimate of Local Expenditures[1]	$1,732,890,230
Sales Tax from Construction to the State	$36,559,902
Sales Tax from Construction to Other Los Angeles County Jurisdictions	$190,992
Sales Tax from Construction to the County of Los Angeles	$61,128,638
Annual Average Sales Tax from Ongoing Operational Purchases to the State[2]	$751,691
Annual Average Sales Tax from Ongoing Operational Purchases to Other Los Angeles County Jurisdictions[2]	$119,841
Annual Average Sales Tax from Ongoing Operational Purchases to the County of Los Angeles[2]	$318,645
Average Annual Property Tax from Ongoing Operation[3]	$6,208,774
Average Annual Property Tax from Bonds to the County of Los Angeles from Ongoing Operation[4]	$994,764

Source: Appendix 3.10A.
Notes:
1 Local purchases are estimated to occur in unincorporated Los Angeles County.
2 Annual sales from equipment purchase tax during ongoing operation is an average of an estimated 25 years of operational activity.
3 Average annual property tax represents the average total 1% ad valorem property tax over the lifetime of the Project (40 years).
4 Bonds include revenue generated for a community college district, special water district, and local schools. This is representative of current property tax allocations. This represents the average annual property tax generated for these bonds over the lifetime of the Project (40 years).

Estimated capital costs for the Project will be $1,751,989,409. Costs related to the plant and supporting BESS infrastructure are expected to cost an estimated $81,342,256, and equipment related to the Project is expected to cost an estimated $1,670,647,153 (Table 3.10-15).

Table 3.10-15. Estimated Capital Costs of the Project

Item	Cost
Plant	$81,342,256
Equipment	$1,670,647,153
Total Estimated Capital Costs	**$1,751,989,409**

Total construction payroll is estimated at $42,732,000, covering all wages and benefits for workers involved in the construction phase. Construction payroll estimates are based off prevailing wages in Los Angeles County from the Department of Industrial Relations and the Southern California Master Labor Agreement in 2024 (Appendix 3.10A). The annual payroll for permanent operations employees is estimated at $3,630,000. Operational payroll estimates are sourced from the applicant. Therefore, there will be **no impact** from the Project.

3.10.2.3.5 Would the project result in substantial adverse impacts on educational facilities?

Less-than-Significant Impact. Construction of the proposed Project will introduce a temporary increase in workers to the area, but they are not anticipated to relocate to the area or bring their families because the workers will likely be sourced from Los Angeles County and/or be active on site temporarily and will not permanently relocate. As such, the Project will not result in an increase in population in the area that will necessitate additional school services. The operational phase of the Project will require only a small workforce that can be met by the local workforce. As such, operations will not cause a significant increase in demand for school services or significant adverse impact to school services.

The Project site is in the boundaries of the Acton–Agua Dulce Unified School District, which levies a school impact fee for new construction and commercial/industrial construction with covered and enclosed spaces. The fee was last updated by the Acton–Agua Dulce Unified School District in May 2020 from $0.61 to $0.66 per square foot (Appendix 3.10A). The covered and enclosed space for the Project consists of buildings that total 13,000 square feet. As such, the Project is expected to generate $8,580 in school impact fees. Therefore, impacts will be **less than significant.**

3.10.2.3.6 Would the project result in substantial adverse impacts associated with the provision of utility services?

Less-than-Significant Impact. Construction and operation of the proposed Project will not make significant demands on local water, sanitary sewer, electricity, or natural gas. Changes in electricity demand are generally predictable and have daily, weekly, and seasonal patterns. Because the intent of the Project is to store energy during off-peak hours, the applicant will plan installation and testing requirements accordingly. Construction water is anticipated to be purchased from a local water purveyor and trucked to the site. Given the number of workers and the temporary duration of the construction period, the impacts on the local water supply will not be significant. No connection to a municipal water system will be required for construction or operations. During construction, electricity will be provided by a nearby distribution line. During operations, the O&M buildings will be powered via a distribution line from the Project substation. Construction and operational electricity demand will be similar to existing uses along the distribution line. As such, construction and operations will not result in adverse impacts to local utilities, and impacts will be **less than significant.**

3.10.2.3.7 Would the project result in substantial adverse impacts associated with the provision of public services?

Less-than-Significant Impact. Construction and operation of the Project may have minor impacts on police, fire, medical, and/or hazardous materials handling resources. For example, during construction some public services may be required, such as fire protection or medical services due to the increased presence of construction workers, but these will be short-term requirements and will not require increases in the level of public service offered or affect these agencies' response times. Pre-construction coordination with emergency responders and detailed transportation planning to minimize traffic concerns arising from workers commuting to the Project site will occur and emergency plans will be developed during the construction period. Construction and operation of the Project will not place an undue burden on public service providers because public services are located near the Project site and distributed throughout Los Angeles County. During operation, the Project could potentially increase demand for police, fire, and medical services through increased risk of trespass, vandalism, and theft compared to current land uses. Sometimes trespass and theft can lead to accidents, injuries, and fire that require both police and medical response. Additional demands on police, fire, and medical services may come from an increased need for specialized training to understand risks and protocols to respond to risks posed by Project. The Project will entail a perimeter wall with active surveillance. Implementing and maintaining vegetation management practices and security best practices will reduce the risk of fire and trespass and increase the ability of first responders to respond to incidents. As a result of the applicant's safety policies, construction and operation of the Project will not create significant adverse impacts on police, fire, or medical services. As previously identified, construction of the proposed Project will introduce a temporary increase in workers to the area, but they are not anticipated to relocate to the area or bring their families because the workers will likely be sourced from Los Angeles County and/or be active on site temporarily and will not permanently relocate. As such, the Project will not result in an increase in population in the area that will necessitate additional parks or libraries. The operational phase of the Project will require only a small workforce that can be met by the local workforce. As such, operations will not cause a significant increase in demand or significant adverse impact to parks or libraries. Therefore, ~~public services in the area, and~~ impacts will be **less than significant**. Refer to Section 3.16, Wildfire, for details regarding fire services and response times.

3.10.2.4 Environmental Justice

In accordance with California Code of Regulations Title 20, Division 2, Section 1704, Appendix B, this section provides a discussion of impacts to environmental justice populations to determine whether disproportionately high and adverse human health or environmental effects of the Project are likely to fall on minority and/or low-income populations. President Clinton's Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was signed on February 11, 1994. The purpose of this Executive Order is to consider whether a project may result in disproportionately high and adverse human health or environmental effects on minority or low-income populations.

The federal guidelines set forth a three-step screening process (listed below), and impacts of the Project are applied to each of these steps.

1. Identify which impacts of the project, if any, are high and adverse.

The Project will not create any significant "high and adverse" impacts. As shown in the Socioeconomics Report (Appendix 3.10A), there will be no high and adverse impacts on human health or the environment.

2. Determine whether minority or low-income populations exist within the high and adverse impact zones.

Under U.S. Environmental Protection Agency guidelines, an affected area is considered a minority population if at least 50% of its residents belong to this group. Without other guidance, this analysis also uses a 50% threshold to identify low-income populations. The population within a 10-mile radius of the Project site is 173,334 (U.S. Census 2023). According to the U.S. Environmental Protection Agency Environmental Justice Screening and Mapping Tool (EJScreen), the minority population within this radius is 81% (Appendix 3.10A). The low-income population within the radius comprises approximately 36% of the total population. Therefore, minority populations are within a 10-mile radius of the Project site.

3. Examine the spatial distribution of high and adverse impact areas to determine whether these impacts are likely to fall disproportionately on the minority and/or low-income population.

As noted above, the Project will have no high or adverse impacts on human health or the environment. A spatial distribution is not required. Consequently, **no high or adverse human health or environmental impacts** related to the Project will disproportionately fall on minority and/or low-income members of the local community.

3.10.3 Cumulative Impacts

Cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of a proposed project (Public Resources Code Section 21083; Title 14, California Code of Regulations, Sections 15064[h], 15065[c], and 15355).

The analysis presented in the previous sections demonstrate that the Project by itself will have beneficial to insignificant effects on Los Angeles County and the study area over the construction and operations phases. Over the construction period, while employing a small worker population, the Project will contribute to the overall output of the regional economy and generate revenues for local and state governments. This is combined with insignificant impacts on utilities and other public infrastructure and services.

Cumulative impacts refer to the combined potential effects of all projects in a study area. Taken together, these projects could intensify demands on local agencies and community resources. Even if potential impacts from just one project are estimated to be insignificant for the overall study area, the presence of other construction projects in that project's vicinity might add pressure on communities closest to the project site, for example due to non-local labor requiring housing or excessive demands on public services. Although the extent of this cumulative impact is not known, this study estimates the availability of approximately 90,133 available units for temporary housing within Los Angeles County. Because most workers are anticipated to already live in Los Angeles County, sufficient housing will be available to house workers from multiple projects. Other kinds of cumulative socioeconomic impacts are also unlikely because the Project's effects on housing, schools, and public services will be negligible.

3.10.4 Mitigation Measures

Because there will be no significant adverse impacts caused by the Project, no socioeconomic-specific mitigation measures are proposed.

3.10.5 Laws, Ordinances, Regulations, and Standards

Table 3.10-16 presents a summary of the laws, ordinances, regulations, and standards and the Project's conformance to them.

Table 3.10-16. Laws, Ordinances, Regulations, and Standards

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
Federal	Executive Order 12898	Avoid disproportionately high and adverse impacts on minority and low-income members of the community. Applies only to federal agencies, but was used to inform an analysis of impacts to environmental justice communities for the Project.	**Yes.** No high or adverse human health or environmental impacts related to the Project will disproportionately fall on minority and/or low-income members of the local community.	Section 3.10.2.4 Section 3.10.5.1
State	California Code of Regulations Title 14, Section 15131 (CEQA)	The California Environmental Quality Act (CEQA) identifies several environmental factors that are addressed or referenced in this analysis, including population and housing, utilities/service systems, and public services. Economic/social effects of a project are not treated as significant effects on the environment, but they may be used to determine the significance of physical changes caused by the Project.	**Yes.** This section evaluates the Project's effects to population, housing, utilities/service systems, public services, and socioeconomics. Impacts will be less than significant as described above.	Section 3.10.2.3 Section 3.10.5.2
State	Government Code Sections 65996–65997	Establishes that the levy of a fee for construction of an industrial facility be considered to mitigate impacts on school facilities. School districts may charge a one-time assessment fee to mitigate potential school impacts.	**Yes.** The Project will pay applicable school impact fees.	Section 3.10.2.3.5 Section 3.10.5.2
State	Education Code Section 17620	Allows a school district to levy a fee against any construction within the boundaries of the district for the purpose of funding construction of school facilities. Local school	**Yes.** The Project will pay applicable school impact fees.	Section 3.10.2.3.5 Section 3.10.5.2

Table 3.10-16. Laws, Ordinances, Regulations, and Standards

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
		districts may charge a one-time assessment fee to mitigate potential school impacts.		
Local	Los Angeles County General Plan, Economic Development Element (County of Los Angeles 2022)	Outlines the County of Los Angeles's economic development goals, and provides strategies that contribute to the economic well-being of the County of Los Angeles.	**Yes.** The Project will generate approximately $376 million in public revenue during the construction phase, with $154.9 million accruing to the County of Los Angeles (2025-dollar terms). In addition, Project construction is estimated to generate $60.8 million in employee compensation and approximately $145.1 million in total economic output in Los Angeles County. Annual Project operations will provide approximately $5.7 million in employee compensation and $14.5 million in economic output each year during its approximate 40-year lifetime.	Section 3.10.2.3.3 Section 3.10.2.3.4 Section 3.10.5.3
Local	Antelope Valley Area Plan, Economic Development Element (County of Los Angeles 2015)	Provides the blueprint for the planning area to build a healthy and sustainable economic base that will drive development and private-sector-led conservation, and preservation of open space in the area.	**Yes.** See above.	Section 3.10.2.3.3 Section 3.10.2.3.4 Section 3.10.5.3

Note: LORS = laws, ordinances, regulations, and standards

3.10.5.1 Federal

Executive Order 12898

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires federal agencies to consider whether a project may result in disproportionately high and adverse human health or environmental effects on any minority or low-income population by performing an environmental justice analysis. Since the signing of Executive Order 12898, the California Energy Commission has included this topic in its power plant siting decisions to ensure that applicants identify and address any potential adverse impacts to socioeconomic resources.

As described in Section 3.10.2.4, Environmental Justice, no high and adverse human health or environmental impacts related to the Project will disproportionately fall on minority and/or low-income members of the local community.

3.10.5.2 State

California Code of Regulations Title 14, Section 15131 (CEQA)

California Code of Regulations Title 14, Section 15131 states that the potential social or economic effects of a project are not treated as significant effects on the environment; however, they may be used to determine the significance of physical changes caused by a project. Additionally, the code states that social, economic, and housing factors be considered by public agencies, along with environmental and technology factors, to determine whether changes to a project are necessary to avoid or reduce potentially significant effects on the environment.

This relates to the Project's effects to population, housing, utilities/service systems, public services, and socioeconomics. Impacts will be less than significant, as described above.

California Government Code Sections 65996–65997

California Government Code Sections 65669 and 65997 provide the methods of considering and mitigating impacts on school facilities that might occur because of development of real property. Education Code Section 17620, listed in California Government Code Section 65997 as an approved mitigation method, allows school districts to levy a fee or other requirement against construction within the boundaries of the school district for the purpose of funding construction of school facilities.

The Project will pay applicable school impact fees.

3.10.5.3 Local

Los Angeles County General Plan

The Economic Development Element of the Los Angeles County General Plan (Chapter 14) outlines the County's economic development goals, and provides strategies that contribute to the economic well-being of Los Angeles County (County of Los Angeles 2022). The following policies are relevant to the Project:

Policy ED 1.1: Encourage a diverse mix of industries and services in each Planning Area.

Policy ED 1.2: Encourage and foster the development of the renewable energy economic sectors.

Policy ED 1.3: Encourage public–private partnerships to support the growth of target industries.

Policy ED 2.3: Ensure environmental justice in economic development activities.

Policy ED 2.4: Ensure high standards of development and encourage environmentally sustainable practices in economic development activities.

Policy ED 2.7: Incentivize economic development and growth along existing transportation corridors and in urbanized areas.

Policy ED 3.2: Support the use of public–private partnerships to develop, fund, and deliver critical infrastructure.

Policy ED 4.6: Retrofit and reuse vacant and underutilized industrial and commercial sites in urban and suburban areas for emerging and targeted industries.

Overall, the Project will generate approximately $376 million in public revenue during the construction phase, with $154.9 million accruing to the County (2025-dollar terms). In addition, Project construction is estimated to generate $60.8 million in employee compensation and approximately $145.1 million in total economic output in Los Angeles County. Annual Project operations will provide approximately $5.7 million in employee compensation and $14.5 million in economic output each year during its approximate 40-year lifetime (see above for this analysis).

Antelope Valley Area Plan

Chapter 6, Economic Development Element, of the Antelope Valley Area Plan provides the blueprint for the planning area to build a healthy and sustainable economic base that will drive development and private-sector-led conservation and preservation of open space in the area (County of Los Angeles 2015). The following policies are relevant to the Project:

Policy ED 1.11: Encourage the development of utility-scale renewable energy projects at appropriate locations and with appropriate standards to ensure that any negative impacts to local residents are sufficiently mitigated.

Policy ED 1.12: Adopt regulations that ensure that local residents receive a fair share of the benefits of utility-scale renewable energy projects that are commensurate to their impacts.

Overall, the Project will generate approximately $376 million in public revenue during the construction phase, with $154.9 million accruing to the County (2025-dollar terms). In addition, Project construction is estimated to generate $60.8 million in employee compensation and approximately $145.1 million in total economic output in Los Angeles County. Annual Project operations will provide approximately $5.7 million in employee compensation and $14.5 million in economic output each year during its approximate 40-year lifetime (see above for this analysis).

3.10.6 Agencies and Agency Contacts

Table 3.10-17 provides a list of agencies and contacts of potentially responsible agencies.

Table 3.10-17. Agency Contacts for Socioeconomics

Issue/Approval	Agency	Contact
Law Enforcement	Los Angeles County Sheriff	Sheriff Robert G. Luna 211 West Temple Street Los Angeles, California 90012 213.229.1700
Fire Protection	County of Los Angeles Fire Department	Fire Chief Anthony C. Marrone 1320 N. Eastern Avenue Los Angeles, California 90063 323.881.2411
Emergency Management	Los Angeles County Emergency Medical Services Agency	Director Christina R. Ghaly, M.D. 313 North Figueroa Street Los Angeles, California 90012 562.378.1500
Economic Development	County of Los Angeles Department of Economic Opportunity	Director Kelly LoBianco 510 South Vermont Avenue Los Angeles, California 90020 844.777.2059

3.10.7 Permits and Permit Schedule

This evaluation did not identify any required permits related to socioeconomics.

3.10.8 References

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Attachment 19

Section 3.5, Hazardous Materials Handling - Redline Version

3.5 Hazardous Materials Handling

This section discusses the use and storage of hazardous materials associated with the Prairie Song Reliability Project (Project) and the potential effects on human health and the environment. The Project will consist of an up to 1,150-megawatt (MW) containerized battery energy storage system (BESS) facility utilizing lithium-iron phosphate cells, or similar technology, operations and maintenance (O&M) buildings, a Project substation, a 500-kilovolt (kV) overhead generation interconnection (gen-tie) transmission line, and interconnection facilities within the existing Southern California Edison (SCE) owned and operated Vincent Substation.

The evaluation of hazardous materials handling includes the following elements:

- Section 3.5.1 describes the existing environment that may be affected, including land use and hazardous use materials and storage.
- Section 3.5.2 identifies potential impacts to the environment and on human health during construction and operations.
- Section 3.5.3 discusses potential cumulative effects.
- Section 3.5.4 identifies project design and proposed mitigation measures that will be implemented to avoid or minimize potentially significant impacts.
- Section 3.5.5 presents laws, ordinances, and standards (LORS) applicable to hazardous materials.
- Section 3.5.6 identifies agencies involved and provides agency contacts.
- Section 3.5.7 describes permits.
- Section 3.5.8 provides all references used to develop this section.

The following environmental setting and impact evaluation is based in part on the following Project-specific technical reports:

- Appendix 3.5A – Phase I Environmental Site Assessment, dated October 2024 (for Southern Gen-Tie Route parcels)
- Appendix 3.5A – Phase I Environmental Site Assessment, dated November 2024 (for remainder of Project site [BESS Facility and Northern Gen-Tie Route parcels])

A summary of the hazardous materials handling evaluation is provided in the table below.

		Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:					
1	Create a significant hazard to the public or environment through routine transport or use of hazardous materials?z	☐	☐	☒	☐
2	Create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the	☐	☒	☐	☐

		Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
	release of hazardous materials into the environment?				
3	Emit hazardous emissions or handle materials, substances, or waste within 0.25 miles of an existing or proposed school?	☐	☐	☐	☒
4	Be located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and result in a significant hazard to the public or environment?	☐	☐	☐	☒
5	Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency plan?	☐	☐	☒	☐

3.5.1 Affected Environment

3.5.1.1 Land Use

Most of the Project site is vacant, undeveloped land except for a few rural residences and outbuildings. The Project site is adjoined by the Antelope Valley Freeway (California State Route 14), Sierra Highway, Soledad Canyon Road and residential properties to the north; roads and residential properties to the west and south; and the SCE Vincent Substation to the east along with a series of electric transmission lines which traverse across the eastern border of the Project site. The greater surrounding area includes residential properties, an RV park, horse ranches, a fire station, and undeveloped desert land. The Project is in the Antelope Valley Planning area of unincorporated Los Angeles County, California, approximately 3 miles northeast of the center of the community of Acton. The nearest incorporated city, the City of Palmdale, is located approximately 4 miles north of the Project site.

The Phase I ESAs did not identify any recognized environmental conditions (RECs), conditional RECs, or historical RECs associated with the Project site. During the site reconnaissance, the Phase I ESA identified evidence of unauthorized dumping along dirt access roads on APNs 3056-017-007, 3056-017-020, 3056-017-021, 3056-019-013, 3056-019-037, and 3056-019-040, north of the railroad property.

The proposed BESS facility site is directly north of a railroad line; a buffer of approximately 100 feet is located between the BESS facility site and the railroad line. Contaminants common in railway corridors include wood preservatives (e.g., creosote, arsenic) and heavy metals in ballast rock. Asbestos might also occur in ballast rock and soils associated with railroad tracks. In addition, soils in and adjacent to these corridors might contain herbicide residues as a result of historic and ongoing weed-abatement practices. Potential contaminants include chemically treated lumber (creosote), polycyclic aromatic hydrocarbons, herbicides, metals, petroleum hydrocarbons, and solvents. Based on this historic use and given the separation between the railroad-controlled lands and the Project site, the potential for such impacts related to railroad activity are low with respect to the Project.

The Project site is not currently used for agricultural purposes and historical records do not indicate the Project site has been used for agricultural purposes (Appendix 3.5A). The Project site contains some fenced pasture areas that have been and are currently used for small horse ranches. Pesticides are not typically used for grazing pastures (DTSC 2008). Based on the absence of irrigation systems, the short duration of agricultural use for recreational livestock, and the low likelihood of pesticide application, this former agricultural use is considered de minimis.

Asbestos has been specifically designated a hazardous substance pursuant to Comprehensive Environmental Response, Compensation, and Liability Act Section 102. Many building materials commonly contained asbestos until the late 1970s, and a smaller list of building materials contained asbestos in the 1980s, such as drywall, joint compounds, vinyl flooring, roofing, asbestos-cement products, and stucco. Under the Toxic Substances Control Act, the U.S. Environmental Protection Agency (EPA) banned the use of asbestos in many products, with partial bans occurring in 1989 and 1993. However, a full ban of asbestos products did not occur until 2019. Therefore, if a building was constructed prior to 1989, it may contain asbestos. If it was constructed between 1989 and 2019, it is less likely asbestos is present, but there is still a chance that asbestos was still widely used. Several structures were identified on the Project site, and some were constructed as early as 1980. Based on this information, asbestos may be of concern and is further discussed in Section 3.5.2.3.2 below.

Table 3.5-1 contains a list of schools, hospitals, day-care facilities, and long-term health care facilities within a 6-mile radius of the Project site. Figure 3.5-1 shows the location of these facilities. It should be noted that no hospitals are located within the 6-mile radius of the Project site.

Table 3.5-1. Schools/Daycare/Health Facilities Located within 6 Miles of the Project Site

Facility Type	Facility Name	Distance to Project Site	Address
Emergency Medical Services (EMS), fire and rescue services and Safe Haven	Los Angeles County Fire Department - Battalion 17 - Station 80	Approximately 0.2 miles north	1533 Sierra Hwy Acton, California 93510
Private and Charter School	Shiloh Christian School	Approximately 1.9 miles west	32311 Ohio Street Acton, California 93510
Public Elementary School	Meadowlark School	Approximately 2.1 miles west	3015 Sacramento Street Acton, California 93510
Public Middle School	High Desert School	Approximately 2.7 miles west	3620 Antelope Woods Road Acton, California 93510
Substance Abuse Programs	Los Angeles County Department of Health Services - High Desert Health System - Antelope Valley Rehabilitation Center	Approximately 3.7 miles west	30500 Arrastre Canyon Road Acton, California 93510
Public High School	Vasquez High School	Approximately 3.7 miles west	33630 Red Rover Mine Road Acton, California 93510
Public Middle School	Desert Willow Intermediate	Approximately 4.0 miles north	36555 Sunny Lane Palmdale, California 93550
Adult Education	Regional Occupational Program	Approximately 4.6 miles north	1156 E. Ave. S Palmdale, California 93550
Adult Education	South Antelope Valley Adult School	Approximately 4.6 miles north	1212 E. Avenue S Palmdale, California 93550

Table 3.5-1. Schools/Daycare/Health Facilities Located within 6 Miles of the Project Site

Facility Type	Facility Name	Distance to Project Site	Address
Private and Charter School	Eil Excellence In Learning	Approximately 4.6 miles north	36509 Jenna Lane Palmdale, California 93550
Public Elementary School	Barrel Springs Elementary School	Approximately 4.8 miles north	3636 Ponderosa Way Palmdale, California 93550
Public Elementary School	Joshua Hills Elementary School	Approximately 4.9 miles north	3030 Fairfield Avenue Palmdale, California 93550
Public High School	Palmdale High School	Approximately 4.9 miles north	2137 East Avenue R Palmdale, California 93550
Public Elementary School	Tumbleweed Elementary School	Approximately 5.4 miles north	1100 E. Avenue R-4 Palmdale, California 93550
Private and Charter School	St. Mary's School	Approximately 5.4 miles north	1600 E. Avenue R-4 Palmdale, California 93550
Private and Charter School	Patterns In Excellence	Approximately 5.5 miles north	37841 Lasker Avenue Palmdale, California 93550
Public Elementary School	Palm Tree Elementary School	Approximately 5.6 miles north	326 East Avenue R Palmdale, California 93550
Mental Health/Substance Abuse Program	Action Family Counseling - Antelope Valley	Approximately 5.6 miles north	37230 37th Street E Palmdale, California 93551
Public Elementary/Middle School	Palmdale Learning Plaza	Approximately 5.7 miles north	38043 Division Street Palmdale, California 93551
Public Elementary School	Cimarron Elementary School	Approximately 5.7 miles north	36940 45th Street East Palmdale, California 93551
Health Center	South Valley Health Center	Approximately 5.7 miles north	38350 40th Street E Palmdale, California 93551
Private and Charter School	Pinecrest-Palmdale	Approximately 5.8 miles north	2320 East Avenue R Palmdale, California 93551
Public Elementary/Middle School	Oak Tree Learning Center	Approximately 5.8 miles north	37230 37th Street East Palmdale, California 93551
Public Elementary School	Desert Rose Elementary School	Approximately 5.8 miles north	37730 27th Street East Palmdale, California 93551
Public Elementary School	Anaverde Hills School	Approximately 5.8 miles north	2902 Greenbrier Street Palmdale, California 93551
Public Middle School	Cactus Middle School	Approximately 5.8 miles north	3243 East Avenue R-8 Palmdale, California 93551
Emergency Medical Services (EMS), fire and rescue services and Safe Haven	Los Angeles County Fire Department - Battalion 17 - Station 37	Approximately 6.0 miles north	38318 E. 9th Street East Palmdale, California 93551

3.5.1.2 Hazardous Materials Use and Storage

Hazardous materials will be used during construction and operation; the facility will comply with all applicable LORS. Proper use and storage of hazardous materials will minimize potential for accidental release. The following sections describe use, followed by general characteristics of hazardous materials.

During construction, operation, and decommissioning, all fuels, waste oils, and solvents will be collected and stored in tanks or drums within a containment area consisting of an impervious floor and sidewalls. Each containment area will be calculated and designed to be larger than the volume stored within to ensure containment (per Spill Prevention Control and Countermeasures [SPCC] rules [40 CFR 112], 110% capacity is required). Fuel will be stored in aboveground storage tanks. These tanks may have either a double wall or will be placed within temporary containment skid or lined, earthen berms for spill containment. Upon the conclusion of construction and decommissioning phases, excess fuels will be removed from the site and any de minimis drips or surface staining resulting from fuel handling operations will be remediated.

The Project is anticipated to require a Hazardous Materials Business Plan (HMBP; Appendix 3.5B) during construction, operations, and decommissioning because it is anticipated to have materials on site that are greater than the State of California thresholds for quantities of hazardous materials. Threshold quantities are hazardous materials at or above the reporting quantities of 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas. A list of the hazardous substances which qualify for reporting is maintained in California Occupational Safety and Health Regulations Chapter 3.2 Article 5 Section 339. The hazardous materials anticipated at the Project are discussed below. A safe designated Hazardous Waste Storage Location will be determined closer to design finalization for storage of any hazardous materials and waste used or generated during construction, normal operations, and emergency actions. It is expected the location will be within the main laydown yard during construction and within the O&M area during operations.

3.5.1.2.1 Construction Phase

The hazardous materials used for construction will be typical of most construction projects of this type. Materials will include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies. Petroleum, such as Diesel No. 2 or gasoline, may be stored on site during construction and decommissioning to fuel construction and decommissioning equipment, with minimal amounts of diesel anticipated to be stored on site during the operation of the Project.

Hazardous material use will present relatively low public health risk, but have the potential to contaminate subsurface soils, and/or groundwater if a release or incident were to occur. The use of best management practices (BMPs) will reduce the likelihood of potential incidents involving hazardous materials.

General industry health, safety, and environmental BMPs will be implemented by construction personnel. The following BMPs are designed to reduce incidents involving hazardous materials:

- Refueling and maintenance of equipment and vehicles will generally occur in designated areas that are designed to control potential spills. Designated areas will be bermed and/or covered by an impervious surface (asphalt or concrete) to control potential spills. Employees will be present during diesel refueling activities. When mobile diesel refueling is required, the diesel refueling vehicle will be equipped with fire extinguishers and spill containment equipment, such as absorbents. The facility and surface drainage systems are designed to manage stormwater runoff within the property bounds during construction in accordance with the Construction General Permit and Storm Water Pollution Prevention Plan.
- Only authorized personnel will conduct vehicle and equipment service maintenance.
- Only EPA approved pumps, hoses and nozzles will be used to refuel equipment and vehicles.
- During servicing, catch-pans will be placed under equipment to catch potential spills or leaks.
- After servicing, disconnected hoses will be placed in containers to collect any residual fuel from the hoses.
- During diesel refueling, vehicle engines will be shut off.
- Smoking, open flames, or welding will not be permitted in diesel refueling and service areas or hazardous waste storage areas.
- Diesel refueling will be performed away from surface water or storm water drains.
- Following diesel refueling activities, service trucks will immediately leave the construction zone.
- All maintenance and diesel refueling areas will be inspected monthly. Results of inspections will be recorded in a logbook that will be maintained on site.

3.5.1.2.2 Operations Phase

Limited amounts of hazardous materials will be stored or used on the Project site during operations, including mineral oil to be sealed within the transformers. Appropriate spill containment and cleanup kits will be maintained during operation of the Project. Fuels and lubricants used in operations will be subject to an SPCC Plan to be prepared for the Project (Appendix 3.5C). Federal and California regulations requires a SPCC Plan if stored quantities are equal to or greater than 1,320 gallons total. The Project will store sufficient diesel to supply local backup power for emergency operations and fire pumps required to meet fire department and insurance requirements. Should this exceed 1,320 gallons total on site, an SPCC will be prepared. Solid waste, if generated during operations, will be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

The enclosures that are anticipated to be used at the Project site are safe under normal handling and operating conditions. Each individual enclosure will be monitored and controlled to ensure safe and efficient operations, and every BESS enclosure will be equipped with ventilation, as well as gas, heat, and smoke detection and alarms. The systems will be designed, constructed, and operated pursuant to the California Fire Code.

Hazardous chemicals use, typical quantities, and toxicity are described in Table 3.5-2.

Table 3.5-2. Hazardous Materials Use During Construction and Operation

Hazardous Material	Uses	Typical Quantities	Potential for Toxicity
Diesel[a]	Fuel for construction equipment and vehicles during construction and decommissioning. Used to power emergency generators during operation.	Over 5,000 gallons will be stored in aboveground tanks during construction and operation. The amount of diesel to be stored on site during decommissioning is unknown at this time but is assumed be similar to that of construction.[b]	Fuel oils are liquid mixtures produced from petroleum, and their use mostly involves burning them as fuels. Drinking or breathing fuel oils may cause nausea or nervous system effects. However, exposure under normal use conditions is not likely to be harmful (ATSDR 1996).
Gasoline	Some construction equipment and vehicles	Gasoline will not be stored on site during construction, operation, or decommissioning.	
Lubricating oils/ grease/ hydraulic fluids/gear oils	Lubricating oil will be present in the diesel engine of the emergency generators, and in engines of construction equipment and vehicles	Limited quantities will be stored in portable containers (capacity of 55 gallons or less) and maintained on site during all phases of the Project. Containers will be double lined and stored within secondary containment.	Exposure to hydraulic fluids occurs mainly in the workplace. Some hydraulic fluids have a bland, oily smell, and others have no smell; some are flammable, and some are not. Ingesting large amounts of some types of hydraulic fluids can cause pneumonia (ATSDR 1997).
Glycol-based antifreeze	Used in the diesel engine for the emergency generators.	Limited quantities (10 gallons to 20 gallons of concentrate) will be stored on site during all phases of the Project.	Ethylene glycol is a clear liquid used in antifreeze and de-icing solutions. Exposure to large amounts of ethylene glycol can damage the kidneys, nervous system, lungs, and heart (ATSDR 2013).
Lead-acid storage batteries and electrolyte solution	Present in construction equipment and vehicles. Backup power source for control equipment.	Limited quantities of electrolyte solution (<20 gallons) for maintenance of construction equipment and vehicles during construction and decommissioning. Approximately 6,000 pounds of H_2SO_4 (sulfuric acid) within the control house.	The electrolyte solution in lead acid batteries contains sulfuric acid, which is highly corrosive and can cause severe chemical burns to the skin and can damage the eyes (NLM 2025).
Lithium-iron phosphate batteries	Used for Project operations	Due to the constantly improving and changing technology of these energy storage systems, a specific manufacturer and model has not been selected at this time. Based on industry averages, the	Batteries commonly contain materials such as lithium, as well as graphite and a flammable electrolyte. Under normal usage conditions, they do not exhaust vapors. In normal usage, cell electrolyte should not be encountered by anyone handling a battery, making the risk of a spill of electrolyte from any commercial battery

Table 3.5-2. Hazardous Materials Use During Construction and Operation

Hazardous Material	Uses	Typical Quantities	Potential for Toxicity
		maximum expected quantity by weight is as follows: Lithium: 5%–10%. It is important to note that elements are all sealed with the battery cells. Even when the cell is physically damaged, the internal chemicals will not "pour" out of the cells.	pack very remote. Furthermore, in most commercial cells, the electrolyte is largely absorbed in electrodes, such that there is no free or "spillable" electrolyte within individual sealed cells. In those instances, severe mechanical damage (e.g., severe crushing) can cause a small fraction of total electrolyte quantity to leak out of a single cell; however, any released electrolyte is likely to evaporate rapidly (NFPA 2016).
Cleaning solvents	Organic solvents will be used for equipment cleaning and maintenance when water-based cleaning and degreasing solvents cannot be used.	Limited quantities or organic solvents (<55 gallons) will be stored on site during construction and decommissioning to maintain construction equipment and vehicles. Limited quantities (<10 gallons) of water-based cleaning solvents will be stored on site during operation.	Exposure to solvents and other organic liquids is one of the most common chemical health risks at places of work. Most of the organic solvents are combustible, often highly volatile, and extremely flammable, and they should always be handled with care. Some solvents produce vapors which are heavier than air. These may move on the floor or ground to a distant ignition source, such as a spark from welding or caused by static electricity. The vapors may also explode from smoking. Vapors of solvents can also accumulate in confined places and stay there for a long time, presenting risks for health and property. Solvents enter the body by inhalation, by swallowing and through the skin. The effect depends on several factors (International Labour Organization 2004).
Dielectric fluids (i.e., Mineral Oil)[c]	Used in electrical transformers and other electric power management devices as an electrical insulator.	Some transformers may contain more than 500 gallons of dielectric fluid. On-site transformers each contain approximately 10,000 gallons of mineral oil.	Dielectric fluids such as mineral oil may cause allergic reactions. Primary Routes of Entry: Eye and skin contact, inhalation; Target Organs: Eyes, skin, respiratory tract; Persons with preexisting skin and respiratory conditions may be more susceptible to the effects of this product. Mineral oil is not listed in the National Toxicology Program (NTP) Annual Report on Carcinogens and not listed as OSHA carcinogens (Environmental Protection Services 2023).
Herbicides that contain glyphosate	May be used for vegetation control around facilities for fire safety.	If deemed necessary, herbicides will be brought to the site and applied by a licensed applicator.	If a large amount is swallowed, glyphosate can cause nausea and vomiting. It can be very irritating if it is left on your skin or eyes. Glyphosate has been associated with respiratory effects (lung and nose), such as irritation in the nose, or asthma, in people

Table 3.5-2. Hazardous Materials Use During Construction and Operation

Hazardous Material	Uses	Typical Quantities	Potential for Toxicity
			using glyphosate products. Workers that use large amounts of glyphosate products for long periods of time may be more likely to develop respiratory effects. Studies in animals have shown that glyphosate can cause developmental effects (such as lower body weight and problems with bone and organ growth) when the pregnant animals were given very large amounts of glyphosate. (ATSDR 2020)

Notes: OSHA = Occupational Safety and Health Administration.

a Diesel fuel will be replenished on site by commercial vendors, as necessary.

b These values represent the total on-site storage capacity, not the total amount of fuel which will be consumed during Project construction.

c It is assumed that the majority of transformers and other electrical devices that rely on dielectric fluids will have those fluids added during fabrication and will not require dielectric fluid to be added on site. It is assumed that servicing of electrical devices that involves wholesale removal and replacement of dielectric fluids will not occur on site and that equipment requiring such servicing will be removed from the site and replaced. New transformers or electrical devices are expected to contain mineral oil based, or synthetic dielectric fluids that are free of polychlorinated biphenyls. Depending on commercial availabilities in response to active regulatory proceedings, some equipment may instead contain gaseous dielectric agents rather than liquid dielectric fluids.

3.5.2 Impact Analysis

Construction and operation will involve the use of various hazardous materials. The use of hazardous materials and their potential to cause adverse environmental and human health effects are discussed in the sections below.

3.5.2.1 Methodology

The information presented is based on site-specific engineering plans, Phase I Environmental Site Assessments, and readily available resources provided online. Potential direct and indirect Project impacts related to hazardous materials handling were evaluated against the California Environmental Quality Act (CEQA) significance criteria and are discussed below. The impact analysis evaluates potential Project impacts during Project construction, operation, and decommissioning.

3.5.2.2 CEQA Appendix G Assessment Criteria

CEQA Guidelines Appendix G is a screening tool, not a method for setting thresholds of significance. CEQA Guidelines Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to make a determination as to whether a project requires an EIR, a Mitigated Negative Declaration or a Negative Declaration. As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects, but does not provide a means of judging whether they are indeed significant in a given set of circumstances."

The answers to the CEQA Guidelines Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Guidelines Appendix G are instructive. With Respect to Hazardous Materials Handling, CEQA Guidelines Appendix G asks, in part, would the project:

- Create a significant hazard to the public or environment through routine transport or use of hazardous materials;
- Create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle materials, substances, or waste within 0.25 miles of an existing or proposed school;
- Be located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and result in a significant hazard to the public or environment;
- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency plan?

3.5.2.3 CEQA Appendix G Assessment Criteria

3.5.2.3.1 Will the project create a significant hazard to the public or environment through routine transport, disposal, or use of hazardous materials?

Construction

Less than Significant. The proposed Project, including the BESS facility and gen-tie connection, will involve the routine transport, use, or disposal of hazardous materials. Most of the hazardous waste generated by the Project will occur during the construction period and will consist of liquid waste, including cleaning fluids, dust palliative, herbicides, and solvents. Some solid hazardous waste, such as welding materials, may also be generated during construction. These materials will be transported to the Project site during construction, and any hazardous materials that are produced as a result of the construction of the Project will be collected and transported away from the site for disposal in an approved off-site waste disposal facility. During Project construction, material safety data sheets for all hazardous materials present on site will be made readily available to on-site personnel to ensure awareness and proper handling. Workers will be trained to properly identify and handle all hazardous materials.

Transportation of hazardous materials will be required during construction, operation, and decommissioning activities. All transportation of hazardous materials associated with the Project construction and operations will comply with the following:

- U.S. Environmental Protection Agency (EPA)
- California Department of Transportation (Caltrans)
- California Department of Toxic Substance Control (DTSC)
- California Highway Patrol (CHP)
- California State Fire Marshal Regulations

Overall, the use of hazardous materials, and subsequent transport and disposal of such materials during construction, will be controlled through compliance with applicable regulations to limit releases of hazardous materials and wastes. Diesel fuel and lubricants used on field equipment will be subject to an HMBP and a SPCC plan which requires include routine inspection, annual reporting, and rules for labeling, storage, secondary containment, spill prevention and response measures, employee training, and safety and security measures. The disposal of all oils, lubricants, and spent filters will occur in accordance with applicable local, State, and federal regulations. Recyclable materials including wood, shipping materials, and metals will be separated as feasible for recycling. Liquids and oils in the transformers and other equipment will be used in accordance with applicable regulations. As such, Project construction is not anticipated to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts will be **less than significant**.

The Project would implement the following additional measures to increase safety during BESS unit transportation and storage:

1. The Project would follow the manufacturer's recommended transportation best practices, including, but not limited to, advanced route inspection to note road conditions, height limits, actual heights and widths, weight limits, traffic restrictions, potential obstructions, any potential weight limits on bridges, proper vertical transportation of the BESS units, properly securing the BESS during transport, and transporting the BESS with cells at a state of charge 30% or less.
2. The Project would also notice first responders along the route of the BESS deliveries and the duration of the delivery periods.
3. The Project would also require the freight company to have a contingency plan prepared for emergency situations (vehicle breakdown, accident, diesel spill, fire, explosion, etc.) during transportation of goods. Once the freight company is selected, a contingency plan would be reviewed and available in every transport truck and on site.

   Subject to the requirements on the individual freight companies, the following procedures will be followed in the event of a vehicle breakdowns, accident, or other event.

   TRANSPORTATION CONTINGENCY PLAN

   This plan outlines the procedures and requirements for the safe and compliant transportation of lithium batteries in bulk by truck, in accordance with the U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR), 49 CFR Parts 171–180.

   1. REGULATORY FRAMEWORK: All activities covered by this plan shall be conducted in strict adherence to:

   1.1. 49 CFR Part 171: General Information, Regulations, and Definitions.

   1.2. 49 CFR Part 172: Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans.

   1.3. 49 CFR Part 173: Shippers - General Requirements for Shipments and Packagings, specifically Section 173.185 Lithium cells and batteries.

   1.4. 49 CFR Part 177: Carriage by Public Highway.

   1.5. 49 CFR Parts 178 and 180: Specifications for Packagings and Continuing Qualification and Maintenance of Packagings (as applicable).

   2. CLASSIFICATION OF LITHIUM BATTERIES (Ref: Section 172.101, Section 173.185)

   2.1. Responsibility: The shipper is responsible for correctly classifying the lithium batteries. The freight company will verify shipper documentation.

   2.2. Proper Shipping Name (PSN) and UN Number:

2.2.1. UN3480, Lithium ion batteries

2.2.2. UN3481, Lithium ion batteries contained in equipment / packed with equipment

2.2.3. UN3090, Lithium metal batteries

2.2.4. UN3091, Lithium metal batteries contained in equipment / packed with equipment

2.3. Hazard Class: Class 9 (Miscellaneous hazardous material).

3. Immediate Response:

3.1. Safety First:

3.1.1. Apply the braking system, stop the engine and isolate the battery.

3.1.2. Turn on hazard lights, set up warning devices (safety triangles), and ensure the driver's safety.

3.1.3. When exiting the vehicle, take the transport documents and emergency procedure guides.

3.1.4. Move away from the vicinity of the accident or emergency. Advise other persons to move away and follow the advice of the emergency services.

3.1.5. Avoid sources of ignition. Do not smoke, use electronic cigarettes or similar devices, or switch on any electrical equipment.

3.2. Contact and Reporting:

3.2.1. Immediately notify dispatch or designated personnel about the breakdown, including location, nature of the problem, and any potential hazards.

3.2.2. Where possible, make any mobile phone calls away from the vehicle.

3.2.3. In the event of an accident or fire inform the appropriate emergency services, giving as much information about the incident or accident and substances involved as possible.

3.2.4. Keep transport documents readily available for responders on arrival.

3.2.5. Do not walk into or touch spilled substances. Avoid inhalation of fumes, smoke, dust and vapors by staying up-wind.

3.3. Small Fires:

3.3.1. Where appropriate and safe to do so, use fire extinguishers to put out small/initial fires in tires, brakes and engine compartments.

3.3.2. Drivers should only fight fires directly involving dangerous goods if it is safe to do so.

3.3.3. Where appropriate and safe to do so, use on-board equipment to prevent leakages into the environment or the sewage system and to contain spillages.

3.4. Documentation: Document the incident, including time, location, driver's name, and any relevant details.

3.5. Call for Assistance: Initiate the process for towing, repair, or alternative transportation, depending on the situation and location.

4. Communication:

4.1. Internal Communication: Keep dispatch, management, and relevant departments informed about the breakdown and its potential impact.

4.2. External Communication: Notify customers of the potential delay, providing estimated delivery times and any alternative options.

4.3. Transparency: Maintain open communication with customers throughout the process, keeping them updated on the situation.

5. Long-Term Solutions and Alternatives:

5.1. Identify Backup Resources: Have a plan for alternative vehicles, drivers, and routes in case of a breakdown.

5.2. Evaluate Repair Options: Assess the feasibility of repairing the vehicle on-site, at a nearby facility, or at a designated maintenance location.

5.3. Consider Alternatives: If repairs are not feasible, explore options like rerouting, rescheduling, or utilizing alternative transportation methods.

6. Additional Considerations:

6.1. Technology: Utilize technology like GPS tracking, telematics, and communication tools to monitor vehicles and facilitate communication.

6.2. Risk Assessment: Regularly assess potential risks and update the contingency plan accordingly, considering factors like weather, traffic, and road closures.

6.3. Training: Provide adequate training for drivers on how to handle breakdowns and communicate effectively with dispatch and customers.

6.4. Emergency Kit: Ensure vehicles have a well-stocked emergency kit with essential tools and supplies.

Storage Best Practices

The Project will implement the manufacturers' recommended storage best practices for any BESS units that are not placed on their foundations/or piers with 30 days of arrival on site. Best practices include, but are not limited to, storing the BESS unit in areas that do not accumulate standing water during the rainy season; raising the container storage pad to a reasonable height based on geologic and meteorological conditions; storing the BESS on dry flat ground that does not exceed a slope of 5 degrees; ensuring all doors and closed and locked; limit storage environment temperatures to be between -30 degrees Celsius and 50 degrees Celsius; storing in an area with a relative humidity between 0% and 100%; covering air inlets and outlets with a protective film to reduce the potential for rain, dust, or sand entry; and inspecting the equipment every 14 days.

Operations

Less than Significant. O&M activities associated with a BESS facility and will require use of hazardous materials to maintain the BESS enclosures and transformers. Those that will be used will be stored on site in designated, secured areas with secondary containment. The perimeter of the BESS facility will be fenced to prevent public access to any hazardous materials on site. Operational activities will be limited to monitoring facility performance and conducting scheduled or emergency maintenance of on-site electrical equipment and/or the gen-tie line. No heavy equipment will be routinely used during normal Project operation. O&M vehicles will include trucks (i.e., pickup, flatbed), forklifts, and/or loaders for routine and unscheduled maintenance. Large heavy-haul transport equipment and cranes may be brought to the Project site when needed for equipment repair or replacement. Longterm maintenance and equipment replacement will be scheduled in accordance with manufacturer recommendations. The Project will also include operational and maintenance protocols that will be used to identify and remove damaged or defective battery modules as required. A HMBP and SPCC plan will be prepared, which includes requirements for handling, storage, employee training, site security measures, annual reporting, and routine inspections of facilities that store reportable quantities of hazardous materials associated with Project operation. These operations will be conducted in accordance with standard practices to minimize potential exposure of workers or the public. As such, operations and maintenance of the Project is not anticipated to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts will be **less than significant.**

3.5.2.3.2 Will the project create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Hazardous Materials Use

Construction and Decommissioning

Less than Significant. As discussed under Section 3.5.2.3.1 above, construction will involve storage and use of hazardous materials; regulatory controls and measures, along with best management practices and training, reduce the risks associated with the storage and use of hazardous materials.

Project construction and decommissioning activities could result in the transport, use, and disposal of hazardous materials such as fuels, asphalt, lubricants, toxic solvents, pesticides, and herbicides. Although care will be used when transporting, using, and disposing of these materials, there is always a possibility that upset or accidental conditions may arise, which could release hazardous materials into the environment. Accidental releases of hazardous materials are those releases that are unforeseen or that result from unforeseen circumstances, while reasonably foreseeable upset conditions are those release or exposure events that can be anticipated and planned for.

Project construction and decommissioning activities will occur in accordance with all applicable local standards set forth by Los Angeles County, as well as state and federal health and safety requirements that are intended to minimize hazardous materials risk to the public, such as California Division of Occupational Safety and Health requirements, the Hazardous Waste Control Act, the California Accidental Release Protection Program, and the California Health and Safety Code. As noted above, the HMBP and SPCC will include spill prevention and control measures, and include training requirements. Also, the Project will be subject to routine regulatory inspection by the California Energy Commission (CEC), therefore protective measures are reviewed by agencies. The construction and decommissioning contractors will be required to implement such regulations relative to the transport, handling, and disposal of any hazardous materials, including the use of standard construction controls and safety procedures that will avoid or minimize the potential for accidental release of such substances into the environment. Standard construction practices will be observed such that any materials released are appropriately contained and remediated as required by local and state laws.

Furthermore, a stormwater pollution prevention plan will be implemented to minimize potential hazards associated with construction and decommissioning site pollutants. The stormwater pollution prevention plan will include BMPs, such as covering and containing hazardous materials so that they are not in contact with precipitation or runoff, identifying the worst-case and most likely spill scenarios, and providing adequate response equipment to ensure that hazardous materials are not carried off site through stormwater runoff. The facility is anticipated to require a HMBP during construction, operations, and decommissioning because it is anticipated to have materials on site that are greater than the State of California thresholds for quantities of hazardous materials. The HMBP includes an emergency action plan, clean-up and containment provisions, and training and recordkeeping requirements.

Therefore, construction and decommissioning related Project impacts will be **less than significant** with implementation of the required BMPs and training and compliance with applicable federal, state, and local requirements related to hazardous materials.

Operations Phase

Less than Significant. As discussed under Section 3.5.2.3.1 above, operation will involve use and storage of hazardous materials. Most of the hazardous materials used and stored on site will consist of lithium-ion batteries for Project operations, diesel storage for back-up generators, and mineral oil in transformers. Uncontrolled release of liquid chemicals could run off and drain into the stormwater system and potentially have harmful effects. However, the use and storage of hazardous materials will pose less than significant risks for release if best management practices are adopted and regulatory requirements are adhered to, as detailed above.

The use and storage of hazardous materials will be contained in designated areas on site that will be outlined in the HMBP, which is required for construction and operation. The HMBP includes an emergency action plan, clean-up and containment provisions, and training and recordkeeping requirements. The risk of public exposure to hazardous materials, with appropriate BMPs, is low and will not be significant. All equipment (particularly equipment operating in or near a drainage or in a basin) will be maintained in good working condition, and free of leaks. All vehicles will be equipped with drip pans during storage to contain minor spills and drips. Refueling and storage will take place within dedicated and established O&M areas. Spill kits will be located on site and in vehicles for use in spill response. In addition, all maintenance crews working with heavy equipment will be trained in spill containment and response.

As described in Table 3.5-2, the Project may contain approximately 6,000 pounds of H_2SO_4 (sulfuric acid) within the control house. The reportable quantity for sulfuric acid under EPA's Regulated Substances list is 10,000 lbs, therefore, there are no federal requirements. However, the California Accidental Release Prevention Program's (CalARP's) threshold reporting quantity is 1,000 lbs, therefore a Risk Management Plan (RMP) will be required (EPA 2023). The RMP will contain detailed information including, but not limited to: the regulated substances, potential off-site consequence of an accidental release, emergency response program, coordination with local emergency responders, operating and training procedures, and incident investigation.

Therefore, operation-related Project impacts will be **less than significant** with implementation of the BMPs and training and compliance with applicable federal, state, and local requirements related to hazardous materials.

Accidental Release Hazards

Less than Significant. Without proper engineering controls, the public could be at risk of exposure to harmful vapors in the event of an accidental release during construction, operation, and decommissioning activities associated with the Project, as incompatible chemicals have the potential to mix, causing vapors that could also have harmful effects. However, the Project will implement California Fire Code (Articles 79 and 80) requirements for safe storage and handling of hazardous materials. The proposed Project and the affiliated staff will use engineering controls to reduce the potential for release of hazardous materials and mixing of incompatible materials.

All transportation of hazardous substances will be with Department of Transportation-approved personnel and trucking/transport equipment. Project operations will not involve the handling of any other acutely hazardous materials other than those listed in Table 3.5-2 that will have the potential to generate significant off-site consequences. However, release prevention measures are required under HMBP and SPCC rules and regulations, which will be implemented in the event hazardous materials and/or petroleum products are stored above reportable quantities. These measures, which include protections like secondary containment and accessible spill response kits, will further reduce the potential for accidental releases.

As such, construction, operation, and decommissioning impacts related to Project implementation will be **less than significant** with implementation of the BMPs and training and compliance with applicable federal, state, and local requirements related to hazardous materials.

Fire and Explosion Hazards

See Section 3.16, Wildfire, for a discussion on impacts related to fire. As detailed in Section 3.16, Wildfire, CAL FIRE's Fire and Resource Assessment Program database includes map data documenting areas of significant fire hazards in the state. These maps categorize geographic areas of the state into different fire hazard severity zones. As shown in Figure 3.16-2, Fire Hazard Severity Zones, the proposed Project site and the surrounding area are located on SRA lands where the state has the primary responsibility for fire suppression. According to the State Fire Marshal Fire Hazard Severity Zone Maps, the proposed Project site and the surrounding area are in an area currently designated as a Very High Fire Hazard Severity Zones.

Less than Significant. All hazardous material storage areas will be equipped with a fire extinguishing system and ventilation for enclosed substances per the requirement of Article 80 of the California Fire Code. Hazardous materials used and stored on site during Project construction and operation will be stored in appropriate containers in compliance with federal and State regulations. Procedures for the use and handling of hazardous materials will be described within the Project-specific HMBP as well as the Emergency Response Plan (ERP), and SPCC Plan.

The operational and construction ERPs will be developed in conjunction with the Los Angeles County Fire Department.

The Project operational and construction ERPs will ensure compliance with OSHA regulations (29 CFR 1910.120[q], 29 CFR 1926.35) and prioritize the safety and awareness of workers, contractors, visitors, and the environment by minimizing risks from hazardous material spills, releases, or exposure. The ERPs will be provided to all local responders and on-site personnel associated with the Project.

The Project operational and construction ERPs will outline the basic safety measures, required fire department access routes, hydrant locations, emergency disconnects, and other relevant features of the BESS. It will be written using terminology that fire department first responders are familiar with and will consider them as the primary reader. The BESS ERPs, at a minimum, will include the following:

- Definitions and Acronyms
- General Information: Identify the site location, the type of equipment on site, the location of access points, fire hydrants, pump stations, and an explanation of the site lite layout and locational identification scheme (i.e., row and BESS numbers).
- Energy Storage System Information: Include information about the cell chemistry and operating characteristics, e-stop locations, smoke and heat detection systems, fire alarm control panel information, and gas detection information.
- Battery Management System Information: The battery management system (BMS) is an autonomous control process that monitors a defined set of operating parameters within the battery container, such as heat, voltage, and amperage. If equipment operates outside of their defined parameters, then an alarm is generated, and equipment is automatically isolated. The BMS also interfaces with the fire alarm control panel. If heat, smoke, or hydrogen alarms are triggered, alarms are generated and equipment is isolated. Isolation occurs through the operation of the e-stops by the BMS.

- Fire Protection System Details
- Risk Assessment: Conduct a site-specific hazard analysis to identify hazardous materials (e.g., fuels, solvents, paints, adhesives). Assess risks like spills, fires, or exposures due to improper handling or storage.
- Response Tactics: Include matrices that indicate various potential site failures (i.e., cable, cell, BESS unit, and skid failure) and the appropriate response for each. Include failure models to identify response distances and safe zones. Include recommendations for personal protective equipment.
- Post Incident Operations: Include information on personal protective equipment, lock out/tag out, stray voltage, thermal exposure assessment, and air sampling.
- Emergency Response Team (ERT): Establish a trained ERT with roles such as incident commander, first aid providers, and spill containment specialists. Ensure team members are trained in HAZWOPER (29 CFR 1910.120[q]).
- Communication Protocols: Use radios, alarms, or mobile devices to alert workers of incidents. Post emergency contact numbers (fire department, medical services) at multiple site locations.
- Evacuation and Containment: Implement primary and secondary evacuation routes and assembly points. Deploy spill kits and containment measures (e.g., absorbent materials, barriers) to control releases.
- Training and Drills: Conduct regular training on hazardous material handling and emergency procedures. Perform drills every 6 months to simulate spills, fires, or exposures.
- Regulatory Compliance: Ensure compliance with OSHA 1926.65 (Hazardous Waste Operations) and local regulations.
- Procedures to update the ERP, for example as site conditions change (e.g., new materials or phases).
- Evacuation Procedures
    - Detailed steps for evacuation, including signage and locational markers.
    - Designation of primary and secondary evacuation routes and assembly points.
    - Procedures for shelter-in-place or lockdown, if applicable.
- Hazardous Material Incident Response
    - Procedures for containing and controlling spills (e.g., use of absorbent materials, barriers).
    - Protocols for handling exposures (e.g., decontamination, first aid).

In addition to the above information, the Project construction ERP will detail specific hazards, characteristics of battery-specific failures, and a process to alert and muster on-site construction personnel in the event of a thermal runaway or other emergency event. A process for alerting fire department personnel and a process for post-event inspection monitoring and return-to-work actions will be included.

During operations, the Project ERP will be updated to include hazardous materials for chemicals used in maintenance, cleaning, or production. The operational ERP will be applied as follows:

- Ongoing Hazard Monitoring: Maintain an inventory of hazardous materials and their safety data sheets. Regularly inspect storage areas for leaks or improper storage.
- ERT Continuity: Maintain a trained ERT with updated certifications. Assign roles for operational-specific hazards, such as chemical releases in confined spaces.
- Communication Systems: Install permanent alarm systems and communication channels to notify employees and external responders (e.g., fire department) during incidents.

- Evacuation and Shelter-in-Place: Establish evacuation routes and shelter-in-place zones for scenarios like toxic gas releases. Ensure routes are marked and accessible.
- Training and Maintenance: Provide annual refresher training on hazardous material handling and emergency response. Conduct regular inspections of safety equipment (e.g., spill kits, fire extinguishers).
- Incident Reporting: Document all incidents and near-misses involving hazardous materials to improve procedures and ensure compliance with OSHA 1910.120(q).

The Project will require the use of flammable materials such as lubrication oil and diesel fuel. Storage of flammable materials will be in accordance with Article 80 of the California Fire Code. A fire extinguishing system will be nearby the storage and lube oil pumping areas. Flammable materials will be handled by in accordance with the HMBP and SPCC.

For emergency spills, hazardous materials, and fire related incidents, CAL FIRE will first be called. For additional assistance, the closest fire station is the Los Angeles County Fire Department Station 80, located at 1533 W. Sierra Hwy. Acton CA 93510, which is immediately across the Antelope Valley Freeway and approximately 0.2 miles north of the Project site. If a fire involves hazardous materials, the Los Angeles County Fire Department, Health Hazardous Materials Division can be contacted to direct fire stations equipped to handle hazardous materials. The ERP, HMBP, and SPCC Plan require emergency response procedures to be documented and available at the operating site. Contact information for applicable emergency response agencies must be included in these plans and posted in conspicuous locations at the site.

The applicant will use battery storage systems that are National Fire Protection Association 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. A fire protection system will be installed to automatically shut down any affected battery storage components and prevent the spread of the fire to the other battery storage modules. In addition, a fire wall will be installed around the perimeter of the BESS area for fire protection purposes – both to prevent wildfire from impacting the site and to reduce the chance of an on-site fire from escaping beyond the property. Fire hydrants will be installed in accordance with Los Angeles County Fire Department standards. As such, impacts will be **less than significant.**

Hazardous Materials in Soils

Less than Significant with Mitigation. The Phase I ESAs did not identify any RECs, conditional RECs, or historical RECs associated with the Project site. The Phase I ESA did identify evidence of unauthorized dumping along dirt access roads north of the railroad property, potential for contaminants in railway corridors, and potential for asbestos since some structures on site were constructed as early as 1980.

While illegal dumping was observed on some of the dirt roads on the Project site, based on the type of waste observed (no hazardous materials were observed), contamination is not expected. Conformance with applicable federal, state, and local ordinances related to the proper handling and disposal of this waste will be implemented during Project construction (CalRecycle, EPA, DTSC, etc.).

The Antelope Valley Air Quality Management District requires asbestos surveys and notification prior to demolition (AVAQMD 2022). The Project will comply with this LORS prior to demolition of the structures on site.

While there is a buffer of approximately 100 feet between the BESS facility site and the railroad line, there is potential for contaminants on the BESS facility site due to historical use of the railroad. Contaminants common in railway corridors include wood preservatives (e.g., creosote, arsenic) and heavy metals in ballast rock. Asbestos might also occur in ballast rock and soils associated with railroad tracks. Potential contaminants include chemically treated lumber (creosote), polycyclic aromatic hydrocarbons, herbicides, metals, petroleum hydrocarbons, and solvents. However, any treated wood waste encountered during Project construction will be handled and disposed of in accordance with State law. The Project will adhere to State requirements under Health and Safety Code section 25230 for treated wood waste, as necessary (DTSC 2025). ~~In addition~~The Project ~~will~~ proposes implementation of Mitigation Measure HAZ-1 to address potential contaminated soil associated with the adjacent railroad. Upon review of the initial application, the CEC asked the applicant to prepare and implement a soil sampling plan for the Project, consistent with the sampling identified in Mitigation Measure HAZ-1. On August 28, 2025, surface soil samples along the southern border of the Project adjoining the railroad were collected.

The results of the sampling showed that no polycyclic aromatic hydrocarbons, total petroleum hydrocarbons, volatile organic compounds, or chlorinated herbicides were detected in any of the five (5) soil samples collected. Lithology observed at the sampling locations was uniform across the site. Lithology from 0 to 6 inches below ground surface consisted of dry, well-graded, light brown, gravelly silty soil. All gravel observed within the sampling areas appeared to be naturally occurring (i.e., not imported ballast rock). Ballast rock was only observed in the immediate vicinity of the railroad tracks, approximately 75 feet south of the Project site. Based on the results of the soil sampling and visual survey, the southern-adjoining railroad has not likely resulted in soil contamination or asbestos-containing ballast rock on the Project site. Additional details about the soil sampling methods and results are available in Appendix 3.5E, and a Soil Management Plan is included as Appendix 3.5F.

The Project site contains some fenced pasture areas that have been and are currently used for small horse ranches. Pesticides are not typically used for grazing pastures (DTSC 2008). Based on the absence of irrigation systems, the short duration of agricultural use for recreational livestock, and the low likelihood of pesticide application, this former agricultural use is considered de minimis.

As such, impacts will be **less than significant with mitigation**.

3.5.2.3.3 Will the project emit hazardous emissions or handle materials, substances, or waste within 0.25 miles of an existing or proposed school?

No Impact. There are no schools, day-care facilities, hospitals, or long-term health care facilities within a 1-mile radius of the Project site. The Project site is located directly adjacent to the Antelope Valley Freeway and its Soledad Canyon Road and Sierra Highway on- and off-ramps therefore the proposed transportation route for delivery of hazardous materials and regulated materials will allow for a direct route to from the Antelope Valley Freeway to the Project site. Due to the selected routes for hazardous material delivery and the distance relative to existing or proposed schools, there will be **no impact.**

3.5.2.3.4 Will the project be included on a list of hazardous materials sites compiled pursuant to Cortese List outlined in Government Code Section 65962.5 and result in a significant hazard to the public or environment?

No Impact. The Phase I ESAs (Appendix 3.5A) included a review of hazardous material release sites identified on regulatory databases, including Cortese List Data Resources (Cortese List) compiled pursuant to Government Code Section 65962.5. The Project site is not included on the list of hazardous materials sites compiled pursuant to

Government Code Section 65962.5 (CalEPA 2025). The closest listed site is the Jasons Auto Parts site, which is located at 415 Sierra Highway, Palmdale, California 93550. The site is located approximately 1.1 miles northeast of the proposed BESS facility. A former leaking underground storage tank was initially reported at this site in March 1999. Cleanup of the site has been completed, and the California Regional Water Quality Control Board Lahontan Region issued a no further action required letter in September 2010. Since the Project site and gen-tie line are not located on a site that is included on a list of hazardous materials sites, there will be **no impact** and development of the Project site present will not pose a significant hazard to the public or the environment.

3.5.2.3.5 Will the project Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency plan?

Less than Significant. The proposed Project will not physically impede an existing ERP, emergency vehicle access, or personnel access to the Project site. The Project site is located in an area with several alternative roadways allowing access in the event of an emergency. Access to existing roadways near the Project site will be maintained throughout construction, operation, and decommissioning phases and appropriate detours will be provided in the event of potential road closures. Therefore, no significant impacts related to impairment of the implementation of or physical interference with an adopted ERP or emergency evacuation plan will occur during Project construction.

The limited size of the Project's operational work force will not generate significant traffic volumes during an emergency evacuation scenario that could complicate area-wide emergency evacuation efforts. Driveways built to connect to existing local roads for direct site access will not affect designated emergency evacuation routes, as these are public roadways, and the driveways will not conflict with potential evacuation routes for surrounding land uses. As such, impacts will be **less than significant**.

3.5.3 Cumulative Effects

A cumulative impact refers to a proposed Project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed Project (Public Resources Code [PRC] Section 21083; CCR, Title 14, Section 15064[h], 15065[c], 15130, and 15355). The CEQA Guidelines further note that: The cumulative impact from several projects is the change in the environment which results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative effects can result from individually minor, but collectively significant, projects taking place over a period of time (CCR Section 15355).

Potential risks related to hazards and hazardous materials are typically localized in nature because they tend to be related to on-site existing hazardous conditions and/or hazards caused by a project's construction or operation. Cumulative projects were chosen based on proximity and similarity to the proposed Project. These selection factors are appropriate in the context of hazards and hazardous cumulative impacts because generally there needs to be a direct nexus and similar hazard for a synergistic impact to occur, such as hazardous materials from multiple sites being carried into the same river via stormwater runoff. Accordingly, there is not a known existing significant cumulative impact related to hazards or hazardous material within this geographic scope.

The proposed Project and other related infrastructure projects may involve the storage, use, disposal, and transport of hazardous materials to varying degrees. Impacts from these activities are anticipated to be less than significant, because similar projects will also comply with federal, state, and local regulations and policies. For example, all of the identified projects will be required to implement safety measures and precautions necessary to minimize any potential disturbance of hazardous materials and prevent the creation of additional hazards that cannot be mitigated or contained properly. Furthermore, other storage facilities will also be equipped with secondary containment and fire suppressant technology to lessen the impacts of potential battery fires. In light of all of the evidence provided here, cumulative impacts related to hazards will be less than significant.

3.5.4 Mitigation Measures

The following sections present mitigation measures for handling and storing hazardous materials during construction and operation to mitigate potential public health and environmental effects.

3.5.4.1 Construction Phase

MM-HAZ-1 Railroad Soil and Ballast Management: Prior to grading within an approximately 100-foot buffer of the railroad track ("railroad area"), the Project Owner shall conduct sampling and analysis on the ballast rock and soils within this portion of the BESS Facility Site

Verification: Ballast rocks within the approximately 100-foot buffer of the railroad track ("railroad area") will be evaluated for asbestos; asbestos survey, sampling, and analysis must be completed by a technician or supervisor certified for asbestos survey by the California Department of Health. Soils will be sampled and analyzed for polycyclic aromatic hydrocarbons, herbicides, metals, petroleum hydrocarbons, and volatile organic compounds.

The qualified environmental consultant will review soil and ballast analytical results and compare them to California asbestos criteria and regulatory screening levels applicable to future project development (such as DTSC-SLs for commercial development). If concentrations of contaminants exceed applicable regulatory screening levels, a soil management plan (SMP) will be prepared to manage contaminated soils.

The SMP will outline the proper screening, handling, characterization, transportation, and disposal procedures for contaminated or potentially contaminated soils on site. Contaminated or potentially contaminated soils include those identified in the sampling and analysis efforts that exceed applicable regulatory screening levels for proposed project construction. The SMP may include some or all of the following, as recommended by the qualified environmental consultant:

- Procedures for field screening, stockpiling, sampling, characterizing contaminated or potentially contaminated soils.
- Procedures and requirements for onsite soil reuse, offsite soil reuse, and offsite soil disposal (landfilling) as applicable. Soils with contamination above applicable regulatory screening levels shall be removed for offsite disposal.
- Health and safety and training procedures for workers who may come in contact with contaminated soils.
- Onsite soil management requirements to avoid fugitive dust and stormwater runoff, including stockpile management.
- Response and reporting procedures in the event a release of contaminated soils or violation of air quality or water quality rules occurs (Antelope Valley Air Quality Management District and Los Angeles Regional Water Quality Control Board, respectively).

- Procedures to meet all applicable federal, state, and local regulations (including Riverside County Department of Environmental Health and Mojave Desert Air Quality Management District) associated with handling, excavating, stockpiling, and disposing of contaminated soils
- The proposed disposal facility that will accept the contaminated soils and procedures for authorization and transportation, as needed.

The SMP shall be submitted to the CPM for review and approval before the Project Owner begins earthwork in the railroad area. The SMP will be implemented by the Project Owner for all earthwork activities and activities that have the potential to encounter contaminated soils within the railroad area.

3.5.4.2 Operations Phase

Hazardous materials storage will all occur on site and will be in accordance with applicable codes and regulations specified in Section 3.5 and the HMBP, the ERP, and the SPCC Plan. As a result, no additional mitigations measures are required.

3.5.5 Laws, Ordinances, Regulations, and Standards

Storage and use of hazardous materials at the Project site are governed by laws, ordinances, regulations, and standards (LORS) established and enforced at the federal, state, and local levels. Applicable laws are addressed and described below and summarized in Table 3.5-3.

Table 3.5-3. LORS Applicable to Hazardous Materials Handling

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
Federal	40 CFR 112	Facilities that store oil in excess of 1,320 gallons aboveground or 42,000 gallons below ground, in containers 55 gallons or larger, must prepare a Spill Prevention, Control and Countermeasure (SPCC) Plan.	**Yes.** An SPCC Plan will be prepared and implemented.	Section 3.5.2.3.1 Section 3.5.2.3.2 Section 3.5.5.1
Federal	40 CFR 260 through 273	Establishes requirements for the management of solid wastes, hazardous wastes, landfills, underground storage tanks, and some medical wastes.	**Yes.** Waste generated by the Project will be characterized for disposal. If hazardous wastes are generated, they must be managed in accordance with the rules outlined in 40 CFR Part 262.	Section 3.5.2.3.1 Section 3.5.2.3.2 Section 3.5.5.1
Federal	29 CFR 1910	The Occupational Safety and Health Administration (OSHA) has multiple rules and regulations established for worker protections,	**Yes.** Personal protective equipment and training will be provided to workers handling hazardous	Section 3.5.2.3.1 Section 3.5.2.3.2 Section 3.5.5.1

Table 3.5-3. LORS Applicable to Hazardous Materials Handling

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
		health, and safety to be established in the workplace.	materials and/or wastes. Fire protection systems and equipment are required for the workplace to protect against site-specific fire hazards. Additional fire protection requirements are discussed in Section 3.16. Chemical products will include an SDS for downstream product users.	
Federal	49 CFR 172	Establishes standards for transportation of hazardous materials and wastes. These include labeling, packaging, shipping manifests, recordkeeping, and training requirements.	**Yes.** The project will comply with required standards for transportation of hazardous materials and wastes.	Section 3.5.2.3.1 Section 3.5.2.3.2 Section 3.5.5.1
Federal	40 CFR 68	A facility, defined in 40 CFR 68.3 as a "stationary source," that stores a hazardous material above its applicable threshold quantity is required to comply with emergency response coordination activities, implement an emergency response program, conduct emergency response training exercises, and implement applicable accident prevention measures as required by 40 CFR 68.10.	**Yes.** An Emergency Response Plan will be prepared and implemented.	Section 3.5.2.3.1 Section 3.5.2.3.2 Section 3.5.5.1
State	Health and Safety Code Section 25230 / Assembly Bill 332	Allows handling non-RCRA hazardous treated wood waste in accordance with a set of alternative management standards in lieu of the requirements for hazardous waste pursuant to Health and Safety Code, division 20, chapter 6.5, articles 6, 6.5, and 9 and California Code of Regulations, title 22, division 4.5, chapters 12, 13, 14, 15, 16, 18, and 20.	**Yes.** The Project will handle treated wood waste in accordance with this LORS.	Section 3.5.2.3.2 Section 3.5.5.2

Table 3.5-3. LORS Applicable to Hazardous Materials Handling

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
State	Health and Safety Code Division 20, Chapter 6.11	California's Unified Hazardous Waste and Hazardous Materials Management Regulatory (Unified) Program consolidates administration, permitting, inspection, and enforcement activities of several environmental programs at a local level. Duties are delegated to Certified Unified Program Agencies (CUPAs). Multiple programs are managed under the Unified Program, including the Aboveground Petroleum Storage Act (APSA), area plans for hazardous material emergencies, California Accidental Release Prevention (CalARP), Hazardous Material Business Plans (HMBPs), Hazardous Materials Management Plans (HMMPs), Hazardous Materials Inventory Statements (HMISs), hazardous waste permitting (tiered permitting), and underground storage tanks.	**Yes.** An HMBP will be prepared and implemented.	Section 3.5.2.3.2 Section 3.5.5.2
State	HSC Division 20 Chapter 6.95, Sections 25500 through 25519	A facility that handles a hazardous material, hazardous waste, or mixture containing a hazardous material at any one time during the reporting year greater than or equal to 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of gas is required to prepare and submit an HMBP.	**Yes.** The facility will be required to prepare and submit an HMBP for hazardous materials stored on site. HMBPs are submitted through the California Environmental Reporting System (CERS) online; submittals then go to Los Angeles County for review, approval, and further inspection. HMBPs are updated annually, or within 30 days of a change in hazardous material or waste storage at a facility.	Section 3.5.2.3.2 Section 3.5.5.2
State	California Health and	The purpose of the CalARP program is to prevent accidental	**Yes.** Approximately 6,000 pounds of	Section 3.5.2.3.2 Section 3.5.5.2

Table 3.5-3. LORS Applicable to Hazardous Materials Handling

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
	Safety Code, Division 20, Chapter 6.95, Article 2, Sections 25531 to 25543.3 (California Accidental Release Prevention Program (CalARP))	releases of substances that can cause serious harm to the public and the environment, and to minimize the damage if releases do occur. CalARP requires certain facilities (referred to as "stationary sources") which handle, manufacture, use, or store any regulated substances above threshold quantities to take actions to proactively prevent and prepare for accidental releases. Facilities subject to CalARP requirements must submit a Risk Management Plan (RMP).	H_2SO_4 (sulfuric acid) will be within the control house. The project will prepare and implement an RMP to proactively prevent and prepare for accidental releases.	
State	Health and Safety Code, Section 25270 through 25270.13 (Aboveground Petroleum Storage Act)	APSA regulations include aboveground petroleum storage tanks that are subject to Spill Prevention, Control, and Countermeasure (SPCC) regulations under 40 CFR 112, aboveground petroleum storage tanks that are larger than 1,320 gallons, and aboveground petroleum storage tanks in underground areas	**Yes.** An SPCC Plan will be prepared and implemented.	Section 3.5.2.3.1 Section 3.5.2.3.2 Section 3.5.5.2
Local	RULE 1403 Asbestos Emissions From Demolition/ Renovation Activities	Specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM).	**Yes.** The Project will comply with this LORS prior to demolition of the structures on site. Asbestos might also occur in ballast rock and soils associated with railroad tracks. The Project will implement Mitigation Measure HAZ-1 to address potential contaminated soil associated with the adjacent railroad.	Section 3.5.2.3.2 Section 3.5.4.1 Section 3.5.5.3
Local	Antelope Valley Area Plan	Preservation of public health, safety, and welfare, through identification of natural and environmental hazards, including noise, seismic, fire, and airborne emissions, and designation of land	**Yes.** The proposed Project will not physically impede an existing emergency response plan, emergency vehicle access, or personnel	Section 3.5.2.3.5 Section 3.5.5.3

Table 3.5-3. LORS Applicable to Hazardous Materials Handling

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
		uses in an appropriate manner to mitigate these impacts	access to the Project site. The Project will handle hazardous materials in accordance with applicable LORS and prepare and implement an HMBP.	
Local	All-Hazards Mitigation Plan	Identifies and mitigates natural hazards	**Yes**. The proposed Project will not physically impede an existing emergency response plan, emergency vehicle access, or personnel access to the Project site.	Section 3.5.2.3.5 Section 3.5.5.3

3.5.5.1 Federal LORS

Clean Water Act (40 CFR 112)

The SPCC rule under the Clean Water Act is designed to prevent or contain the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Regulations (40 CFR 112) under the Clean Water Act require facilities to prepare a written SPCC plan if they store oil, and its release will pose a threat to navigable waters. The SPCC rule is applicable if a facility has a single oil aboveground storage tank with a capacity greater than 660 gallons, total petroleum storage (including aboveground storage tanks, oil-filled equipment, and drums) greater than 1,320 gallons, or underground storage capacity greater than 42,000 gallons. The SPCC rule is administered by the local Certified Unified Program Agency, which is the Los Angeles County Los Angeles County Fire Department, Health Hazardous Materials Division.

Should this exceed 1,320 gallons total on site, measures consistent with the Los Angeles County Fire Department, Health Hazardous Materials Division, ASPA Program guidance will be followed in preparation of the SPCC, which will be included in the HMBP.

Other related federal laws that address hazardous materials but do not specifically address their handling include the Resource Conservation and Recovery Act and the Occupational Safety and Health Act.

A SPCC Plan will be prepared and implemented for the Project.

40 CFR 260 through 273

The Resource Conservation and Recovery Act establishes requirements for the management of solid wastes, hazardous wastes, landfills, underground storage tanks, and some medical wastes. The following parts specifically apply to the Project.

Part 261, Identification and Listing of Hazardous Waste, outlines the requirements for identifying, characterizing, testing, and listing hazardous wastes.

Part 262, Standards Applicable to Generators of Hazardous Waste, outlines the requirements that must be followed if hazardous waste is generated at a facility, including handling, labeling, containerization, reporting, disposing, and record-keeping. Requirements vary based on the volume of hazardous waste generated.

Parts 263, 264, and 265 set forth rules and requirements for transportation, treatment, and disposal. The "generator," as defined and discussed in Part 262, is responsible for hazardous waste being transported and disposed of in accordance with these regulations.

Part 268, Land Disposal Restrictions, further requires that hazardous waste not be landfilled in non-hazardous waste facilities.

Part 273, Universal Waste Management, establishes requirements for management of specific waste identified as "universal wastes," including batteries, pesticides, mercury-containing equipment, lamps, and aerosols.

Waste generated by the Project will be characterized for disposal. If hazardous wastes are generated, they must be managed in accordance with the rules outlined in 40 CFR Part 262. All Project wastes must be characterized based on processes or chemical composition. Materials generated by the Project that cannot be used as products and must therefore be disposed of must be characterized in accordance with these rules and regulations. Wastes that are not categorized as hazardous wastes must be managed as solid waste (e.g., disposal at municipal solid waste landfill).

29 CFR 1910

The Occupational Safety and Health Administration has multiple rules and regulations established for worker protections, health, and safety to be established in the workplace.

Subpart A requires employers to provide workers with personal protective equipment and training.

Subpart I establishes requirements for the type and use of personal protective equipment.

Subpart L establishes fire protection standards.

Subpart Z establishes rules regarding toxic and hazardous substances. Under Subpart Z, the Hazard Communication Standard requires chemical manufacturers, distributors, and/or importers to provide Safety Data Sheets for each hazardous chemical to downstream users.

Personal protective equipment and training will be provided to workers handling hazardous materials and/or wastes. Fire protection systems and equipment are required for the workplace to protect against site-specific fire hazards. Additional fire protection requirements are discussed in Section 3.16. Chemical products will include a Safety Data Sheet for downstream product users.

49 CFR 172

Establishes standards for transportation of hazardous materials and wastes. These include labeling, packaging, shipping manifests, recordkeeping, and training requirements.

The project will comply with required standards for transportation of hazardous materials and wastes.

40 CFR 68

A facility, defined in 40 CFR 68.3 as a “stationary source,” that stores a hazardous material above its applicable threshold quantity is required to comply with emergency response coordination activities, implement an emergency response program, conduct emergency response training exercises, and implement applicable accident prevention measures as required by 40 CFR 68.10.

An ERP will be prepared and implemented.

3.5.5.2 State LORS

California laws and regulations relevant to hazardous materials handling at the facility include Health and Safety Code Section 25500 (hazardous materials), Health and Safety Code 25531 (regulated substances), and the Above Ground Petroleum Storage Act (petroleum in aboveground tanks).

Health and Safety Code Section 25230

The Alternative Management Standards (AMS) are statutes (HSC 25230 – 25230.18) established by Assembly Bill 332, that allows handling non-Resource Conservation and Recovery Act hazardous treated wood waste (TWW) in accordance with a set of alternative management standards in lieu of the requirements for hazardous waste pursuant to Health and Safety Code, division 20, chapter 6.5, articles 6, 6.5, and 9 and California Code of Regulations, title 22, division 4.5, chapters 12, 13, 14, 15, 16, 18, and 20. In summary, the AMS lessen storage requirements, extend accumulation periods, allow shipments without a hazardous waste manifest and a hazardous waste hauler, and allow disposal at specific non-hazardous waste landfills. The AMS simplify and facilitate the safe and economical disposal of TWW.

The AMS, which went into effect on August 31, 2021, are intended to ease regulatory burdens. Although hazardous waste generators are required to properly classify their waste through knowledge or laboratory analysis, generators of TWW can presume their TWW is hazardous waste and avoid expensive laboratory testing. Generators can then manage their waste in accordance with the AMS, including disposal at certain non-hazardous waste landfills. Upon acceptance at these certain landfills, the TWW, at that point, becomes non-hazardous waste pursuant to Health and Safety Code section 25230.16.

The Project will handle treated wood waste in accordance with this LORS.

Health and Safety Code Section 25500

California Health and Safety Code, Section 25500, et seq., and the related regulations in 19 CCR 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases.

Those using and storing hazardous materials are required to submit an HMBP to their local Certified Unified Program Agency and to report releases to their Certified Unified Program Agency and the State Office of Emergency Services. The TQs for hazardous materials are 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases measured at standard temperature and pressure.

The facility will be required to prepare and submit an HMBP for hazardous materials stored on site. HMBPs are submitted through the California Environmental Reporting System online; submittals then go to Los Angeles County for review, approval, and further inspection. HMBPs are updated annually, or within 30 days of a change in hazardous material or waste storage at a facility.

California Health and Safety Code, Division 20, Chapter 6.95, Article 2, Sections 25531 to 25543.3 (CalARP)

The purpose of CalARP is to prevent accidental releases of substances that can cause serious harm to the public and the environment, and to minimize the damage if releases do occur. CalARP requires certain facilities (referred to as “stationary sources”) which handle, manufacture, use, or store any regulated substances above threshold quantities to take actions to proactively prevent and prepare for accidental releases. Facilities subject to CalARP requirements must submit an RMP. An RMP is a document prepared by the owner or operator of a stationary source containing detailed information including, but not limited to the following:

- Regulated substances held on site at the stationary source
- Off-site consequences of an accidental release of a regulated substance
- The accident history at the stationary source
- The emergency response program for the stationary source
- Coordination with the local emergency responders
- Hazard review or process hazard analysis
- Operating procedures at the stationary source
- Training of the stationary source’s personnel
- Maintenance and mechanical integrity of the stationary source’s physical plant; and Incident investigation

Approximately 6,000 pounds of H_2SO_4 (sulfuric acid) will be within the control house. The project will prepare and implement an RMP to proactively prevent and prepare for accidental releases.

Aboveground Petroleum Storage Act

The California Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the Clean Water Act. The law applies to facilities that operate a petroleum aboveground storage tank with a capacity greater than 660 gallons or combined aboveground storage tanks capacity greater than 1,320 gallons, or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in “harmful quantities” into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare an SPCC plan.

A SPCC Plan will be prepared and implemented to ensure compliance with this LORS.

3.5.5.3 Local LORS

Antelope Valley Air Quality Management District Rule 1403 (Asbestos Emission From Demolition/Renovation Activities)

The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM; AVAQMD 1994). The requirements for demolition and renovation activities include asbestos surveying, notification, ACM removal procedures and time schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials. All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

The Project will comply with this LORS prior to demolition of the structures on site. Asbestos might also occur in ballast rock and soils associated with railroad tracks. The Project will implement Mitigation Measure HAZ-1 to address potential contaminated soil associated with the adjacent railroad.

Antelope Valley Area Plan

The purpose of the Antelope Valley Area Plan is to achieve the communities' shared vision of the future through the development of specific goals, policies, land use and zoning maps, and other planning instruments. As a component of the Los Angeles County General Plan, the Antelope Valley Area Plan refines the countywide goals and policies in the General Plan by addressing specific issues relevant to the Antelope Valley.

The Conservation and Open Space and Public Safety, Services and Facilities Elements of the Plan contains goals and policies related to hazardous materials handling and the proposed Project (Los Angeles County 2015):

Conservation and Open Space (Energy)

Goal COS 10: Diverse energy systems that utilize existing renewable or waste resources to meet future energy demands.

Policy COS 10.1: Encourage the use of non-hazardous materials in all individual renewable energy systems and all utility-scale renewable energy production facilities to prevent the leaching of potentially dangerous run-off materials into the soil and watershed.

Disaster Preparedness and Emergency Response

Goal PS 6: Government officials work with community members to promote community safety.

Policy PS 6.6: Develop an inclusive master emergency plan that designates evacuation routes, emergency relief centers, emergency animal keeping shelters, and information centers in every Antelope Valley community.

Goal PS 7: Emergency services that respond in a timely manner.

Policy PS 7.1: Require visible addresses on buildings and at entrances to properties as required by the Fire Code.

Policy PS 7.2: Ensure that Fire Stations are adequately staffed.

Policy PS 7.3: Strive for a timely response to every call for service.

Note, goals and policies related to fire hazards, geological hazards, and flood hazards are provided in Sections 3.17, 3.16, and 3.13, respectively.

The proposed Project will not physically impede an existing ERP, emergency vehicle access, or personnel access to the Project site. The Project will handle hazardous materials in accordance with applicable LORS and prepare and implement an HMBP.

County of Los Angeles All-Hazards Mitigation Plan

The County of Los Angeles All-Hazards Mitigation Plan was last updated in 2020. The purpose of this plan, a requirement of FEMA, is to assess risks posed by natural hazards and to develop a mitigation action plan for reducing the risks in Los Angeles County (Los Angeles County 2020).

The proposed Project will not physically impede an existing ERP, emergency vehicle access, or personnel access to the Project site.

Codes

The design, engineering, construction, and operation of hazardous materials storage and dispensing systems will be in accordance with all applicable codes and standards, including the following:

- **CVC, 13 CCR 1160, et seq.** – Provides CHP with authority to adopt regulations for the transportation of hazardous materials in California. CHP can issue permits and specify which route for hazardous material delivery
- **The California Fire Code, Articles 79 and 80** – These are the hazardous materials sections of the Fire Code. Local fire agencies or departments enforce this code and can require than a HMBP and a Hazardous Materials Inventory Statement be prepared. The California Fire Code is based on the federal fire guidelines, which include the Uniform Fire Code.
- **State Building Standard Code, Health, and Safety Code Sections 18901 to 18949** – Incorporates the Uniform Building Code, Uniform Fire Code and Uniform Plumbing Code

3.5.6 Agencies and Agency Contacts

Applicable agency contacts for hazardous materials handling are shown in Table 3.5-4. Approval of an HMBP and RMP from the Los Angeles County Fire Department, Health Hazardous Materials Division will be superseded by CEC approval of the Project under the opt-in program. The Project will prepare a SPCC and approval of the SPPC will also be superseded by CEC approval under the opt-in program. In addition, the Project will be designed per Los Angeles County Fire Department requirements and standards for BESS, however, approval from the Los Angeles County Fire Department will also be superseded by CEC approval of the Project under the opt-in program.

Table 3.5-4. Permits and Agency Contacts

Issue/Approval	Agency Contact	Applicability
HMBP*	Los Angeles County Fire Department, Health Hazardous Materials Division Mario Tresierras, Division Chief 5825 Rickenbacker Road Commerce, California 90040 323.890.4045 Fire-HHMDCERS@fire.lacounty.gov	Hazardous materials compliance
SPCC*	Same contact as above.	Hazardous materials compliance
RMP*	Same contact as above.	Hazardous materials compliance
Plan check approval*	Los Angeles County Fire Department, Fire Prevention Division Richard H. Stillwagon, Division Chief 5823 Rickenbacker Road Commerce, California 90040 323.890.4243 richard.stillwagon@fire.lacounty.gov	Fire protection compliance

Note:
* State and local approvals will be superseded by CEC approval of the Project under the Opt-In program.

3.5.7 Permits and Permit Schedule

Given the Commission's preemptive authorities under applicable State law, there are no additional applicable permits or permit schedule for hazardous materials handling.

3.5.8 References

ATSDR (Agency for Toxic Substances and Disease Registry). 1996. Fuel Oils CAS # 8008-20-6, 70892-10-3, 68476-30-2, 68476-34-6, 68476-31-3 Fact Sheet. September 1996. Accessed January 2025. https://www.atsdr.cdc.gov/toxfaqs/tfacts75.pdf.

ATSDR. 1997. Hydraulic Fluids CAS # 55957-10-3; 68937-40-6; 50815-84-4; 55962-27-1; 66594-31-8; 63848-94-2; 107028-44-4; 28777-70-0 Fact Sheet. September 1997. Accessed January 2025. https://www.atsdr.cdc.gov/toxfaqs/tfacts99.pdf.

ATSDR. 2013. Ethylene Glycol-CAS # 107-21-1 Fact Sheet. June. Accessed January 2025. https://www.atsdr.cdc.gov/toxfaqs/tfacts96.pdf.

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AVAQMD. 2022. AVAQMD Asbestos Demo/Reno General Information Sheet. Accessed January 2025. https://www.avaqmd.ca.gov/files/340d46616/DemoReno+Gen+Form+Instructions+05+2022.pdf.

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EPA (U.S. Environmental Protection Agency). 2023. Risk Management Plan (RMP) Rule Overview. Accessed January 2025. https://www.epa.gov/rmp/risk-management-plan-rmp-rule-overview..

International Labour Organization. 2004. "Solvents." Accessed January 2025. https://www.ilo.org/legacy/english/protection/safework/cis/products/safetytm/solvents.htm.

Los Angeles County. 2015. *Antelope Valley Area Plan*. June 2015. Accessed January 2025. https://planning.lacounty.gov/wp-content/uploads/2022/10/Antelope-Valley-Area-Plan.pdf.

Los Angeles County. 2020. *County of Los Angeles All-Hazards Mitigation Plan*. Accessed January 2025. https://ceo.lacounty.gov/wp-content/uploads/2022/04/County-of-Los-Angeles-All-Hazards-Mitigation-Plan-APPROVED-05-2020.pdf.

NFPA (National Fire Protection Association). 2016. *Hazard Assessment of Lithium Ion Battery Energy Storage Systems FINAL REPORT*. February 2016. Accessed January 2025. https://www.nfpa.org/education-and-research/research/fire-protection-research-foundation/projects-and-reports/hazard-assessment-of-lithium-ion-battery-energy-storage-systems.

NLM (National Library of Medicine). 2025. Emergency and Continuous Exposure Limits for Selected Airborne Contaminants – Sulfuric Acid. Accessed June 17, 2025. https://www.ncbi.nlm.nih.gov/books/NBK208279/.

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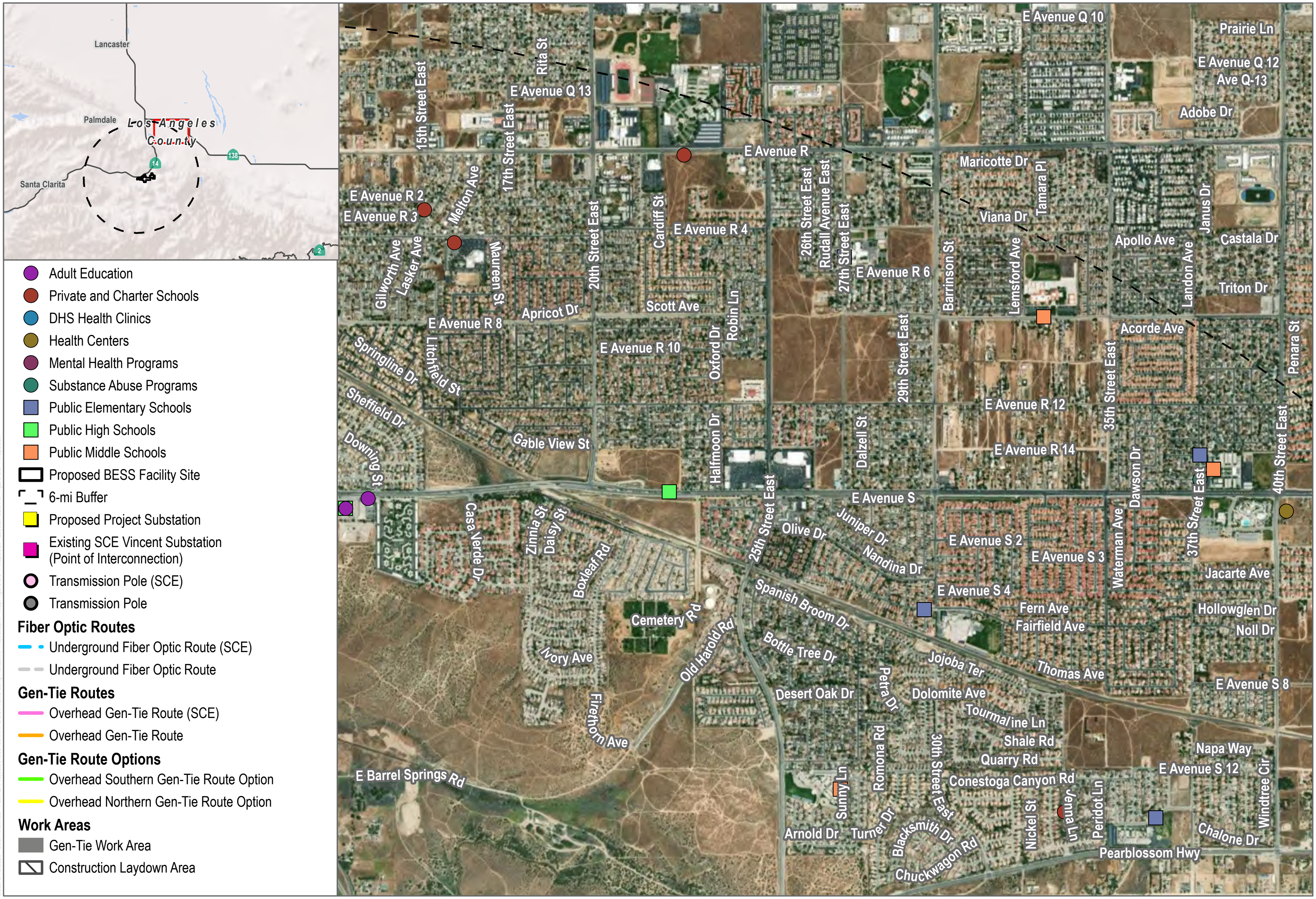

SOURCE: Los Angeles County; World Imagery

DUDEK

0 1,000 2,000 Feet

FIGURE 3.5-1-1

Sensitive Receptors within a 6-Mile Radius of the Project Site

Prairie Song Reliability Project

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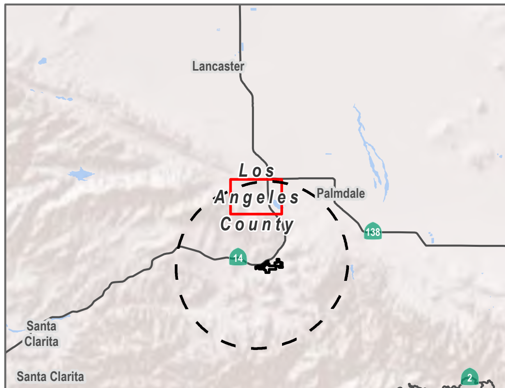

Public Elementary Schools
Public High Schools
Public Middle Schools
Proposed BESS Facility Site
6-mi Buffer
Proposed Project Substation
Existing SCE Vincent Substation (Point of Interconnection)
Transmission Pole (SCE)
Transmission Pole

Fiber Optic Routes

Underground Fiber Optic Route (SCE)
Underground Fiber Optic Route

Gen-Tie Routes

Overhead Gen-Tie Route (SCE)
Overhead Gen-Tie Route

Gen-Tie Route Options

Overhead Southern Gen-Tie Route Option
Overhead Northern Gen-Tie Route Option

Work Areas

Gen-Tie Work Area
Construction Laydown Area

SOURCE: Los Angeles County; World Imagery

DUDEK

0 1,000 2,000 Feet

FIGURE 3.5-1-2

Sensitive Receptors within a 6-Mile Radius of the Project Site

Prairie Song Reliability Project

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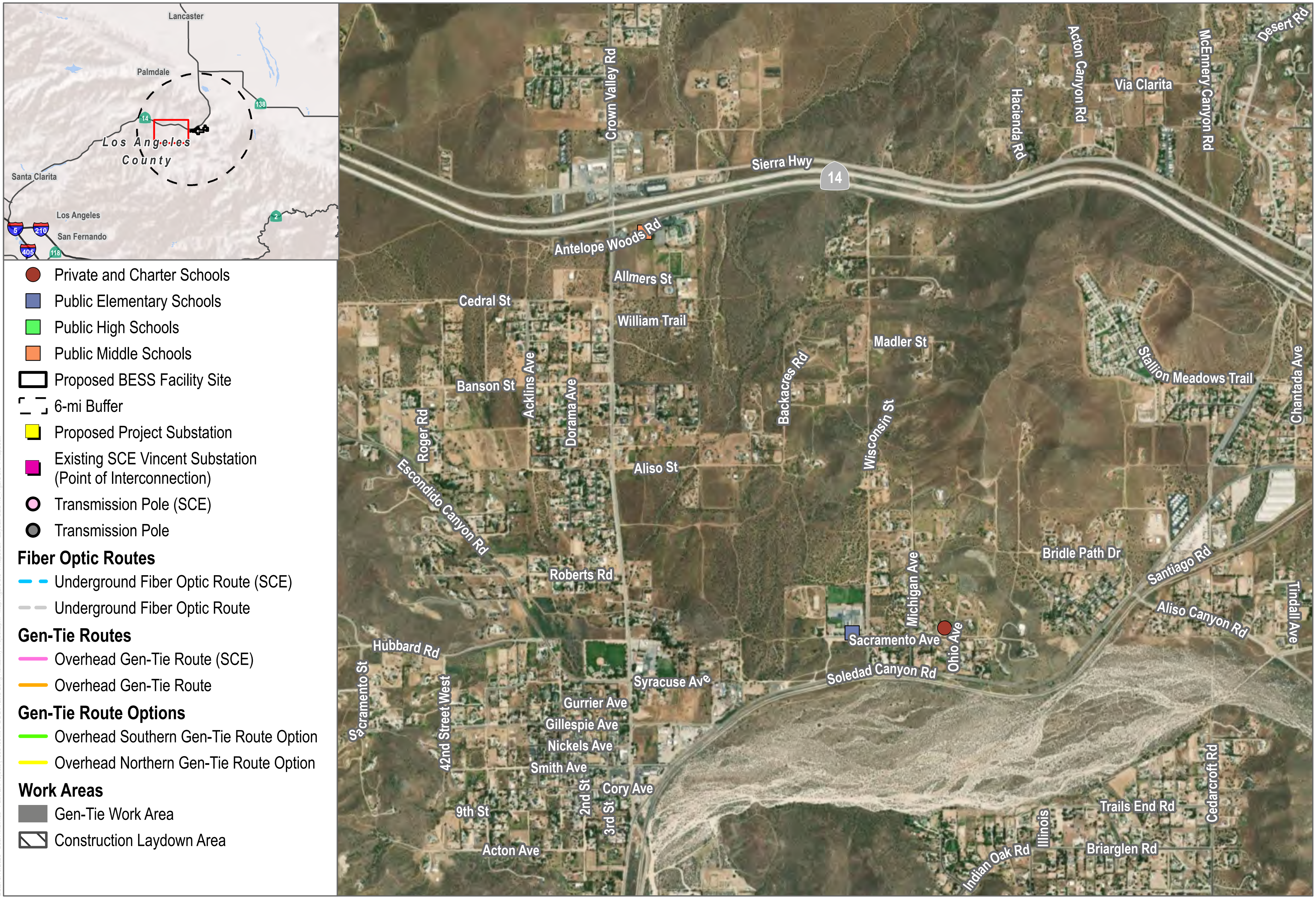

SOURCE: Los Angeles County; World Imagery

0 1,000 2,000 Feet

FIGURE 3.5-1-3

Sensitive Receptors within a 6-Mile Radius of the Project Site

Prairie Song Reliability Project

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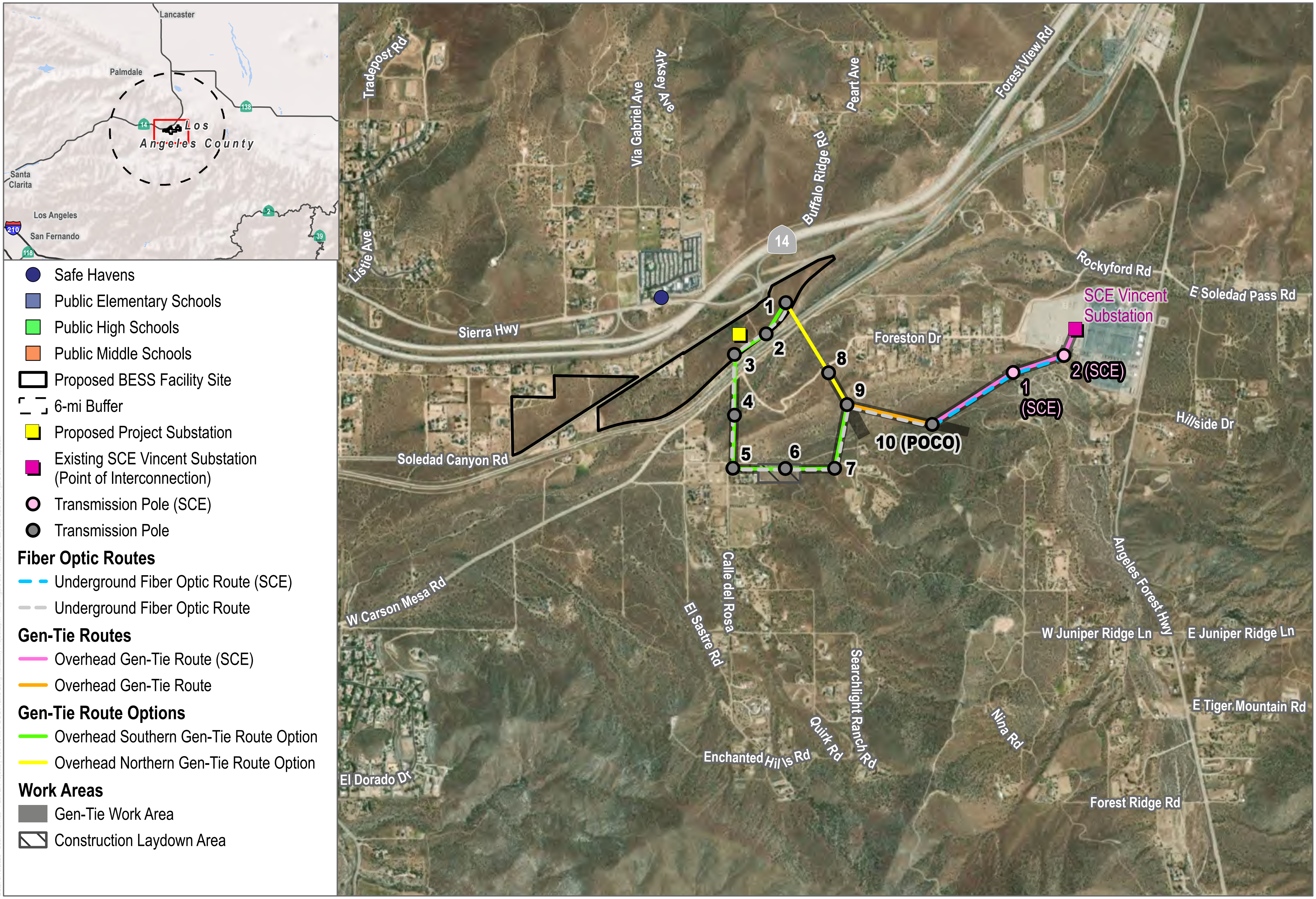

SOURCE: Los Angeles County; World Imagery

DUDEK

0 1,000 2,000 Feet

FIGURE 3.5-1-4

Sensitive Receptors within a 6-Mile Radius of the Project Site

Prairie Song Reliability Project

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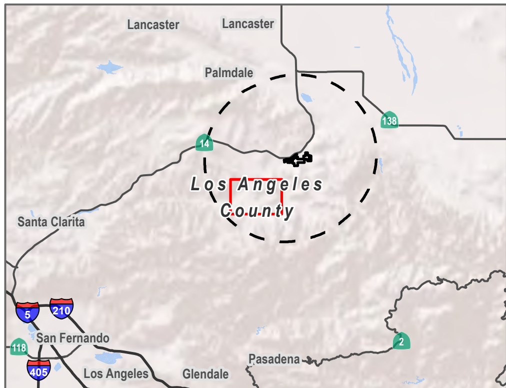

- Substance Abuse Programs
- Public Elementary Schools
- Public High Schools
- Public Middle Schools
- Proposed BESS Facility Site
- 6-mi Buffer
- Proposed Project Substation
- Existing SCE Vincent Substation (Point of Interconnection)
- Transmission Pole (SCE)
- Transmission Pole

Fiber Optic Routes
- Underground Fiber Optic Route (SCE)
- Underground Fiber Optic Route

Gen-Tie Routes
- Overhead Gen-Tie Route (SCE)
- Overhead Gen-Tie Route

Gen-Tie Route Options
- Overhead Southern Gen-Tie Route Option
- Overhead Northern Gen-Tie Route Option

Work Areas
- Gen-Tie Work Area
- Construction Laydown Area

SOURCE: Los Angeles County; World Imagery

DUDEK

0 1,000 2,000 Feet

FIGURE 3.5-1-5

Sensitive Receptors within a 6-Mile Radius of the Project Site

Prairie Song Reliability Project

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Attachment 20

Appendix 3.5D - NFPA Certifications

Prüfbericht-Nr.: *Test report no.:*	**CN24XZT7 001**	**Auftrags-Nr.:** *Order no.:*	**326015218**	Seite 1 von 30 *Page 1 of 30*
Kunden-Referenz-Nr.: *Client reference no.:*	**2003666**	**Auftragsdatum:** *Order date:*	2024-04-16	
Auftraggeber: *Client:*	Sungrow Power Supply Co., Ltd. No.1699 Xiyou Rd.,New & High Technology Industrial Development Zone, Hefei, 230088 Anhui, P.R. China			
Prüfgegenstand: *Test item:*	Energy Storage System			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	ST5015UX-2H-US, ST5015UX-4H-US			
Auftrags-Inhalt: *Order content:*	Test report			
Prüfgrundlage: *Test specification:*	This report provides evaluation and CFD analysis of the deflagration venting system in energy storage system referring to NFPA68:2023.			
Wareneingangsdatum: *Date of sample receipt:*	2023-12-01			
Prüfmuster-Nr.: *Test sample no:*	Engineering sample			
Prüfzeitraum: *Testing period:*	2023-12-01 - 2023-01-15			
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: *Test result*:*	See main report			

geprüft von: *tested by:*	Simon Wang	**genehmigt von:** *authorized by:*	Bowen Dong
Datum: *Date:* 2024.05.08		**Ausstellungsdatum:** *Issue date:* 2024.05.08	
Stellung / *Position:*	**Project Engineer**	**Stellung** / *Position:*	**Authorizer**

Sonstiges / *Other:* The mentioned models listed on above are identical to the original model in the previous section report CN24XLXT 001 except for model name, trademark and/or license holder etc. The CFD analysis data refer to previous section report CN24XLXT 001.

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

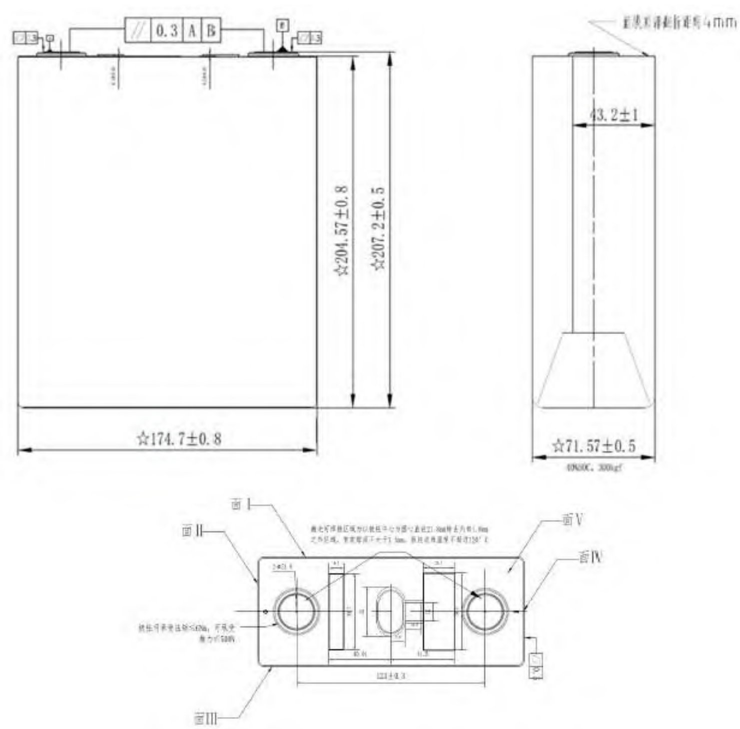
Contents

1. General Production Information:

1.1. Cell

The product information and parameters are provided by the client as below.

Manufacturer ....:	Sungrow Power Supply Co., Ltd.	
Model number...................................:	C0314-AA-H	
Chemistry ....:	LiFePO4	
Physical configuration.......................:	Prismatic	
	Weight:	5.56±0.15 kg
Electrical rating ....:	Rated capacity:	314 Ah
	Nominal voltage:	3.2 V
Standard charge method ....:	Charge current:	157 A
	End of charge voltage:	3.65 V
Standard discharge method..............:	Discharge current:	314 A
	End of discharge voltage:	2.5 V
Diagram with overall dimension		

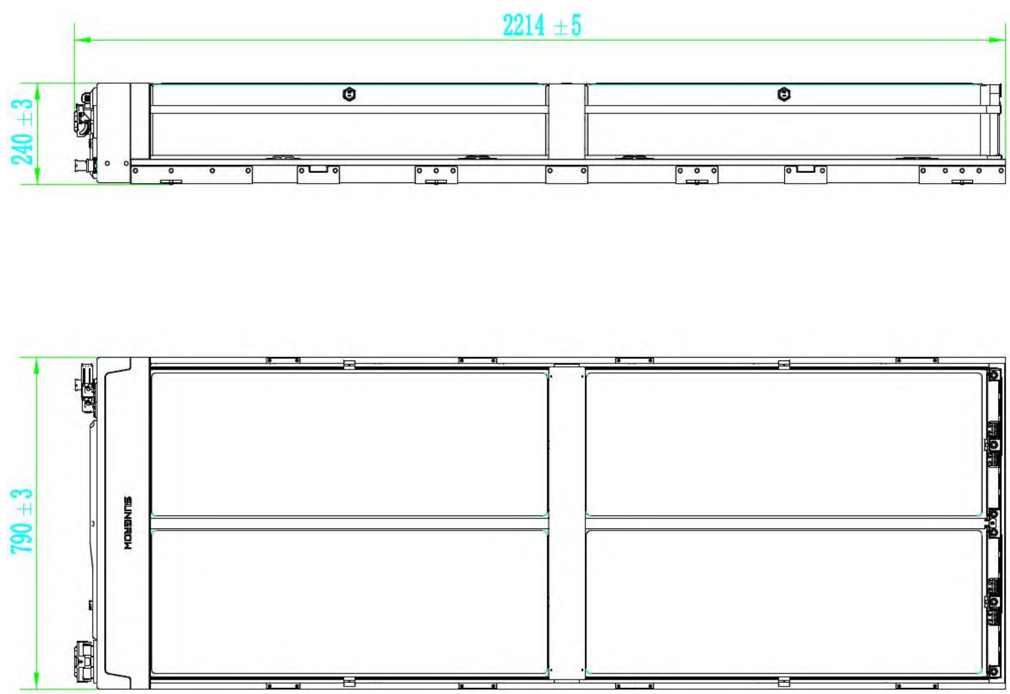


1.2. Module

The product information and parameters are provided by the client as below.

Manufacturer name...........................:		Sungrow Power Supply Co., Ltd.
Model number..................................:		P1044AL-AA-H
Physical configuration.......................:		Metal enclosure with plastic cover
		Weight: 660±9 kg
		Cells in series/parallel: 104S
Cooling method................................:		Liquid cooling
Separation between cells..................:		Aerogel
Electrical rating ....:		Rated capacity: 314 Ah
		Nominal voltage: 332.8 V
Standard charge method.........:	Charge current:	157 A
	End of charge voltage:	379.6 V
Standard discharge method.........:	Discharge current:	157 A
	End of discharge voltage:	280.8 V

Diagram:



1.3. Energy Storage System

The product information and parameters are provided by the client as below.

	Battery system	Battery system	Battery system
Product	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System
Type/model	R0417BL-AAA-H	R0417BL-ADA-H	R0835BL-ACA-H
Cell Capacity [Ah]	314	314	628
Cell Quantity	416	416	832
Battery structure	(104S)4S	(104S)4S	((104S)4S)2P
Nominal voltage [V]	1331.2V	1331.2V	1331.2V
Rated capacity [Wh]	417996.8	417996.8	835993.6
Upper limit charging voltage [V]	1497.6	1497.6	1497.6
Recommend charging current [A]	157	104.7	157
Maximum charging current [A]*	186.1	124.1	186.1
Maximum charging power	208.9kW	139.3kW	208.9kW
Recommend discharging current [A]	157	104.7	157
Maximum discharging current [A]	186.1	124.1	186.1
Maximum discharging power	208.9kW	139.3kW	208.9kW
Discharge cut-off voltage [V]	1123.2	1123.2	1123.2
Temperature range for charging [°C]	0 to 50	0 to 50	0 to 50
Temperature range for discharging [°C]	-20 to 50	-20 to 50	-20 to 50
Temperature threshold for protection [°C]	55	55	55
Overcharge protected voltage supply by battery system	≥3.75V /Cell	≥3.75V /Cell	≥3.75V /Cell
Recommend charging method by manufacturer	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 138.3kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V
Dimension [mm]	Rack: 790*2214*1000mm （W*D*H） PCS： 790*875* 230mm （W*D*H）	Rack: 790*2214*1000mm （W*D*H） PCS： 790*875* 230mm （W*D*H）	Rack: 790*2214*2000mm （W*D*H） PCS： 790*875* 230mm （W*D*H）

Weight [kg]	Rack: 2600±36kg PCS：85±5kg	Rack: 2600±36kg PCS：85±5kg	Rack: 5200±72kg PCS：85±5kg
Ingress Protection (IP)	IP65	IP65	IP65
Protective Class	I	I	I
Cooling type	Liquid cooling	Liquid cooling	Liquid cooling
Altitude	4000m	4000m	4000m

	Battery system	Battery system	Battery system
Product	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System
Type/model	R0417BL-AAS-H	R0417BL-ACS-H	R0835BL-AAS-H
Cell Capacity [Ah]	314	314	628
Cell Quantity	416	416	832
Battery structure	(104S)4S	(104S)4S	((104S)4S)2P
Nominal voltage [V]	1331.2V	1331.2V	1331.2V
Rated capacity [Wh]	417996.8	417996.8	835993.6
Upper limit charging voltage [V]	1497.6	1497.6	1497.6
Recommend charging current [A]	157	78.5	314
Maximum charging current [A]	186.1	93.1	372.2
Recommend discharging current [A]	157	78.5	314
Maximum discharging current [A]	186.1	93.1	372.2
Discharge cut-off voltage [V]	1123.2	1123.2	1123.2
Temperature range for charging [°C]	0 to 50	0 to 50	0 to 50
Temperature range for discharging [°C]	-20 to 50	-20 to 50	-20 to 50
Temperature threshold for protection [°C]	55	55	55
Overcharge protected voltage supply by battery system	≥3.75V /Cell	≥3.75V /Cell	≥3.75V /Cell
Recommend charging method by manufacturer	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 104.4kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 417.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V
Dimension [mm]	Rack: 790*2214*1000mm （W*D*H） S/G：	Rack: 790*2214*1000mm （W*D*H） S/G：	Rack: 790*2214*2000mm （W*D*H） S/G：

	790*1097.5*240mm （W*D*H）	790*1097.5*240mm （W*D*H）	790*1097.5*240mm （W*D*H）
Weight [kg]	Rack: 2600±36kg S/G：70±10kg	Rack: 2600±36kg S/G：70±10kg	Rack: 5200±72kg S/G：70±10kg
Ingress Protection (IP)	IP65	IP65	IP65
Protective Class	I	I	I
Cooling type	Liquid cooling	Liquid cooling	Liquid cooling
Altitude	5000m	5000m	5000m

	Battery system	Battery system	Battery system
Product	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System
Type/model	R0835BL-ACS-H	R0417BL-AAT-H	R0417BL-ACT-H
Cell Capacity [Ah]	628	314	314
Cell Quantity	832	416	416
Battery structure	((104S)4S)2P	(104S)4S	(104S)4S
Nominal voltage [V]	1331.2V	1331.2V	1331.2V
Rated capacity [Wh]	835993.6	417996.8	417996.8
Upper limit charging voltage [V]	1497.6	1497.6	1497.6
Recommend charging current [A]	157	157	78.5
Maximum charging current [A]	186.1	186.1	93.1
Recommend discharging current [A]	157	157	78.5
Maximum discharging current [A]	186.1	186.1	93.1
Discharge cut-off voltage [V]	1123.2	1123.2	1123.2
Temperature range for charging [°C]	0 to 50	0 to 50	0 to 50
Temperature range for discharging [°C]	-20 to 50	-20 to 50	-20 to 50
Temperature threshold for protection [°C]	55	55	55
Overcharge protected voltage supply by battery system	≥3.75V /Cell	≥3.75V /Cell	≥3.75V /Cell
Recommend charging method by manufacturer	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 104.4kW until the voltage reaches 1497.6V or any one cell reaches 3.65V
Dimension [mm]	Rack: 790*2214*2000mm （W*D*H） S/G：	Rack: 790*2214*1000mm （W*D*H） S/G：	Rack: 790*2214*1000mm （W*D*H） S/G：

	790*1097.5*240mm（W*D*H）	790*1097.5*240mm（W*D*H）	790*1097.5*240mm（W*D*H）
Weight [kg]	Rack: 5200±72kg S/G：70±10kg	Rack: 2600±36kg S/G：75±10kg	Rack: 2600±36kg S/G：75±10kg
Ingress Protection (IP)	IP65	IP65	IP65
Protective Class	I	I	I
Cooling type	Liquid cooling	Liquid cooling	Liquid cooling
Altitude	5000m	5000m	5000m

2. Product Description:

2.1. General Description

This product is used for Energy Storage System.

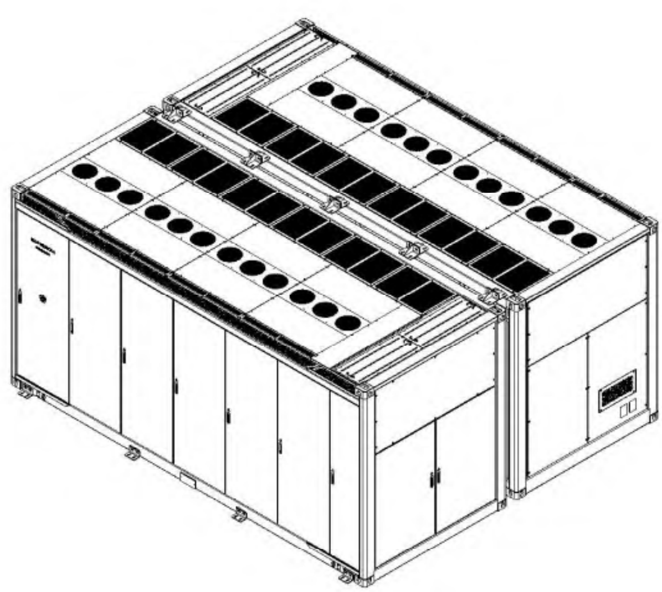
The EUTs described in this report are three models of LFP lithium ion battery energy storage systems which include one master control (or one control box) and several battery packs in series (parallel) connection. The master control function integrated in fuse box and PCS, the BMS master control board placed in PCS. The number of battery pack is 4 for model R0417BL-AAA-H and R0417BL-ADA-H, the difference between them is that the battery maximum power and current are different. The number of battery pack is 8 for model R0835BL-ACA-H.

The battery pack contain 104 cells in structure 104S. And it contains one BMU board for measuring and collecting the cell parameters and uploading the information of cell voltage and temperature to CMU in PCS.

The EUTs are indoor type. The insulation between the DC circuit and the metal enclosure is basic insulation. And the insulation between the DC circuit and communication ports is reinforced insulation or double insulation. OVC II considered for the battery rack, it shall be isolated from an OVC III supply source (such as from an OVC III PCS) through an isolated transformer or protected in a manner that prevents transient overvoltage conditions in end use.

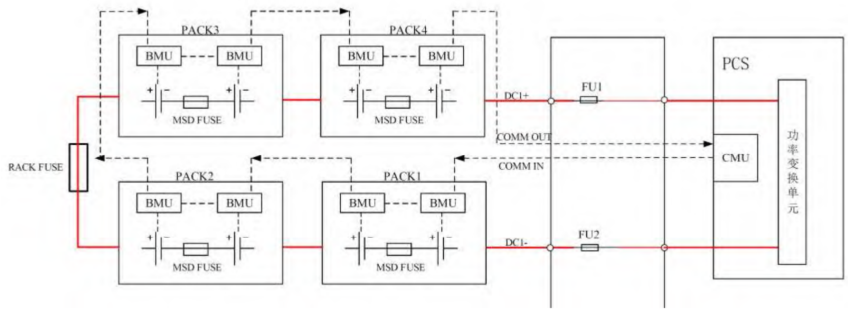
The PCS is certified individually. The BMS master control board is placed in PCS.

The BMS functional safety was evaluated according to UL 60730-1 Annex H by TÜV Rheinland.

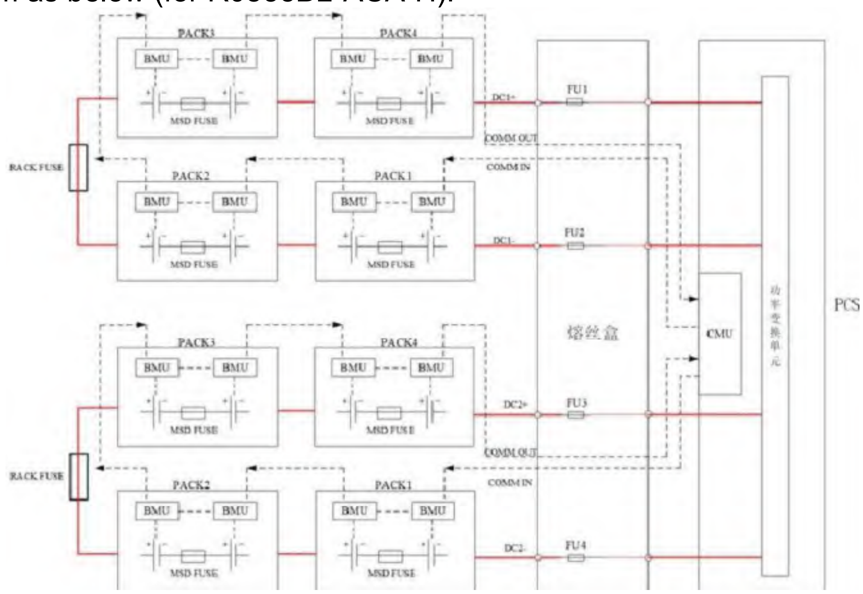


2.2. Energy Storage System Block Diagram

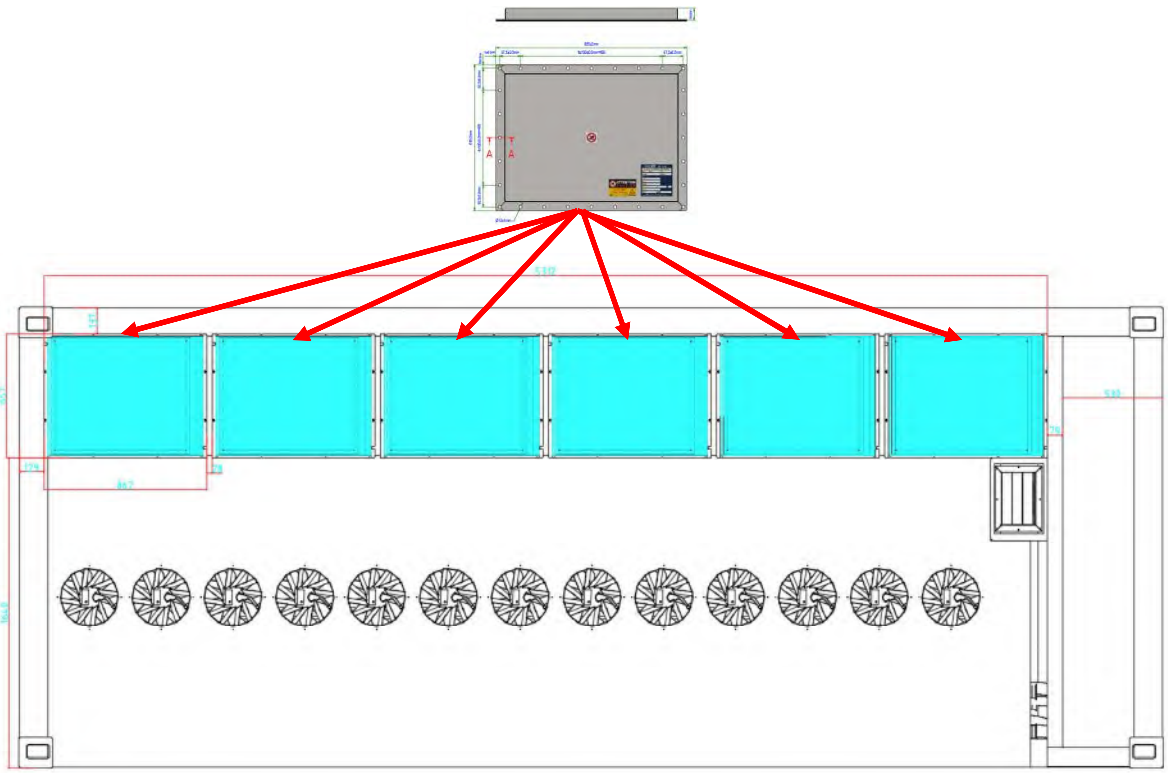
Block diagram as below (for R0417BL-AAA-H and R0417BL-ADA-H):
one fuse box shared by two racks:



Block diagram as below (for R0835BL-ACA-H):



2.3. Deflagration Venting Layout



3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
Chapter 6	**Fundamentals of Venting of Deflagrations**		--
6.1	**Basic Concepts.**		--
6.1.1	The deflagration index, K, shall be computed from the maximum rate of pressure rise attained by combustion in a closed vessel with volume, V, and shall be defined by the following equation [6.1.1]		P
6.1.2	For dusts, K_{St} and P_{max} shall be determined in approximately spherical calibrated test vessels of at least 20 L capacity per ASTM E1226, Standard Test Method for Explosibility of Dust Clouds.		N/A
6.1.2.1	It shall be permitted to determine K_{St} and P_{max} per ISO 6184-1, Explosion Protection Systems — Part 1: Determination of Explosion Indices of Combustible Dusts in Air.		N/A
6.1.2.2	The owner/user shall be permitted to test the dust with moisture content and particle size that deviates from the recommended conditions established by the method described in 6.1.2 or 6.1.2.1, provided a documented assessment acceptable to the authority having jurisdiction has been performed prior to using these K_{St} and P_{max} values to determine vent sizing.		N/A
6.1.2.3	For aluminum, hafnium, magnesium, tantalum, titanium, zirconium, and similar alloys or mixtures with adiabatic flame temperature higher than 3300°C, unless K_{St} and P_{max} are determined in nominal 1 m3 or larger calibrated test vessels, the K_{St} value shall be multiplied by a factor of 2 for application of the design methods.		N/A
6.1.3	For gases, P_{max} shall be determined in approximately spherical calibrated test vessels of at least 5 L (1.3 gal) capacity with initially quiescent mixture with low energy ignition source (i.e., less than 100 J).	See clause 4.	P
6.2	**Mixtures.**		--
6.2.1	Gas Mixtures.		P
6.2.1.1	Where the hazard consists of a flammable gas mixture, the vent size shall be based on the fundamental burning velocity of the mixture.	See clause 4.	P
6.2.1.2	Where the gas mixture composition is not certain, the vent size shall be based on the component having the highest fundamental burning velocity.		N/A
6.2.2	Dust Mixtures		N/A
6.2.2.1	Where the hazard consists of a dust mixture, the vent size shall be based on the K_{St} and P_{max} of the mixture.		N/A

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.2.2.2	Where the dust mixture composition is not certain, the vent size shall be based on the highest K_{St} of all components and the highest P_{max} of all components.		N/A
6.2.3	Hybrid Mixtures		N/A
6.2.3.1	For hybrid mixtures, the vent size shall be based on the equivalent mixture K_{St} as determined by test.		N/A
6.2.3.2	Where test data are not available for hybrid mixtures with gases that have combustion characteristics similar to those of propane (fundamental burning velocity ≤1.3 times that of propane) and St-1 and St-2 dusts, the design shall be permitted to be based upon P_{max} = 10 bar-g and K_{St} = 500 bar-m/s.		N/A
6.2.4	Foams of Combustible Liquids. Design of deflagration venting for foams of combustible liquids shall be based on tests performed on the specific foam.		N/A
6.3	**Enclosure Design and Support.**		--
6.3.1	Enclosure Design Pressure Selection Criteria.		P
6.3.1.1	P_{red} shall not exceed two-thirds of the ultimate strength for the vented enclosure, provided deformation of the equipment can be tolerated.		N/A
6.3.1.2	Where deformation cannot be tolerated, P_{red} shall not exceed two-thirds of the yield strength for the vented enclosure.	See clause 4.	P
6.3.1.3	For enclosures designed using the ASME Boiler and Pressure Vessel Code or similar codes, the maximum allowable working pressure, herein designated as P_{mawp}, shall be determined by calculation.		N/A
6.3.1.4	Ductile design considerations shall be used for materials subject to brittle failure, such as cast iron.		N/A
6.3.2	Venting shall be sufficient to prevent the maximum pressure that develops within the enclosure, P_{red}, from exceeding the enclosure strength, Pes, including the dynamic effect of the rate of pressure rise, as expressed by a dynamic load factor (DLF) [6.3.2]		P
6.3.2.1	In the absence of detailed structural response analysis, it shall be permitted to assume a worst-case value of DLF = 1.5 and design based on the weakest structural element of the enclosure.		P
6.3.2.2	It shall be permitted to modify the value of DLF based on a documented analysis of the vented explosion pressure profile and enclosure structural response.		N/A
6.3.3	All structural elements and supports shall be included in the design calculations.		P

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.3.3.1	The weakest structural element, as well as any equipment or other devices that can be supported by structural elements, shall be identified.		P
6.3.3.2	Where designing an enclosure to prevent catastrophic failure while still allowing permanent deformation, the normal dead and live loads shall not be relied on to provide restraint.		P
6.3.3.3	Structural members shall be designed to support the total load.		P
6.3.3.4	Doors, windows, ducts, or other openings in walls that are intended to be pressure resistant shall also be designed to withstand P_{red}.		P
6.3.4	Relieving Walls or Roof.		N/A
6.3.5	Enclosure Support Criteria.	Eliminated according to 6.3.5.4.1	P
6.3.5.4.1	The calculation of reaction forces on the enclosure shall be permitted to be eliminated when all of the following conditions are satisfied: (1) Vent panels are of the rupture diaphragm type. (2) Vent panels are located at opposing positions on the enclosure. (3) The P_{stat} of each vent panel is equal and less than or equal to 0.1 bar-g. (4) Vent panels are of equal area.		P
6.4	**Enclosure Length-to-Diameter Ratio and Vent Variables.**		--
6.4.1	The L/D of an elongated enclosure shall be determined based upon the general shape of the enclosure, the location of the vent, the shape of any hopper extensions, and the farthest distance from the vent at which the deflagration could be initiated.		P
6.4.2	For enclosures that can be vented at more than one point along the major axis, the vents shall be permitted to be distributed along the major axis and sized based on the length to diameter (L/D) between vents.		P
6.4.2.1	The maximum effective vent area at any point along the major axis shall be the enclosure cross section.		P
6.4.3	L/D of Elongated Enclosures.		P
6.4.3.1	The L/D of an elongated enclosure shall be determined based upon the general shape of the enclosure, the location of the vent, the shape of any hopper extensions, and the farthest distance from the vent at which the deflagration could be initiated.		P

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.4.3.2	The maximum flame length along which the flame can travel, H, shall be determined based on the maximum distance, taken along the central axis, from the farthest end of the enclosure to the opposite end of the vent.	See clause 4.	P
6.4.3.2.1	When multiple vents are provided, a single value of H, and L/D, shall be permitted to be determined for the enclosure based on the farthest vent.	See clause 4.	P
6.4.3.2.2	When multiple vents are located along the central axis, the value of H, and L/D, shall be permitted to be determined for each section using the maximum distance from the closest end of one vent to the opposite end of the next vent.	See clause 4.	P
6.4.3.3	The effective volume of the enclosure, V_{eff}, shall be determined based on the volume of that part of the enclosure through which the flame can pass as it travels along the maximum flame length, H.	See clause 4.	P
6.4.3.3.1	Partial volume (see Section 8.4) shall not be considered in the determination of effective volume per this section.		N/A
6.4.3.3.2	When multiple vents are provided, a single value of V_{eff} shall be permitted to be determined for the enclosure based upon the farthest vent.		P
6.4.3.3.3	When multiple vents are located along the central axis, V_{eff} shall be permitted to be determined for each section using the maximum distance from the closest end of one vent to the opposite end of the next vent.		P
6.4.3.3.4	When V_{eff} is less than the total volume of the enclosure, only those vents located within the effective volume shall be considered as providing venting for the event.		P
6.4.3.4	It shall be permitted to conservatively determine both H and V_{eff}, or H alone, but not V_{eff} alone, based on the total enclosure, irrespective of vent location.		N/A
6.4.3.5	The effective area, A_{eff}, shall be determined by dividing V_{eff} by H	See clause 4.	P
6.4.3.6	The effective hydraulic diameter, D_{he}, for the enclosure shall be determined based on the general shape of the enclosure taken normal to the central axis [6.4.3.6]	See clause 4.	P
6.4.3.6.1	Where the enclosure and any hopper extension are generally cylindrical, the perimeter, p, shall be permitted to be determined based on a circular cross section, given the following [6.4.3.6.1]		N/A
6.4.3.6.2	Where the enclosure and any hopper extension are generally rectangular or square, and the aspect ratio of the largest cross section is between 1 and 1.2, the perimeter shall be permitted to be determined based on a square cross section, given the following [6.4.3.6.2]		N/A

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.4.3.6.3	Where the enclosure and any hopper extension are generally rectangular, and the aspect ratio, R, of the largest cross section is greater than or equal to 1.2, the perimeter shall be permitted to be determined based on the aspect ratio of the largest cross section, given the following [6.4.3.6.3]		N/A
6.4.3.7	L/D for use in this standard shall be set equal to H/D_{he}.		P
6.4.4	The vent areas shall be permitted to be reduced from those specified in Chapters 7 and 8 if large-scale tests show that the resulting damage is acceptable to the user and the authority having jurisdiction.		N/A
6.4.5	The owner/user shall be permitted to install vents that are larger in area, are lower in density, or relieve at lower pressure than the minimum requirements determined from application of Chapter 7 or Chapter 8, as appropriate.	See clause 4.	P
6.5	**Vent Closure Operation.**		--
6.5.1	The vent opening shall be free and clear.		N/A
6.5.2	Vent closure operation shall not be hindered by deposits of snow, ice, paint, corrosion, or debris, or by the buildup of deposits on their inside surfaces.		N/A
6.5.2.1	The materials that are used shall be chosen to minimize corrosion from process conditions within the enclosure and from ambient conditions on the nonprocess side.		N/A
6.5.2.2	Clear space shall be maintained on both sides of a vent to enable operation without restriction and without impeding a free flow through the vent.		N/A
6.5.2.3	To prevent snow and ice accumulation, where the potential exists, and to prevent entry of rainwater and debris, the vent or vent duct exit shall not be installed in the horizontal position, unless any of the alternative methods in 6.5.2.3.1 are followed.		N/A
6.5.2.3.1	Any of the following alternative methods of protection for horizontal vent or vent duct exits shall be permitted: (1) Fixed rain hats where Pred effects on vent area are included in accordance with Section 8.5 and restraint design includes maximum force from Pred applied over the area (2) Weather covers mounted at an angle sufficient to shed snow, with restraints designed and tested to prevent the cover from becoming a free projectile, where inertia effects of the additional weather cover mass and P_{stat} of the cover are included (3) Deicing provisions such as a heated vent closure		N/A

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.5.3	Restraining devices shall not impede the operation of the vent or vent closure device. (See Chapter 10.)		N/A
6.5.4	A vent closure shall release at its P_{stat} or within a pressure range specified by the vent closure manufacturer.		P
6.5.5	A vent closure shall reliably withstand pressure fluctuations that are below $P_{stat.}$		P
6.5.6	A vent closure shall withstand vibration or other mechanical forces to which it can be subjected.		P
6.5.7	P_{stat}, including the manufacturer's negative tolerance, shall be greater than the anticipated loading equivalent to the local design wind speed such that wind load will not cause the vent to open.		N/A
6.5.7.1	The area calculation shall be performed using the nominal value of P_{stat}.		P
6.5.8	P_{stat}, including the manufacturer's positive tolerance, shall be less than the intended P_{red}.		P
6.5.8.1	The area calculation shall be performed using the nominal value of P_{stat}.		P
6.5.9	Vent closures shall be maintained in accordance with Chapter 11		P
6.6	**Consequences of a Deflagration.**		--
6.6.1	The material discharged from an enclosure during the venting of a deflagration shall be directed outside to a safe location.		P
6.6.2	Property damage and injury to personnel due to material ejection during venting shall be minimized or avoided by locating vented equipment outside of buildings and away from normally occupied areas. (See Sections 7.6 and 8.9 for gases and dusts, respectively.)	See clause 4.	P
6.6.2.1	Deflagration vents shall not be located in positions closer to air intakes than the distances prescribed by the fireball length (see Sections 7.6 and 8.9).	See clause 4.	P
6.6.2.2	Deflagration vents shall be permitted to be located closer to buildings and normally occupied areas than the distances determined by Section 7.6 or Section 8.9, provided a documented risk assessment acceptable to the authority having jurisdiction has been performed.		N/A
6.6.2.3	Where a deflector is provided in accordance with 6.6.2.4 and 6.6.2.5, it shall be permitted to reduce the axial (front-centerline) hazard distance to 50 percent of the value calculated in 7.6.1 or 8.9.2. This method shall not be used to reduce the radial hazard distance as defined in 7.6.2 and 8.9.2.2.		N/A

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.6.2.4	A deflector design shall meet all of the following criteria: (1) The deflector for a rectangular vent shall be geometrically similar to the vent and sized with a linear scale factor of at least 1.75. For a round vent, the deflector shall be square shaped and at least 1.75 times the vent diameter. (2) The deflector shall be inclined 45 degrees to 60 degrees from the vent axis, as shown in Figure 6.6.2.4. (3) The centerline of the deflector shall be coincident with the vent axis. (4) The distance from the vent opening to the deflector on the vent axis shall be 1.5D, where D is the equivalent diameter of the vent. (5) The deflector plate shall be mounted so as to withstand the force exerted by the vented explosion, calculated as P_{red} times the deflector area. (6) The deflector location shall not interfere with the operation of hinged vent closures.		N/A
6.6.2.5	A deflector to limit flame length shall not be used as follows: (1) For enclosure volume greater than 20 m^3 (706 ft^3) (2) With a tethered or translating vent closure		N/A
6.6.3	Warning signs shall be posted to indicate the location of a vent.		N/A
6.7	**Effects of Vent Inertia.**		--
6.7.1	Counterweights and insulation added to panels shall be included in the total mass.		N/A
6.7.2	A vent closure shall have low mass to minimize inertia, thereby reducing opening time.		N/A
6.7.3	If the total mass of a closure divided by the area of the vent opening does not exceed the panel densities calculated by Equation 7.3.2 and Equation 8.3.2 (for gas and dust, respectively), all vent area correlations presented in this standard shall be permitted to be used without correction.		N/A
6.7.4	Hinged closures shall be permitted to be used, provided the following conditions are met: (1) There are no obstructions in the path of the closure that prevent it from opening. (2) Operation of the closure is not restrained by corrosion, sticky process materials, or paint.		P
6.8	**Fireball Dimensions.**		P

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
	Measures shall be taken to reduce the risk to personnel and equipment from the effects of fireball temperature and pressure.		
6.8.1	A documented risk assessment shall be permitted to be used to reduce the hazard distances calculated in 6.8.2, 6.8.3, and 6.8.7.		P
6.8.2	Gas Deflagration Fireball Dimensions.		P
	In the case of gas deflagration venting, L_F, the maximum axial length, width, and height of the fireball hazard zone distributed around the centerline of each vent discharge (see Figure 6.8.2) shall be expressed by Equation 6.8.2:		
6.8.3	Dust Deflagration Fireball Dimensions.		N/A
	In the case of dust deflagration venting, L_F, the maximum axial length, width, and height of the fireball hazard zone distributed around the centerline of each vent discharge (see Figure 6.8.2) shall be expressed by Equation 6.8.3		
6.8.4	Definition of Independent Vents.		N/A
	Independent vents shall meet the requirements in 6.8.4.		
6.8.4.1	For vents located at a single elevation and spaced around the circumference of a cylindrical vessel, the normal to the adjacent vents shall be separated by at least 60 degrees or 4 hydraulic diameters of the largest vent.		N/A
6.8.4.2	Vents located on different sides of a rectangular enclosure shall be considered independent.		N/A
6.8.4.3	For vents located along the axis of a cylindrical vessel or on the same side of a rectangular enclosure, the center of the vents shall be separated by at least four times the hydraulic diameter of the largest vent.		N/A
6.8.4.4	Vents that do not meet the requirements of 6.8.4 are allowed but shall not be counted separately to calculate n in 6.8.2 or 6.8.3.		N/A
6.8.5	Axial distance, calculated by Equation 6.8.3, shall be limited to 60 m [104].		N/A
6.8.6	Axial distance calculated by Equation 6.8.2 shall not be limited for gases.		N/A
6.8.7	Where venting is from a cubic vessel, the $P_{max,a}$ value shall be indicated approximately by Equation 6.8.7 [108]		N/A
6.8.8	For distances longer than $\alpha \times L_F$, the maximum external pressure, $P_{max,r}$, shall be indicated approximately by Equation 6.8.8		N/A

3. Deflagration venting design evaluation referring to Chapter 6 in NFPA68: 2023

Clause	Requirement – Test	Result – Remark	Verdict
6.8.9	Equation 6.8.3, Equation 6.8.7, and Equation 6.8.8 shall be valid for the following conditions: (1) Enclosure volume: 0.3 m3 ⩽ V ⩽ 10,000 m3 (2) Reduced pressure: Pred ⩽ 1 bar-g (3) Static activation pressure: Pstat ⩽ 0.1 bar-g (4) Deflagration index: KSt⩽ 300 bar-m/s for Equation 6.8.3, KSt ⩽ 200 bar-m/s for Equation 6.8.7 and Equation 6.8.8 (5) Pmax ⩽ 9 bar-g		N/A
6.9	**Effects of Vent Discharge Ducts.**		N/A
6.10	**Venting with Flame Arresting and Particulate Retention.**		N/A

4. CFD analysis of the ventilation system

4.1. Basic Information of the system

The interior and exterior drawings provided by Sungrow was verified between TUV and Sungrow before running any calculation.

Figure 4-1 shows an external view of the container and the dimensions from a front view. The cube measures 6.058*2.438*2.896 m including one battery cabinets, liquid coolant unit, PCS, BCP and Auxiliary power supply unit. The cabinet contains 48 modules in rack and 104 cells in each module, as shown in Figure 4-1. The overall internal volume of battery cabinet is approximately 27.5 m^3. Subtracting the space filled by racks, modules, and the support structure, the actual open internal volume (efficient volume) is 5.49 m^3.

Figure 4-1: Geometry of Sungrow energy storage system

4.2. Principles and Assumptions

The following safety systems and CFD analysis have been acknowledged for the basis of the study's assumptions. Note that the scenarios and assumptions are run in unit levels, module levels and cell levels to show progressively worse-case scenarios based on the information available and are considered to be conservative.

4.2.1. Thermal runaway and propagation

(1) Propagation between cells:

The UL 9540A test report of module level and unit level indicate that cell to cell propagation could happen within a submodule which contains 26 cells. According to the test report total 5 cells were failed. It is noticed that the propagation between 4^{th} to 5^{th} cell takes relatively longer time (14 min in module level report and 45 min in unit level report) compared to 1^{st} cell to 4^{th} cell. Therefore, 4 cells failure is considered as the scenario in this study.

Assumption 1: 4 cells within submodule can fail.

(2) Propagation between modules:

The UL 9540A test report of unit level did not indicate that it is possible to have propagation between modules.

Assumption 2: There is no module-to-module propagation.

(3) Method of initiating thermal runaway:

Based on the UL 9540A test report of module level and unit level, two cell are heated to initiating thermal runaway. For conservative consideration, all cells are initiating together to thermal runaway.

Assumption 3: All cells are initiating together to thermal runaway in each scenario.

4.2.2. Gas composition and ignition location

(1) Gas cloud:

In this study, gas cloud before ignition is from the result of thermal runaway gas dispersion CFD simulation when the gas amount reaches the highest value.

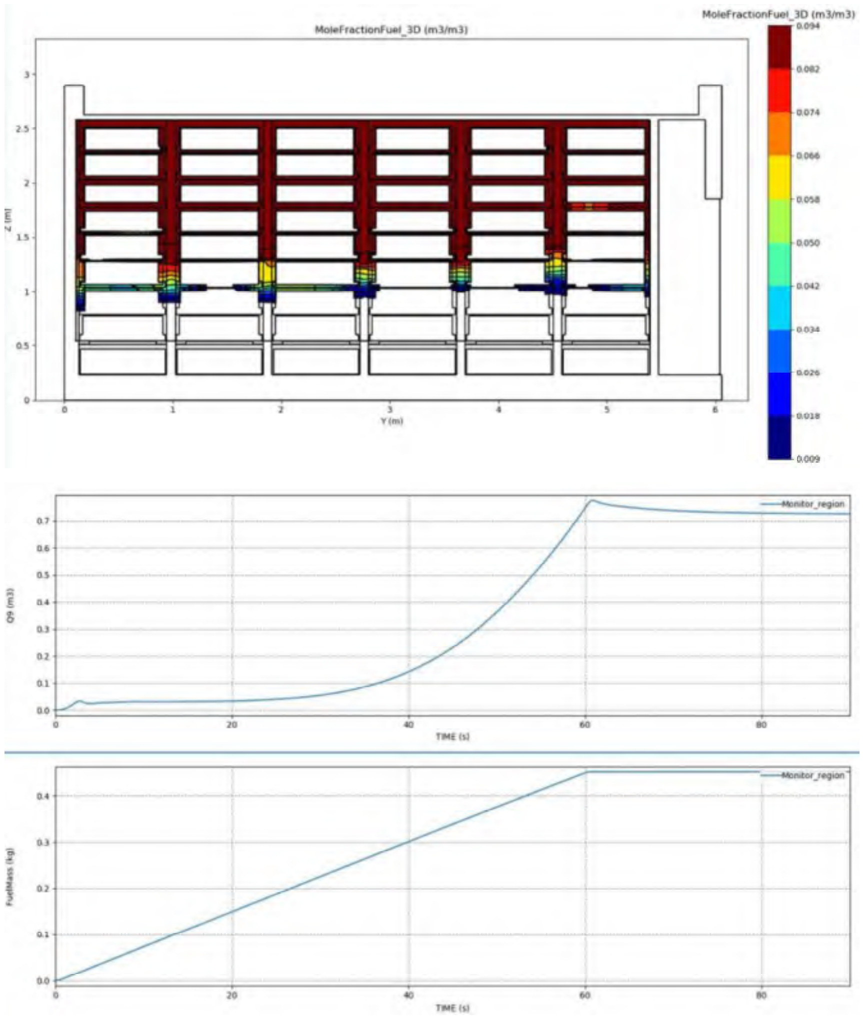


Figure 4-2: Gas cloud before ignition

Assumption 4: The offgas before ignition set as above.

(3) Gas composition:

Gas composition was provided in the test data of cell level UL 9540A report. Table 4-1 lists the release gas composition by volume.

Table 4-1: Gas composition by volume

Gas Component	Gas Type	Gas Volume in percentage (%)
Carbon monoxide	CO	13.924
Carbon dioxide	CO_2	27.237
Hydrogen	H_2	44.925
Methane	CH_4	6.421
Ethane	C_2H_6	0.996
Ethylene	C_2H_4	3.827
Propane	C_3H_8	0.322
Propylene	C_3H_6	1.227
Isobutane	C_4H_{10}	0.013
Acetylene	C_2H_2	0.339
Butane	C_4H_{10}	0.091
Isobutene	C_4H_8	0.085
Trans butene	C_4H_8	0.322
n-Butene	C_4H_8	0.140
Isopentane	C_5H_{12}	0.007
Pentane	C_5H_{12}	0.110
2-methyl-1,3-butadiene	C_5H_8	0.014
Total	---	100

Assumption 5: Gas composition is as above.

(3) Ignition location:

The ignition location was selected to be a single point in front of the modules and towards the top. The fire and pressure wave travel further when gas cloud ignited near corner, so top corner ignition was chosen. Since all the wiring and openings to the modules are on the front, it is assumed that the ignition sources are most likely to occur in front of the modules (See figure 4-3).

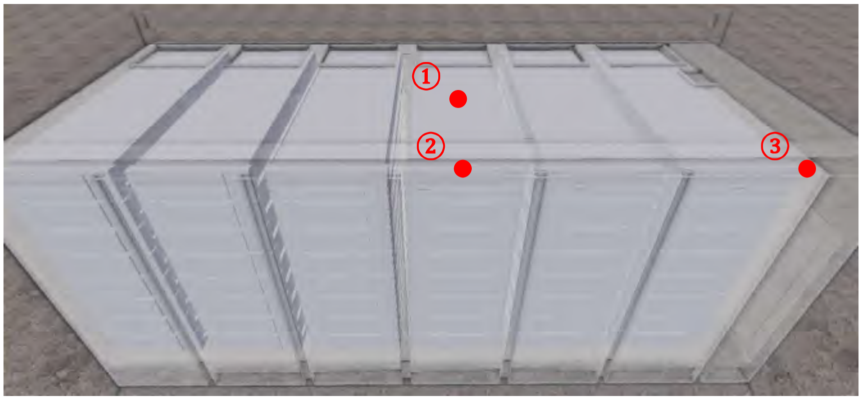


Figure 4-3: Ignition positions

4.2.3.System safety

(1) Ventilation system:

The container is fitted with 1 exhaust fan and passive air inlet louver.

Assumption 10: No ventilation system acts in this report.

(2) Thermal runaway control:

No thermal runaway prevention system is installed.

Assumption 11: Thermal runaway occurs in the module.

(3) Deflagration panels:

Six deflagration panels are installed on the container, 0.525*0.715 m effective area for each panel and act at 0.1 bar pressure difference.

Manufacturer name	Type number	Dimension	Trigger pressure
CHENGDU CAIC ELECTRONICS CO.,LTD. PI DU CHENGHANG BRANCH	PFTA735×545-0.01-22	735*545mm	100mbar±25% @22℃

Assumption 12: Deflagration panels acts as above.

4.3. Simulation Results

A total of four gas explosion scenarios were run representing progressively worse-case scenarios based on the assumptions made in the previous sections.

Table 4-2 presents a summary of the scenarios and the results from the simulation. The maximum over pressure inside enclosure is presented according to NFPA 68.

Table 4-2: Average gas concentration

Scenario	**Ignition Position**	**Maximum pressure (bar-g)**
001	1	0.099
002	2	0.177
003	3	0.099

(1) Pressure curve

Figure 4-4 to 4-6 shows the wall pressure for each scenario.

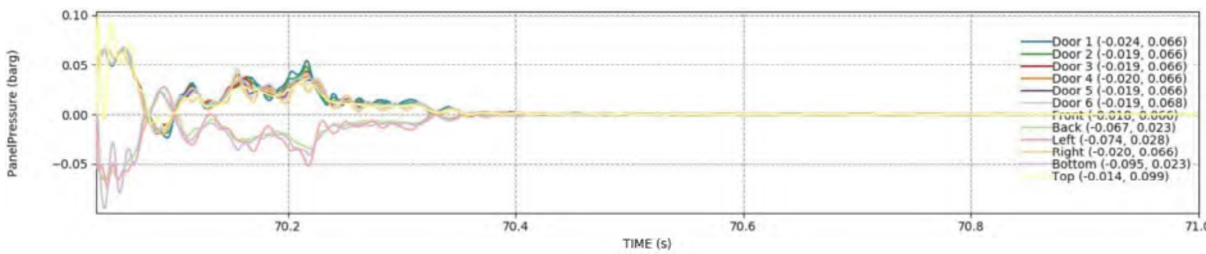


Figure 4-4: Top center ignition pressure curve.

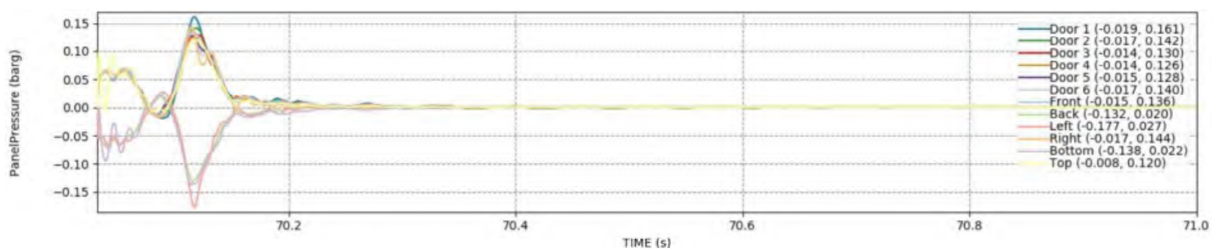


Figure 4-5: Top front center ignition pressure curve.

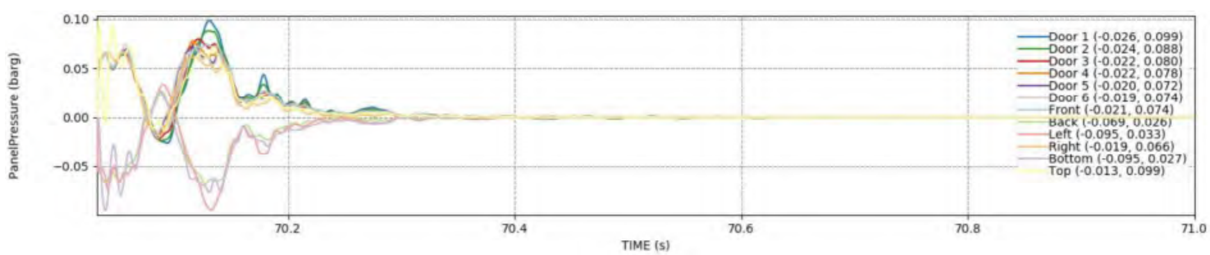


Figure 4-6: Top front corner ignition pressure curve.

(2) Pressure map (outside)

Figure 4-7 and 4-9 shows the maximum pressure outside cabinet.

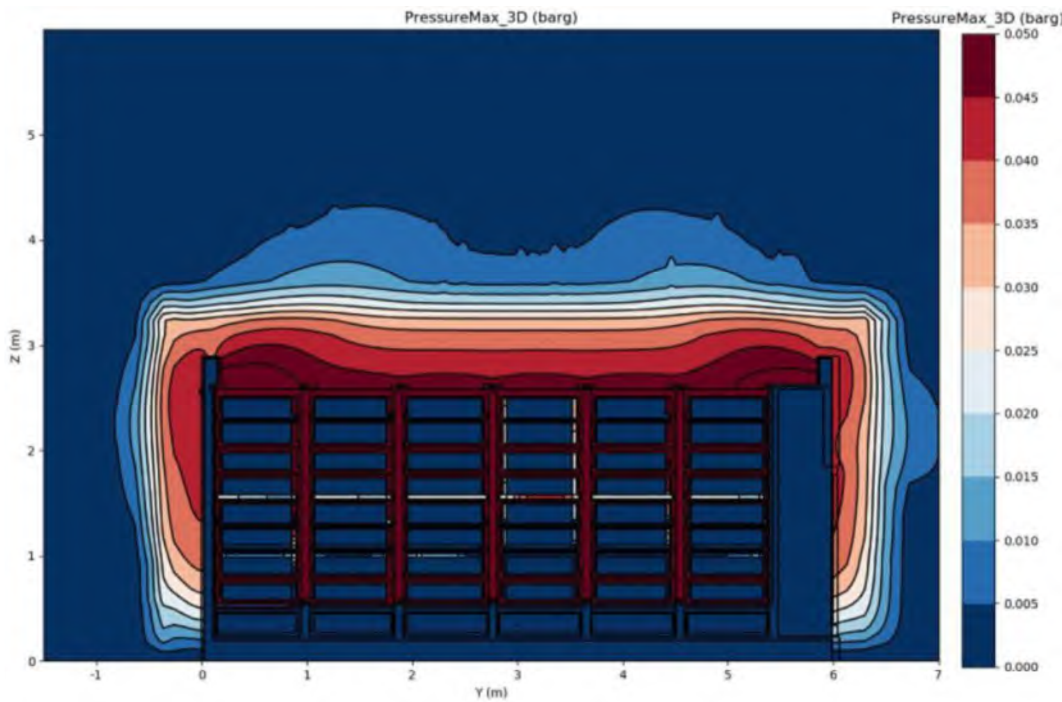


Figure 4-7: Top center ignition pressure map (outside).

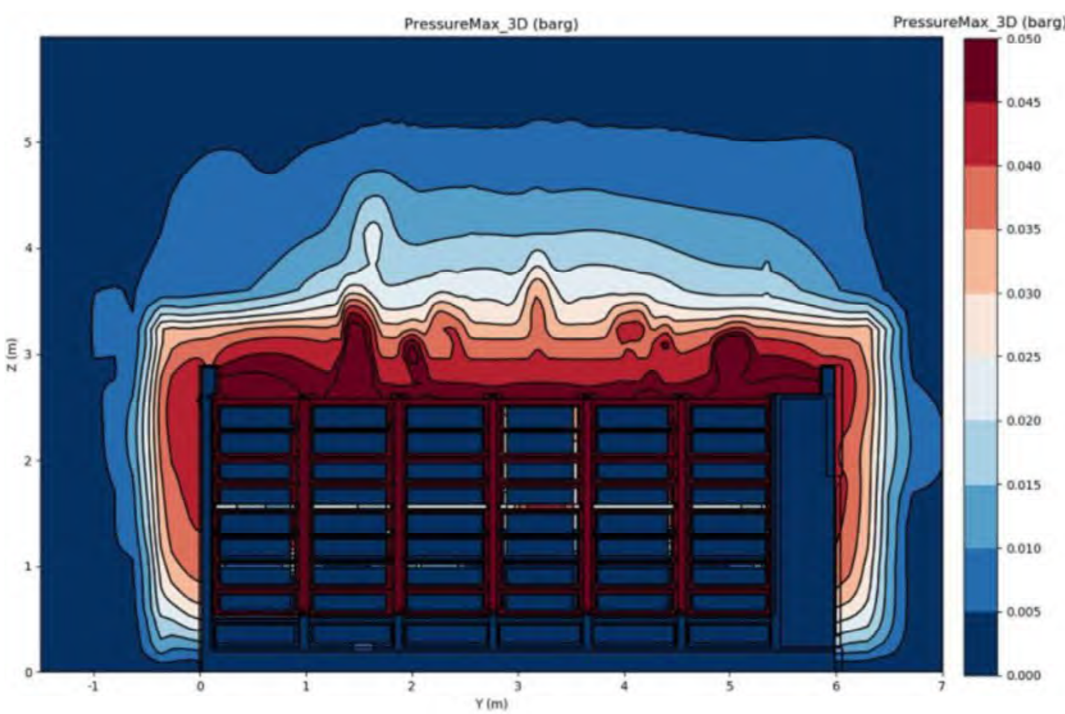


Figure 4-8: Top front center ignition pressure map (outside).

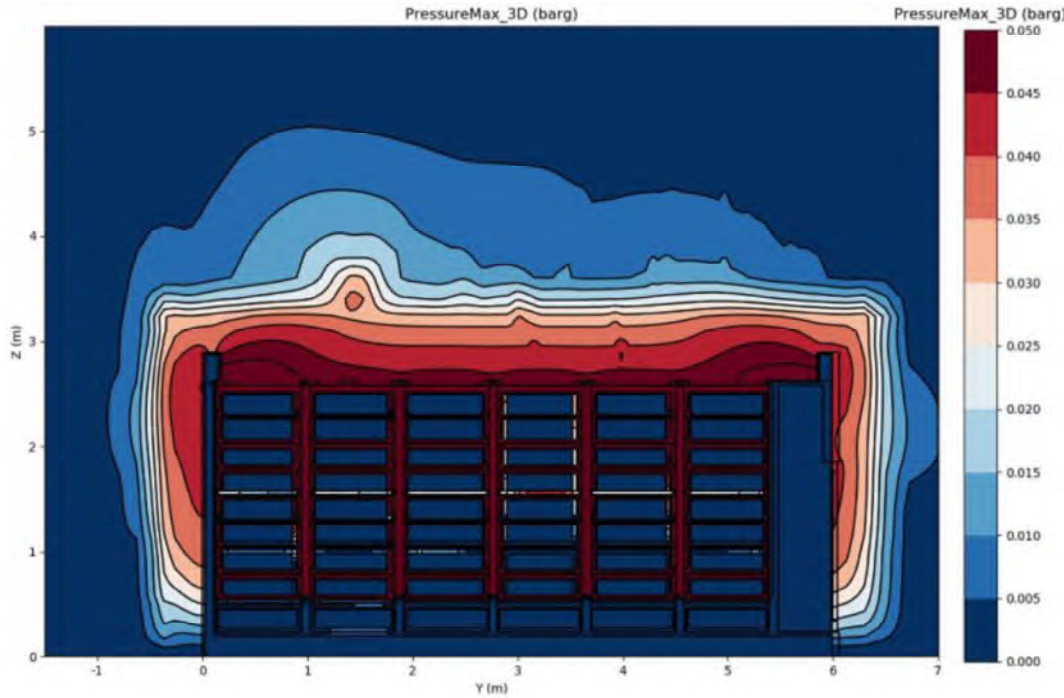


Figure 4-9: Top front corner ignition pressure map (outside).

(3) Temperature map

Figure 4-10 and 4-12 shows the temperature map.

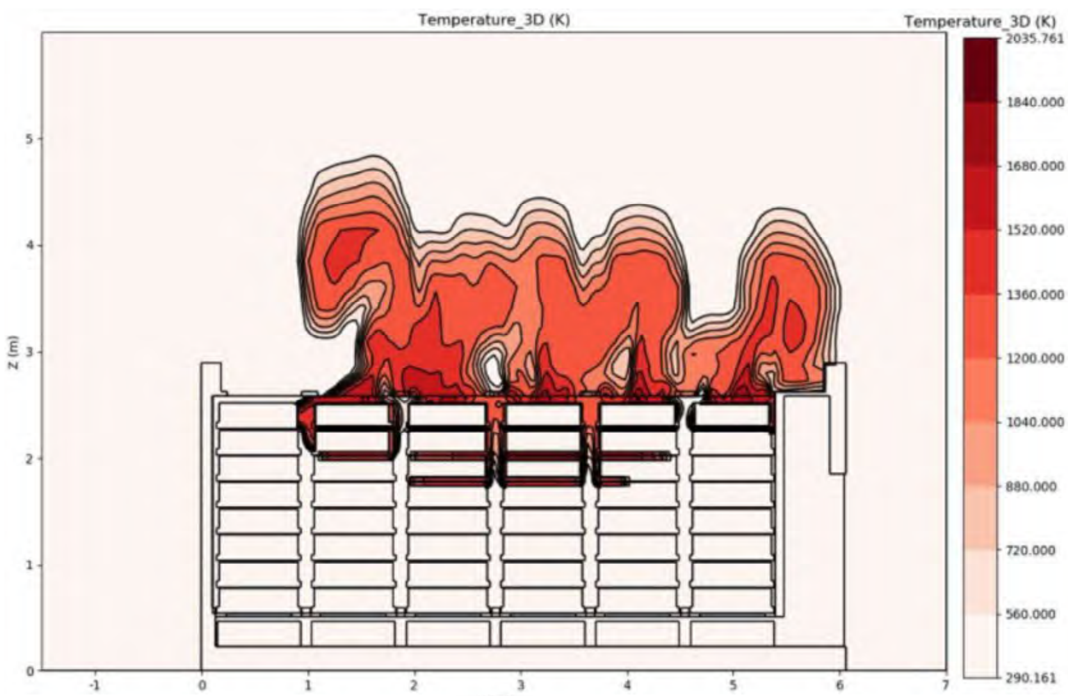


Figure 4-10: Top center ignition temperature map (outside).

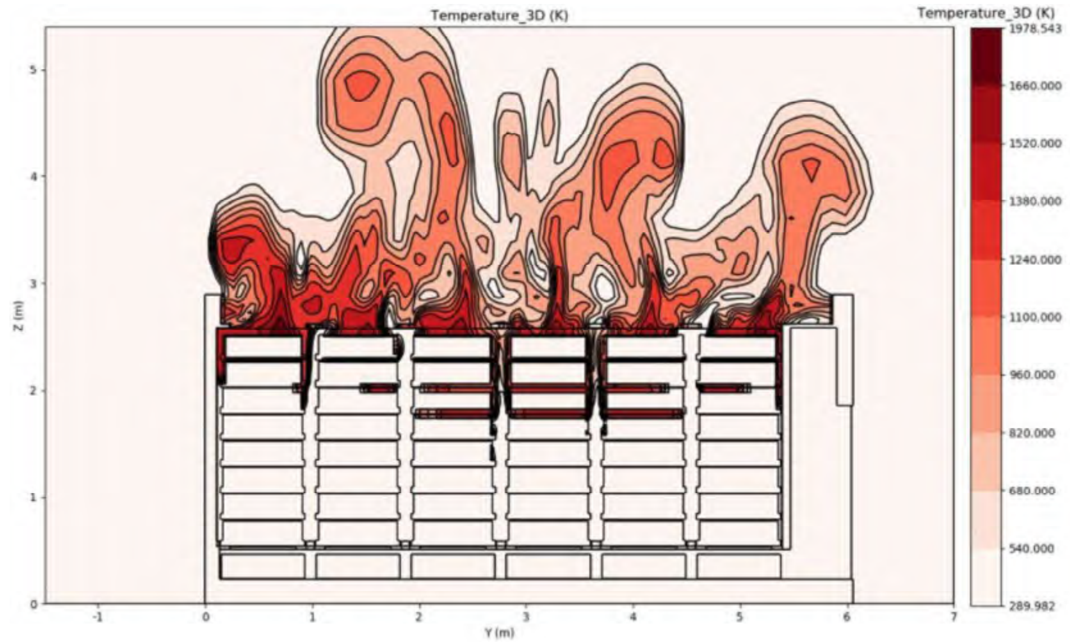


Figure 4-11: Top front center ignition temperature map (outside).

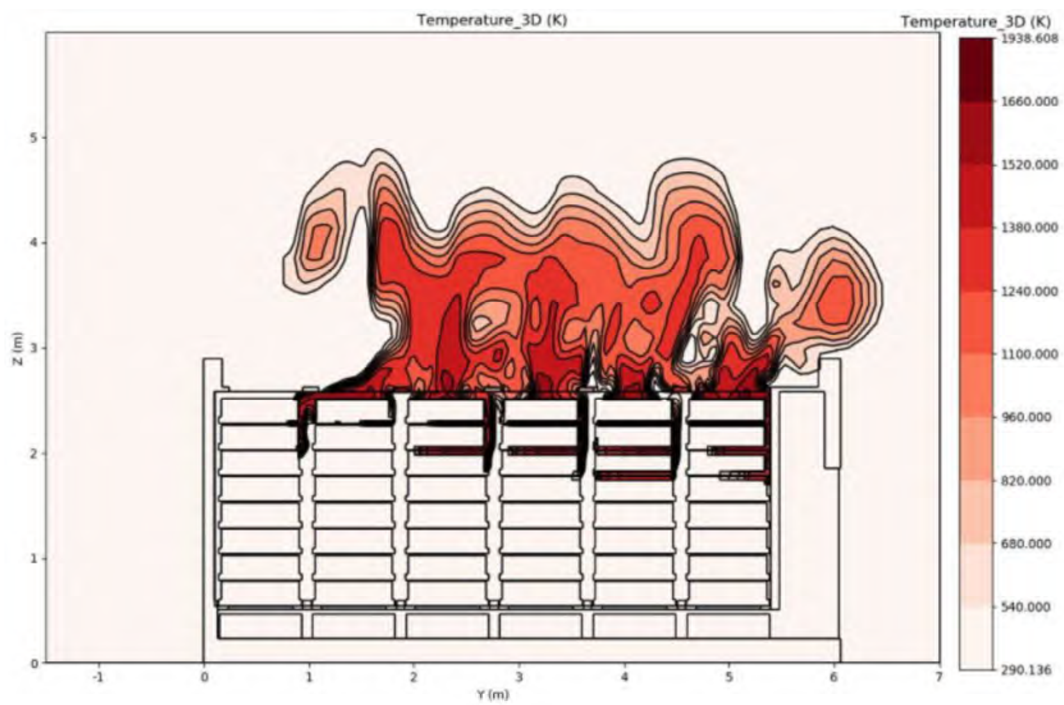


Figure 4-12: Top front corner ignition temperature map (outside).

5. Conclusions

This CFD model has shown that the predicted maximum average pressure on the wall is 0.177 bar-g. The enclosure mechanical analyze report is provided and by Sungrow, and Sungrow is responsible for the enclosure mechanical strength. The enclosure mechanical analyze report indicate that the enclosure could maintain at least 0.60 bar-g pressure. According to the CFD result, the enclosure could handle the deflagrating pressure and met the requirement of NFPA 68.

6. References

(1) NFPA68:2023 Standard on Explosion Protection by Deflagration Venting

(2) Cell Level UL9540A Report: CSA 80207982

(3) Module Level UL9540A Report: CN24CKYX 001

(4) Unit Level UL9540A Report: CN24UE79 001

(5) Explosion Simulation Report of G2.0

End of Report

Prüfbericht-Nr.: *Test report no.:*	**CN24B1LW 001**	**Auftrags-Nr.:** *Order no.:*	**326015218**	Seite 1 von 24 *Page 1 of 24*
Kunden-Referenz-Nr.: *Client reference no.:*	**2003666**	**Auftragsdatum:** *Order date:*	2024-04-16	

Auftraggeber: *Client:*	Sungrow Power Supply Co., Ltd. No.1699 Xiyou Rd.,New & High Technology Industrial Development Zone, Hefei, 230088 Anhui, P.R. China
Prüfgegenstand: *Test item:*	Energy Storage System
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	ST5015UX-2H/4H-US, ST4595UX-2H-US, ST4175UX-2H/4H-US, ST3760UX-2H-US, ST3340UX-2H/4H-US ST5015UX-2H/3H/4H, ST4595UX-2H/3H, ST4175UX-2H/3H/4H, ST3760UX-2H/3H, ST3340UX-2H/3H/4H
Auftrags-Inhalt: *Order content:*	Test report
Prüfgrundlage: *Test specification:*	This report provides evaluation and CFD analysis of the ventilation system in energy storage system referring to Chapter 8 in NFPA69:2019.
Wareneingangsdatum: *Date of sample receipt:*	2023-01-03
Prüfmuster-Nr.: *Test sample no:*	Engineering sample
Prüfzeitraum: *Testing period:*	2023-02-03 - 2024-02-23
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shanghai) Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shanghai) Co., Ltd.
Prüfergebnis*: *Test result*:*	See main report

geprüft von: *tested by:* Simon Wang

Datum: *Date:* 2024.05.08

Stellung / *Position:* **Project Engineer**

genehmigt von: *authorized by:* Bowen Dong

Ausstellungsdatum: *Issue date:* 2024.05.08

Stellung / *Position:* **Authorizer**

Sonstiges / *Other:* The mentioned models listed on above are identical to the original model in the previous section report CN24K3CC 001 except for model name, trademark and/or license holder etc. The CFD analysis data refer to previous section report CN24K3CC 001.

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Contents

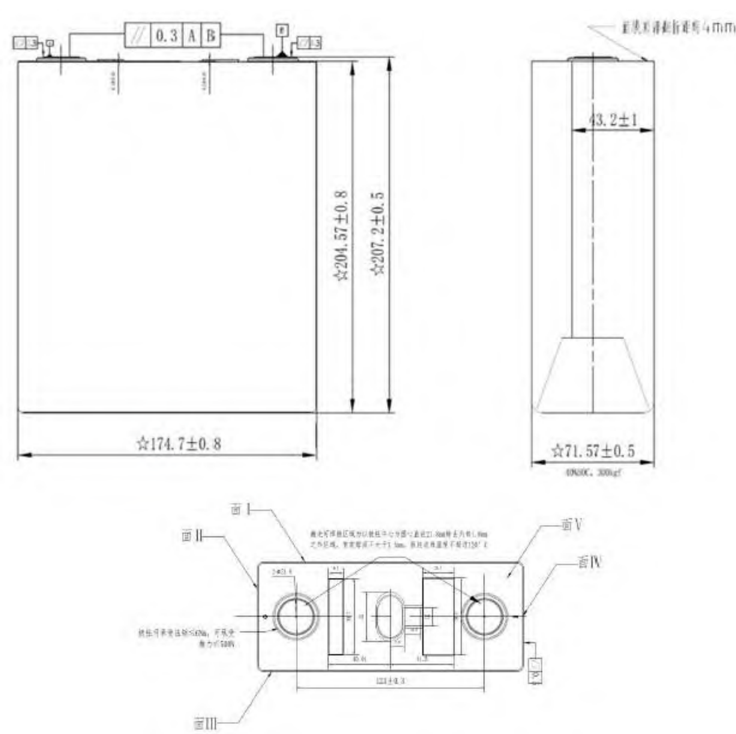
1. General Production Information:

1.1. Cell

The product information and parameters are provided by the client as below.

Manufacturer ....:	Sungrow Power Supply Co., Ltd.	
Model number...................................:	C0314-AA-H	
Chemistry ....:	LiFePO4	
Physical configuration.......................:	Prismatic	
	Weight:	5.56±0.15 kg
Electrical rating ....:	Rated capacity:	314 Ah
	Nominal voltage:	3.2 V
Standard charge method ....:	Charge current:	157 A
	End of charge voltage:	3.8 V
Standard discharge method..............:	Discharge current:	314 A
	End of discharge voltage:	2.5 V

Diagram with overall dimension

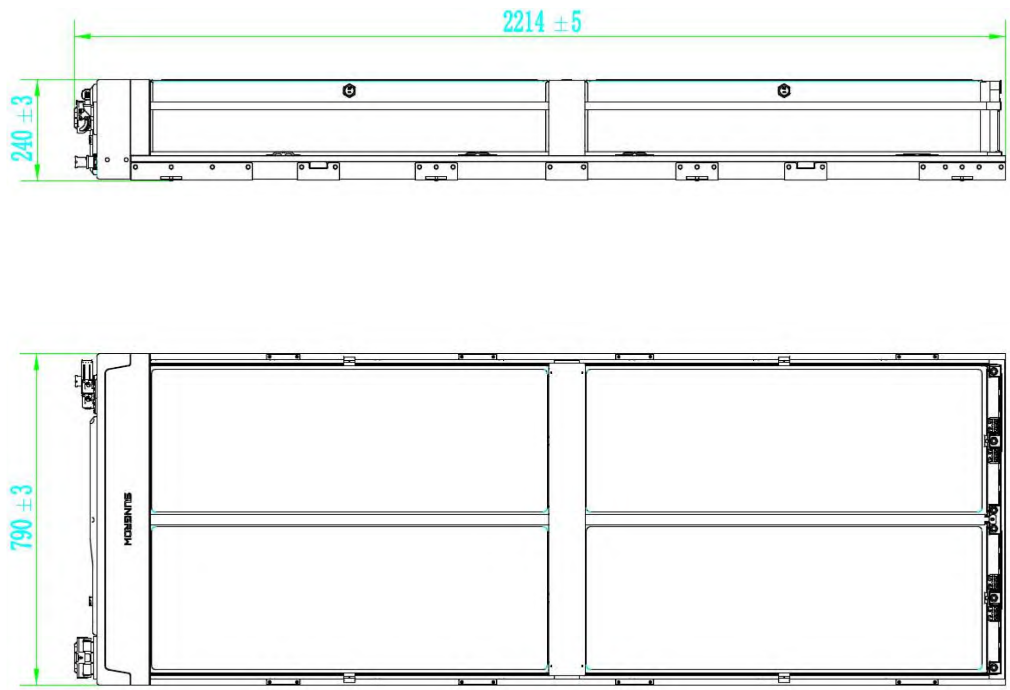


1.2. Module

The product information and parameters are provided by the client as below.

Manufacturer name.......................... :		Sungrow Power Supply Co., Ltd.
Model number.................................. :		P1044AL-AA-H
Physical configuration...................... :		Metal enclosure with plastic cover
		Weight: 660±9 kg
		Cells in series/parallel: 104S
Cooling method................................ :		Liquid cooling
Separation between cells.................. :		Aerogel
Electrical rating .... :		Rated capacity: 314 Ah
		Nominal voltage: 332.8 V
Standard charge method.........:	Charge current:	157 A
	End of charge voltage:	379.6 V
Standard discharge method.........:	Discharge current:	157 A
	End of discharge voltage:	280.8 V

Diagram:



1.3. Energy Storage System

The product information and parameters are provided by the client as below.

	Battery system	Battery system	Battery system
Product	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System
Type/model	R0417BL-AAA-H	R0417BL-ADA-H	R0835BL-ACA-H
Cell Capacity [Ah]	314	314	628
Cell Quantity	416	416	832
Battery structure	(104S)4S	(104S)4S	((104S)4S)2P
Nominal voltage [V]	1331.2V	1331.2V	1331.2V
Rated capacity [Wh]	417996.8	417996.8	835993.6
Upper limit charging voltage [V]	1497.6	1497.6	1497.6
Recommend charging current [A]	157	104.7	157
Maximum charging current [A]*	186.1	124.1	186.1
Maximum charging power	208.9kW	139.3kW	208.9kW
Recommend discharging current [A]	157	104.7	157
Maximum discharging current [A]	186.1	124.1	186.1
Maximum discharging power	208.9kW	139.3kW	208.9kW
Discharge cut-off voltage [V]	1123.2	1123.2	1123.2
Temperature range for charging [°C]	0 to 50	0 to 50	0 to 50
Temperature range for discharging [°C]	-30 to 50	-30 to 50	-30 to 50
Temperature threshold for protection [°C]	55	55	55
Overcharge protected voltage supply by battery system	≥3.75V /Cell	≥3.75V /Cell	≥3.75V /Cell
Recommend charging method by manufacturer	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 139.3kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V
Dimension [mm]	Rack: 790*2214*1000mm （W*D*H） PCS： 790*875* 230mm （W*D*H）	Rack: 790*2214*1000mm （W*D*H） PCS： 790*875* 230mm （W*D*H）	Rack: 790*2214*2000mm （W*D*H） PCS： 790*875* 230mm （W*D*H）

Weight [kg]	Rack: 2600±36kg PCS：85±5kg	Rack: 2600±36kg PCS：85±5kg	Rack: 5200±72kg PCS：85±5kg
Ingress Protection (IP)	IP65	IP65	IP65
Protective Class	I	I	I
Cooling type	Liquid cooling	Liquid cooling	Liquid cooling
Altitude	4000m	4000m	4000m

	Battery system	Battery system	Battery system
Product	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System
Type/model	R0417BL-AAS-H	R0417BL-ACS-H	R0835BL-AAS-H
Cell Capacity [Ah]	314	314	628
Cell Quantity	416	416	832
Battery structure	(104S)4S	(104S)4S	((104S)4S)2P
Nominal voltage [V]	1331.2V	1331.2V	1331.2V
Rated capacity [Wh]	417996.8	417996.8	835993.6
Upper limit charging voltage [V]	1497.6	1497.6	1497.6
Recommend charging current [A]	157	78.5	314
Maximum charging current [A]	186.1	93.1	372.2
Recommend discharging current [A]	157	78.5	314
Maximum discharging current [A]	186.1	93.1	372.2
Discharge cut-off voltage [V]	1123.2	1123.2	1123.2
Temperature range for charging [°C]	0 to 50	0 to 50	0 to 50
Temperature range for discharging [°C]	-30 to 50	-30 to 50	-30 to 50
Temperature threshold for protection [°C]	55	55	55
Overcharge protected voltage supply by battery system	≥3.75V /Cell	≥3.75V /Cell	≥3.75V /Cell
Recommend charging method by manufacturer	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 104.4kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 417.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V
Dimension [mm]	Rack: 790*2214*1000mm （W*D*H） S/G：	Rack: 790*2214*1000mm （W*D*H） S/G：	Rack: 790*2214*2000mm （W*D*H） S/G：

	790*1097.5*240mm （W*D*H）	790*1097.5*240mm （W*D*H）	790*1097.5*240mm （W*D*H）
Weight [kg]	Rack: 2600±36kg S/G：70±10kg	Rack: 2600±36kg S/G：70±10kg	Rack: 5200±72kg S/G：70±10kg
Ingress Protection (IP)	IP65	IP65	IP65
Protective Class	I	I	I
Cooling type	Liquid cooling	Liquid cooling	Liquid cooling
Altitude	5000m	5000m	5000m

	Battery system	Battery system	Battery system
Product	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System	LFP Lithium Ion Energy Storage System
Type/model	R0835BL-ACS-H	R0417BL-AAT-H	R0417BL-ACT-H
Cell Capacity [Ah]	628	314	314
Cell Quantity	832	416	416
Battery structure	((104S)4S)2P	(104S)4S	(104S)4S
Nominal voltage [V]	1331.2V	1331.2V	1331.2V
Rated capacity [Wh]	835993.6	417996.8	417996.8
Upper limit charging voltage [V]	1497.6	1497.6	1497.6
Recommend charging current [A]	157	157	78.5
Maximum charging current [A]	186.1	186.1	93.1
Recommend discharging current [A]	157	157	78.5
Maximum discharging current [A]	186.1	186.1	93.1
Discharge cut-off voltage [V]	1123.2	1123.2	1123.2
Temperature range for charging [°C]	0 to 50	0 to 50	0 to 50
Temperature range for discharging [°C]	-30 to 50	-30 to 50	-30 to 50
Temperature threshold for protection [°C]	55	55	55
Overcharge protected voltage supply by battery system	≥3.75V /Cell	≥3.75V /Cell	≥3.75V /Cell
Recommend charging method by manufacturer	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 208.9kW until the voltage reaches 1497.6V or any one cell reaches 3.65V	Change at constant power 104.4kW until the voltage reaches 1497.6V or any one cell reaches 3.65V
Dimension [mm]	Rack: 790*2214*2000mm （W*D*H）	Rack: 790*2214*1000mm （W*D*H）	Rack: 790*2214*1000mm （W*D*H）

	S/G： 790*1097.5*240mm （W*D*H）	S/G： 790*1097.5*240mm （W*D*H）	S/G： 790*1097.5*240mm （W*D*H）
Weight [kg]	Rack: 5200±72kg S/G：70±10kg	Rack: 2600±36kg S/G：75±10kg	Rack: 2600±36kg S/G：75±10kg
Ingress Protection (IP)	IP65	IP65	IP65
Protective Class	I	I	I
Cooling type	Liquid cooling	Liquid cooling	Liquid cooling
Altitude	5000m	5000m	5000m

2. Product Description:

2.1. General Description

This product is used for Energy Storage System.

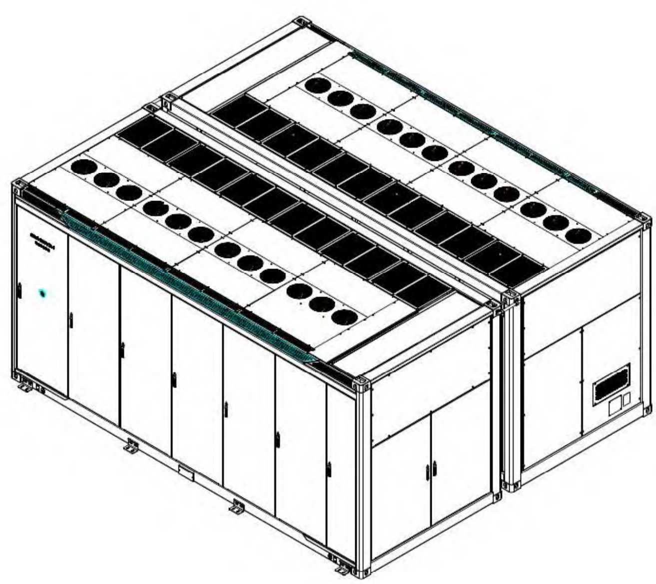
The EUTs described in this report are three models of LFP lithium ion battery energy storage systems which include one master control (or one control box) and several battery packs in series (parallel) connection. The master control function integrated in fuse box and PCS, the BMS master control board placed in PCS. The number of battery pack is 4 for model R0417BL-AAA-H and R0417BL-ADA-H, the difference between them is that the battery maximum power and current are different. The number of battery pack is 8 for model R0835BL-ACA-H.

The battery pack contain 104 cells in structure 104S. And it contains one BMU board for measuring and collecting the cell parameters and uploading the information of cell voltage and temperature to CMU in PCS.

The EUTs are indoor type. The insulation between the DC circuit and the metal enclosure is basic insulation. And the insulation between the DC circuit and communication ports is reinforced insulation or double insulation. OVC II considered for the battery rack, it shall be isolated from an OVC III supply source (such as from an OVC III PCS) through an isolated transformer or protected in a manner that prevents transient overvoltage conditions in end use.

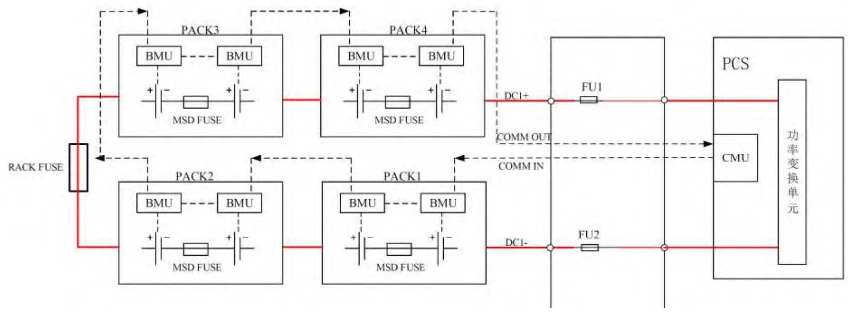
The PCS is certified individually. The BMS master control board is placed in PCS.

The BMS functional safety was evaluated according to UL 60730-1 Annex H by TÜV Rheinland.

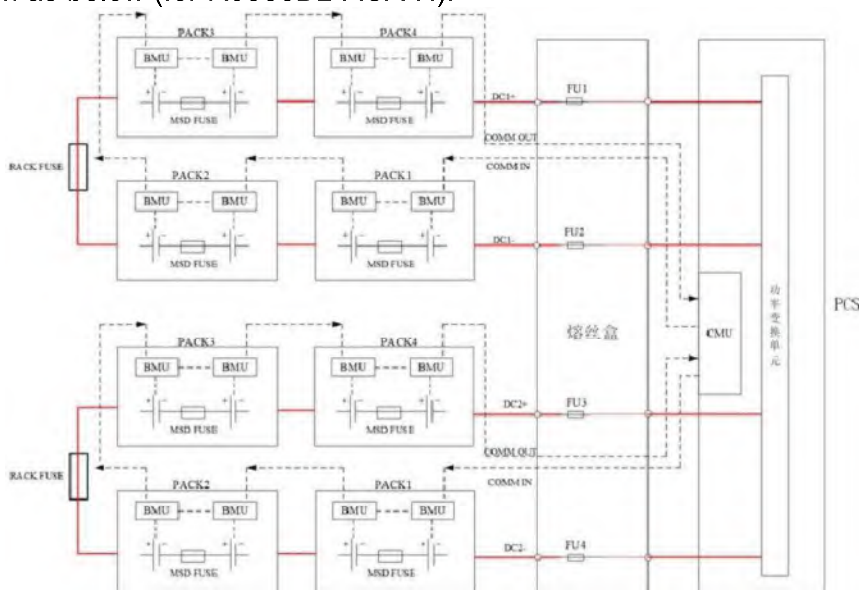


2.2. Energy Storage System Block Diagram

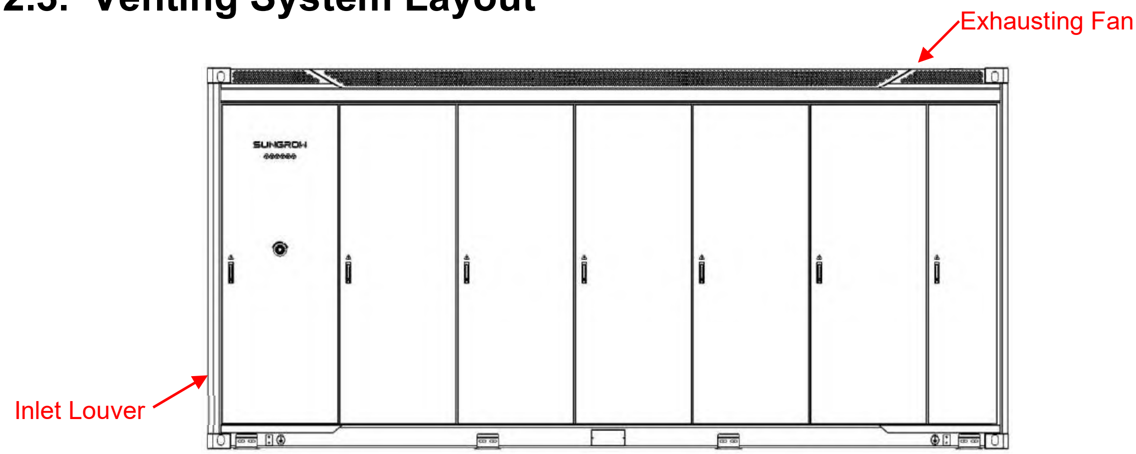
Block diagram as below (for R0417BL-AAA-H and R0417BL-ADA-H):
one fuse box shared by two racks:



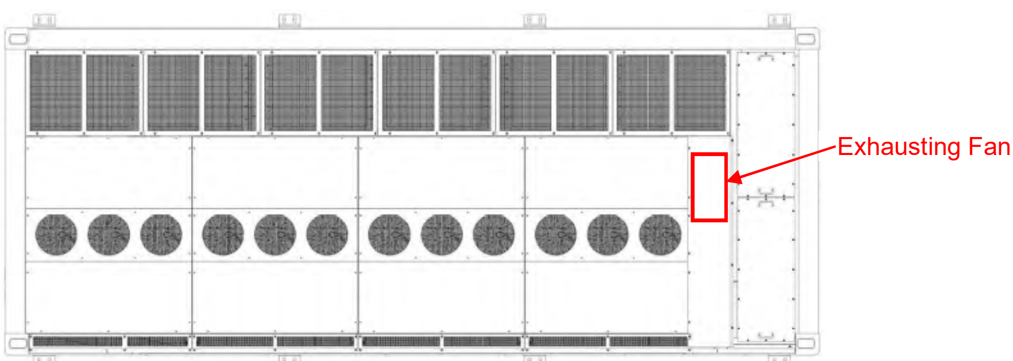
Block diagram as below (for R0835BL-ACA-H):



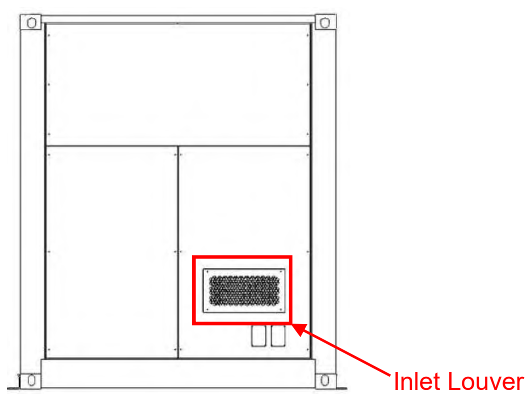
2.3. Venting System Layout



(Front view)



(Top view)



(Left view)

3. Ventilation system evaluation referring to Chapter 8 in NFPA69:2019

Clause	Requirement – Test	Result – Remark	Verdict
Chapter 8	**Deflagration Prevention by Combustible Concentration Reduction**		--
8.1	**Application.** The technique for combustible concentration reduction shall be permitted to be considered where a mixture of a combustible material and an oxidant is confined to an enclosure and where the concentration of the combustible can be maintained below the lower flammable limit (LFL).	Specified in details in "CFD analysis of the ventilation system"	P
8.2	**Basic Design Considerations**		--
8.2.1	All of the following factors shall be considered in the design of a system intended to reduce the combustible concentration below the LFL:	Specified in details in "CFD analysis of the ventilation system"	P
	1) Required reduction in combustible concentration		P
	2) Variations in the process, process temperature and pressure, and materials being processed		P
	3) Operating controls		P
	4) Maintenance, inspection, and testing		P
	5) Concentration variation with time and location within the protected enclosure		P
8.2.2	The LFLs of the combustible components shall be determined at all operating conditions, including startup and shutdown.		P
8.2.3	**Protection System Design and Operation**		--
8.2.3.1	The owner or operator shall be responsible for a thorough analysis of the process to determine the type and degree of deflagration hazards inherent in the process		P
8.2.3.2	Information required for the monitoring and control of the concentration of combustible components shall be compiled and documented. This information shall include, but not be limited to, the following:		--
	(1) Monitoring and control objectives		P
	(2) Monitored and controlled areas of the process		P
	(3) Dimensioned drawings of the process with the following: (a) Equipment make and model if available, including volumes and diameters and design strengths (b) Plan and elevation views with flows indicated		P

3. Ventilation system evaluation referring to Chapter 8 in NFPA69:2019

Clause	Requirement – Test	Result – Remark	Verdict
	(4) Startup, normal, shutdown, temporary operations, and emergency shutdown process conditions and ranges for the following: (a) Flow (b) Temperature (c) Pressure (d) Oxidant concentration (e) Fuel concentration		P
	(5) Process flow diagram and description		N/A
	(6) Ambient temperature in process area		P
	(7) Process interlocks		N/A
8.2.3.3	The owner or operator shall disclose any and all process information required for the protection system design.		P
8.2.3.4	The protection system design shall be subject to a documented review by a qualified person.		P
8.2.3.5	The owner or operator shall be responsible for the maintenance of the system after installation and acceptance based on procedures provided by the vendor. Maintenance records shall be retained for inspection by the authority having jurisdiction.		P
8.2.3.6	The owner or operator shall be responsible for periodic inspection of the system by personnel trained by the system manufacturer. The inspection frequency shall be in accordance with Section 15.7.		N/A
8.2.3.7	Management of Change. The effect of any process change shall be addressed as specified in Section 15.11.		N/A
8.2.3.8	All documentation relevant to the protection system shall be retained in accordance with Chapter 15.		P
8.3	**Design and Operating Requirements**		--
8.3.1	**Combustible Concentration Limit.** The combustible concentration shall be maintained at or below 25 percent of the LFL for all foreseeable variations in operating conditions and material loadings, unless the following conditions apply:	Specified in details in “CFD analysis of the ventilation system”	P
	(1) Where continuously monitored and controlled with safety interlocks, the combustible concentration shall be permitted to be maintained at or below 60 percent of the LFL.	Specified in details in “CFD analysis of the ventilation system”	N/A

3. Ventilation system evaluation referring to Chapter 8 in NFPA69:2019

Clause	Requirement – Test	Result – Remark	Verdict
	(2) Aluminum powder production systems designed and operated in accordance with NFPA 484 shall be permitted to be maintained at or below 50 percent of the LFL.		N/A
8.3.2	**Catalytic Oxidation.** Where catalytic oxidation is used for combustible concentration reduction, the following shall apply:		N/A
	(1) Isolation systems shall be provided in all inlets to the catalytic oxidation unit.		N/A
	(2) Unless the combustible concentration is monitored continuously, the effectiveness of the catalytic oxidation system shall be verified periodically in accordance with the manufacturer's recommendations.		N/A
8.3.3	**Ventilation or Air Dilution**		P
8.3.3.1	If ventilation is used, the outlets from the protected enclosures shall be located so that hazardous concentrations of the exhausted air cannot enter or be drawn into the fresh air intakes of environmental air - handling systems.		P
8.3.3.2	Air intakes shall meet one of the following requirements:		P
	(1) They shall be located so that combustible material cannot enter the air-handling system, even in the event of spills or leaks.		P
	(2) They shall be provided with gas detectors that automatically interlock to stop air intake.		P
8.3.3.3	Filters, dryers, or precipitators in the air intakes shall be located such that they are accessible for cleaning and maintenance.		P
8.4	**Instrumentation**		P
8.4.1	Instrumentation shall be provided to monitor and control the process flows.		P
8.4.2	Instrumentation shall be calibrated according to the requirements of Chapter 15.		P
8.4.3	Where the enclosure being protected presents a personnel hazard, alarms shall be provided to indicate abnormal operation of the system.		P

4. CFD analysis of the ventilation system

4.1. Basic Information of the system

The interior and exterior drawings provided by Sungrow was verified between TUV and Sungrow before running any calculation.

There are two version of container energy storage system, UL version and IEC version. Compared with the UL prototype, the IEC prototype has a fire suppression control box, a pressure relief port, an Audible and visual alarm / Alarm bell / Air release indicator light, and the same internal battery compartment structure as the UL prototype.

Figure 4-1 shows an external view of the container and the dimensions from a front view. The cube measures 6.058*2.438*2.896 m including one battery cabinets, liquid coolant unit, PCS, BCP and Auxiliary power supply unit. The cabinet contains 48 modules in rack and 104 cells in each module, as shown in Figure 4-1. The overall internal volume of battery cabinet is approximately 27.5 m^3. Subtracting the space filled by racks, modules, and the support structure, the actual open internal volume (efficient volume) is 5.49 m^3.

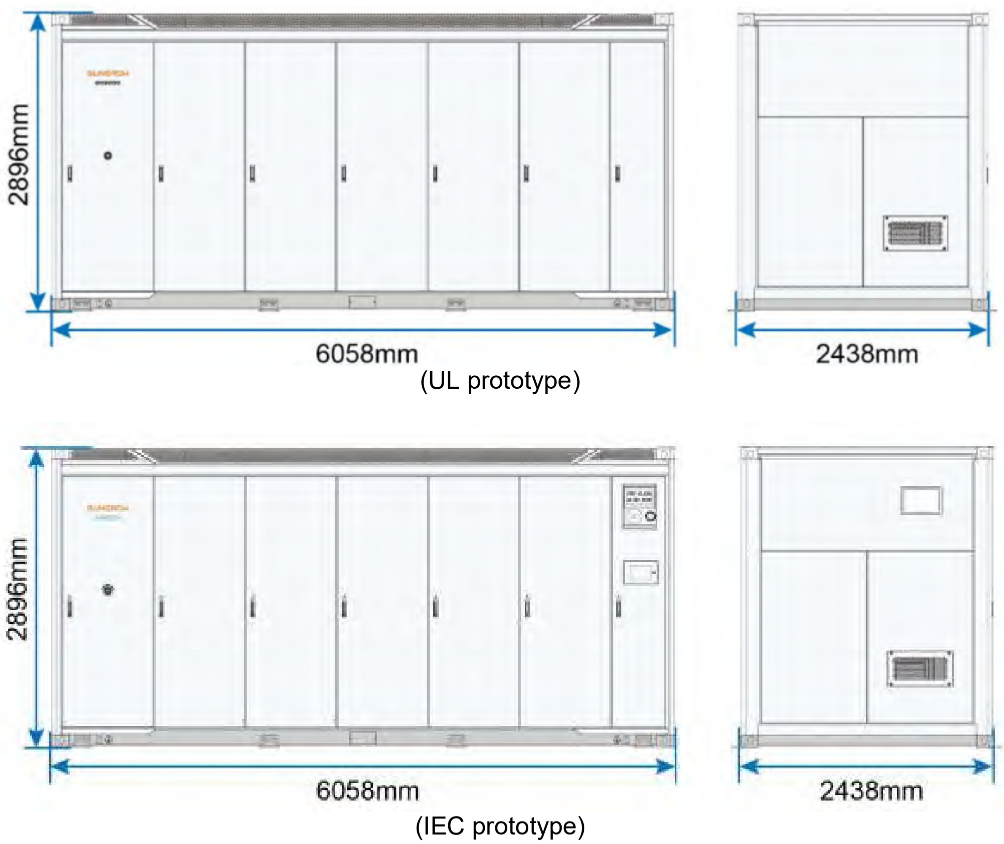


Figure 4-1: Geometry of Sungrow energy storage system

4.2. Principles and Assumptions

The following safety systems and CFD analysis have been acknowledged for the basis of the study's assumptions. Note that the scenarios and assumptions are run in unit levels, module levels and cell levels to show progressively worse-case scenarios based on the information available and are considered to be conservative.

4.2.1. Thermal runaway and propagation

(1) Propagation between cells:

The UL 9540A test report of module level and unit level indicate that cell to cell propagation could happen within a submodule which contains 26 cells. According to the test report total 5 cells were failed (#1 to #5 cell). Consider the gas release profile in module level and unit level test, 5 cells thermal runaway in module level test takes shorter time than unit level which means worse gas release result.

Assumption 1: There is cell-to-cell propagation and 5 cells failure within submodule is considered in this study.

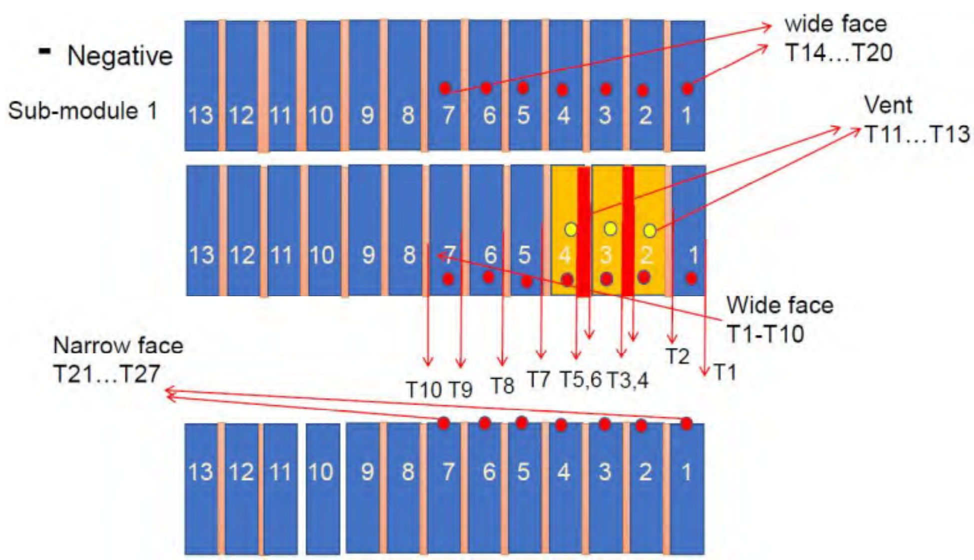


Figure 4-2: Initiating module set up in unit level UL9540A test report

(2) Propagation between modules:

The UL 9540A test report of unit level does not indicate that it is possible to have propagation between modules.

Assumption 2: There is no module-to-module propagation.

4.2.2. Leakage profile and gas composition

(1) Leakage profile:

The data and test phenomenon in cell level, module level and unit level UL 9540A test report provide gas release rate and total amount. The gas release rate profile in this study is the worst scenario that considered the raw data from unit level UL 9540A test.

For conservative consideration, it is assumed that gas release rate was developed by multiplying the gas generation rate from the UL 9540A test by 1.5. (See Figure 4-3).

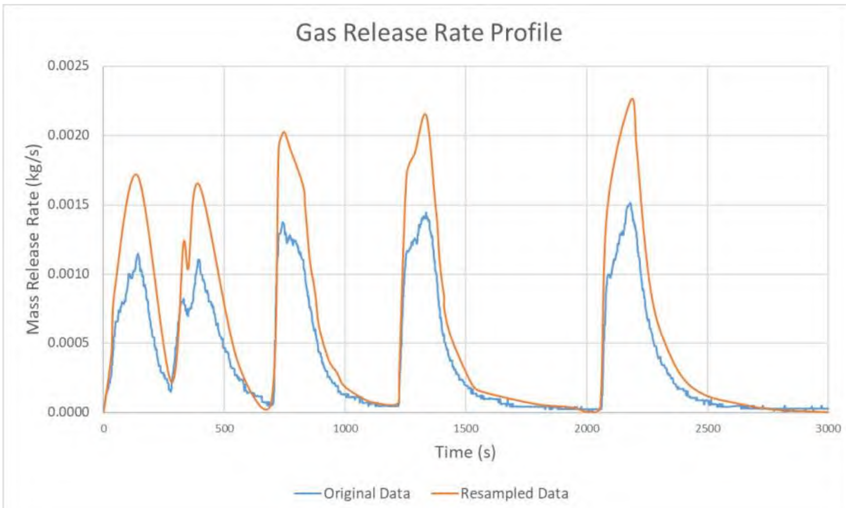


Figure 4-3: Gas release rate profile

Assumption 3: The offgas release profile is set as above for each scenario.

(2) Position of the leak:

According to unit level UL 9540A test, module 1-2 was chosen to be the initial module to form a maximum thermal effect (See Figure 4-4), and the test photo shows the offgas will release from the top of module.

Figure 4-4: Unit level UL 9540A test setup

Assumption 4: Two offgas release positions on M1-2 of the racks are considered in this study, one is located at the middle (right) rack, another one is at the left rack which is far from gas detector and exhaust fan (top right). (See Figure 4-5)

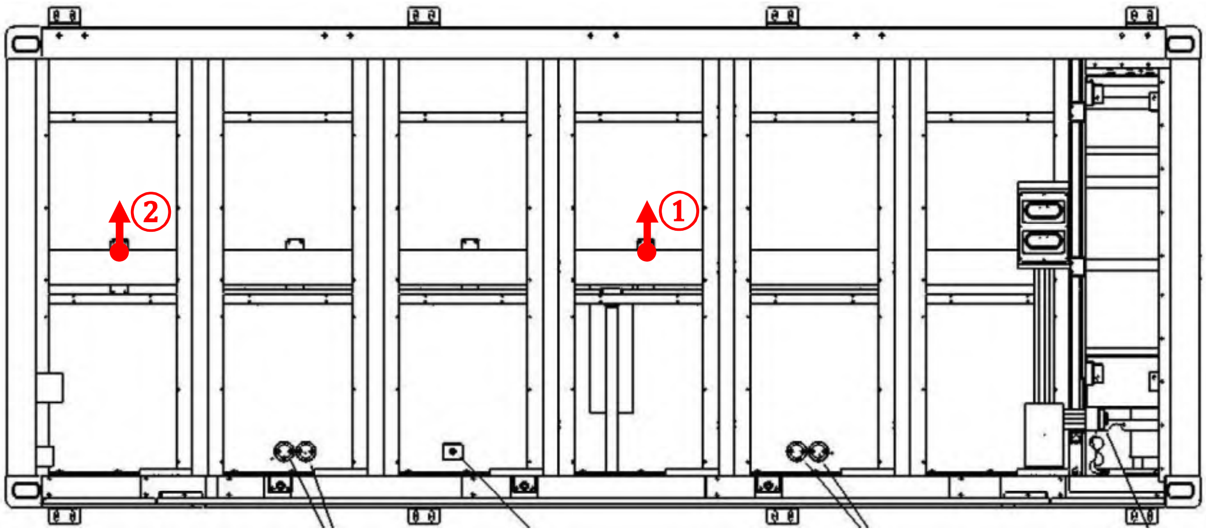


Figure 4-5: Location of gas leakage position (top view).

(3) Gas detector:

Regarding the construction of the container, there is one gas detectors equipped on the edge of roof, the location is shown in figure 4-6.

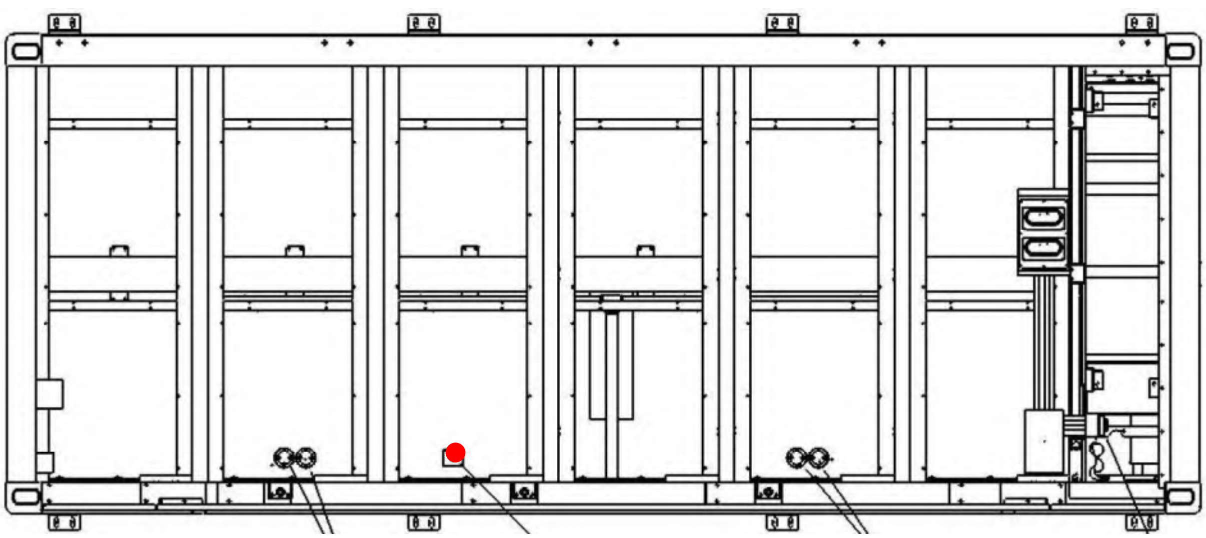


Figure 4-6: Location of gas detectors (top view).

Assumption 5: The position of gas detectors is set as above to monitor the concentration of hydrogen and trigger ventilation fans.

(4) Gas composition and LFL:

Gas composition was provided in the test data of cell level UL 9540A report. Table 4-1 lists the release gas composition by volume

Table 4-1: Gas composition by volume

Gas Component	Gas Type	Gas Volume in percentage (%)
Carbon monoxide	CO	13.924
Carbon dioxide	CO_2	27.237
Hydrogen	H_2	44.925
Methane	CH_4	6.421
Ethane	C_2H_6	0.996
Ethylene	C_2H_4	3.827
Propane	C_3H_8	0.322
Propylene	C_3H_6	1.227
Isobutane	C_4H_{10}	0.013
Acetylene	C_2H_2	0.339
Butane	C_4H_{10}	0.091
Isobutene	C_4H_8	0.085
Trans butene	C_4H_8	0.322
n-Butene	C_4H_8	0.140
Isopentane	C_5H_{12}	0.007
Pentane	C_5H_{12}	0.110
2-methyl-1,3-butadiene	C_5H_8	0.014
Total	---	100

The LFL of offgas is provided as 5.6%vol by cell level UL 9540A test report.

Assumption 6: Gas composition is as above, LFL of gas is set to be 5.6%vol in this study.

4.2.3.System safety

(1) Ventilation system:

The container is fitted with one exhaust fan which activate immediately when 10% LFL H_2 is detected. The rated flow rate of exhaust fan is 750 m^3/h (441 CFM), consider flow rate attenuation in actual container, the exhaust fan operates at a flow rate of 480 m^3/h (283 CFM) for a conservative consideration. (See 2.3).

Manufacturer name	Type number	Dimension	Flow Rate (Max)
Sungrow Power Supply Co., Ltd.	CP-L-AE-JQ-120 CP-L-AE-PQ-120	347(±1)×248(±1)×88(±3)mm 347(±1)×248(±1)×134(±3)mm	441 CFM

Assumption 7: The dispersion simulations are run with and without the exhaust fans working. Each exhaust fan operates at a flow rate of 480 m^3/h (283 CFM). The activation time will be calculated from the CFD simulations.

(2) Thermal runaway control:

No thermal runaway prevention system is installed.

Assumption 8: Thermal runaway occurs in the module.

(3) Deflagration panels:

No deflagration panel installed on the container.

Assumption 9: No deflagration panel acts in this report.

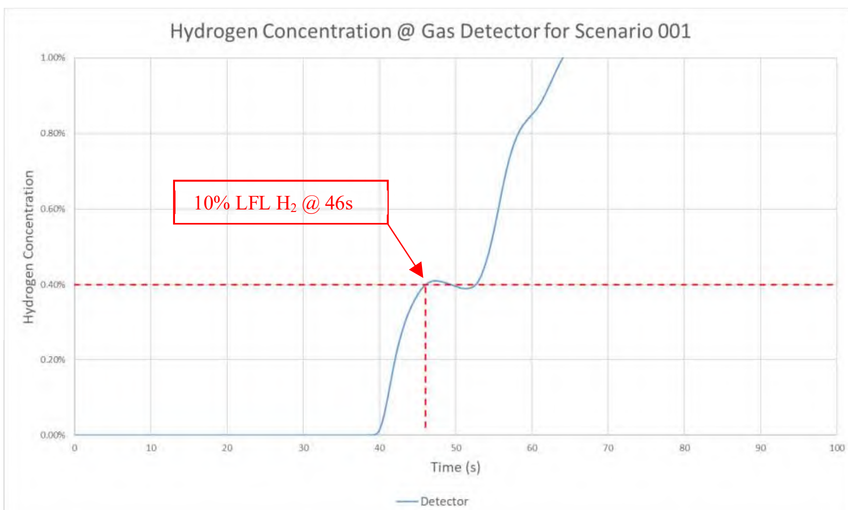
4.3. Simulation Results

A total of 4 dispersion scenarios were run representing progressively worse-case scenarios based on the assumptions made in the previous sections. The modelling covers 2 leakage position. Each case was run assuming that the extraction fans had not activated and where they have activated.

According to the strategy of ventilation system provided by Sungrow, the fan will be activated when detection reaches 10% LFL of hydrogen. Table 4-2 shows the activating time for each scenario. Figure 4-7 shows the hydrogen concentration at the location of gas detector in each scenario.

Table 4-2: Fan activating time.

Scenario	Leakage Point	Activating time (s)
001	1	46
002	2	46



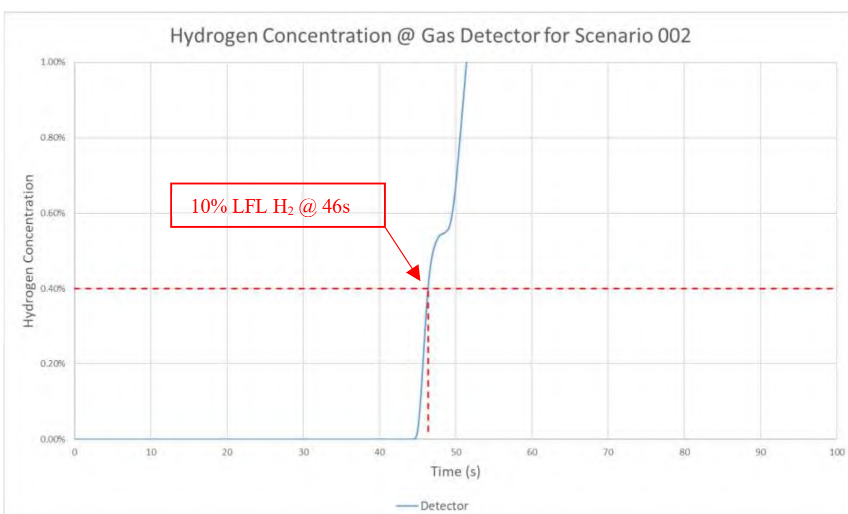


Figure 4-7: Hydrogen concentration at detectors.

Table 4-3 presents a summary of the scenarios and the results from the simulation. The maximum average concentration inside enclosure is presented as the combustible concentration limit according to NFPA 69 Chapter 8.

Table 4-3: Average gas concentration

Scenario	**Maximum average gas concentration (%vol)**	
	Without extraction fan	**With extraction fan**
001	58.01	0.84
002	59.17	1.03

Figure 4-8 and 4-9 shows the average gas concentration for each scenario and with the extraction fans activated.

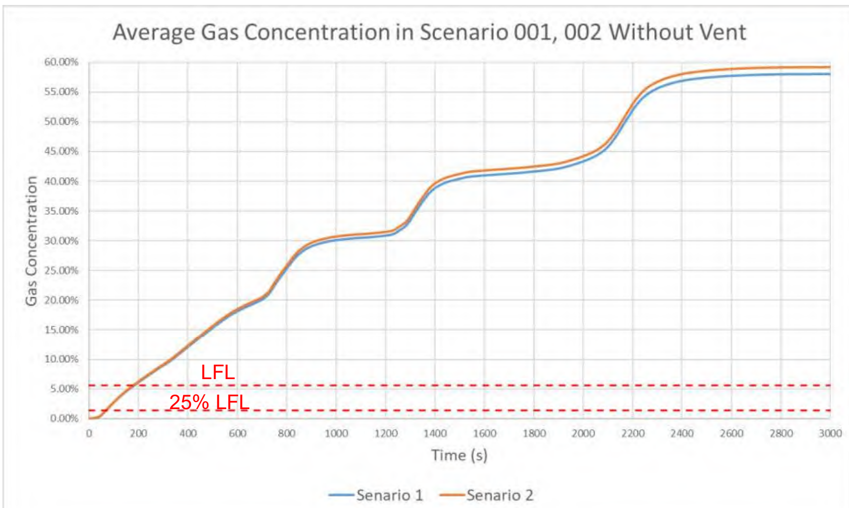


Figure 4-8: Average gas concentration in scenario 001 and 002 without vent

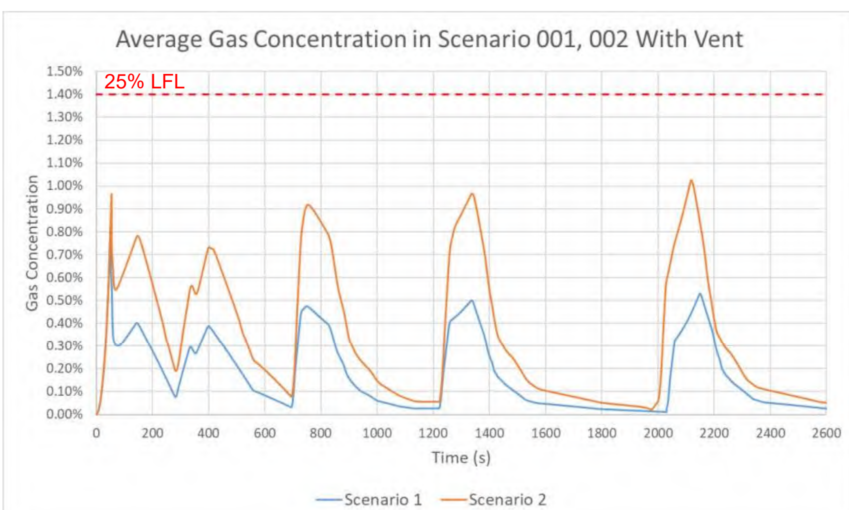
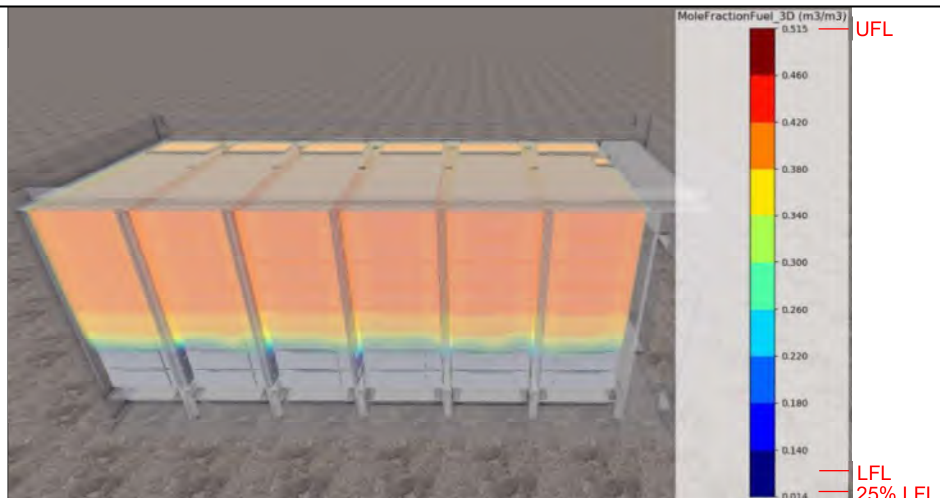
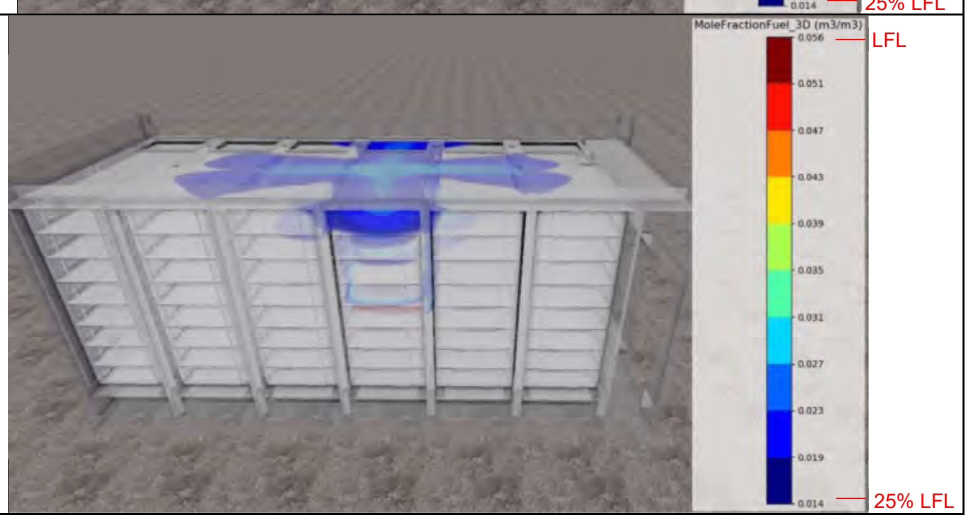


Figure 4-9: Average gas concentration in scenario 001 and 002 with vent

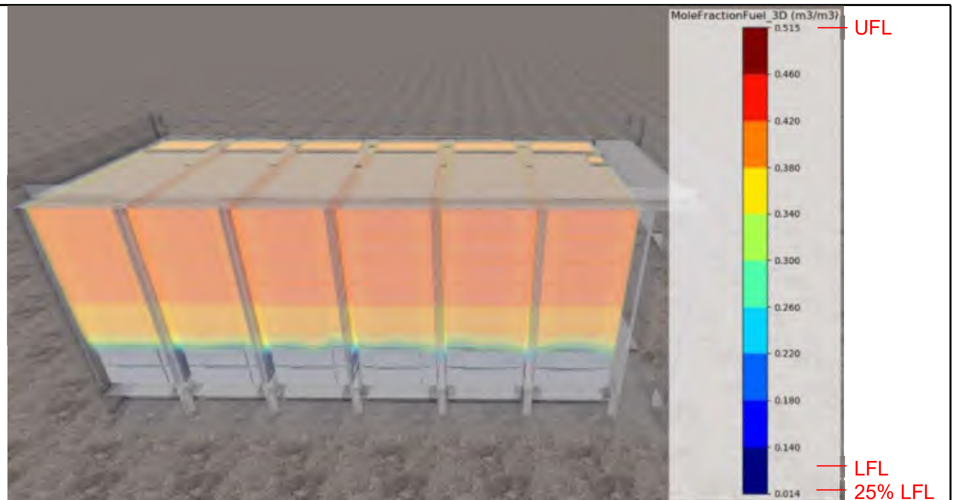
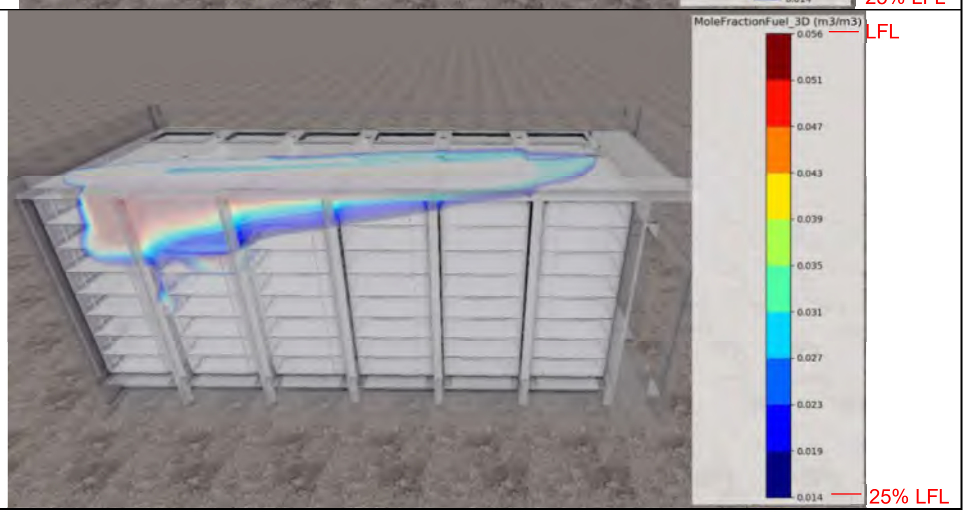
From the simulations we observe:

a) All scenarios with extraction fans activated can reduce flammable volume of gas;
b) All scenarios without the extraction fans causes gas accumulation above 25% LFL, or even LFL, in the container;
c) All scenarios with extraction fans activated can remain gas average concentration below 25% LFL in the container.

Figure 4-10 shows the gas cloud inside container at the time step that the gas average concentration is the maximum for each scenario.

Scenario	Gas cloud @ maximum average concentration
001 (No Vent)	
001 (Vent)	

Produkte
Products

002 (No Vent)		
002 (Vent)		

4.4. NFPA 69 Analysis

Chapter 8 of NFPA 69 is a section of the standard that discusses deflagration prevention by combustible concentration reduction, which applies to the flammable gas extraction system (via fans and gas detection). Chapter 8 states that the following design and operating requirements must be met to comply with NFPA 69:

The combustible concentration shall be maintained at or below 25 percent of the LFL for all foreseeable variations in operating conditions and material loadings, unless the following conditions apply:

(1) Where continuously monitored and controlled with safety interlocks, the combustible concentration shall be permitted to be maintained at or below 60 percent of the LFL.

(2) Aluminum powder production systems designed and operated in accordance with NFPA 484 shall be permitted to be maintained at or below 50 percent of the LFL.

As shown in Figure 4-9, the extraction fans keep the average concentration of gas in the container below 25% LFL in all scenarios. It is noted that small pockets of gas are seen to exceed 25% LFL during the extraction of the gases.

5. Conclusions

Conclusions for Sungrow Energy Storage System NFPA 69 CFD Analysis are:

a) All scenarios with extraction fans activated can reduce flammable volume of gas;
b) All scenarios without the extraction fans causes gas accumulation above 25% LFL, or even LFL, in the container;
c) All scenarios with extraction fans activated can remain gas average concentration below 25% LFL in the container.
d) The combustible concentration of all scenarios is within the limit of NFPA 69.

The scenarios in this report follow the situation of cells fail and gas release from test observations outlined in the UL 9540A test report and considered conservative by multiply 1.5 coefficient to gas release profile. The exhausting fan activate when gas concentration at detector reaches 10% LFL for hydrogen, consider the actual time lag that takes for exhausting fan to reach maximum flow rate, 5s time lag for fan start was added to each scenario. The result of this study shows the ventilation design could handle a maximum release rate of 1.5 time to the test. We could notice from figure 4-8 and 4-9 that the ventilation capability could cover larger scale cell failure condition.

6. References

(1) NFPA69:2019 Standard on Explosion Prevention Systems

(2) Cell Level UL9540A Report: CSA 80207982

(3) Module Level UL9540A Report: CN24CKYX 001

(4) Unit Level UL9540A Report: CN24UE79 001

End of Report

Attachment 21

Appendix 3.5E - Soil Sampling Memorandum

MEMORANDUM

To:	Garrett Lehman, Prairie Song Reliability Project, LLC
From:	Brandon Page, Dudek
CC:	Audrey Herschberger, Dudek; Erin Phillips, Dudek
Subject:	Soil Sampling and Ballast Rock Survey at Prairie Song Reliability Project, Los Angeles County, California
Date:	September 17, 2025
Attachments:	A – Sampling Locations B – Site Photographs C – Analytical Report

Dudek was contracted to complete soil and ballast rock sampling for the Prairie Song Reliability Project (Project). The Project is located in unincorporated Los Angeles County, south of State Route 14 approximately three miles northeast of the center of the unincorporated community of Acton (Project site). A railroad borders the BESS portion of the project site to the south/southeast, and crosses through proposed gen-tie portions of the Project. On August 28, 2025, Dudek collected surface soil samples along the southern boundary of the Project adjoining the railroad and completed a visual assessment for ballast rock within the Project site.

Background

Dudek prepared an Opt-In Application for the Project and submitted it to the California Energy Commission (CEC). Due to the Project site's proximity to the railroad, the Opt-In Application included the following mitigation measure:

> **MM-HAZ-1:** Prior to grading within an approximately 100-foot buffer of the railroad track ("railroad area"), the Project Owner shall conduct sampling and analysis on the ballast rock and soils within this portion of the BESS Facility Site
>
> Verification: Ballast rocks within the approximately 100-foot buffer of the railroad track ("railroad area") will be evaluated for asbestos; asbestos survey, sampling, and analysis must be completed by a technician or supervisor certified for asbestos survey by the California Department of Health. Soils will be sampled and analyzed for polycyclic aromatic hydrocarbons, herbicides, metals, petroleum hydrocarbons, and volatile organic compounds.
>
> The qualified environmental consultant will review soil and ballast analytical results and compare them to California asbestos criteria and regulatory screening levels applicable to future project development (such as DTSC-SLs for commercial development). If concentrations of contaminants exceed applicable regulatory screening levels, a soil management plan (SMP) will be prepared to manage contaminated soils.

Upon review, CEC agreed with the sampling and analysis procedures outlined in MM-HAZ-1 but required the sampling and analysis to be completed prior to Project approval:

> **DR HAZ-1:** Please prepare and implement a soil sampling plan for the project site consistent with sampling identified in MM HAZ-1 from the application. The actions in the Soil Management Plan shall address contaminated soils identified prior to construction and protocol for suspected hazardous soils identified during construction.

This memorandum summarizes the soil sampling and ballast rock analysis conducted to satisfy the requirements of MM-HAZ-1. The SMP will be submitted separately.

Visual Survey

Prior to the site walk, Dudek identified the survey area as the area where the Project site is within 100 feet from the railroad centerline and identified sampling locations within this area (Attachment A – Survey Area and Sample Locations). Dudek completed a visual survey of the survey area on August 28, 2025. During the visual survey, Dudek observed the survey area to be undeveloped and contained no ballast rock (see Attachment B – Site Photographs). As no ballast rock was present, no samples were required for asbestos analysis.

Soil Sampling and Analysis

On August 28, 2025, five shallow surface soil samples (S1 through S5), approximately one sample every 500 feet along the survey area, were collected using a stainless steel hand trowel (Attachment A – Survey Area and Sample Locations). Soil samples were collected from the top 6 inches of soil and sifted to remove naturally occurring gravel too large for laboratory analysis. The sifted soil was subsequently placed into laboratory-provided glass jars.

Following sample collection, samples were labeled, placed on ice in a cooler, and delivered under chain-of-custody procedure by courier to Jones Environmental Inc., in Santa Fe Springs, California. Samples were analyzed by Jones Environmental, Inc. for polycyclic aromatic hydrocarbons by EPA Method 8270C, petroleum hydrocarbons by EPA Method 8015M, and volatile organic compounds by EPA Method 8260B. Chlorinated herbicide analysis by EPA Method 8151A was subcontracted to SunStar Laboratories Inc. in Lake Forest, California.

Results

No polycyclic aromatic hydrocarbons, total petroleum hydrocarbons, volatile organic compounds, or chlorinated herbicides were detected in any of the five soil samples collected. The laboratory analytical report is provided as Attachment C.

Lithology

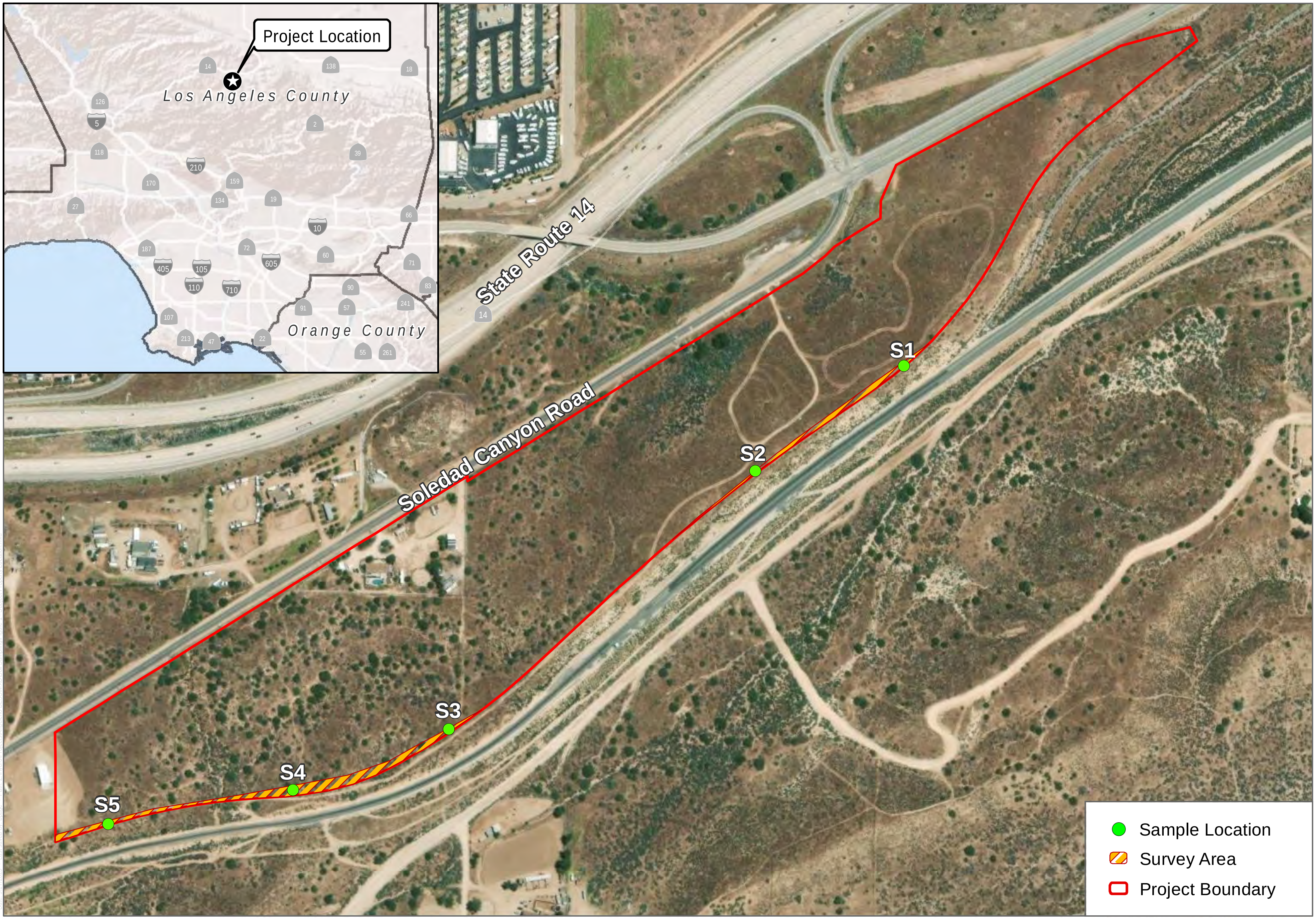
Lithology observed at the sampling locations was uniform across the site. Lithology from 0 to 6 inches below ground surface consisted of dry, well-graded, light brown, gravelly silty soil. All gravel observed within the sampling areas appeared to be naturally occurring (i.e., not imported ballast rock). Ballast rock was only observed in the immediate vicinity of the railroad tracks, approximately 75 feet south of the project site. Photographs of the soil are provided in Attachment B.

Conclusion

Based on the results of the soil sampling and visual survey, the southern adjoining railroad has not likely resulted in soil contamination or asbestos-containing ballast rock on the Project site.

Attachment A

Survey Area and Sample Locations



SOURCE: ESRI, BING MAPS

DUDEK

250 Feet

FIGURE 1

Survey Area and Sample Locations

Prairie Song Reliability Project, Acton, Los Angeles County, California

Attachment B

Site Photographs

Photo 1 Vicinity of soil sample location S1 showing no ballast rock along Project site boundary.

Photo 2 Vicinity of soil sample location S2 showing no ballast rock along Project site boundary.

Photo 3 Vicinity of soil sample location S3 showing no ballast rock along Project site boundary.

Photo 4 Vicinity of soil sample location S4 showing no ballast rock along Project site boundary.

Photo 5 Vicinity of soil sample location S5 showing no ballast rock along Project site boundary.

Photo 6 Typical view of ballast rock in immediate vicinity of railroad track only. Ballast rock was not observed within the boundaries of the Project site.

Attachment C
Analytical Report

JONES ENVIRONMENTAL, INC
714-449-9937
562-646-1611
11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

02 September 2025

Brandon Page
Dudek & Associates
605 Third Street
Encinitas, CA 92024

Re: Prairie Song

Enclosed are the results of analyses for samples received by the laboratory on 08/22/25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Colby Wakeman
Lab Director

JONES ENVIRONMENTAL, INC.

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
714-449-9937 PHONE
562-646-1611 FAX

Dudek & Associates	Project: Prairie Song	
605 Third Street	Project Number:	Reported
Encinitas, CA 92024	Project Manager: Brandon Page	09/02/25 11:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S1	J253324-001	Soil	08/22/2025 09:15	08/22/2025 16:22
S2	J253324-002	Soil	08/22/2025 09:25	08/22/2025 16:22
S3	J253324-003	Soil	08/22/2025 09:40	08/22/2025 16:22
S4	J253324-004	Soil	08/22/2025 09:55	08/22/2025 16:22
S5	J253324-005	Soil	08/22/2025 10:05	08/22/2025 16:22

DETECTIONS SUMMARY

Sample ID: S1 **Laboratory ID:** J253324-001

No Results Detected

Sample ID: S2 **Laboratory ID:** J253324-002

No Results Detected

Sample ID: S3 **Laboratory ID:** J253324-003

No Results Detected

Sample ID: S4 **Laboratory ID:** J253324-004

No Results Detected

Sample ID: S5 **Laboratory ID:** J253324-005

No Results Detected

Jones Environmental, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Colby Wakeman
Lab Director

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
714-449-9937 PHONE
562-646-1611 FAX

Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S1
J253324-001(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8015M Diesel and Oil via GC-FID by EPA 8015								
C10 - C28	ND	10.0	mg/kg	1	QC2508506	08/26/25	EPA 8015	
C13 - C22	ND	10.0	mg/kg	"	"	"	"	
C23 - C40	ND	10.0	mg/kg	"	"	"	"	
Surrogate: Hexacosane	*73.09 %*	*50 - 140*						
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Benzene	ND	1.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Bromobenzene	ND	1.0	µg/kg	"	"	"	"	
Bromodichloromethane	ND	1.0	µg/kg	"	"	"	"	
Bromoform	ND	1.0	µg/kg	"	"	"	"	
n-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
sec-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
tert-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
Carbon tetrachloride	ND	1.0	µg/kg	"	"	"	"	
Chlorobenzene	ND	1.0	µg/kg	"	"	"	"	
Chloroform	ND	1.0	µg/kg	"	"	"	"	
2-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
4-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
Dibromochloromethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.0	µg/kg	"	"	"	"	
Dibromomethane	ND	1.0	µg/kg	"	"	"	"	
1,2- Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
2,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
Ethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Freon 11	ND	5.0	µg/kg	"	"	"	"	

Jones Environmental, Inc.

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Colby Wakeman
Lab Director

JONES ENVIRONMENTAL, INC.

11007 FOREST PLACE
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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S1
J253324-001(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Freon 12	ND	5.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Freon 113	ND	5.0	µg/kg	"	"	"	"	
Hexachlorobutadiene	ND	1.0	µg/kg	"	"	"	"	
Isopropylbenzene	ND	1.0	µg/kg	"	"	"	"	
4-Isopropyltoluene	ND	1.0	µg/kg	"	"	"	"	
Methylene chloride	ND	1.0	µg/kg	"	"	"	"	
Naphthalene	ND	5.0	µg/kg	"	"	"	"	
n-Propylbenzene	ND	1.0	µg/kg	"	"	"	"	
Styrene	ND	1.0	µg/kg	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
Tetrachloroethene	ND	1.0	µg/kg	"	"	"	"	
Toluene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
Trichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Vinyl chloride	ND	1.0	µg/kg	"	"	"	"	
m+p-Xylene	ND	2.0	µg/kg	"	"	"	"	
o-Xylene	ND	1.0	µg/kg	"	"	"	"	
Methyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Ethyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Di-isopropylether	ND	5.0	µg/kg	"	"	"	"	
tert-amylmethylether	ND	5.0	µg/kg	"	"	"	"	
tert-Butylalcohol	ND	50.0	µg/kg	"	"	"	"	
Gasoline Range Organics (C4-C12)	ND	0.20	mg/kg	"	"	"	"	
Surrogate: Toluene-d8	*127.79 %*	*60 - 140*						
Surrogate: Dibromofluoromethane	*139.18 %*	*60 - 140*						
Surrogate: 4-Bromofluorobenzene	*120.80 %*	*60 - 140*						
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Naphthalene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Acenaphthalene	ND	50	µg/kg	"	"	"	"	
Acenaphthene	ND	50	µg/kg	"	"	"	"	

JONES ENVIRONMENTAL, INC.

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S1
J253324-001(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Fluorene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Phenanthrene	ND	50	µg/kg	"	"	"	"	
Anthracene	ND	50	µg/kg	"	"	"	"	
Fluoranthene	ND	50	µg/kg	"	"	"	"	
Pyrene	ND	50	µg/kg	"	"	"	"	
Benz(a)anthracene	ND	50	µg/kg	"	"	"	"	
Chrysene	ND	50	µg/kg	"	"	"	"	
Benzo(b)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(k)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(a)pyrene	ND	50	µg/kg	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	50	µg/kg	"	"	"	"	
Dibenz(a,h)anthracene	ND	50	µg/kg	"	"	"	"	
Benzo(g,h,i)perylene	ND	50	µg/kg	"	"	"	"	
Surrogate: p-Terphenyl-d14	*88.62 %*	*39 - 198*						

Jones Environmental, Inc.

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Colby Wakeman
Lab Director

JONES ENVIRONMENTAL, INC.

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S2
J253324-002(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8015M Diesel and Oil via GC-FID by EPA 8015								
C10 - C28	ND	10.0	mg/kg	1	QC2508506	08/26/25	EPA 8015	
C13 - C22	ND	10.0	mg/kg	"	"	"	"	
C23 - C40	ND	10.0	mg/kg	"	"	"	"	
Surrogate: Hexacosane	*71.65 %*	*50 - 140*						
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Benzene	ND	1.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Bromobenzene	ND	1.0	µg/kg	"	"	"	"	
Bromodichloromethane	ND	1.0	µg/kg	"	"	"	"	
Bromoform	ND	1.0	µg/kg	"	"	"	"	
n-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
sec-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
tert-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
Carbon tetrachloride	ND	1.0	µg/kg	"	"	"	"	
Chlorobenzene	ND	1.0	µg/kg	"	"	"	"	
Chloroform	ND	1.0	µg/kg	"	"	"	"	
2-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
4-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
Dibromochloromethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.0	µg/kg	"	"	"	"	
Dibromomethane	ND	1.0	µg/kg	"	"	"	"	
1,2- Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
2,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
Ethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Freon 11	ND	5.0	µg/kg	"	"	"	"	

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Colby Wakeman
Lab Director

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11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
714-449-9937 PHONE
562-646-1611 FAX

Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S2
J253324-002(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Freon 12	ND	5.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Freon 113	ND	5.0	µg/kg	"	"	"	"	
Hexachlorobutadiene	ND	1.0	µg/kg	"	"	"	"	
Isopropylbenzene	ND	1.0	µg/kg	"	"	"	"	
4-Isopropyltoluene	ND	1.0	µg/kg	"	"	"	"	
Methylene chloride	ND	1.0	µg/kg	"	"	"	"	
Naphthalene	ND	5.0	µg/kg	"	"	"	"	
n-Propylbenzene	ND	1.0	µg/kg	"	"	"	"	
Styrene	ND	1.0	µg/kg	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
Tetrachloroethene	ND	1.0	µg/kg	"	"	"	"	
Toluene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
Trichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Vinyl chloride	ND	1.0	µg/kg	"	"	"	"	
m+p-Xylene	ND	2.0	µg/kg	"	"	"	"	
o-Xylene	ND	1.0	µg/kg	"	"	"	"	
Methyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Ethyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Di-isopropylether	ND	5.0	µg/kg	"	"	"	"	
tert-amylmethylether	ND	5.0	µg/kg	"	"	"	"	
tert-Butylalcohol	ND	50.0	µg/kg	"	"	"	"	
Gasoline Range Organics (C4-C12)	ND	0.20	mg/kg	"	"	"	"	
Surrogate: Toluene-d8	*131.78 %*	*60 - 140*						
Surrogate: Dibromofluoromethane	*139.84 %*	*60 - 140*						
Surrogate: 4-Bromofluorobenzene	*122.60 %*	*60 - 140*						
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Naphthalene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Acenaphthalene	ND	50	µg/kg	"	"	"	"	
Acenaphthene	ND	50	µg/kg	"	"	"	"	

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Lab Director

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S2
J253324-002(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Fluorene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Phenanthrene	ND	50	µg/kg	"	"	"	"	
Anthracene	ND	50	µg/kg	"	"	"	"	
Fluoranthene	ND	50	µg/kg	"	"	"	"	
Pyrene	ND	50	µg/kg	"	"	"	"	
Benz(a)anthracene	ND	50	µg/kg	"	"	"	"	
Chrysene	ND	50	µg/kg	"	"	"	"	
Benzo(b)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(k)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(a)pyrene	ND	50	µg/kg	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	50	µg/kg	"	"	"	"	
Dibenz(a,h)anthracene	ND	50	µg/kg	"	"	"	"	
Benzo(g,h,i)perylene	ND	50	µg/kg	"	"	"	"	
Surrogate: p-Terphenyl-d14	*94.91 %*	*39 - 198*						

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S3
J253324-003(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8015M Diesel and Oil via GC-FID by EPA 8015								
C10 - C28	ND	10.0	mg/kg	1	QC2508506	08/26/25	EPA 8015	
C13 - C22	ND	10.0	mg/kg	"	"	"	"	
C23 - C40	ND	10.0	mg/kg	"	"	"	"	
Surrogate: Hexacosane	*67.98 %*	*50 - 140*						
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Benzene	ND	1.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Bromobenzene	ND	1.0	µg/kg	"	"	"	"	
Bromodichloromethane	ND	1.0	µg/kg	"	"	"	"	
Bromoform	ND	1.0	µg/kg	"	"	"	"	
n-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
sec-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
tert-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
Carbon tetrachloride	ND	1.0	µg/kg	"	"	"	"	
Chlorobenzene	ND	1.0	µg/kg	"	"	"	"	
Chloroform	ND	1.0	µg/kg	"	"	"	"	
2-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
4-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
Dibromochloromethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.0	µg/kg	"	"	"	"	
Dibromomethane	ND	1.0	µg/kg	"	"	"	"	
1,2- Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
2,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
Ethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Freon 11	ND	5.0	µg/kg	"	"	"	"	

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Colby Wakeman
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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S3
J253324-003(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Freon 12	ND	5.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Freon 113	ND	5.0	µg/kg	"	"	"	"	
Hexachlorobutadiene	ND	1.0	µg/kg	"	"	"	"	
Isopropylbenzene	ND	1.0	µg/kg	"	"	"	"	
4-Isopropyltoluene	ND	1.0	µg/kg	"	"	"	"	
Methylene chloride	ND	1.0	µg/kg	"	"	"	"	
Naphthalene	ND	5.0	µg/kg	"	"	"	"	
n-Propylbenzene	ND	1.0	µg/kg	"	"	"	"	
Styrene	ND	1.0	µg/kg	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
Tetrachloroethene	ND	1.0	µg/kg	"	"	"	"	
Toluene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
Trichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Vinyl chloride	ND	1.0	µg/kg	"	"	"	"	
m+p-Xylene	ND	2.0	µg/kg	"	"	"	"	
o-Xylene	ND	1.0	µg/kg	"	"	"	"	
Methyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Ethyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Di-isopropylether	ND	5.0	µg/kg	"	"	"	"	
tert-amylmethylether	ND	5.0	µg/kg	"	"	"	"	
tert-Butylalcohol	ND	50.0	µg/kg	"	"	"	"	
Gasoline Range Organics (C4-C12)	ND	0.20	mg/kg	"	"	"	"	
Surrogate: Toluene-d8	*126.68 %*	*60 - 140*						
Surrogate: Dibromofluoromethane	*139.22 %*	*60 - 140*						
Surrogate: 4-Bromofluorobenzene	*115.56 %*	*60 - 140*						
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Naphthalene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Acenaphthalene	ND	50	µg/kg	"	"	"	"	
Acenaphthene	ND	50	µg/kg	"	"	"	"	

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Lab Director

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SANTA FE SPRINGS, CA 90670
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Dudek & Associates	Project: Prairie Song	
605 Third Street	Project Number:	Reported
Encinitas, CA 92024	Project Manager: Brandon Page	09/02/25 11:08

S3
J253324-003(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Fluorene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Phenanthrene	ND	50	µg/kg	"	"	"	"	
Anthracene	ND	50	µg/kg	"	"	"	"	
Fluoranthene	ND	50	µg/kg	"	"	"	"	
Pyrene	ND	50	µg/kg	"	"	"	"	
Benz(a)anthracene	ND	50	µg/kg	"	"	"	"	
Chrysene	ND	50	µg/kg	"	"	"	"	
Benzo(b)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(k)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(a)pyrene	ND	50	µg/kg	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	50	µg/kg	"	"	"	"	
Dibenz(a,h)anthracene	ND	50	µg/kg	"	"	"	"	
Benzo(g,h,i)perylene	ND	50	µg/kg	"	"	"	"	
Surrogate: p-Terphenyl-d14	*93.29 %*	*39 - 198*						

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S4
J253324-004(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8015M Diesel and Oil via GC-FID by EPA 8015								
C10 - C28	ND	10.0	mg/kg	1	QC2508506	08/26/25	EPA 8015	
C13 - C22	ND	10.0	mg/kg	"	"	"	"	
C23 - C40	ND	10.0	mg/kg	"	"	"	"	
Surrogate: Hexacosane	*70.39 %*	*50 - 140*						
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Benzene	ND	1.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Bromobenzene	ND	1.0	µg/kg	"	"	"	"	
Bromodichloromethane	ND	1.0	µg/kg	"	"	"	"	
Bromoform	ND	1.0	µg/kg	"	"	"	"	
n-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
sec-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
tert-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
Carbon tetrachloride	ND	1.0	µg/kg	"	"	"	"	
Chlorobenzene	ND	1.0	µg/kg	"	"	"	"	
Chloroform	ND	1.0	µg/kg	"	"	"	"	
2-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
4-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
Dibromochloromethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.0	µg/kg	"	"	"	"	
Dibromomethane	ND	1.0	µg/kg	"	"	"	"	
1,2- Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
2,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
Ethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Freon 11	ND	5.0	µg/kg	"	"	"	"	

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S4
J253324-004(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Freon 12	ND	5.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Freon 113	ND	5.0	µg/kg	"	"	"	"	
Hexachlorobutadiene	ND	1.0	µg/kg	"	"	"	"	
Isopropylbenzene	ND	1.0	µg/kg	"	"	"	"	
4-Isopropyltoluene	ND	1.0	µg/kg	"	"	"	"	
Methylene chloride	ND	1.0	µg/kg	"	"	"	"	
Naphthalene	ND	5.0	µg/kg	"	"	"	"	
n-Propylbenzene	ND	1.0	µg/kg	"	"	"	"	
Styrene	ND	1.0	µg/kg	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
Tetrachloroethene	ND	1.0	µg/kg	"	"	"	"	
Toluene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
Trichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Vinyl chloride	ND	1.0	µg/kg	"	"	"	"	
m+p-Xylene	ND	2.0	µg/kg	"	"	"	"	
o-Xylene	ND	1.0	µg/kg	"	"	"	"	
Methyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Ethyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Di-isopropylether	ND	5.0	µg/kg	"	"	"	"	
tert-amylmethylether	ND	5.0	µg/kg	"	"	"	"	
tert-Butylalcohol	ND	50.0	µg/kg	"	"	"	"	
Gasoline Range Organics (C4-C12)	ND	0.20	mg/kg	"	"	"	"	
Surrogate: Toluene-d8	*128.91 %*	*60 - 140*						
Surrogate: Dibromofluoromethane	*139.42 %*	*60 - 140*						
Surrogate: 4-Bromofluorobenzene	*113.24 %*	*60 - 140*						
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Naphthalene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Acenaphthalene	ND	50	µg/kg	"	"	"	"	
Acenaphthene	ND	50	µg/kg	"	"	"	"	

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Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

S4
J253324-004(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Fluorene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Phenanthrene	ND	50	µg/kg	"	"	"	"	
Anthracene	ND	50	µg/kg	"	"	"	"	
Fluoranthene	ND	50	µg/kg	"	"	"	"	
Pyrene	ND	50	µg/kg	"	"	"	"	
Benz(a)anthracene	ND	50	µg/kg	"	"	"	"	
Chrysene	ND	50	µg/kg	"	"	"	"	
Benzo(b)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(k)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(a)pyrene	ND	50	µg/kg	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	50	µg/kg	"	"	"	"	
Dibenz(a,h)anthracene	ND	50	µg/kg	"	"	"	"	
Benzo(g,h,i)perylene	ND	50	µg/kg	"	"	"	"	
Surrogate: p-Terphenyl-d14	*91.97 %*	*39 - 198*						

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Encinitas, CA 92024	Project Manager: Brandon Page	09/02/25 11:08

S5
J253324-005(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8015M Diesel and Oil via GC-FID by EPA 8015								
C10 - C28	ND	10.0	mg/kg	1	QC2508506	08/26/25	EPA 8015	
C13 - C22	ND	10.0	mg/kg	"	"	"	"	
C23 - C40	ND	10.0	mg/kg	"	"	"	"	
Surrogate: Hexacosane	*76.62 %*	*50 - 140*						
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Benzene	ND	1.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Bromobenzene	ND	1.0	µg/kg	"	"	"	"	
Bromodichloromethane	ND	1.0	µg/kg	"	"	"	"	
Bromoform	ND	1.0	µg/kg	"	"	"	"	
n-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
sec-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
tert-Butylbenzene	ND	1.0	µg/kg	"	"	"	"	
Carbon tetrachloride	ND	1.0	µg/kg	"	"	"	"	
Chlorobenzene	ND	1.0	µg/kg	"	"	"	"	
Chloroform	ND	1.0	µg/kg	"	"	"	"	
2-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
4-Chlorotoluene	ND	1.0	µg/kg	"	"	"	"	
Dibromochloromethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.0	µg/kg	"	"	"	"	
Dibromomethane	ND	1.0	µg/kg	"	"	"	"	
1,2- Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,3-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
2,2-Dichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,1-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.0	µg/kg	"	"	"	"	
Ethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Freon 11	ND	5.0	µg/kg	"	"	"	"	

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S5
J253324-005(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260								
Freon 12	ND	5.0	µg/kg	1	QC2508532	08/25/25	EPA 8260	
Freon 113	ND	5.0	µg/kg	"	"	"	"	
Hexachlorobutadiene	ND	1.0	µg/kg	"	"	"	"	
Isopropylbenzene	ND	1.0	µg/kg	"	"	"	"	
4-Isopropyltoluene	ND	1.0	µg/kg	"	"	"	"	
Methylene chloride	ND	1.0	µg/kg	"	"	"	"	
Naphthalene	ND	5.0	µg/kg	"	"	"	"	
n-Propylbenzene	ND	1.0	µg/kg	"	"	"	"	
Styrene	ND	1.0	µg/kg	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	µg/kg	"	"	"	"	
Tetrachloroethene	ND	1.0	µg/kg	"	"	"	"	
Toluene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.0	µg/kg	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
1,1,2-Trichloroethane	ND	1.0	µg/kg	"	"	"	"	
Trichloroethene	ND	1.0	µg/kg	"	"	"	"	
1,2,3-Trichloropropane	ND	1.0	µg/kg	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	µg/kg	"	"	"	"	
Vinyl chloride	ND	1.0	µg/kg	"	"	"	"	
m+p-Xylene	ND	2.0	µg/kg	"	"	"	"	
o-Xylene	ND	1.0	µg/kg	"	"	"	"	
Methyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Ethyl-tert-butylether	ND	5.0	µg/kg	"	"	"	"	
Di-isopropylether	ND	5.0	µg/kg	"	"	"	"	
tert-amylmethylether	ND	5.0	µg/kg	"	"	"	"	
tert-Butylalcohol	ND	50.0	µg/kg	"	"	"	"	
Gasoline Range Organics (C4-C12)	ND	0.20	mg/kg	"	"	"	"	
Surrogate: Toluene-d8	*123.96 %*	*60 - 140*						
Surrogate: Dibromofluoromethane	*139.34 %*	*60 - 140*						
Surrogate: 4-Bromofluorobenzene	*113.59 %*	*60 - 140*						
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Naphthalene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Acenaphthalene	ND	50	µg/kg	"	"	"	"	
Acenaphthene	ND	50	µg/kg	"	"	"	"	

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605 Third Street	Project Number:	Reported
Encinitas, CA 92024	Project Manager: Brandon Page	09/02/25 11:08

S5
J253324-005(Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270								
Fluorene	ND	50	µg/kg	1	QC2508614	08/29/25	EPA 8270	
Phenanthrene	ND	50	µg/kg	"	"	"	"	
Anthracene	ND	50	µg/kg	"	"	"	"	
Fluoranthene	ND	50	µg/kg	"	"	"	"	
Pyrene	ND	50	µg/kg	"	"	"	"	
Benz(a)anthracene	ND	50	µg/kg	"	"	"	"	
Chrysene	ND	50	µg/kg	"	"	"	"	
Benzo(b)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(k)fluoranthene	ND	50	µg/kg	"	"	"	"	
Benzo(a)pyrene	ND	50	µg/kg	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	50	µg/kg	"	"	"	"	
Dibenz(a,h)anthracene	ND	50	µg/kg	"	"	"	"	
Benzo(g,h,i)perylene	ND	50	µg/kg	"	"	"	"	
Surrogate: p-Terphenyl-d14	*115.37 %*	*39 - 198*						

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EPA 8270C Semivolatile Organics by GC/MS (PAHs ONLY) by EPA 8270 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
Batch QC2508614 - EPA 8270										
CCV 1										
Acenaphthene	1	50	%	1		93	80 - 120		120	
Pyrene	1	50	%	1		94	80 - 120		120	
LCS 1										
Acenaphthene	0.706	50	%	1.25		56	3.4 - 188.			
Pyrene	0.747	50	%	1.25		60	7.1 - 179.			
Surrogate: p-Terphenyl-d14		*115.34 %*	*39 - 198*							
LCSD 1										
Acenaphthene	0.709	50	%	1.25		57	3.4 - 188.	0.52	188.9	
Pyrene	0.760	50	%	1.25		61	7.1 - 179.	1.76	179.3	
Surrogate: p-Terphenyl-d14		*122.94 %*	*39 - 198*							
Method Blank 1										
Naphthalene	ND	50	µg/kg							
Acenaphthalene	ND	50	µg/kg							
Acenaphthene	ND	50	µg/kg							
Fluorene	ND	50	µg/kg							
Phenanthrene	ND	50	µg/kg							
Anthracene	ND	50	µg/kg							
Fluoranthene	ND	50	µg/kg							
Pyrene	ND	50	µg/kg							
Benz(a)anthracene	ND	50	µg/kg							
Chrysene	ND	50	µg/kg							
Benzo(b)fluoranthene	ND	50	µg/kg							
Benzo(k)fluoranthene	ND	50	µg/kg							
Benzo(a)pyrene	ND	50	µg/kg							
Indeno(1,2,3-cd)pyrene	ND	50	µg/kg							
Dibenz(a,h)anthracene	ND	50	µg/kg							
Benzo(g,h,i)perylene	ND	50	µg/kg							
Surrogate: p-Terphenyl-d14		*112.51 %*	*39 - 198*							

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Encinitas, CA 92024	Project Manager: Brandon Page	09/02/25 11:08

EPA 8015M Diesel and Oil via GC-FID by EPA 8015 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
Batch QC2508506 - EPA 8015										
CCV 1										
C10 - C28	875	10.0	%	1000		87	80 - 120		120	
LCS 1										
C10 - C28	468	10.0	%	500		94	60 - 140			
Surrogate: Hexacosane		*95.39 %*	*50 - 140*							
LCSD 1										
C10 - C28	476	10.0	%	500		95	60 - 140	1.75	140	
Surrogate: Hexacosane		*96.28 %*	*50 - 140*							
Method Blank 1										
C10 - C28	ND	10.0	mg/kg							
C13 - C22	ND	10.0	mg/kg							
C23 - C40	ND	10.0	mg/kg							
Surrogate: Hexacosane		*94.97 %*	*50 - 140*							

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Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
Batch QC2508532 - EPA 8260										
CCV 1										
Benzene	274	1.0	%	250		110	80 - 120		120	
Chlorobenzene	276	1.0	%	250		110	80 - 120		120	
1,1-Dichloroethene	300	1.0	%	250		120	80 - 120		120	
cis-1,2-Dichloroethene	274	1.0	%	250		110	80 - 120		120	
Ethylbenzene	251	1.0	%	250		100	80 - 120		120	
Tetrachloroethene	270	1.0	%	250		108	80 - 120		120	
Toluene	262	1.0	%	250		105	80 - 120		120	
1,1,1-Trichloroethane	230	1.0	%	250		92	80 - 120		120	
Trichloroethene	248	1.0	%	250		99	80 - 120		120	
1,2,4-Trimethylbenzene	259	1.0	%	250		104	80 - 120		120	
Vinyl chloride	259	1.0	%	250		103	80 - 120		120	
LCS 1										
Benzene	56.4	1.0	%	50		113	70 - 130			
Chlorobenzene	58.6	1.0	%	50		117	70 - 130			
1,1-Dichloroethene	53.2	1.0	%	50		106	60 - 140			
cis-1,2-Dichloroethene	50.0	1.0	%	50		100	70 - 130			
Ethylbenzene	46.2	1.0	%	50		92	70 - 130			
Tetrachloroethene	58.0	1.0	%	50		116	70 - 130			
Toluene	54.0	1.0	%	50		108	70 - 130			
1,1,1-Trichloroethane	40.6	1.0	%	50		81	70 - 130			
Trichloroethene	53.2	1.0	%	50		106	70 - 130			
1,2,4-Trimethylbenzene	43.1	1.0	%	50		86	70 - 130			
Vinyl chloride	52.6	1.0	%	50		105	60 - 140			
Surrogate: Toluene-d8		*104.52 %*	*60 - 140*							
Surrogate: Dibromofluoromethane		*105.17 %*	*60 - 140*							
Surrogate: 4-Bromofluorobenzene		*96.52 %*	*60 - 140*							
LCSD 1										
Benzene	56.2	1.0	%	50		112	70 - 130	0.35	130	
Chlorobenzene	59.5	1.0	%	50		119	70 - 130	1.56	130	
1,1-Dichloroethene	53.4	1.0	%	50		107	60 - 140	0.30	140	
cis-1,2-Dichloroethene	49.3	1.0	%	50		99	70 - 130	1.35	130	
Ethylbenzene	46.3	1.0	%	50		93	70 - 130	0.27	130	
Tetrachloroethene	57.6	1.0	%	50		115	70 - 130	0.67	130	
Toluene	55.1	1.0	%	50		110	70 - 130	1.98	130	
1,1,1-Trichloroethane	40.2	1.0	%	50		80	70 - 130	0.88	130	

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EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
Batch QC2508532 - EPA 8260										
LCSD 1										
Trichloroethene	52.4	1.0	%	50		105	70 - 130	1.40	130	
1,2,4-Trimethylbenzene	43.7	1.0	%	50		87	70 - 130	1.47	130	
Vinyl chloride	48.2	1.0	%	50		96	60 - 140	8.77	140	
Surrogate: Toluene-d8		*106.41 %*	*60 - 140*							
Surrogate: Dibromofluoromethane		*107.22 %*	*60 - 140*							
Surrogate: 4-Bromofluorobenzene		*98.28 %*	*60 - 140*							
Method Blank 1										
Benzene	ND	1.0	µg/kg							
Bromobenzene	ND	1.0	µg/kg							
Bromodichloromethane	ND	1.0	µg/kg							
Bromoform	ND	1.0	µg/kg							
n-Butylbenzene	ND	1.0	µg/kg							
sec-Butylbenzene	ND	1.0	µg/kg							
tert-Butylbenzene	ND	1.0	µg/kg							
Carbon tetrachloride	ND	1.0	µg/kg							
Chlorobenzene	ND	1.0	µg/kg							
Chloroform	ND	1.0	µg/kg							
2-Chlorotoluene	ND	1.0	µg/kg							
4-Chlorotoluene	ND	1.0	µg/kg							
Dibromochloromethane	ND	1.0	µg/kg							
1,2-Dibromo-3-chloropropane	ND	1.0	µg/kg							
1,2-Dibromoethane (EDB)	ND	1.0	µg/kg							
Dibromomethane	ND	1.0	µg/kg							
1,2- Dichlorobenzene	ND	1.0	µg/kg							
1,3-Dichlorobenzene	ND	1.0	µg/kg							
1,4-Dichlorobenzene	ND	1.0	µg/kg							
1,1-Dichloroethane	ND	1.0	µg/kg							
1,2-Dichloroethane	ND	1.0	µg/kg							
1,1-Dichloroethene	ND	1.0	µg/kg							
cis-1,2-Dichloroethene	ND	1.0	µg/kg							
trans-1,2-Dichloroethene	ND	1.0	µg/kg							
1,2-Dichloropropane	ND	1.0	µg/kg							
1,3-Dichloropropane	ND	1.0	µg/kg							
2,2-Dichloropropane	ND	1.0	µg/kg							
1,1-Dichloropropene	ND	1.0	µg/kg							

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EPA 8260B Volatile Organic Compounds via GC/MS by EPA 8260 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
Batch QC2508532 - EPA 8260										
Method Blank 1										
cis-1,3-Dichloropropene	ND	1.0	µg/kg							
trans-1,3-Dichloropropene	ND	1.0	µg/kg							
Ethylbenzene	ND	1.0	µg/kg							
Freon 11	ND	5.0	µg/kg							
Freon 12	ND	5.0	µg/kg							
Freon 113	ND	5.0	µg/kg							
Hexachlorobutadiene	ND	1.0	µg/kg							
Isopropylbenzene	ND	1.0	µg/kg							
4-Isopropyltoluene	ND	1.0	µg/kg							
Methylene chloride	ND	1.0	µg/kg							
Naphthalene	ND	5.0	µg/kg							
n-Propylbenzene	ND	1.0	µg/kg							
Styrene	ND	1.0	µg/kg							
1,1,1,2-Tetrachloroethane	ND	1.0	µg/kg							
1,1,2,2-Tetrachloroethane	ND	1.0	µg/kg							
Tetrachloroethene	ND	1.0	µg/kg							
Toluene	ND	1.0	µg/kg							
1,2,3-Trichlorobenzene	ND	3.0	µg/kg							
1,2,4-Trichlorobenzene	ND	3.0	µg/kg							
1,1,1-Trichloroethane	ND	1.0	µg/kg							
1,1,2-Trichloroethane	ND	1.0	µg/kg							
Trichloroethene	ND	1.0	µg/kg							
1,2,3-Trichloropropane	ND	1.0	µg/kg							
1,2,4-Trimethylbenzene	ND	1.0	µg/kg							
1,3,5-Trimethylbenzene	ND	1.0	µg/kg							
Vinyl chloride	ND	1.0	µg/kg							
m+p-Xylene	ND	2.0	µg/kg							
o-Xylene	ND	1.0	µg/kg							
Methyl-tert-butylether	ND	5.0	µg/kg							
Ethyl-tert-butylether	ND	5.0	µg/kg							
Di-isopropylether	ND	5.0	µg/kg							
tert-amylmethylether	ND	5.0	µg/kg							
tert-Butylalcohol	ND	50.0	µg/kg							
Surrogate: Toluene-d8		*103.19 %*	*60 - 140*							
Surrogate: Dibromofluoromethane		*107.13 %*	*60 - 140*							
Surrogate: 4-Bromofluorobenzene		*84.94 %*	*60 - 140*							

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
714-449-9937 PHONE
562-646-1611 FAX

Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
E	Estimated Concentration; concentration exceeds calibration range.
LCC	Leak Check Compound
MDL	Compound Reported to Method Detection Limit
1	Recovery outside of acceptable limits. LCS/LCSD recoveries and %RSD were within QC limits, therefore data was accepted.
SMSR	Sample matrix prevented adequate surrogate recovery.
J	Value less then PQL but greater than MDL.
HHSR	High hydrocarbon concentration in this sample prevented adequate surrogate recovery.
SMTAR	Sample matrix prevented adequate recovery of target analytes.
OV	Sample was filtered in the lab before extraction.
HHTAR	High hydrocarbon concentration prevented in-range recovery of target analytes.
IHRPD	Target analyte recoveries were outside of range but accepted due to passing RPDs
AROL	Target analyte recovery exceeded recovery range but was accepted due to ND of that analyte in MB and sample(s).
ISO-H	Isomers could not be sufficiently chromatographically resolved according to method requirements due to hydrocarbon interference or other matrix effects. The isomers' reported individual concentrations were each calculated as the average of each of the individual isomers' concentrations.
2	Recovery outside of acceptable limits for either LCS or LCSD. CCV and LCS or LCSD recoveries were within limits; therefore data was accepted.
3	RPD outside of acceptable limits. Target analyte recoveries were within QC limits; therefore, data was accepted.
4	LCS and/or LCSD recoveries exceeded acceptability ranges. Target analyte recoveries were accepted due to passing CCV, in-range LCS/LCSD RPDs, and a clean MB in which all target analytes were < RL.
5	MS and/or MSD recoveries exceeded acceptability ranges. Target analyte recoveries were accepted due to passing CCV, in-range LCS/LCSD RPDs, and a clean MB in which all target analytes were < RL.
SMTAR	Sample matrix prevented adequate recovery of target analytes.
RV	Surrogate recovery outside of control limits due to required dilution.
ASP	Hydrocarbons in this sample most closely resemble asphalt.
@	Surrogate is outside acceptable limits. All other QC parameters in control, therefore data was accepted.
S	Sample was subjected to elemental sulfur cleanup by EPA 3660B.
TIC	Tentatively Identified Compound. Compound is not in the calibration mix and does not have a valid calibration. All reported detections are estimated

Jones Environmental, Inc.

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Colby Wakeman
Lab Director

Dudek & Associates	Project:	Prairie Song	
605 Third Street	Project Number:		Reported
Encinitas, CA 92024	Project Manager:	Brandon Page	09/02/25 11:08

TH1	This sample was analyzed outside the recommended EPA holding time.
YP	Associated CCV outside of control limits low.
IB	CCV recovery above limit; analyte not detected
LO	MS and/or MSD result unavailable. Batch accept. based on LCS rec.
YQ	Associated CCV outside of control limits high.
GN	Surrogate recovery is outside of control limits
LG	Surrogate recovery below the acceptance limits.
LH	Surrogate recovery above the acceptance limits.
AZ	Surr. recovery outside of acceptance limits due to matrix interf.
HN	Low concentration matrix spike recovery out of limits
HO	High concentration matrix spike recovery out of limits
M	A matrix effect is present.
LR	LCS recovery below method control limits.
TW	LCS recovery exceeds control limit.

JONES ENVIRONMENTAL, INC.

11007 Forest Pl.
Santa Fe Springs, CA 90670
(714) 449-9937
reports@jonesenv.com
www.jonesenv.com

Chain-of-Custody Record

Turnaround Time Requested:
- ☐ Immediate Attention - 200% (Advanced notice only)
- ☐ One Day TAT- 100% (Cut off time 11AM)
- ☐ Two Day TAT - 50% (Cut off time 12AM)
- ☐ Three Day TAT - 25% (Cut off time 1PM)
- ☐ Four Day TAT - 10% (Cut off time 2PM)
- ☒ Normal - No Surcharge

Date needed by:

LAB USE ONLY
Jones Project # J253324
Page of

Client: DUDEK
Date: 8-22-2025
Project Name: PRAIRIE SONG
Client Project #:
Project Address: SOLEDAD CANYON RD
ACTON, CA
Email: bpage@dudek.com
Phone: 626-429-4843
Report To: bpage@dudek.com
Sampler: B. PAGE

Sample Container / Preservative Abbreviations
AS - Acetate Sleeve
SS - Stainless Steel Sleeve
BS - Brass Sleeve
G - Glass
AB - Amber Bottle
P - Plastic
SOBI - Sodium Bisulfate
MeOH - Methanol
HCl - Hydrochloric Acid
HNO3 - Nitric Acid
O - Other (See Notes)

☐ EDF* - 10% Surcharge
*Global ID:

Temperature:
Cooler 1: 3.4 T-4 °C
Cooler 2: °C
Cooler 3: °C

Analysis Requested

Sample ID	Sample Collection Date	Sample Collection Time	Laboratory Sample ID	Preservative	Sample Container	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Free Product (FP)	TPHd - EPA 8015	VOCs + TPHg - EPA 8260	HERBICIDES - EPA 8151	PAHs - EPA 8270								Number of Containers	Notes & Special Instructions
S1	8/22/25	9:15	-001	NONE/HCL	4 G	S	X	X	X	X									
S2	↓	9:25	-002	↓	4 G	S	X	X	X	X									
S3		9:40	-003		G	S	X	X	X	X									
S4		9:55	-004		G	S	X	X	X	X									
S5		10:05	-005		G	S	X	X	X	X									

Relinquished By (Signature)	Printed Name	Received By (Signature)	Printed Name
[signature]	BRANDON PAGE	[signature]	Michael Keeney
Company: DUDEK	Date: 8-22-2025 Time: 14:33	Company: JONES	Date: 8/22/2025 Time: 14:33
Relinquished By (Signature): [signature]	Printed Name: Michael Keeney	Received By Laboratory (Signature): [signature]	Printed Name: Megan Davis
Company: JONES	Date: 8/22/25 Time: 16:22	Company: Jones	Date: 8/22/25 Time: 16:22

Total Number of Containers

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been requested, and the information provided herein is correct and accurate.

Login Report

Customer Name: Dudek & Associates | **Order ID:** J253324

Purchase Order: | **Order Date:** 8/25/2025

Project ID: Prairie Song

Comment:

Sample #: J253324-001 **Customer Sample #:** S1 **Site:**

Recv'd:	☑	**Collector:**		**Date Collected:**	08/22/25	9:15 AM
Quantity:	4	**Matrix:**	Soil	**Date Received:**	08/22/25	4:22 PM
Comment:						

Test	Test Group	Method	Due Date	Priority
Outlab		8151A -Chlorinated Herbicides	9/2/2025	
PAHs		EPA 8270	9/2/2025	
TPHd TPHo		EPA 8015	9/2/2025	
Volatile Organic Compounds		EPA 8260	9/2/2025	

Sample #: J253324-002 **Customer Sample #:** S2 **Site:**

Recv'd:	☑	**Collector:**		**Date Collected:**	08/22/25	9:25 AM
Quantity:	4	**Matrix:**	Soil	**Date Received:**	08/22/25	4:22 PM
Comment:						

Test	Test Group	Method	Due Date	Priority
Outlab		8151A -Chlorinated Herbicides	9/2/2025	
PAHs		EPA 8270	9/2/2025	
TPHd TPHo		EPA 8015	9/2/2025	
Volatile Organic Compounds		EPA 8260	9/2/2025	

Customer Name: Dudek & Associates **Order ID:** J253324

Purchase Order: **Order Date:** 8/25/2025

Project ID: Prairie Song

Comment:

Sample #: J253324-003 **Customer Sample #:** S3 **Site:**

Recv'd: ☑ **Collector:** **Date Collected:** 08/22/25 9:40 AM

Quantity: 4 **Matrix:** Soil **Date Received:** 08/22/25 4:22 PM

Comment:

Test	Test Group	Method	Due Date	Priority
Outlab		8151A -Chlorinated Herbicides	9/2/2025	
PAHs		EPA 8270	9/2/2025	
TPHd TPHo		EPA 8015	9/2/2025	
Volatile Organic Compounds		EPA 8260	9/2/2025	

Sample #: J253324-004 **Customer Sample #:** S4 **Site:**

Recv'd: ☑ **Collector:** **Date Collected:** 08/22/25 9:55 AM

Quantity: 4 **Matrix:** Soil **Date Received:** 08/22/25 4:22 PM

Comment:

Test	Test Group	Method	Due Date	Priority
Outlab		8151A -Chlorinated Herbicides	9/2/2025	
PAHs		EPA 8270	9/2/2025	
TPHd TPHo		EPA 8015	9/2/2025	
Volatile Organic Compounds		EPA 8260	9/2/2025	

Sample #: J253324-005 **Customer Sample #:** S5 **Site:**

Recv'd: ☑ **Collector:** **Date Collected:** 08/22/25 10:05 AM

Quantity: 4 **Matrix:** Soil **Date Received:** 08/22/25 4:22 PM

Comment:

Test	Test Group	Method	Due Date	Priority
Outlab		8151A -Chlorinated Herbicides	9/2/2025	
PAHs		EPA 8270	9/2/2025	
TPHd TPHo		EPA 8015	9/2/2025	
Volatile Organic Compounds		EPA 8260	9/2/2025	

Customer Name:	Dudek & Associates	**Order ID:**	J253324
Purchase Order:		**Order Date:**	8/25/2025
Project ID:	Prairie Song		
Comment:			

SAMPLE CONDITION RECORD

1. Are the samples within correct temperature criteria? (0 - 6°C)	Yes
2. If not within temp. criteria, were samples received on ice?	N/A
3. If not within temp. criteria, were samples received on same day of sampling?	N/A
4. Is the Chain of Custody (COC) received filled out completely?	Yes
5. Does the total number of containers received match COC?	Yes
6. Are the sample container label(s) consistent with COC?	Yes
7. Are the sample container(s) intact and in good condition?	Yes
8. Were the proper containers & sufficient volume for analyses requested on COC?	Yes
9. Was the proper preservative indicated on COC/container for analyses requested?	Yes
10. Are the containers for volatile analysis free of headspace? (EPA 8260 water)	N/A
EDF Requested	No

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

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Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

04 September 2025

Colby Wakeman
Jones Environmental
10260 Matern Place
Santa Fe Springs, CA 90670

RE: J253324

Enclosed are the results of analyses for samples received by the laboratory on 08/26/25 13:33. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lena Davidkov
Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S1	T253566-01	Soil	08/22/25 09:15	08/26/25 13:33
S2	T253566-02	Soil	08/22/25 09:25	08/26/25 13:33
S3	T253566-03	Soil	08/22/25 09:40	08/26/25 13:33
S4	T253566-04	Soil	08/22/25 09:55	08/26/25 13:33
S5	T253566-05	Soil	08/22/25 10:05	08/26/25 13:33

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Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

DETECTIONS SUMMARY

Sample ID: S1 **Laboratory ID:** T253566-01

No Results Detected

Sample ID: S2 **Laboratory ID:** T253566-02

No Results Detected

Sample ID: S3 **Laboratory ID:** T253566-03

No Results Detected

Sample ID: S4 **Laboratory ID:** T253566-04

No Results Detected

Sample ID: S5 **Laboratory ID:** T253566-05

No Results Detected

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Lena Davidkov, Project Manager

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Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

S1

T253566-01 (Soil)

SunStar Laboratories, Inc.

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2,4,5-T	ND	5.00	ug/kg	1	25H0521	08/29/25	09/03/25	8151	
2,4,5-TP (Silvex)	ND	5.00	"	"	"	"	"	"	
2,4-D	ND	5.00	"	"	"	"	"	"	
2,4-DB	ND	5.00	"	"	"	"	"	"	
3,5-Dichlorobenzoic acid	ND	5.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
Acifluorfen	ND	5.00	"	"	"	"	"	"	
Bentazon	ND	5.00	"	"	"	"	"	"	
Chloramben	ND	5.00	"	"	"	"	"	"	
Dalapon	ND	30.0	"	"	"	"	"	"	
DCPA diacid	ND	5.00	"	"	"	"	"	"	
Dicamba	ND	5.00	"	"	"	"	"	"	
Dichloroprop	ND	5.00	"	"	"	"	"	"	
Dinoseb	ND	5.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Picloram	ND	5.00	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*36.7 %*	*35-150*		*"*	*"*	*"*	*"*	

SunStar Laboratories, Inc.

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Lena Davidkov, Project Manager

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Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

S2

T253566-02 (Soil)

SunStar Laboratories, Inc.

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2,4,5-T	ND	5.00	ug/kg	1	25H0521	08/29/25	09/03/25	8151	
2,4,5-TP (Silvex)	ND	5.00	"	"	"	"	"	"	
2,4-D	ND	5.00	"	"	"	"	"	"	
2,4-DB	ND	5.00	"	"	"	"	"	"	
3,5-Dichlorobenzoic acid	ND	5.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
Acifluorfen	ND	5.00	"	"	"	"	"	"	
Bentazon	ND	5.00	"	"	"	"	"	"	
Chloramben	ND	5.00	"	"	"	"	"	"	
Dalapon	ND	30.0	"	"	"	"	"	"	
DCPA diacid	ND	5.00	"	"	"	"	"	"	
Dicamba	ND	5.00	"	"	"	"	"	"	
Dichloroprop	ND	5.00	"	"	"	"	"	"	
Dinoseb	ND	5.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Picloram	ND	5.00	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*19.7 %*	*35-150*		*"*	*"*	*"*	*"*	*S-03*

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Lena Davidkov, Project Manager

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Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

S3

T253566-03 (Soil)

SunStar Laboratories, Inc.

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2,4,5-T	ND	5.00	ug/kg	1	25H0521	08/29/25	09/03/25	8151	
2,4,5-TP (Silvex)	ND	5.00	"	"	"	"	"	"	
2,4-D	ND	5.00	"	"	"	"	"	"	
2,4-DB	ND	5.00	"	"	"	"	"	"	
3,5-Dichlorobenzoic acid	ND	5.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
Acifluorfen	ND	5.00	"	"	"	"	"	"	
Bentazon	ND	5.00	"	"	"	"	"	"	
Chloramben	ND	5.00	"	"	"	"	"	"	
Dalapon	ND	30.0	"	"	"	"	"	"	
DCPA diacid	ND	5.00	"	"	"	"	"	"	
Dicamba	ND	5.00	"	"	"	"	"	"	
Dichloroprop	ND	5.00	"	"	"	"	"	"	
Dinoseb	ND	5.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Picloram	ND	5.00	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*17.4 %*	*35-150*		*"*	*"*	*"*	*"*	*S-03*

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Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

S4

T253566-04 (Soil)

SunStar Laboratories, Inc.

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2,4,5-T	ND	5.00	ug/kg	1	25H0521	08/29/25	09/03/25	8151	
2,4,5-TP (Silvex)	ND	5.00	"	"	"	"	"	"	
2,4-D	ND	5.00	"	"	"	"	"	"	
2,4-DB	ND	5.00	"	"	"	"	"	"	
3,5-Dichlorobenzoic acid	ND	5.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
Acifluorfen	ND	5.00	"	"	"	"	"	"	
Bentazon	ND	5.00	"	"	"	"	"	"	
Chloramben	ND	5.00	"	"	"	"	"	"	
Dalapon	ND	30.0	"	"	"	"	"	"	
DCPA diacid	ND	5.00	"	"	"	"	"	"	
Dicamba	ND	5.00	"	"	"	"	"	"	
Dichloroprop	ND	5.00	"	"	"	"	"	"	
Dinoseb	ND	5.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Picloram	ND	5.00	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*24.1 %*	*35-150*		*"*	*"*	*"*	*"*	*S-03*

SunStar Laboratories, Inc.

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Lena Davidkov, Project Manager

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949.297.5027 Fax

Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

S5

T253566-05 (Soil)

SunStar Laboratories, Inc.

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2,4,5-T	ND	5.00	ug/kg	1	25H0521	08/29/25	09/03/25	8151	
2,4,5-TP (Silvex)	ND	5.00	"	"	"	"	"	"	
2,4-D	ND	5.00	"	"	"	"	"	"	
2,4-DB	ND	5.00	"	"	"	"	"	"	
3,5-Dichlorobenzoic acid	ND	5.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
Acifluorfen	ND	5.00	"	"	"	"	"	"	
Bentazon	ND	5.00	"	"	"	"	"	"	
Chloramben	ND	5.00	"	"	"	"	"	"	
Dalapon	ND	30.0	"	"	"	"	"	"	
DCPA diacid	ND	5.00	"	"	"	"	"	"	
Dicamba	ND	5.00	"	"	"	"	"	"	
Dichloroprop	ND	5.00	"	"	"	"	"	"	
Dinoseb	ND	5.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Picloram	ND	5.00	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*36.6 %*	*35-150*		*"*	*"*	*"*	*"*	

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

Chlorinated Herbicides by EPA Method 8151A - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 25H0521 - 8151 Prep										
Blank (25H0521-BLK1)				Prepared: 08/29/25 Analyzed: 09/02/25						
2,4,5-T	ND	5.00	ug/kg							
2,4,5-TP (Silvex)	ND	5.00	"							
2,4-D	ND	5.00	"							
2,4-DB	ND	5.00	"							
3,5-Dichlorobenzoic acid	ND	5.00	"							
4-Nitrophenol	ND	5.00	"							
Acifluorfen	ND	5.00	"							
Bentazon	ND	5.00	"							
Chloramben	ND	5.00	"							
Dalapon	ND	30.0	"							
DCPA diacid	ND	5.00	"							
Dicamba	ND	5.00	"							
Dichloroprop	ND	5.00	"							
Dinoseb	ND	5.00	"							
Pentachlorophenol	ND	5.00	"							
Picloram	ND	5.00	"							
Surrogate: 2,4-DCAA	*470*		*"*	*1330*		*35.2*	*35-150*			
LCS (25H0521-BS1)				Prepared: 08/29/25 Analyzed: 09/02/25						
2,4,5-T	265	5.00	ug/kg	333		79.4	20-150			
2,4,5-TP (Silvex)	284	5.00	"	333		85.1	20-150			
2,4-D	383	5.00	"	333		115	20-150			
Surrogate: 2,4-DCAA	*472*		*"*	*1330*		*35.4*	*35-150*			
Matrix Spike (25H0521-MS1)	**Source: T253538-01**			Prepared: 08/29/25 Analyzed: 09/02/25						
2,4,5-T	348	5.00	ug/kg	333	ND	104	20-150			
2,4,5-TP (Silvex)	390	5.00	"	333	ND	117	20-150			
2,4-D	342	5.00	"	333	ND	103	20-150			
Surrogate: 2,4-DCAA	*1250*		*"*	*1330*		*94.1*	*35-150*			

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

Chlorinated Herbicides by EPA Method 8151A - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 25H0521 - 8151 Prep										
Matrix Spike Dup (25H0521-MSD1)	**Source: T253538-01**		Prepared: 08/29/25 Analyzed: 09/02/25							
2,4,5-T	309	5.00	ug/kg	333	ND	92.6	20-150	11.9	30	
2,4,5-TP (Silvex)	391	5.00	"	333	ND	117	20-150	0.135	30	
2,4-D	337	5.00	"	333	ND	101	20-150	1.55	30	
Surrogate: 2,4-DCAA	*1260*		*"*	*1330*		*94.4*	*35-150*			

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Jones Environmental	Project: J253324	
10260 Matern Place	Project Number: [none]	**Reported:**
Santa Fe Springs CA, 90670	Project Manager: Colby Wakeman	09/04/25 13:54

Notes and Definitions

S-03	The surrogate recovery was below acceptance criteria in the sample because of a possible matrix effect. The surrogate recovery was within acceptance criteria in the method blank and LCS.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

JONES ENVIRONMENTAL, INC.

10260 Matern Pl.
Santa Fe Springs, CA 90670
(714) 449-9937
Fax (714) 449-9685
www.jonesenv.com

Chain-of-Custody Record

LAB USE ONLY
Jones Project # T253566
Page
of

Sample Condition as Recieved:
Chilled □ yes □ no
Sealed □ yes □ no

3.7°c

Client: Dudek
Date: 8/25/2025
Project Name: Prairie Song
Client Project #:
Project Address: Soledad Canyon Road
Acton, CA
Email: reports@jonesenv.com
Phone: (714) 449-9937
Report To: Colby Wakeman
Sampler:

Turn Around Requested:
□ Immediate Attention
□ Rush 24 Hours
□ Rush 48 Hours
□ Rush 72 Hours
X Normal

Report Options
EDD ____
EDF* - 10% Surcharge ____
*Global ID ____________

Sample Container / Preservative Abbreviations
AS - Acetate Sleeve
SS - Stainless Steel Sleeve
BS - Brass Sleeve
G - Glass
AB - Amber Bottle
P - Plastic
SOBI - Sodium Bisulfate
MeOH - Methanol
HCl - Hydrochloric Acid
HNO3 - Nitric Acid
O - Other (See Notes)

Analysis Requested

Sample ID	Date	Sample Collection Time	Laboratory Sample ID	Preservative	Sample Container	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Free Product (FP)	Chlorinated Herbicides - EPA 8151	Number of Containers	Notes & Special Instructions
S1	8/22/2025	9:15	01		G	S	X	1	J253324-001
S2	8/22/2025	9:25	02		G	S	X	1	J253324-002
S3	8/22/2025	9:40	03		G	S	X	1	J253324-003
S4	8/22/2025	9:55	04		G	S	X	1	J253324-004
S5	8/22/2025	10:05	05		G	S	X	1	J253324-005

5 Total Number of Containers

Relinquished By (Signature)	Printed Name	Date	Time	Company	Received By (Signature)	Printed Name	Date	Time	Company
[signature]	Shauri Solano	8/26/25	930	Jones Env	[signature]	Travis B	8-26-25	9:30	Sunstar
[signature]	Travis B	8-26-25	13:33	Sunstar	Received By Laboratory (Signature): [signature]	Dave	8-26-25	13:33	Sunstar

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been requested, and the information provided herein is correct and accurate.

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

Receiving Form 001A

SAMPLE RECEIVING REVIEW SHEET

Batch/Work Order #: T253566

Client Name: Jones   Project: J253324

Delivered by: ☐ Client ☑ SunStar Courier ☐ GLS ☐ FedEx ☐ Other

If Courier, Received by: Travis   Date/Time Courier Received: 8/26/25 9:30

Lab Received by: Dave   Date/Time Lab Received: 8/26/25 13:33

Total number of coolers received: 1   Thermometer ID: SC-1   Calibration due: 11/19/2025

Temperature:	Cooler #1	3.6 °C +/- the CF (+ 0.1°C) =	3.7 °C	corrected temperature
Temperature:	Cooler #2	°C +/- the CF (+ 0.1°C) =	°C	corrected temperature
Temperature:	Cooler #3	°C +/- the CF (+ 0.1°C) =	°C	corrected temperature

Temperature criteria = ≤ 6°C (no frozen containers)   Within criteria? ☑ **Yes** ☐ **No** ☐ **N/A**

If NO:

Samples received on ice? ☐ Yes   ☐ **No → Complete Non-Conformance Sheet**

If on ice, samples received same day collected? ☐ Yes → Acceptable   ☐ **No → Complete Non-Conformance Sheet**

Custody seals intact on cooler/sample	☐ Yes	☐ No*	☑ N/A
Sample containers intact	☑ Yes	☐ No*	
Sample labels match Chain of Custody IDs	☑ Yes	☐ No*	
Total number of containers received match COC	☑ Yes	☐ No*	
Proper containers received for analyses requested on COC	☑ Yes	☐ No*	
Proper preservative indicated on COC/containers for analyses requested	☐ Yes	☐ No*	☑ N/A
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times	☑ **Yes**	☐ **No***	

* Complete Non-Conformance Receiving Sheet if checked   Cooler/Sample Review - Initials and date: PB 8/26/25

Comments:

Rev. 03   Date 11/24

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

Printed: 8/26/2025 2:10:28PM

WORK ORDER

T253566

Client:	**Jones Environmental**	**Project Manager:**	**Lena Davidkov**
Project:	**J253324**	**Project Number:**	**[none]**

Report To:

Jones Environmental
Colby Wakeman
10260 Matern Place
Santa Fe Springs, CA 90670

Date Due:	09/03/25 17:00 (5 day TAT)		
Received By:	Dave Berner	Date Received:	08/26/25 13:33
Logged In By:	Kayla Macabitas	Date Logged In:	08/26/25 12:04

Samples Received at:	**3.7°C**		
Custody Seals	No	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	No		

Analysis	Due	TAT	Expires	Comments
T253566-01 S1 [Soil] Sampled 08/22/25 09:15 (GMT-08:00) Pacific Time (US &				
8151 Herbicides	09/03/25 15:00	5	09/05/25 09:15	
T253566-02 S2 [Soil] Sampled 08/22/25 09:25 (GMT-08:00) Pacific Time (US &				
8151 Herbicides	09/03/25 15:00	5	09/05/25 09:25	
T253566-03 S3 [Soil] Sampled 08/22/25 09:40 (GMT-08:00) Pacific Time (US &				
8151 Herbicides	09/03/25 15:00	5	09/05/25 09:40	
T253566-04 S4 [Soil] Sampled 08/22/25 09:55 (GMT-08:00) Pacific Time (US &				
8151 Herbicides	09/03/25 15:00	5	09/05/25 09:55	
T253566-05 S5 [Soil] Sampled 08/22/25 10:05 (GMT-08:00) Pacific Time (US &				
8151 Herbicides	09/03/25 15:00	5	09/05/25 10:05	

Reviewed By

Date

Attachment 22

Appendix 3.5F - Soil Management Plan

Soil Management Plan

Prairie Song Reliability Project
Los Angeles County, California

SEPTEMBER 2025

Prepared for:

PRAIRIE SONG RELIABILITY PROJECT, LLC
140 Broadway, 46th Floor
New York, New York 10005-1155

Prepared by:

DUDEK

687 S. Coast Highway 101, Suite 110
Encinitas, California 92024
Contact: Audrey Herschberger

Printed on 30% post-consumer recycled material.

Table of Contents

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BESS	battery energy storage system
CEC	California Energy Commission
cy	cubic yards
ESL	environmental screening level
kV	kilovolt
MW	megawatt
PID	photoionization detector
ppm	parts per million
project	Prairie Song Reliability Project
SMP	Soil Management Plan
Sanitation District	Los Angeles County Sanitation District

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1 Purpose and Scope

The Prairie Song Reliability Project (project) is located in unincorporated Los Angeles County, south of State Route 14 approximately three miles northeast of the center of the unincorporated community of Acton (project site), as shown on Figure 1, Site Map. A railroad borders the proposed battery energy storage system (BESS) portion of the project site to the south/southeast, and crosses through proposed gen-tie portions of the project.

Dudek prepared an Opt-In Application for the Project and submitted it to the California Energy Commission (CEC). Due to the Project site's proximity to the railroad, the Opt-In Application included the following mitigation measure:

> **MM-HAZ-1:** Prior to grading within an approximately 100-foot buffer of the railroad track ("railroad area"), the Project Owner shall conduct sampling and analysis on the ballast rock and soils within this portion of the BESS Facility Site
>
> Verification: Ballast rocks within the approximately 100-foot buffer of the railroad track ("railroad area") will be evaluated for asbestos; asbestos survey, sampling, and analysis must be completed by a technician or supervisor certified for asbestos survey by the California Department of Health. Soils will be sampled and analyzed for polycyclic aromatic hydrocarbons, herbicides, metals, petroleum hydrocarbons, and volatile organic compounds.
>
> The qualified environmental consultant will review soil and ballast analytical results and compare them to California asbestos criteria and regulatory screening levels applicable to future project development (such as DTSC-SLs for commercial development). If concentrations of contaminants exceed applicable regulatory screening levels, a soil management plan (SMP) will be prepared to manage contaminated soils.

Upon review, CEC agreed with the sampling and analysis procedures outlined in MM-HAZ-1 but required the sampling and analysis to be completed prior to Project approval:

> **DR HAZ-1:** Please prepare and implement a soil sampling plan for the project site consistent with sampling identified in MM HAZ-1 from the application. The actions in the Soil Management Plan shall address contaminated soils identified prior to construction and protocol for suspected hazardous soils identified during construction.

Soil sampling and a ballast rock survey were completed in accordance with MM-HAZ-1. The results are summarized in the memorandum *Soil Sampling and Ballast Rock Survey at Prairie Song Reliability Project, Los Angeles County, California* prepared by Dudek for Prairie Song Reliability Project, LLC on September 17, 2025. Based on the results of the soil sampling and visual survey, the southern adjoining railroad has not likely resulted in soil contamination or asbestos-containing ballast rock on the project site.

In accordance with MM-HAZ-1, if concentrations of contaminants exceed applicable regulatory screening levels, a soil management plan (SMP) will be prepared to manage contaminated soils. While concentrations of contaminants in soil at the project site do not exceed regulatory screening levels, this SMP has been prepared in accordance with DR HAZ-1 to provide protocol for suspected hazardous soils should they be identified during construction.

This SMP is not intended to address chemicals used, stored, or handled by contractors during construction of the project, nor is it a replacement for a site-specific health and safety plan. Plans for on-site hazardous material management, if required, and site-specific health and safety plans will be prepared and implemented during project construction.

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2 Project Contacts

Project Owner

Prairie Song Reliability Project LLC
140 Broadway, 46th Floor
New York, New York 10005-1155
Contact: Garrett Lehman
888.287.9058
glehman@covalinfra.com

Project Construction Contractor

To be determined by Project Owner

Consultant

Dudek
687 S. Coast Highway 101, Suite 110
Encinitas, California 92024
Contact: Audrey Herschberger
971.930.1706 (office)
aherschberger@dudek.com

Soil Removal Contractor

To be determined by Project Owner

Analytical Laboratory

To be determined by Soil Removal Contractor

Disposal Facilities

Non-hazardous Waste/Soil:

To be determined by Soil Removal Contractor

Hazardous Waste:

Not Anticipated.

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3 Project Description

The project site is located in unincorporated Los Angeles County, south of State Route 14 approximately three miles northeast of the center of the unincorporated community of Acton. The project will include construction, operation and maintenance, and eventual decommissioning of an up to 1,150 megawatt (MW) BESS. A 500 kilovolt (kV) gen-tie connecting the Project substation to the point of interconnection within the existing Southern California Edison Vincent Substation, will facilitate charging and discharging to the electrical grid.

Soil work associated with construction will include excavation and grading of the project site to facilitate construction. Preliminary designs conservatively assume grading will include up to approximately 175,410 cubic yards (cy) of cut and up to approximately 625,095 cy of fill, resulting in a net of 449,685 cy of fill. Fill materials requirements will be satisfied by offsite borrow pits or quarries. Conventional grading will be minimized to reduce unnecessary soil movement. Site access roads and driveways will be graded, compacted, and surfaced. Foundations and below grade equipment will be installed, including a grounding grid, an oil containment area, and various foundations for buildings and structures. Foundations will either be slab-on-grade or pile foundations embedded up to 24 feet below ground level.

This SMP provides procedures for the following:

- Handling, on-site reuse, and/or off-site transportation and disposal of excess clean soils. Clean soils are characterized as soils with no detectable concentrations of petroleum hydrocarbons or volatile organic compounds (VOCs).
- Identification of contaminated soils, should they be encountered.

This SMP assumes that fill material imported from borrow pits and quarries will be screened and confirmed clean; therefore import of contaminated fill is not anticipated. It is recommended fill material is screened in accordance with Department of Toxic Substance Control's Advisory on Clean Imported Fill Material (DTSC 2001).

3.1 Project Site Background

As discussed in Section 1, Purpose and Scope, due to the project site's proximity to the railroad, the CEC required sampling and analysis of soils and ballast rock, as outlined in MM-HAZ-1 of the Opt-In Application, prior to approval of the project. Soil sampling and a ballast rock survey were completed in accordance with MM-HAZ-1. Soils were sampled and analyzed for chlorinated herbicides, petroleum hydrocarbons, volatile organic compounds, and polyaromatic hydrocarbons, and a visual survey for ballast rock was completed. The results are summarized in the memorandum *Soil Sampling and Ballast Rock Survey at Prairie Song Reliability Project, Los Angeles County, California* prepared by Dudek for Prairie Song Reliability Project, LLC on September 17, 2025.

Based on the results of the soil sampling and visual survey, the southern adjoining railroad has not likely resulted in soil contamination or asbestos-containing ballast rock on the project site. However, in accordance with CEC's condition of approval DR HAZ-1, *"The actions in the Soil Management Plan shall address contaminated soils identified prior to construction and protocol for suspected hazardous soils identified during construction."*

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4 Contaminants of Concern and Action Levels

There are no known contaminants of concern in project site soils. However, should evidence of contamination be encountered during construction, those soils will require appropriate characterization and management. The sections below discuss applicable screening levels for the proposed project, including worker exposure and onsite reuse.

4.1 Screening Levels

4.1.1 Reuse

Soils planned for reuse on site must meet criteria for the proposed project site use. As it will be developed for commercial use, soils must meet Environmental Screening Levels (ESLs) for commercial land use (SFBRWQCB 2025).

The project does not include anticipated offsite reuse, as all soils will be used for grading and infill.

4.1.2 Disposal

The project is located within Los Angeles County, which is managed by the Los Angeles County Sanitation District (Sanitation District). The two landfills within the Sanitation District are:

- Scholl Canyon Landfill, 3001 Scholl Canyon Road, Glendale, approximately 60 miles south of the project site.
- Calabasas Landfill, 5300 Lost Hills Road, Agoura Hills, approximately 57 miles southwest of the project site.

Contaminated soil disposal requires pre-approval. The acceptance criteria for Sanitation District landfills are provided in Appendix A.

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5 Construction Contingency Plan

5.1 Project Staff Roles

5.1.1 Soil Removal Contractor

A soil removal contractor, as identified in Section 2, will be responsible for excavation, transportation, and removal of soils in accordance with this SMP and applicable laws. The soil removal contractor will be responsible for field screening soils, as described in Section 5.3.1, and managing soil stockpiles, as described in Section 5.3.2. If impacted soils are encountered, as identified by field screening methods or other obvious indicators, the soil removal contractor is responsible for contacting the consultant to further assist with potentially contaminated soil handling procedures.

The soil removal contractor will be trained in field screening methods and proper soil handling techniques. Visual field screening methods (Section 5.3.1) will be continuously used during excavation activities in areas of concern.

5.1.2 Consultant

A consultant, as identified in Section 2, will be on call in the event potential contamination is identified. If potential contamination is identified by the soil removal contractor, the consultant will be called to the site to assess conditions and determine if work can be conducted safely.

When potentially or confirmed contaminated soils are encountered, the consultant will be responsible for regular site checks to make sure stockpiles are appropriately managed, dust control measures are in place, and appropriate soil screening is occurring. The consultant would report back to the project construction contractor (defined in Section 2) if conditions outlined in this SMP are not met. The consultant and project construction manager have the authority to “Stop Work” on the project.

5.2 Site Access Controls

Procedures must be followed to maintain site control so that people who may be unaware of site conditions are not exposed to hazards. This includes nearby residents and/or project site visitors. Access to the work area will be controlled using temporary fencing with screening/fabric, cones, tape, warning signs, and/or other appropriate means, as necessary. A buffer will be created around the fencing to allow for safe pedestrian travel in the vicinity of the project site. Access to the work area will be provided through controlled access points to prevent access by non-construction personnel.

In the event contaminated soils are encountered, construction personnel should be aware that chemical exposure pathways include inhalation, direct skin contact, and incidental ingestion of chemicals or impacted materials. If necessary, engineering controls (e.g., dust suppression), administrative controls (e.g., limiting access to areas of concern, signage), and/or proper use of personal protective equipment will be implemented to minimize exposure for personnel.

5.3 Soil Management

The soil removal contractor will be responsible for conducting field screening measures as described in this section. If potentially contaminated or confirmed contaminated soils are encountered, the environmental monitor will be responsible for directing soil management activities based on the criteria and procedures described in this section.

5.3.1 Field Screening

As noted in Section 4, there are no known contaminants of concern on the project site. However, the project construction contractor and soil removal contractor will be trained in field screening techniques so potentially contaminated soil can be identified during construction. If field tests indicate soils may be impacted, the consultant will be contacted. Upon contact with the consultant, the soil removal contractor may:

- Stop work. Soil can be sampled in-situ and analyzed for potential contaminants of concern. Once analytical results are received, soils can be managed based on known contamination levels; or

- Potentially impacted soils can be stockpiled and sampled for further analytical testing. Excavation work may continue once potentially impacted soils have been segregated and stockpiled. Stockpiles will be managed as outlined in Section 5.3.2, and sampling will be conducted as outlined in Section 5.3.3.

5.3.1.1 Visual and Olfactory Observations

Contaminated soils may be stained. For example, petroleum-contaminated soils may have bluish to dark gray discoloration. Discoloration may remain even after the primary product has naturally degraded. Observation of discolored soils is one sign of potential contamination.

Contaminated soils may also have a distinct odor. Petroleum-contaminated soils may have a petroleum odor, while solvent-contaminated soils may smell sweet. Odor from soils may be wafted using a gloved hand. It is not recommended to directly sniff jarred or bagged soils, as contaminants may irritate the nose.

Sheen tests may be used as a preliminary test to determine if petroleum-related contamination is present. To conduct a sheen test, take a small sample of soil (about 0.25 cups) and put it into a clean jar or resealable bag with clean water. Shake the jar/bag for a few moments, then allow it to rest for a few minutes. Open the jar/bag and look for a sheen on the surface of the water. An oil-based sheen will be fluid and continuous. A natural (biological) sheen will appear discontinuous and blocky with sharp edges. If an oil-based sheen is observed or suspected, follow procedures described in Sections 5.4.2 through 5.4.3.

Visual observations will be used to assess dust exposure. If dust is visible in the air, control measures will be necessary to control the dust to protect workers and prevent dust from moving off site.

5.3.1.2 Photoionization Detector Readings

If visual and olfactory screening identifies potential contamination, a photoionization detector (PID) can be used to verify if volatile organic compounds are present. The probe inlet of the PID may be placed within 3 inches of the soil surface immediately after uncovering an area of suspect soil. Soils may also be collected and placed in a sealable bag (Ziploc or similar). The PID is placed inside the bag, and the bag is almost completely sealed around the PID. Petroleum contamination includes VOCs, which most commonly contain benzene, toluene, ethylbenzene, and xylene. PID readings do not distinguish between VOC compounds detected, and screening levels vary for each compound. Therefore, PID readings greater than 1 ppm above background concentrations could indicate petroleum- or volatile compound-contaminated soils. Soils that have measurable PID readings will be considered potentially contaminated.

PID readings should not be conducted near operational vehicles, equipment, or points of engine exhaust. Combustion engine exhausts, permanent markers, and cleansers can all result in a falsely elevated PID reading. Readings should be collected away from possible external VOC sources to obtain accurate soil readings.

The PID will be bump-tested at the beginning of each shift using a standard 100 ppm isobutylene calibration gas. If the bump-test result varies more than 5% from the standard (is less than 95 ppm or more than 105 ppm), the PID will be recalibrated in the field using the standard 100 ppm isobutylene calibration gas and re-tested to confirm successful calibration. Calibration activities will be recorded in daily field notes.

5.3.2 Soil Stockpiles

The purpose of stockpile management is to prevent contamination from leaching to the soil below and to prevent the stockpiled soil from moving off site in the wind, with stormwater, or by tracking on boots and equipment. Table 1 below provides an outline for stockpiles of clean soils and potentially contaminated soils.

Table 1. Stockpile Management

All Stockpiles	Potentially Contaminated Stockpiles
Stockpiles shall be lightly sprayed with water as needed to minimize dust. Stockpiles may also be covered so wind dispersal is controlled, and piles are protected from precipitation. Alternatively, stockpiled soils can be stabilized with soil stabilizers.	Stockpiles shall be segregated so mixing with clean soil stockpiles does not occur.
Install sediment controls around the perimeter of the stockpile (sandbags).	Sprayed with water or vapor suppressant and covered with plastic sheeting for all period of inactivity greater than 1 hour.
Stockpiles shall be placed at least 50 feet from downstream storm drains, ditches, or channels.	Conduct daily visual inspections of all covered stockpiles to ensure the integrity of the plastic covers. Maintain daily inspection records.
Inspect the plastic cover and berms daily and adjust or replace as needed. Do not use plastic sheeting that is damaged or torn.	Remove contaminated soils within 30 days of the time of excavation.

5.3.3 Soil Sampling

Should field screening identify potentially contaminated soils, those soils will require additional sampling for further characterization.

All analyses will be completed by an accredited environmental laboratory based on the likely contaminants of concern.

5.3.3.1 Reuse

For soils to be reused, either onsite or offsite, the number of samples will be based upon the Department of Toxic Substance Control's Advisory on Clean Imported Fill Material (DTSC 2001) and is based on the approximate volume of the stockpile.

- Up to 1,000 cy: 1 sample per 250 cy
- 1,000 to 5,000 cy: 4 samples for the first 1,000 cy + 1 sample per additional 500 cy
- Greater than 5,000 cy: 12 samples for the first 5,000 cy + 1 sample for each additional 1,000 cy

For on-site reuse, analytical method detection and/or reporting limits should meet ESLs (SFBRWQCB 2025). If soils have detected concentrations of contaminants of concern above commercial ESLs, soils cannot be reused on site.

5.3.3.2 Disposal

The Sanitation District's sampling frequencies and contamination concentration limits for soil acceptance are provided as Appendix A. Sampling frequencies are as follows:

- Up to 1,000 cy: 1 sample per 500 cy
- 1,000 to 5,000 cy: 2 samples for the first 1,000 cy + 1 sample per additional 1,000 cubic yards
- Greater than 5,000 cy: 12 samples for the first 5,000 cy + 1 sample for each additional 1,000 cy

For disposal, analytical method detection and/or reporting limits should meet the Sanitation District's applicable screening levels (Appendix A). While not anticipated, if soils have detected concentrations of contaminants of concern above the Sanitation District's acceptance criteria, soils will require disposal at a hazardous waste landfill.

5.3.3.3 Soil Removal and Disposal

Following analytical results, soils fit for reuse (Section 4.1.1) will not require special treatment.

Trucks that will be transporting contaminated soils shall not at any point track materials off the project site. As such, loading and unloading of trucks will be controlled such that trucks do not drive through or onto soil stockpiles or through areas with contaminated soils, truck beds will be lined prior to transport of contaminated soil, and truck loads will be covered for transport. If soil tracking is observed, truck wheels will be cleaned (e.g., brushed off), and excess materials will be returned to the stockpiles or placed into the back of the trucks prior to exiting the site. If tools are used in contaminated soils, tools will be decontaminated following cleaning of the trucks/tires.

5.4 Health and Safety Procedures

A site-specific health and safety plan will be prepared by each contractor and/or agency whose personnel will be on the project site. A site-specific health and safety plan should be prepared for all workers who may come into contact with contaminated soils; the health and safety plan and personnel training should be in conformance with

29 CFR 1910.120, the Occupational Safety and Health Administration standard for hazardous materials. The site-specific health and safety plan may be incorporated into the contractors' health and safety plan. Typically, the contractors' health and safety plan will address the specific activities to be performed in order to fulfill the work objectives and includes information about proper equipment operations, emergency shutoff switch locations, safety setbacks, and reporting requirements.

All contractors should have their own site-specific health and safety plans. Health and safety plans should outline and identify all work hazards (i.e., physical, environmental, and biological hazards) and include detailed emergency response procedures with directions to the nearest hospital. This SMP is not meant to replace a health and safety plan.

5.5 Reporting

The soil removal contractor and, as applicable, the consultant, will record all soil management activities as described in Section 5.3. Soil screening activities would be recorded in the field and archived in the project file. PID readings would include calibration records and field readings; soil screening records will include visual observations, sheen test results, and any other notes pertaining to monitoring conducted at the project site. Field notes will also include, as applicable, the locations where contaminated soil was encountered (shown on a map), stockpile inspection logs, the analytical results from testing soil samples, and the final disposition of all exported soils.

Shipping papers accompanying each soil export load, either to an import site, stockpile site, or landfill, shall be provided by the soil removal contractor for inclusion in daily reports.

If a release of hazardous materials occurs (e.g., unauthorized discharge of contaminated soil off the project site) during construction/excavation activities, the project construction contractor, if it is safe to do so, will take immediate action to control and clean up the spill. If a significant release of hazardous materials occurs, the project construction contractor shall immediately contact the appropriate governing regulatory agency and, if it is safe to do so, initiate control and cleanup measures. As necessary, reference the Spill/Release Guide provided in Appendix B. The environmental monitor may also be called in the event of a release of hazardous materials to provide guidance on response and reporting actions.

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6 References

DTSC (Department of Toxic Substances Control). 2001. "Advisory Clean Imported Fill Material Fact Sheet." Site Mitigation & Restoration Program. October 2001. Accessed August 1, 2024. https://dtsc.ca.gov/information-advisory-clean-imported-fill-material-fact-sheet/.

SFBRWQCB (San Francisco Bay Regional Water Quality Control Board). 2025. Environmental Screening Levels, Rev 3. July 2025.

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- Proposed BESS Facility Site
- Proposed Project Substation
- Existing SCE Vincent Substation (Point of Interconnection)
- Transmission Pole (SCE)
- Transmission Pole

Proposed Fiber Optic and Gen-Tie Routes

Fiber Optic Routes

- Underground Fiber Optic Route (SCE)
- Underground Fiber Optic Route

Gen-Tie Routes

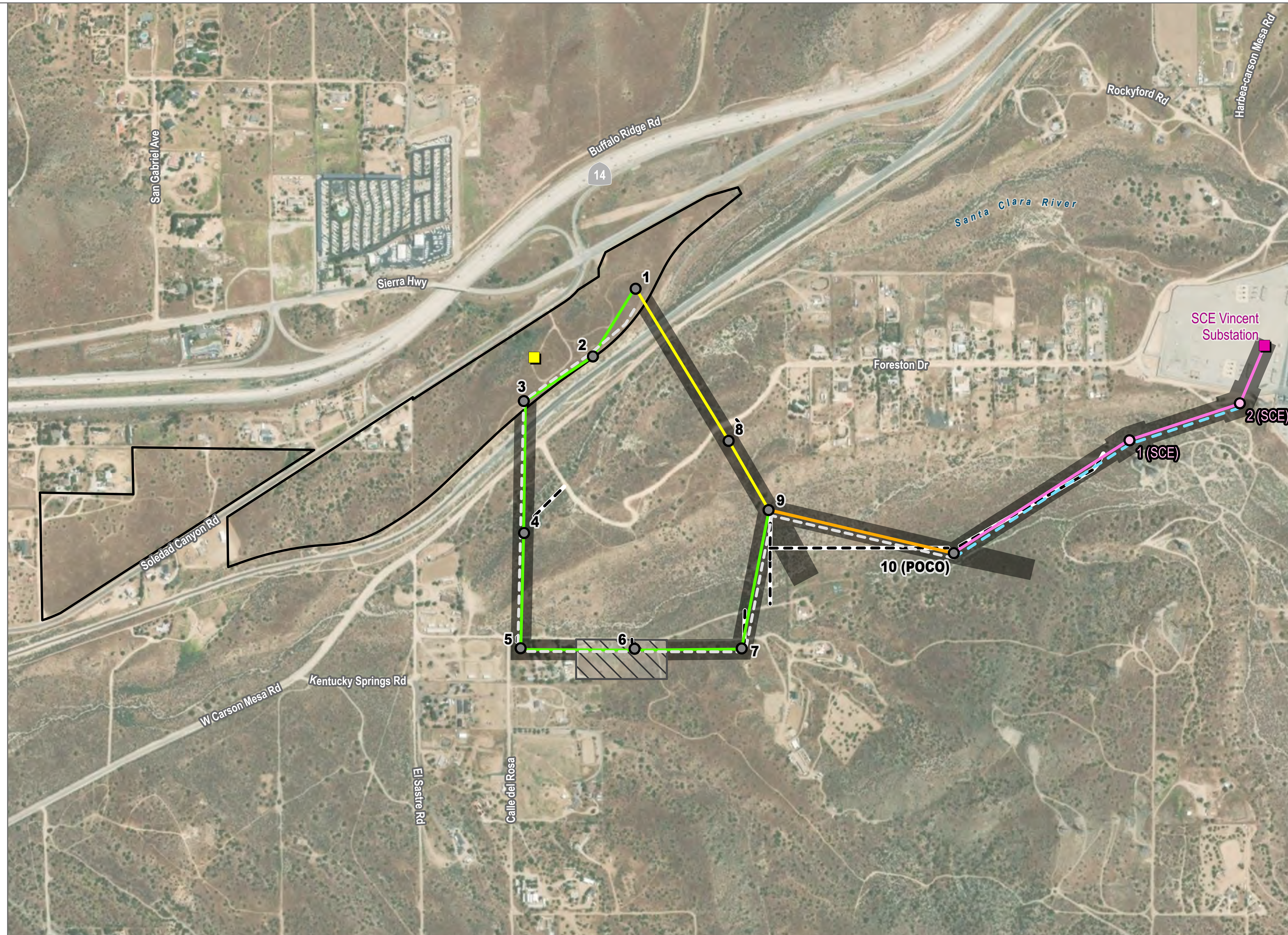
- Overhead Gen-Tie Route (SCE)
- Overhead Gen-Tie Route

Gen-Tie Route Options

- Overhead Southern Gen-Tie Route Option
- Overhead Northern Gen-Tie Route Option

Work Areas

- Gen-Tie Work Area
- Construction Laydown Area
- Gen-Tie Access Roads



SOURCE: World Imagery

DUDEK

0 360 720 Feet

FIGURE 1

Site Map

Prairie Song Reliability Project

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Appendix A
Sanitation District Soil Acceptance Criteria

Sampling Frequencies and Contamination Concentration Limits for the Sanitation Districts' Soil Acceptance Program

SOIL SAMPLING FREQUENCIES

Required sampling frequencies will be based on the estimated volume of soil to be approved for delivery. These frequencies are as follows:

- Up to 1,000 cubic yards (yd^3) - One sample per 500 yd^3.
- From 1,000 yd^3 to 5,000 yd^3 - Two samples for the first 1,000 yd^3, and one sample per 1,000 yd^3 thereafter.
- More than 5,000 yd^3 – Appropriate frequencies will be determined by Sanitation Districts' Hazardous Waste Monitoring Staff (HWMS).

The required frequency of sampling can be adjusted by the HWMS. Samples must be collected, preserved, and submitted to the laboratories within 24-hours of collection along with proper documentation.

SOIL ACCEPTANCE CRITERIA AND ANALYTICAL CONCENTRATION LIMITS

Soil subject to these Waste Discharge Requirements may require any or all of the following analyses based upon site information and the discretion of the Sanitation Districts' HWMS.

Accepted soil will be determined as appropriate for 1) Unrestricted Reuse, 2) Disposal on Unlined Areas or 3) Disposal on Lined Areas. The acceptable levels for each category are detailed below. The levels shown for each category are maximums; the HWMS may lower acceptable concentrations for specific instances.

<u>Hydrocarbon Contamination:</u>

Determined by EPA Method 8015B.

<u>Unrestricted Reuse</u>-

Total Petroleum Hydrocarbons (TPH) (C4-C12) or (C13-C22) < 10 mg/kg

TPH (C23 or greater) < 500 mg/kg

<u>Disposal on Unlined Areas</u> –

TPH (C4-C12) < 500 mg/kg

TPH (C13-C22) < 1,000 mg/kg

<u>Disposal on Lined Areas</u> –

TPH (C4-C12) < 1,000 mg/kg

TPH (C13-C22) < 10,000 mg/kg

Soil with an average TPH > 50,000 mg/kg is not acceptable for disposal at any Sanitation Districts' landfill.

In order to accept soil that exceeds the concentrations listed in this section, a study must be submitted to verify that the disposal of such soil would not contribute to any contamination or pollution in waters of the State.

<u>Volatile Organic Compounds:</u>

Determined by EPA Method 8260-B. Reporting limits vary between < 2µg/kg and < 100 µg/kg for all constituents.

Appropriate limits will be determined for soil acceptance categories by the Sanitation Districts' HWMS. The HWMS shall consider the contaminant concentration levels in the California Code of Regulations Title 22 § 66261.24, the California Human Health Screening Level (CHHSL), and the Preliminary Remediation Goal (PRG).

The CHHSL and PRG Residential Contamination Levels will be considered for soils intended for unrestricted reuse, and Industrial Contamination Levels will be considered for soils intended for disposal.

<u>Semi-Volatile Organic Compounds:</u>

Determined by EPA Method 8270-C. Reporting limits must be < 1,000 µg/kg for all constituents.

Appropriate limits will be determined for soil acceptance categories by the Sanitation Districts' HWMS. The HWMS shall consider the contaminant concentration levels in the California Code of Regulations Title 22 § 66261.24, the CHHSL, and the PRG.

The CHHSL and PRG Residential Contamination Levels will be considered for soils intended for unrestricted reuse, and Industrial Contamination Levels will be considered for soils intended for disposal.

Organic Persistent and Bioaccumulative Compounds (Polychlorinated Biphenyls, Pesticides, and Herbicides):

Determined by EPA Method 8270, 8080, 8140, 8150, 8082, 8151, 8150, and 8081. Reporting limits must meet the test requirements.

> Appropriate limits will be determined for soil acceptance categories by the Sanitation Districts' HWMS. The HWMS shall consider the contaminant concentration levels in the California Code of Regulations Title 22 § 66261.24.

Metals:

Determined by EPA Method 6010 (CAM 17 Metals), and 7471A. Reporting limits must meet the test requirements.

> Appropriate limits will be determined for soil acceptance categories by the Sanitation Districts' HWMS. The HWMS shall consider the contaminant concentration levels in the California Code of Regulations Title 22 § 66261.24, the CHHSL, and the PRG.
>
> The CHHSL and PRG Residential Contamination Levels will be considered for soils intended for unrestricted reuse, and Industrial Contamination Levels will be considered for soils intended for disposal.

ANALTYICAL TESTS

Contaminant	Method	Reporting Limits
Volatile Organic Compounds	EPA8260B	vary between <2 and <100 µg/kg
Semi-Volatile Organic Compounds:	EPA8270C	<1,000 µg/kg
Total Petroleum Hydrocarbons		
C4-C12	EPA8015B	0.50 mg/kg
C13-C22	EPA8015B	5.0 mg/kg
C23 or greater	EPA8015B	5.0 mg/kg
Organic Persistent and Bioaccumulative Chemicals		
Aldrin	EPA8081A	5.0 µg/kg
Chlordane	EPA8081A	50 µg/kg
2,4-Dichlorophenoxyacetic Acid	EPA8151	10 µg/kg
DDD	EPA8081A	5.0 µg/kg
DDT, DDE	EPA8081A	5.0 µg/kg
Dieldrin	EPA8081A	5.0 µg/kg
Endrin	EPA8081A	5.0 µg/kg
Heptachlor (and its epoxide)	EPA8081A	5.0 µg/kg
Kepone	EPA8270C	<1,000 µg/kg
Lindane	EPA8081A	5.0 µg/kg
Methoxychlor	EPA8081A	5.0 µg/kg
Mirex	EPA8081A	10 µg/kg
Pentachlorophenol	EPA8270C	<1,000 µg/kg
Polychlorinated Biphenyls (PCBs)	EPA8082	50 µg/kg
Toxaphene	EPA8081A	200 µg/kg
Trichloroethylene	EPA8260B	varies between <2 and <100 µg/kg
2,4,5-Trichlorophenoxypropionic Acid (Silvex)	EPA8151	10 µg/kg
Metals		
Antimony	EPA6010	10 mg/kg
Arsenic	EPA6010	2.0 mg/kg
Barium	EPA6010	1.0 mg/kg
Beryllium	EPA6010	0.50 mg/k g
Cadmium	EPA6010	0.50 mg/kg
Chromium	EPA6010	1.0 mg/kg
Cobalt	EPA6010	1.0 mg/kg
Copper	EPA6010	2.0 mg/kg
Lead	EPA6010	2.0 mg/kg
Mercury	EPA7471A	0.020 mg/kg
Molybdenum	EPA6010	2.0 mg/kg
Nickel	EPA6010	2.0 mg/kg

ANALTYICAL TESTS (Continued)

Contaminant	Method	Reporting Limits
Selenium	EPA6010	2.0 mg/kg
Silver	EPA6010	1.0 mg/kg
Thallium	EPA6010	10 mg/kg
Vanadium	EPA6010	1.0 mg/kg
Zinc	EPA6010	5.0 mg/kg

Appendix B
Spill/Release Guide

INCIDENT/RELEASE ASSESSMENT FORM [1]

If you have an emergency, Call 911

*Handlers of hazardous materials are required to report releases. The following is a tool to be used for assessing if a release is reportable. Additionally, a non-reportable release incident form is provided to document why a release is not reported (see back)***.**

Questions for Incident Assessment:		YES	NO
1.	Was anyone killed or injured, or did they require medical care or admitted to a hospital for observation?	☐	☐
2.	Did anyone, other than employees in the immediate area of the release, evacuate?	☐	☐
3.	Did the release cause off-site damage to public or private property?	☐	☐
4.	Is the release greater than or equal to a reportable quantity (RQ)?	☐	☐
5.	Was there an uncontrolled or unpermitted release to the air?	☐	☐
6.	Did an uncontrolled or unpermitted release escape secondary containment, or extend into any sewers, storm water conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or off site?	☐	☐
7.	Will control, containment, decontamination, and/or clean up require the assistance of federal, state, county, or municipal response elements?	☐	☐
8.	Was the release or threatened release involving an unknown material or contains an unknown hazardous constituent?	☐	☐
9.	Is the incident a threatened release (a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment)?	☐	☐
10.	Is there an increased potential for secondary effects including fire, explosion, line rupture, equipment failure, or other outcomes that may endanger or cause exposure to employees, the general public, or the environment?	☐	☐

If the answer is YES to *any* of the above questions – report the release to the California Emergency Management Agency at 800-852-7550 and the local CUPA daytime: (858) 505-6657, after hours: (858) 565-5255. Note: other state and federal agencies may require notification depending on the circumstances. See CalEMA's "*California Hazardous Material Spill/Release Notification Guide*".

Call 911 in an emergency

If all answers are NO, complete a Non Reportable Release Incident Form (page 2 of 2) and keep it readily available. Documenting why a "no" response was made to each question will serve useful in the event questions are asked in the future, and to justify not reporting to an outside regulatory agency.

If in doubt, report the release.

---

[1] This document is a guide for accessing when hazardous materials release reporting is required by Chapter 6.95 of the California Health and Safety Code. It does not replace good judgment, Chapter 6.95, or other state or federal release reporting requirements.

NON REPORTABLE RELEASE INCIDENT FORM

1. RELEASE AND RESPONSE DESCRIPTION

Incident #__________

Date/Time Discovered	Date/Time Discharge	Discharge Stopped ☐ Yes ☐ No
Incident Date / Time:		
Incident Business / Site Name:		
Incident Address:		
Other Locators (Bldg, Room, Oil Field, Lease, Well #, GIS)		
Please describe the incident and indicate specific causes and area affected. Photos Attached?: ☐ Yes ☐ No		

Indicate actions to be taken to prevent similar releases from occurring in the future.

2. ADMINISTRATIVE INFORMATION

Supervisor in charge at time of incident:	Phone:
Contact Person:	Phone:

3. CHEMICAL INFORMATION

Chemical	Quantity	☐ GAL	☐ LBS	☐ FT^3
Chemical	Quantity	☐ GAL	☐ LBS	☐ FT^3
Chemical	Quantity	☐ GAL	☐ LBS	☐ FT^3
Clean-Up Procedures & Timeline:				

Completed By:	Phone:
Print Name:	Title:

Attachment 23

Section 2, Project Description - Redline Version

2 Project Description

Prairie Song Reliability Project LLC, a Delaware limited liability company (Applicant), a subsidiary of Coval Infrastructure DevCo LLC, a Delaware limited liability company, proposes to construct, operate, and eventually repower or decommission the up to 1,150-megawatt (MW) Prairie Song Reliability Project (Project) located on up to approximately 107 acres in unincorporated Los Angeles County. The primary components of the Project include a containerized battery energy storage system (BESS) facility utilizing lithium-iron phosphate cells, or similar technology, operations and maintenance (O&M) buildings, an on-site Project substation, a 500-kilovolt (kV) overhead generation interconnection (gen-tie) transmission line, and interconnection facilities within the existing Southern California Edison (SCE)-owned and operated Vincent Substation.

Electrical energy will be transferred from the existing power grid to the Project for storage and from the Project to the power grid when additional electricity is needed. The Project will provide additional capacity to the electrical grid to assist with serving load during periods of peak demand by charging when demand is low and discharging when demand is high. This operating principle increases the integration of additional intermittent renewable energy, such as wind and solar, in California's energy mix and reduces the need to operate natural gas power plants. The Project will also serve as an additional local/regional capacity resource that will enhance grid reliability, particularly to the Los Angeles Basin local reliability area and may allow for the deferral or avoidance of regional transmission facilities.

The Project will be remotely operated and monitored year-round as well as supported by on-site O&M staff seven (7) days a week. The Project will be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians will inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

2.1 Project Location

The Project will be located in unincorporated Los Angeles County (County), California south of State Route 14 approximately three (3) miles northeast of the center of the unincorporated community of Acton. The Project site is within the Los Angeles County-designated Community Standard District of Action. The Project is within the USGS 7.5-minute Acton and Pacifico Mountain Quadrangles, Township 5N, Range 12W, Sections 27, 28, 33 and 34. The BESS site is comprised of Assessor's Parcel Numbers (APNs) 3056-017-007, 3056-017-020, 3056-017-021, 3056-019-013, 3056-019-026, 3056-019-037, and 3056-019-040. Development of the BESS facility will occur on an area of land sandwiched between two (2) existing transportation corridors, the Antelope Valley Freeway (State Route 14) to the north and Los Angeles County Metropolitan Transportation Authority (LACMTA)-owned Southern Pacific Railroad lines and Carson Mesa Road to the south, that are approximately 1,200 feet apart.

The Project will utilize one (1) of two (2) potential gen-tie routes. Either route will extend south and east from the Project substation, crossing Southern Pacific Railroad tracks and West Carson Mesa Road, and then proceed northeast to the Point of Interconnection (POI) at the Vincent Substation. The Northern Gen-Tie Route is approximately 1.1 miles long, and will be sited on APNs 3056-015-008, 3056-015-023, 3056-017-026, 3056-017-904, and 3056-017-905, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, and 3056-015-802. The Southern Gen-Tie Route is approximately 1.8 miles long, and will be sited on APNs 3056-015-008, 3056-015-023, 3056-017-016, 3056-017-022, 3056-017-026, 3056-017-027, 3056-017-028, 3056-027-007, 3056-027-031, 3056-005-816, 3056-005-817, 3056-005-818, 3056-015-801, and 3056-015-802. The Project will also include three (3) fiber optic telecommunications lines: one (1) will be installed aboveground on the gen-tie structures (along whichever gen-tie route is ultimately selected), and the other two (2) will be installed underground within the Southern Gen-Tie Route corridor. The two (2) other fiber optic lines will be installed underground within the Southern Gen-Tie Route corridor regardless of which Gen-Tie Route corridor option is selected. The Project's interconnection facilities will be located within the SCE Vincent Substation. Land uses in the immediate vicinity of the Project include undeveloped and rural lands, multiple high-voltage transmission lines and an electrical substation, paved and rural roads, State Route 14, and railroad lines.

The nearest municipality to the Project site is the City of Palmdale, which is located approximately four (4) miles to the northeast. There are a few single-family residences adjacent to the BESS facility Site's northern and western boundaries as well as a few other single-family residences in the vicinity of the gen-tie line.

2.2 Project Objectives

The Project's principle Basic Objectives include the following:

- Construct and operate an up to 1,150MW BESS facility in Los Angeles County with an interconnection utilizing available system capacity at the existing SCE Vincent Substation to balance intermittent renewable generation and serve as an additional capacity resource that will enhance grid reliability.
- Provide new energy storage capacity to assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program and Senate Bills 100 and 1020, which require renewable energy sources and zero-carbon resources to supply 60% of all retail sales of electricity to California end-use customers by December 31, 2030, 90% of all retail sales of electricity to California end-use customers by December 31, 2035, 95% of all retail sales of electricity to California end-use customers by December 31, 2040, and 100% of all retail sales of electricity to California end-use customers by December 31, 2045.
- Provide new energy storage capacity to assist the State of California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035.
- Provide storage capacity to help balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation predominately from emissions free power sources and deliver it back to the grid when demand exceeds real-time generation supply.
- Offer energy storge to curtail dispatch and displace the need for additional fossil fuel based generating stations needed to serve peak demand periods when intermittent renewable sources may be inadequate or unavailable. The additional storage capacity may allow for the deferral or avoidance of regional transmission facilities.
- Provide energy storage of sufficient size, power, capacity, scale, and location to assist California utilities in meeting obligations under the California Public Utilities Commission's (CPUC's) Mid-Term Reliability Procurement and upcoming Reliability and Clean Power Procurement Program Requirements.
- Develop an electricity storage facility in close proximity to a utility grid-connected substation with existing capacity available for interconnection for charging and discharging and the ability to deliver capacity to the load to minimize environmental impacts.
- Secure a location to allow the stored energy to relieve grid congestion, and enhance electricity reliability, without requiring the construction of substantial new regional transmission infrastructure or network upgrades.

- Construct and operate a battery energy storage facility in Los Angeles County, resulting in economic benefits to the County, creating prevailing wage construction jobs, and facilitating local community benefits.
- Locate and gain site control of site large enough and well-suited to support development of the Project's 1,150MW and up to 9,200MWh battery energy storage.
- Develop an energy storage project that is in close proximity to existing electrical infrastructure and the Vincent Substation, to avoid and minimize potential impacts from long 500kV gen-tie lines.
- Locate a site to accommodate a gen-tie line of reasonable length to the POI and the ability to deliver power to the Los Angeles Basin local reliability area during peak demand.
- Locate near existing roadways and related infrastructure where available and feasible for construction and O&M access.

2.3 Project Components

The Project will include construction, O&M, and eventual decommissioning of an up to 1,150MW BESS. A 500kV gen-tie connecting the Project substation to the POI within the existing SCE Vincent Substation, will facilitate charging and discharging to the electrical grid.

2.3.1 General Facility Description, Design, and Operation

The BESS facility will include the following primary components (refer to Section 2.3.2, Transmission and Interconnection Description, Design, and Operation for a detailed description of the gen-tie line and interconnection components of the Project):

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)
- Medium voltage (MV) Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Detention Facilities
- Site Security and Fencing
- Fire Detection and Suppression System
- Operations and Maintenance Building
- Existing Distribution Line Reroute

Project components are described in the following subsections. Figure 2-1, Project Site Plan, shows the Project layout. The Project's site plan package is provided in Appendix 2A, and the Project's conceptual landscape plan is included as Appendix 2B. Table 2-1 summarizes the preliminary dimensions of major BESS facility components, and Table 2-2 summarizes the preliminary footprint/disturbance acreage associated with the BESS facility.

Table 2-1. Preliminary Dimensions of Major BESS Facility Components

Component	Quantity	Approximate Dimensions
BESS Enclosures	2,035*	20 ft × 8 ft × 9.5 ft (L × W × H)
PCS	517*	20 ft × 8 ft × 9.5 ft (L × W × H)
MV Collection system	—	Buried in trenches up to 10 ft × 10 ft (W × D)
Project Substation Area	1	2,545 ft × 440 ft (L × W); seven (7) 150 ft (H) (lightning masts)
Control Building	1	27 ft W × 95 ft L × 10 ft H (to ceiling)
Access Roads	—	26 ft (W) internal radii 55 ft minimum
Fire Water Tanks	2	33 ft in Diameter × 16 ft H
Laydown Yards	3	Variable
Stormwater Detention Facilities	2	Variable
Security Wall	—	Minimum 8 ft H block wall topped with 1 ft of barbed/razor wire
Operations and Maintenance Building	2	20 ft × 60 ft × 15 ft (L × W × H)

Notes: BESS = battery energy storage system; PCS = power conversion system; MV = medium voltage.

* The number of BESS enclosures and PCS units will depend on the manufacturer selected. The total number of BESS enclosures and PCS units may increase or decrease in the final design. It is also possible that the BESS units ultimately procured may incorporate the PCS units within the BESS enclosures.

Table 2-2. Preliminary Footprint of BESS Facility

Component	Permanent Disturbance
BESS Yards	30.0 acres
Project Substation	23.1 acres
Access Roads	7.9 acres
Laydown Yards	1.0 acres
Stormwater Detention Facilities	4.1 acres
*Other**	*4.7 acres*
Total⁺	**70.8 acres**

Notes: BESS = battery energy storage system.

* Other areas include maximum grading limits. The analyses assume that all areas used for the BESS facility are permanently disturbed.

+ The total permanent disturbance acreage is a conservative estimate, and final designs may require fewer acres. Underground components within the BESS facility will be located within the footprint of above ground disturbance areas.

2.3.1.1 Battery Energy Storage System

The energy storage facility will utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common presently being lithium iron phosphate (LFP) cells, or similar. LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology. By the time the Project reaches the procurement stage, it is possible for other battery cell technology with proven safety and performance records to be suitable for the Project. Although the number and dimensions of the containers may change (as it does between LFP technology providers), the technology ultimately procured will result in potential environmental impacts substantially similar to, or less than, those analyzed based on this Project Description. The Sungrow Power Titan II has been selected for this project application as a representative BESS enclosure. Sungrow Power Titan II design and operation information is used in this application to set maximum potential impact envelopes, for site design and modeling analysis, and to set baseline safety standards. A final manufacturer for the BESS enclosures will be selected during the detailed design process post-certification. The Project will provide defensible space by setting back all BESS enclosures at least 100 feet from the property boundary.

The BESS enclosures will be prefabricated off site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure will include battery packs on racks, a battery management system, fire detection systems, thermal management systems (either liquid or air cooled depending final selected technology), and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures will not exceed 15 feet in height.

Over the life of the project the storage capacity of the battery cells will naturally degrade. The project will implement an augmentation strategy to maintain the contractually required capacity of the system. Augmentation will entail either a capacity maintenance approach of adding/replacing individual battery modules in the existing BESS yard or designing the BESS system to incorporate space for additional BESS enclosures for later augmentation. The Project design and analysis front loads the work for the Project augmentation and assumes that it will install the end-of-life capacity at the start of construction. This assumption is made to capture augmentation impacts during construction instead of trying to assume the augmentation schedule for the Project. Equipment type/specifications, capacity agreements, and tax incentives can all change how and when augmentation is completed. Front loading augmentation to occur during construction creates a conservative case for the analysis of potential impacts that could arise from augmentation and sets a maximum impact envelope for the Project. During Project operations, the Project analysis assumes that one (1) crane and one (1) forklift will operate in support of augmentation once every 3 to 5 years for 8 hours per day.

2.3.1.2 Power Conversion System

A PCS is a packaged and integrated, or assembled, system consisting of a bi-directional inverter, MV transformers, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. A PCS functions to both convert between DC/AC and change the voltage level from the MV collection voltage to the working voltage of the BESS enclosures.

The PCS will convert electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. Each PCS will also include transformers that convert the AC side output of the inverter between low and medium AC voltage to increase the overall efficiency of the BESS. Inverters within the PCS units will be unattended systems designed to operate in all conditions. The inverters will be monitored and controlled remotely, and there will be on-site disconnects for use in case of an emergency or a situation requiring unscheduled maintenance.

PCS units will be installed on concrete foundations or steel piles and connected to multiple BESS enclosures with wiring and cables installed underground. All outside electrical equipment will be housed in the appropriate National Electrical Manufacturers Association-rated enclosures.

2.3.1.3 MV Collection System

The MV collection system will include multiple components that connect the PCS units to the Project substation including underground conductor circuits, switchboards, switchgear, and panels at 34.5kV. The conductors for the MV collection system will be installed underground during construction using trenching.

To connect the portion of the BESS yard north of Soledad Canyon Road to the Project substation, which is located south of Soledad Canyon Road, a portion of the MV collection system will need to be located underground within Soledad Canyon Road. A 180~~26~~ foot-wide underground corridor will house the MV collection system as it traverses the road.~~ The 26-foot-wide corridor within Soledad Canyon Road will also house the proposed water line that will serve the O&M buildings (see the discussion in Section 2.3.1.10 for details regarding the O&M water line).~~ The MV collection lines~~and water line proposed within~~ under Soledad Canyon Road will be installed ~~underground~~ using horizontal directional drilling, will be inside six (6) in conduit, covered by a minimum of 42 inches, and spaced 10 feet apart. ~~trenching.~~

2.3.1.4 Project Substation

The Project substation will include six (6) main power transformers (MPTs). When the BESS facility is charging, power from the regional electric transmission grid will be stepped down from 500kV to 34.5kV and sent from the Project substation through the MV collection system and PCS units into the battery packs within the BESS enclosures. When the BESS facility is discharging, power from the battery packs within the BESS enclosures will be sent to the PCS units, stepped up to 34.5kV, and transported to the Project substation through the MV collection system before being stepped up to 500kV at the MPTs and delivered back to the regional electric transmission grid. A control building will be installed within the Project substation area and contain an energy management system, metering, and telecommunication equipment for communication with SCE/California Independent System Operator (CAISO) facilities and to support remote Project operations monitoring. The Project substation area will also include seven (7) static masts, up to 150 feet tall, for lightning protection.

2.3.1.5 BESS Facility Access Roads

The Project’s roadway system will utilize existing roads wherever available and feasible and include new facility access roads and driveways, a perimeter road, and internal access roads. All new access roads, driveways, internal and perimeter roads will be bladed, compacted, and surfaced with asphalt. All internal roadways and private driveways will be constructed to meet access requirements for construction, O&M, and emergency response.

2.3.1.6 Laydown Yards

The Project will include up to three (3) laydown yards for equipment and material staging and storage during construction. These areas will also be used for worker parking during construction. The primary laydown yard will be located in the northernmost portion of the BESS site. The primary laydown yard will be bladed, compacted, and surfaced with aggregate, while an additional laydown yard to facilitate construction of the gen-tie line will be cleared of vegetation and surfaced with aggregate or other soil stabilizing materials. Landscape fabric may also be installed under the surface of all laydown yards to prevent vegetation growth, if required to comply with fire prevention standards. The O&M building and required number of parking spaces for O&M staff will be constructed within the primary laydown following construction of the BESS facility components.

The proposed Project's preliminary layout, earthwork volumes, and Project component dimensions assumed for environmental analyses in subsequent chapters are conservatively large to allow for design flexibility within the project footprint and Project schedule preservation.

2.3.1.7 Stormwater Detention Facilities

Regulatory standards require that volumes and flow rates of stormwater discharge after construction are not to exceed pre-development conditions. Stormwater generated on-site will flow to underground stormwater detention chambers located in the southwestern portions BESS facility site (Figure 2-1, Project Site Plan). Stormwater treatment and storage sizing will be designed to hold the anticipated runoff from a 100-year, 24-hour storm event in compliance with applicable regulations. After a rainfall event, stormwater will infiltrate into the subgrade underneath the stormwater chambers. If the design capacity of the stormwater chambers is exceeded, however, stormwater may be stored in available upstream areas such as catch basins, infiltration trenches, or drain as sheet flow from the surface.

2.3.1.8 Site Security

The BESS facility site will be enclosed with a minimum 8-foot-tall block wall topped with 1 foot of three-strand barbed wire or razor wire. The wall will be installed on the outside of the perimeter roads. The wall will be required to prevent unauthorized access and to comply with human health and safety regulations. Gates will be installed at various access points along the wall and equipped with locks and knox boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site. The wall will serve a dual purpose for security and off-site noise reduction (see Section 3.7, Noise).

Lighting will only be in areas where it is required for safety, security, or operations. Controlled security lighting no more than 28 feet tall will be installed at the Project substation and around the BESS yards, in accordance with applicable requirements and regulations. Permanent motion-sensitive, directional security lights will be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras will be placed on site and monitored 24/7.

2.3.1.9 Fire Detection and Suppression System

Fire protection will include multiple fire detection systems on-site and within the individual BESS enclosures. Each BESS enclosure will have a fire rating in conformance with the California Fire Code 2022. In addition, each BESS enclosure will contain an onboard battery management system that monitors the appropriate state of individual battery cells and relays information 24/7 and an internal Fire Alarm Control Panel that will identify which units have incidents and will notify first responders. In the event of an anomaly, the system is designed to shut down and mitigate the hazard.

The Project's fire protection design will comply with California Fire Code 2022, Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). BESS enclosures will be Underwriters Laboratories (UL) listed, tested, and certified to the most rigorous international safety standards. UL independently tests equipment for compliance with the latest fire safety code requirements, and the methods were developed to minimize fire risk and safety concerns about battery storage equipment raised by fire departments and building officials in the United States.

Faults, mechanical damage, or manufacturing defects in lithium-ion batteries can cause thermal runaway, which can lead to fires or other hazards. Should a thermal runaway event occur, the BESS enclosures are designed and constructed in such a way that fire will not propagate from one enclosure to a neighboring enclosure. The Project's BESS enclosures, as part of the testing and listing process, will be subjected to destructive testing including fire testing. The Project's BESS enclosures will include the following UL certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification).
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification).
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification).
- UL 9540A – Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.
- IEC 62619 – Standard for Battery Safety in Stationary Applications.

The BESS facility ingress/egress and circulation will be designed to comply with LA County's Draft fire regulations. Each portion of the BESS facility (the BESS yards north and south of Soledad Canyon Road.) will have primary and secondary access points. The BESS yard north of Soledad Canyon Road. will have a primary access point in the southwest corner of the site and a secondary access point in the northwest corner of the site, near the O&M buildings and laydown yard. The BESS yard south of Soledad Canyon Road. will have a secondary access point directly across from the secondary access point for the northern BESS yard and a primary access point that is approximately 1,030 feet east of the secondary access point. There will also be an access point for the Project Substation that is approximately 340 feet east of the BESS yard primary access point, in the approximate middle of the Project area that is south of Soledad Canyon Road. All access points will have Knox boxes and will connect to roads that are 26 feet wide (see Appendix 2A Fire Safety and Water Circulation Plan PSR-BE-201).

Water for fire defense will be provided via an on-site well that will serve two (2) 40,000-gallon water tanks. There will be a separate water tank and booster pump in each of the BESS yards. The water tanks will serve hydrants located throughout the BESS yards. Hydrants were specifically located to be no more than 300 feet apart throughout the BESS yards. The project commissioned a fire water supply assessment that concluded that the maximum amount of water necessary to fight a fire on the site would be 15,000 gallons (see Appendix 3.17A). The project will provide 40,000 gallons of water at each BESS yard.

The fire water line system has been highlighted in PSR-BE-201. PSR-BE-201 shows the existing well in the south BESS yard and the water line connection to the water tank in that same yard (approximately 245 feet to the northeast of the existing well). The water tank and associated pumphouse serve as the distribution point for the fire water line. Three (3) lines leave the pumphouse. Two (2) fire water lines support the hydrant system in the south BESS yard. The loops follow the road and surround each of the BESS blocks. The third fire water line runs southwest along the northern road in the south BESS yard until it comes to the first responder secondary entrance. The fire water line then heads north and crosses Soledad Canyon Road along the northeastern side of the two (2) opposing first responder secondary entrances. Once in the north BESS yard, the fire water line heads back southwest along the southern road in the north BESS yard for approximately 1,030 feet. The fire water line then heads north and connects to the pump house and water tank in the north BESS yard. There are two (2) fire water lines that exit the pump house in the north BESS yard that serve the hydrants that are spaced along access roads and surround the BESS blocks.

The Los Angeles County Fire Department will review and comment on the facility fire protection and suppression plans.

2.3.1.10 Operations and Maintenance Building

O&M buildings will be constructed for the Project's anticipated 16 full-time operations staff and is planned to be in the easternmost portion of the BESS yard north of Soledad Canyon Road. The O&M buildings will include parking, outside equipment and laydown areas, basic offices, meeting rooms, washroom facilities and climate-controlled storage for certain equipment and materials. An existing groundwater well will provide water for washroom and a septic system will provide for sanitary facilities. The existing groundwater well is located south of Soledad Canyon Road on APN 3056-019-026. To serve the O&M buildings and fire water needs, which are located north of Soledad Canyon Road, an underground water line will be constructed from the existing groundwater well to the O&M buildings as shown in Figure 2-1, Project Site Plan. A portion of the water line will be located within Soledad Canyon Road as shown in Figure 2-1, Project Site Plan. ~~As discussed above in Section 2.3.1.3,~~ The water line will run under Soledad Canyon Road along the northeast edge of the opposing first responder secondary access points between the north and south BESS yards. The water line will be covered by a minimum of 24 inches of material. The water line will be installed via horizontal directional drilling. ~~the portion of the water line that crosses Soledad Canyon Road will be sited within the proposed 26-foot-wide corridor that will also house the MV collection system as it crosses the road. Like the MV collection system within the road, the water line will be installed using trenching. The O&M buildings will be powered via a distribution line from the Project substation.~~

2.3.1.11 Existing Distribution Line Reroute

There is currently an SCE overhead electrical distribution line that bisects the southern portion of the BESS facility site. The distribution line consists of wooden poles with a cross bar carrying the distribution lines. The Project plans to reroute this line around the BESS facility site using similar distribution poles and wires. The Project will alter the existing distribution line route from where it enters the property on the south side of the BESS facility site. The Project will install approximately nine (9) poles similar to the existing poles, outside of the BESS facility site wall, along the southern and western boundary of the BESS facility site south of Soledad Canyon Road until they connect with Soledad Canyon Road. At Soledad Canyon Road, the new distribution line will tie into the existing distribution line at the western boundary of the southern BESS facility site (See Appendix 2A Distribution Line Reroute PSR-SE-103).

2.3.2 Transmission and Interconnection Description, Design, and Operation

The Project will be interconnected to the regional electrical transmission grid via an approximately 1.1-mile-long or 1.8-mile-long new single-circuit 500kV gen-tie line within an up-to 150-foot-wide corridor between the Project substation and the SCE Vincent Substation. The Applicant will construct and own the portion of the gen-tie line between the Project substation and the Point of Change of Ownership (POCO) transmission structure (see Figure 2-1, Project Site Plan, site layout Pole 10), and SCE will construct and own the remaining portion of the gen-tie from the POCO to the POI within the Vincent Substation. The Project's transmission and interconnection facilities will include the following components:

- 500kV Gen-Tie Line including Transmission Structures and Conductors
- Fiber Optic Telecommunications Utility Poles and Fiber Optic Lines
- Access Paths
- Temporary Work Areas
- Interconnection Facilities within Existing SCE Vincent Substation Footprint (SCE constructed and owned)

The proposed route was selected to minimize the number of existing utility crossings, cross existing utilities at the optimum locations, minimize the total gen-tie line length and number of transmission structures required, minimize the number of turning structures required, and enter the Vincent Substation as close as possible to the POI. The proposed transmission structures were sited to avoid potential impacts to environmental resources. Project components associated with transmission and interconnection facilities are described in the following subsections. Figure 2-2, Transmission Line Route, shows the gen-tie routes, scattered rural residences, scenic areas (scenic drives and the Los Angeles National Forest), and existing transmission lines within 1 mile of the proposed routes. There are no parks or recreational areas within 1 mile of the proposed routes. Table 2-3 summarizes the preliminary dimensions of major transmission components, and Table 2-4 summarizes the preliminary new ground disturbance area associated with construction of the transmission and interconnection facilities (Southern Gen-Tie scenario). Section 3.13, Visual Resources, includes photographic simulations of a representative above ground section of the gen-tie route prior to construction and after construction.

Table 2-3. Preliminary Dimensions of Major Transmission Components

Component	Quantity	Approximate Dimensions
500kV Gen-Tie Line	1	Applicant Owned: North: 3,500 ft long / South: 7,300 ft long
		SCE Owned: 2,800 ft long
Substation Bay Dead-End Transmission Structure	1	Applicant Owned: 170 ft tall
		SCE Owned: n/a
Angled Dead-End Transmission Structure	up to 7	Applicant Owned: 175 ft tall to 195 ft tall
		SCE Owned: n/a
Tangent Delta Transmission Structure	1	Applicant Owned: 155 ft tall (Northern Gen-Tie Route) to 180 ft tall (Southern Gen-Tie Route)
		SCE Owned: n/a
Lattice Tower Transmission Structure	2	Applicant Owned: n/a
		SCE Owned: 234 ft tall to 243 ft tall
Conductors	1	Applicant Owned: North: 30,800 ft / South: 63,000 ft
		SCE Owned: 16,000 ft
Overhead Shield Wire	1	Applicant Owned: North: 3,600 ft / South: 7,300 ft
		SCE Owned: 2,900 ft
Fiber Optic Cables on Gen-Tie Structures	1	Applicant Owned: North: 3,600 ft / South: 7,300 ft
		SCE Owned: 2,900 ft
Fiber Optic Cables Underground	2	Applicant Owned: 12,000 ft
		SCE Owned: 5,700 ft
Transmission Structure Access Path	Varies	26 ft wide
Transmission Line Corridor	1	150 ft wide

Notes: kV = kilovolt; SCE = Southern California Edison; gen-tie = generation interconnection.

Table 2-4. Approximate New Ground Disturbance Area Associated with Transmission and Interconnection Facilities

Component	Permanent Disturbance	Temporary Disturbance
Applicant Portion		
Transmission Structure Pads	2.48 acres	—
Transmission Structure Access Path	1.14 acres	—
Laydown Area	—	4.23 acres
Tension and Pulling Sites (i.e., Gen-Tie Work Area)	—	19.4 acres
Applicant Total	**3.62 acres**	**~23.63 acres**
SCE Portion		
Transmission Structure Pad	0.3 acres	—
Transmission Structure Access Path	0.5 acres	—
Tension and Pulling Sites (i.e., Gen-Tie Work Area)	—	8.99 acres
SCE Total	**0.8 acres**	**8.99 acres**

Note: gen-tie = generation interconnection; SCE = Southern California Edison.

2.3.2.1 500kV Gen-Tie Line

The 500kV gen-tie line will originate at the Project substation within the BESS facility site and extend south and east, crossing Southern Pacific Railroad tracks and West Carson Mesa Road, as close to perpendicular as possible, and then proceed northeast to the POI at the Vincent Substation. The Project proposes a Northern Gen-Tie Route and Southern Gen-Tie Route. The Applicant understands a crossing agreement with LACMTA will be required prior to construction. LACMTA requires a crossing agreement application to include a 90% design package. This will be provided as the Project design progresses. The Project expects to submit the application in 2026.

The interconnecting 500kV transmission single-circuit configuration will be overhead. The gen-tie line will be constructed with either monopole tubular steel poles or steel lattice towers. Gen-tie structures will be at least 155 feet tall, with a maximum height of 243 feet. There will be a total of approximately 1 monopole or steel lattice tower structures. The total number of gen-tie structures will be determined by the final design of the gen-tie line. The Project transmission facilities will be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) where feasible. Transmission facilities will also be evaluated for potential collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of Art in 2012* (APLIC 2012).

The POCO will be located on APN 3056-015-023 (see Pole 10 within Figure 2-1, Project Site Plan). The POCO is the point where the conductors of the Generation Tie-Line are attached to the Last Structure, which will be connected on the side of the last project owned structure (Last Structure) facing Vincent Substation. The project shall own and maintain the Last Structure, the conductors, insulators and jumper loops from such Last Structure to the Interconnection Customer's Large Generating Facility. SCE will own and maintain the Vincent Substation, as well as all towers, transmission lines, circuit breakers, disconnects, relay facilities and metering within the Vincent Substation, together with the line drop, in their entirety, from the Last Structure to Vincent Substation. SCE will own the insulators that are used to attach the project-owned conductors to the Last Structure.

The conductor from the site to the POCO is planned to be triple bundle 795 Drake or equivalent. The conductor from the POCO to the Vincent Substation will be double bundle 2156 Bluebird or equivalent.

Table 2-3 includes the approximate number and dimensions of the different types of transmission structures that will be used.

2.3.2.2 Transmission Structure Access Path

Where possible, the transmission structure access path will utilize existing access roads to minimize new ground disturbance. A transmission structure access path up to 26 feet wide will be located within portions of the transmission corridor outside of the BESS facility and Vincent Substation footprints and generally follow the centerline of the gen-tie.

2.3.2.3 Telecommunication Facilities

The facility will be designed with a comprehensive Supervisory Control and Data Acquisition (SCADA) System to allow remote monitoring of facility operation and/or remote control of critical components. The fiber optic or other cabling required for the monitoring system typically will be installed in buried conduit within the access road or planned trenching leading to a SCADA system cabinet at the Project substation. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard-wired connections to locally available commercial service providers.

The Project's SCADA system will interconnect to an external fiber optic network or fixed wireless service at the Project substation and will require installation of buried fiber optic cables underground or fixed wireless antennas. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard-wired connections to locally available commercial service providers, so no additional disturbance associated with telecommunications is anticipated. As such, the Project will not require any substantial construction efforts regarding telecommunications facilities and structures. No relocation of existing telecommunication structures will occur.

Telecommunications equipment will be installed between the control building at the Project substation and the Vincent Substation to facilitate communication with SCE/CAISO facilities. To achieve communication requirements with the Vincent Substation, the project will involve the following:

- Install optical ground wire on the Generation Tie-Line to provide one (1) of three (3) telecommunication paths required for the line protection scheme, the remote terminal units. A minimum of eight (8) strands within the optical ground wire shall be provided for SCE's exclusive use into Vincent Substation.
- Install appropriate single-mode fiber optic cable from the Project Site to a point near the POCO to the Vincent Substation to provide the second telecommunication path required for the line protection scheme and the RAS. A minimum of eight (8) strands within the single-mode fiber optic cable shall be provided for SCE's exclusive use. The telecommunication path shall meet the Applicable Reliability Standards criteria for diversity.
- Install appropriate single mode fiber optic cables from the Project Site to a point designated by SCE near the Vincent Substation to provide a third telecommunication path required for the Generation Tie-Line protection scheme. A minimum of eight (8) strands within the single mode fiber optic cable shall be provided

for SCE's exclusive use. The telecommunication path shall meet the Applicable Reliability Standards criteria for diversity.

- Own, operate and maintain all three (3) telecommunication paths (including optical ground wire, any fiber-optic cables, and appurtenant facilities) up to the POCO.

In addition to the telecommunications equipment installed by the Project, SCE will install the following equipment:

- Lightwave, channel, and associated equipment (including terminal equipment), supporting protection and the remote terminal unit requirements at the Project Site and Vincent Substation for the interconnection of the Project. Notwithstanding that certain telecommunication equipment, including the telecommunications terminal equipment, will be located on the Interconnection Customer's side of the POCO, SCE shall own, operate and maintain such telecommunication equipment as part of the SCE's Interconnection Facilities.
- Install appropriate length of fiber optic cable, including conduit and vaults, from the Vincent Substation 500kV switchrack to extend the fiber optic cable and conduit into the communication room at Vincent Substation. The 2021 Reassessment Study assumed the installation of approximately 250 feet of underground fiber optic cable and associated conduit, and one (1) 4' × 4' × 6' vault to extend the fiber optic cable into the communication room at Vincent Substation. The actual location and length of fiber optic cable and conduit, and location and number of vaults, will be determined during final engineering of SCE's Interconnection Facilities.
- Install appropriate length of fiber optic cable, including conduit and vaults, to extend the Project's second diverse telecommunications from the point designated by SCE near the SCE's Vincent Substation into the communication room at Vincent Substation. The 2021 Reassessment Study assumed the installation of approximately 250 feet of underground fiber optic cable and associated conduit, and one (1) vault to extend the Project's diverse telecommunications into the communication room at Vincent Substation. The actual location and length of fiber optic cable and conduit, and location and number of vaults, will be determined during final engineering of the SCE's Interconnection Facilities.
- Install appropriate length of fiber optic cable, including conduit and vaults, from the point designated by the SCE to extend the Project's third diverse fiber optic cable to into the communication room at Vincent Substation. The 2021 Reassessment Study assumed the installation of approximately 950 feet of underground fiber optic cable and associated conduit, and one (1) 4' × 4' × 6' vault to extend the fiber optic cable into the communication room at Vincent Substation. The actual location and length of fiber optic cable and conduit, and location and number of vaults, will be determined during final engineering of the Participating TO's Interconnection Facilities.

To meet these requirements, the Applicant and SCE will install one (1) of the three (3) fiber optic lines aboveground on the gen-tie structures. The two (2) other fiber optic lines will be installed underground within trenches anticipated to be up to 4 feet wide within the Southern Gen-Tie Route corridor and separated by at least 25 feet. The two (2) other fiber optic lines will be installed underground within the Southern Gen-Tie Route corridor regardless of which Gen-Tie Route corridor option is selected. Where the underground fiber optic line leaves the BESS facility site it will be installed via horizontal directional drilling underneath the railroad tracks. Horizontal directional drilling is a trenchless construction technique used to install underground utilities like pipelines and conduits without disturbing the surface. The Applicant understands a crossing agreement with LACMTA will be required prior to construction. LACMTA requires a crossing agreement application to include a 90% design package. This will be provided as the Project design progresses. The Project expects to submit the application in 2026.

2.3.2.4 Interconnection Facilities within Existing SCE Vincent Substation Footprint

To facilitate interconnection of the BESS facility to the electric transmission grid, SCE will need to install one (1) 500kV dead end structure, nine (9) 500kV coupling capacitor voltage transformers, three (3) 500kV line drops, three (3) line current relays, and one (1) 500kv line position which includes the following equipment: seven (7) 500kV circuit breakers, seven (7) 500kV disconnect switches, 84 insulators, and two (2) breaker failure backup relays. No additional network upgrades outside of the Vincent Substation are necessary to interconnect the project to the grid.

2.3.2.5 Transmission System Impact Studies

The Project will interconnect to SCE's transmission system within the CAISO planning area. CAISO identified two (2) potential Affected Systems from the QC12 Phase I Interconnection Study: California Department of Water Resources and Los Angeles Department of Water and Power.

The Applicant has contacted both potential affected systems and both have responded that the Project will not have any negative impact on their systems (see Confidential Appendix 2C).

The Applicant filed an Interconnection Request with CAISO in the Cluster 12 Interconnection Request window. CAISO, in cooperation with SCE, prepared the Phase I Interconnection Study (January 15, 2020), and Phase II Interconnection Study (November 20, 2020). The Applicant entered into a Large Generator Interconnection Agreement with CAISO and SCE on January 28, 2022. The Project’s Phase I and II Interconnection Studies are included in Confidential Appendix 2C.

2.3.2.6 California Public Utilities Commission General Orders

Because SCE is an investor-owned electric utility, the SCE Improvements described above, are regulated by CPUC. CPUC General Orders (GO) cover regulatory requirements for investor-owned electrical utilities.

The Project will comply with applicable GOs, including GO 95 (Rules for Overhead Electric Line Construction) and GO 128 (Rules for Construction of Underground Electric Supply and Communications Systems).

2.3.2.7 Transmission System Design

One-line diagrams for the Project substation are included in Appendix 2A Single Line PSR-SE-001. The one-line diagrams include all equipment ratings including the bay arrangement of the circuit breakers, disconnect switches, buses, transformers, and other equipment that will be required for the Project interconnection at the Project site.

A one-line diagram for the Project’s interconnection at the SCE Vincent Substation is included in Confidential Appendix 2C, specifically within Appendix A of the Large Generator Interconnection Agreement (Page 106 of 137).

Table 2-5 below, Transmission System Design/Safey and Nuisance Regulations, identifies transmission system design laws, regulations, ordinances, and standards; adopted local, regional, state, and federal land use plans; and leases and permits applicable to the Project.

The applicant plans on installing triple bundle 795 Drake or equivalent from the BESS to the POCO. Depending on the selected route, the length of the applicant's conductor will be either 30,800 feet for the Northern Route or 63,000 feet for the Southern Route. These lengths represent the total conductor length of all phases along the applicant's portion of the 500 kV route (North: 3,500 feet long/South: 7,300 feet long). In determining the line type, the Project assumed a Max Operating Temperature of 212 degrees Fahrenheit as well as the other inputs from the Phase II SCE design. The allowable ampacity of the original conductor was 1,485 amps. The current conductor design has an ampacity of 3,396 amps. Allowable ampacity affects how much energy the line can carry, so an increase in ampacity equates to an increase in carrying capacity. Triple bundle 795 Drake will be located vertically along monopoles in the applicant-owned portion of the gen-tie route (see figures in Appendix 2 PSR-TL-005 through PSR-TL-008).

SCE plans on installing double bundle 2156 Bluebird or equivalent from the POCO to the Vincent Substation. SCE will install approximately 16,000 feet of conductor on their towers. This length represents the total conductor length of all phases along the SCE portion of the 500 kV route (2,800 feet long). SCE has sized the double bundle 2156 Bluebird to meet the carrying capacity requirements for the Project and will locate the conductor vertically along tower in the SCE-owned portion of the gen-tie route (see figures in Appendix 2 PSR-TL-009).

Table 2-5. Transmission System Design/Safety and Nuisance Regulations

Item	Title
CPUC GO-95	Rules for Overhead Electric Line Construction
NESC	National Electrical Safety Code (NESC)
GO-128	Rules for Construction of Underground Electric Supply and Communication Systems
GO-131-D	Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California
Decision 93-11-013	California Public Utilities Commission (CPUC) EMF Decision
CPUC GO-52	Construction and Operation of Power and Communication Lines for the Prevention or Mitigation of Inductive Interference
ASCE 48-19	Design of Steel Transmission Structures
ASCE 74	Guidelines for Electrical Transmission Line Structural Loading
ASCE 113	Substation Structure Design Guide
FAA 70/7460	Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space
IEEE 81	Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System
IEEE 525	Guide for the Design and Installation of Cable Systems in Substations
IEEE 605	Guide for Bus Design in Air Insulated Substation
IEEE 691	Guide for Transmission Structure Foundation Design and Testing
IEEE 738	Standard for Calculating the Current-Temperature Relationship of Bare Overhead Conductors
IEEE 1127	Guide for the Design, Construction, and Operation of Electric power Substations for Community Acceptance and Environmental
IEEE 1427	Guide for Recommended Electrical Clearances and Insulation Levels in Air Insulated Electrical Power Substations
IEEE 1863	Guide for Overhead AC Transmission Line Design

Table 2-5. Transmission System Design/Safety and Nuisance Regulations

Item	Title
47 CFR 15.25, "Operating Requirements, Incidental Radiation	Prohibits operations of any device emitting incidental radiation that causes interference to communications; the regulation also requires mitigation for any device that causes interference
Title 14 CFR, Part 77, "Objects Affecting Navigable Airspace"	Describes the criteria used to determine whether a "Notice of Proposed Construction or Alteration" (FAA Form 7460-1) is required for potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1M, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting of obstructions as identified by FAA Regulations Part 77

2.3.2.8 Transmission Line Safety and Nuisance

The electrical effects of high-voltage transmission lines fall into two (2) broad categories: corona effects and field effects. Corona is a luminous discharge due to ionization of the air surrounding a conductor around the surface of an energized conductor and associate hardware when the voltage gradient exceeds a certain critical value during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. Corona is a function of the voltage of the line, the diameter of the conductor, and the condition of the conductor and hardware surface. Corona performance is predicted using empirical equations from high-voltage line measurements. The methodology has been validated for predicting corona-induced noise and interference. The electric field gradient is the rate at which the electric field changes and is directly related to the line voltage and the geometric configuration of the line. Field effects are the voltages and currents that may be induced in nearby conducting objects. A transmission line's inherent electric and magnetic fields cause these effects. Operating power lines produce electric and magnetic fields commonly referred to as an electromagnetic field (EMF). The EMF produced by the AC electrical power system in the U.S. has a frequency of 60 hertz, meaning that the intensity and orientation of the field changes 60 times per second. The electric field (EF) is expressed in V/m or kV/m, and magnitudes are often given in root-mean-square (rms) units. Magnetic field is generated by electrical currents. Transmission lines create time-varying magnetic fields measured in Gauss (G) or milligauss (mG). Electric fields are calculated using an imaging method, while magnetic fields are obtained by summing fields from currents in all conductors, assuming balanced three-phase currents

Corona from a transmission line may result in the production of audible noise (AN), radio influence voltage (RIV) and television interference.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface and, hence, lower corona than smaller conductors, everything else being equal. Also, irregularities (such as nicks and scrapes on the conductor surface) or sharp edges on conductors and insulators hardware concentrate the electric field at these locations and, thus, increase corona at these spots. Similarly, contamination on the conductor surface such as dust or insects can cause irregularities that are a source for corona. Raindrops, snow, fog, and condensation are also sources of irregularities.

2.3.2.8.1 Audible Noise, Corona Losses, and EMF Model Results

EMFs, audible noise, and radio and television interference near power lines vary regarding the line design, line loading, distance from the line, and other factors. Electric fields, corona, audible noise, and radio and television interference depend on line voltage and not on the level of power flow. The calculations were made under maximum operating voltage. The line design includes triple-bundled 795 thousands of circular mils (kcmil) ACSR Drake conductors on monopole structures and double-bundled 2156 kcmil ACSR Bluebird conductors on SCE lattice towers. Table 2-6 shows the audible noise under fair weather, max audible noise under foul weather, and the Environmental Protection Agency's 55 day–night average sound level criteria.

Table 2-6. 500kV Audible Noise

Gen-Tie Design	Max Audible Noise at Edge of Right of Way (dBA)	Normal Audible Noise at Edge of Right of Way (dBA)	EPA 55 day-night sound level criteria (dBA)
SCE Owned Lattice Tower	55.1	30.1	48.5
Delta Monopole	51.0	26.0	
Deadend Monopole	49.6	24.6	

Source: Appendix 2D and 2E.
Notes: gen-tie = generation interconnection; dBA = A-weighted decibels; SCE = Southern California Edison.

Corona losses are estimated to range from .52 Watts/m -.913 Watts/m under fair weather conditions and 74.5 Watts/m – 130.5 Watts/m under foul weather conditions. One (1) study calculated radio interference induced by corona from a 500kV three-phase transmission line at approximately 45 decibels above 1 microvolt per meter (dB[1μV/m]3; henceforth referred to as dB) at approximately 88 feet (27 meters) away from the outermost phase of a transmission line (Tejada-Martinez et al. 2019). Measured radio interference was generally similar to calculated values particularly for conductors strung on towers horizontally but was found to be closer to 50 dBuV/m for conductors strung on towers in a vertical manner. Two (2) other studies of 500kV transmission lines at the same distance from center phase calculated radio interference at approximately 30 dB to generally below 60 dB, except for when subconductors were spaced closely together, depending on the geometric parameters (e.g., conductor size, conductor spacing) (El Dein 2013; Phaiboon et al. 2000). As discussed above, wet weather and other conditions (e.g., debris build up on conductors) can affect corona and therefore radio interference, with higher interference anticipated in wetter weather. The 500kV transmission lines would be engineered and installed so as to avoid harmful interference with radio or other transmissions.

The magnetic field is proportional to line loading (amperes), which varies as demand for electrical power varies and as generation from the generating facility is changed by the system operators to meet changes in demand. The magnetic field at the edge of the gen-tie right-of-way is expected to range from 99.09 mG to 171.29 mG. The electric field at the edge of the right-of-way is expected to range from 0.342 kilovolts/meter (kV/m) – 1.777 kV/m).

Overall, construction and operation of the Project, including the interconnection of the facility with SCE's transmission system, are not expected to result in increases in EMF levels, corona, radio interference, or audible noise and mitigation would not be required.

2.4 Construction

The following sections detail the approximate construction schedule and workforce, construction activities, estimated water use, and materials handling proposed by the Project.

2.4.1 Schedule and Workforce

The Project is anticipated to be built over an approximately 20-month period from the onset of site preparation activities through energization. Following energization, testing and commissioning will take place over 6 months. Initial mobilization and site preparation is anticipated to begin no later than March 2027 and testing and commissioning is anticipated to conclude no later than April 2029. The commercial operation date (COD) is expected shortly following the completion of testing and commissioning in June 2029. It is anticipated that construction crews will work 8 hours to 10 hours per day, with work occurring Monday through Friday. Overtime, night work, and weekend work will be used only as necessary to meet the Project schedule or complete time-sensitive or safety critical work. All work schedules will comply with applicable California labor laws and County regulations. Estimated durations of construction activities are presented in Table 2-7.

Table 2-7. Estimated Construction Activity Duration

Construction Activity	Estimated Duration	Estimated Timeframe
Demolition	2 weeks	3/1/2027–3/12/2027
Site Preparation	1.5 months	3/1/2027–4/15/2027
Substation Site Preparation	2 weeks	4/16/2027–4/30/2027
Civil Work and Grading	4 months	5/1/2027–8/31/2027
Substation Civil Work and Grading	1 month	9/1/2027–9/30/2027
Paving	1.5 months	8/15/2027–9/30/2027
Battery Enclosure/PCS Installation	12 months	10/1/2027–10/1/2028
Project Substation Installation	8 months	2/1/2028–10/1/2028
Gen-Tie Foundations and Structure Erection	4 months	2/1/2028–5/31/2028
Gen-Tie Line Stringing and Pulling	1 month	6/1/2028–7/1/2028
SCE Interconnection Facility Upgrades within Vincent Substation	6 months	4/1/2028–10/1/2028
Testing and Commissioning	6 months	10/2/2028–4/1/2029

Note: PCS = power conversion system.

2.4.2 Sequencing

During construction activities, multiple crews will be working on the site with various equipment and vehicles. The daily number of construction workers (consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) will range from approximately 50 to 250 workers, depending on the phase of construction. It is estimated that construction will require the vehicle trips and equipment listed in Table 2-8.

Table 2-8. BESS Project – Construction Equipment and Usage Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips[1]	Equipment Type	Quantity	Usage Hours
Demolition	10	4	6	Rubber tired dozer	1	10
				Concrete/Industrial Saws	1	10
				Tractors/Loaders/ Backhoes	2	10
Site Preparation	242	12	24	Tractors/Loaders/ Backhoes	2	10
				Excavator	2	10
				Rubber tired dozer	2	10
Substation Site Preparation	242	12	100	Tractors/Loaders/ Backhoes	1	10
				Excavator	1	10
				Rubber tired dozer	1	10
Grading	242	12	524	Graders	2	10
				Tractors/Loaders/ Backhoes	2	10
				Rollers	2	10
Substation Grading	242	12	486	Graders	1	10
				Tractors/Loaders/ Backhoes	1	10
				Rollers	1	10
Paving	16	0	0	Pavers	2	10
				Paving Equipment	2	10
				Rollers	2	10
Battery Enclosure/ PCS Installation	121	12	20	Air Compressors	1	10
				Cranes	1	10
				Forklift	1	10
				Tractors/Loaders/ Backhoes	1	10
Substation Installation	121	12	4	Aerial Lifts	1	10
				Air Compressors	1	10
				Bore/Drill Rigs	1	10
				Forklift	1	10
				Trenchers	1	10
Gen-Tie Foundation and Tower Erection	121	12	0	Air Compressors	1	10
				Cranes	1	10
				Forklifts	1	10
				Pumps	1	10
				Welders	1	10

Table 2-8. BESS Project – Construction Equipment and Usage Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips[1]	Equipment Type	Quantity	Usage Hours
Gen-Tie Stringing and Pulling	121	12	0	Aerial Lift	1	10
				Tractors/Loaders/ Backhoes	1	10
SCE Interconnection Facility Upgrades	121	12	0	Air Compressors	4	10
				Cranes	2	10
				Excavators	2	10
				Rough Terrain Forklifts	2	10
				Skid Steer Loaders	2	10
				Tractors/Loaders/ Backhoes	2	10
				Trencher	1	10
Testing and Commissioning	242	12	0	NA	NA	NA
Decommissioning	242	12	20	Concrete/Industrial Saws	2	10
				Cranes	2	10
				Rubber Tired Dozers	2	10
				Tractors/Loaders/ Backhoes	2	10

Notes: PCS = power conversion system; gen-tie = generation interconnection; SCE = Southern California Edison.

1 The average daily haul truck trips for each phase consider phase durations from Table 2-7.

* The Project layout depicted in Figure 2-1, Project Site Plan, shows the “End of Life” configuration of the BESS, meaning it shows the equipment layout after all augmentation units are implemented. The numbers in this table conservatively assume that foundations and BESS equipment installation related to augmentation occurs during initial construction of the facility. Construction of foundations and BESS equipment installation for augmentation may occur during O&M periodically within the BESS facility footprint.

2.4.3 Site Preparation

Environmental clearance surveys will be performed at the Project site prior to commencement of construction activities. The limits of construction disturbance areas delineated in the final approved engineering design packages will be surveyed and staked. Initial ground disturbing activities in preparation for construction will include installation of erosion and sediment control measures prior to start of major earthwork activities. Rough grading and grubbing/vegetation removal will be performed where required to accommodate site drainage and allow construction equipment to access the site. Detention chambers and stormwater facilities will be created for hydrologic control. The construction contractor will be required to incorporate applicable best management practices (BMPs) including the guidelines provided in the California Stormwater Quality Association’s Construction BMP Handbook (CASQA 2024), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Stabilized construction entrances and exits will be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation will be consistent with applicable BMPs and the Antelope Valley Air Quality Management District's Fugitive Dust Rules. Site preparation will involve the removal and proper disposal of existing debris that will unduly interfere with Project construction or the health and safety of on-site personnel. Dust-minimizing techniques will be employed, such as placement of wind control fencing, application of water, and application of dust suppressants. All applicable governmental requirements and BMPs will be incorporated into the construction activities for the Project site.

Vegetation on the site will be removed where necessary to ensure the BESS facility is free from combustible vegetation to allow for fire protection and defensible space. Where feasible, in compliance with fire protection requirements, vegetation root mass within appropriate portions of the BESS facility lease area on the outside of the perimeter and substation access roads will be left in place for soil stabilization. However, the environmental analyses in subsequent sections conservatively assume that all areas within the maximum anticipated grading limits of the BESS facility will be permanently disturbed.

2.4.4 Site Grading and Civil Work

Following site preparation activities, grading and civil work will commence. Construction activities during this phase will include excavation and grading of the Project site. Preliminary designs conservatively assume that grading will include up to approximately 175,410 cubic yards (cy) of cut and up to approximately 625,095 cy of fill, resulting in a net of 449,685 cy of fill. Blasting is not expected but may be required if large boulders are encountered during excavation and grading. Fill material requirements will be satisfied by offsite borrow pits or quarries.

Conventional grading will be performed throughout the Project site but minimized to the maximum extent feasible to reduce unnecessary soil movement. Land-leveling equipment, such as a smooth steel drum roller, will be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Following major civil work within the BESS facility site, site access roads and driveways, the perimeter and substation access roads, and interior roadways to access the laydown areas and BESS yards will be graded, compacted, and surfaced with gravel or paving. Once the roadways have been constructed, the Project perimeter fence and access gates will be constructed.

2.4.5 Foundations and Underground Equipment Installation

Following completion of major site grading and civil work, equipment foundations and below grade equipment will be installed. A grounding grid and underground conduit will be installed below grade beneath the Project substation area and BESS components. Typical ground grids consist of direct-buried copper conductors with copper-clad ground rods arranged in a grid pattern. After installation of the grounding grid, the area will be backfilled, compacted, and leveled followed by application of an aggregate rock base. A containment area within the MPT foundations will be sized to hold the full volume of oil within the MPTs. The MPT foundations within the substation area are anticipated to be concrete slab foundations poured into excavations up to 7 feet deep. Foundations for the control building, static masts, other aboveground substation equipment, O&M buildings, BESS enclosures, PCS units, DC/DC converters, and BESS auxiliary transformers and panels are anticipated to be slab on grade, or pile foundations embedded up to 24 feet below ground level. Depending on soil conditions, the piles may be drilled or driven and set with a slurry. However, some of these Project components may be installed on concrete slab foundations depending on the geotechnical conditions at the final locations.

Additional underground work will include trenching for the placement of underground electrical and communications lines, including the MV collection system, AC and DC cables, and fire alarm cable. The wires will either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application

2.4.6 BESS and Project Substation Equipment Installation

Where possible, major equipment will be delivered directly to its permanent location and offloaded directly into place with a crane or heavy equipment. Where staging or sequencing does not allow, equipment will be stored at one of the laydown areas near its permanent location and installed at a later date. Major aboveground equipment will be the MPTs and other Project substation components, control building, BESS enclosures, PCS units, DC/DC converters, BESS auxiliary transformers and panels, and material for the O&M buildings.

Electrical work will include installing cables, terminations, and splices. Electrical wiring will be installed underground, at-grade, and above ground, depending on the application and location. The wires will either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application.

2.4.7 Gen-Tie Structure Erection

Environmental clearance surveys will be performed within the gen-tie corridor prior to commencement of construction activities. The gen-tie corridor boundaries, gen-tie centerline, telecommunications route centerlines, and transmission structure access path will be surveyed and flagged. Initial activities will include the installation of erosion and sediment control measures and materials, and preparation of the transmission structure and fiber optic utility pole work areas. The transmission structure access path may be bladed, compacted, and surfaced with gravel where necessary to facilitate transmission structure deliveries and construction equipment access. The surface of the access path will be at-grade to allow water to sheet flow across the gen-tie corridor, as it currently does. Overland travel and temporary construction activities associated with the gen-tie and telecommunications facilities may occur anywhere within the 150-foot-wide transmission corridor. Vegetation at the transmission and fiber optic utility pole work areas will be trimmed, mowed, or removed. At locations where gen-tie line structures and fiber optic utility poles will be installed, minor cuts may be required where the foundation will be installed.

Cast-in-place concrete foundations will be installed by placing reinforcing steel and a structure stub or anchor bolt cage into the foundation hole, positioning the stub, and encasing it in concrete. Each transmission structure foundation will be set on anchor bolts on top of the foundation with cranes. Holes will be excavated using a truck-mounted drill rig or standalone auger rig. Poles will be delivered on a flat-bed trailer and hoisted into place with a crane. The annular space between the poles and holes will be backfilled with concrete or soil. Excavated spoil material not used for backfilling will be spread around the structure work areas.

2.4.8 Gen-Tie Stringing and Pulling

For a conductor pulling location, the distance needed behind the dead-end structures should be equal to or greater than a 3:1 ratio (300 feet needed for a 100-foot-tall structure), or as recommended by the conductor manufacturer, to mitigate potential damage to the conductor during installation. The width of the pulling area is consistent with the 150-foot-wide Gen-Tie corridor. The pulling area will need to be relatively flat since trucks, trailers and various other small vehicles will need room to maneuver for placement of materials and equipment. The area will be cleared of any brush or obstacles, to facilitate unobstructed travels. For the wire end of a pull, there will be a minimum of two (2) 53-foot-long semi-trailers side by side, loaded with three (3) conductor reels each. One (1) trailer will be feeding the conductor to a tensioner, as the other trailer will be utilized for replacement of empty reels, and then facilitate a continuation of pulling efforts. The tensioner will be approximately the size of a semi-trailer and is responsible for tensioning the conductor during installation. A heavy-duty forklift or a large size all-terrain crane will be needed to support placement/removal of reels to the wire trailers, due to size and weight. After conductor installation, a bulldozer will be used to secure the installed conductors during application of additional tensions for the sagging process. The pulling equipment utilized is comparable in size/quantity to equipment utilized to support the new conductor reels. Pulling equipment utilizes multiple reels of high-tension pulling cables, mounted to semi-trailers, to support the new conductor placement into position on the structures. Pulling sites are depicted as Gen-Tie Work areas in Figure 2-2, Transmission Line Route.

A helicopter may be used to complete gen-tie stringing and pulling where the gen-tie crosses the railroad. For this portion of the stringing and pulling work it is assumed that a MD600 helicopter would be used for up to three (3) 10-hour days consisting of 1 day for mobilization, 1 day for stringing and pulling, and 1 day for demobilization. For the purposes of project analysis, it is anticipated that the helicopter would facilitate pulling of conductors and shield wires from proposed transmission structures No. 1 to No. 9 if the Northern Gen-Tie Route is selected, and transmission structures No. 3 to No. 5 if the Southern Gen-Tie Route is selected (please see Figure 2-2, Transmission Line Route, for transmission structure numbering). Helicopter use would be supported by one (1) approximately 150-foot by 100-foot landing zone. Landing zones would primarily be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters. The landing zone is anticipated to be located at the main laydown area but may need to shift to one (1) of the other two (2) laydown areas depending on the sequencing of construction.

2.4.9 SCE-Owned Gen-Tie Segment and Interconnection Facilities within Vincent Substation Footprint

SCE will construct the segment of the gen-tie between the POCO and the POI within the SCE Vincent Substation, and the fiber optic routes between the POCO and the SCE control building within the Vincent Substation footprint. The Applicant will bring the fiber optic cables to underground pull boxes at the POCO structure, and SCE will install the segment of the fiber optic cables between the POCO and control building in conduit placed in underground trenches. The trenches are anticipated to be up to 4 feet wide, and the trenches for the redundant routes will need to be at least 25 feet apart to meet SCE’s diverse path requirements. It is anticipated that SCE will install the trenches within the access road to the angled dead-end structure outside the Vincent Substation fence line. However, SCE may install the cables within existing roadways or other pre-disturbed areas along the perimeter of the substation fence depending on final design and routing.

SCE will also construct the interconnection upgrades within the Vincent Substation footprint at the POI. These upgrades are described in Section 2.3.2.4 above.

2.4.10 Construction Water Use

Construction water is anticipated to be purchased from a local water purveyor and trucked to the site. During construction, an estimated 18 million gallons (approximately 55 acre-feet) of untreated water will be required for common construction-related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used during ingress and egress of on-site construction vehicle equipment traffic and during the construction of the Project. A sanitary water supply line will not be required during construction because restroom facilities will be portable units, serviced by licensed providers, and water and sewage from the restroom facilities will be stored in on-site tanks and serviced by trucks. Drinking water will be provided via portable water coolers.

2.4.11 Solid and Non-hazardous Waste

The Project will produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation waste. This waste will be segregated, where practical, for recycling. Non-recyclable waste will be placed in covered dumpsters, located in project laydown areas, and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III (non-hazardous waste) landfill.

2.4.12 Hazardous Materials

The hazardous materials used for construction will be typical of most construction Projects of this type. Materials may include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies. A hazardous materials business plan will be prepared prior to commencement of construction activities. The hazardous materials business plan will include a complete list of all materials used on site and information regarding how the materials will be transported and in what form they will be used. This information will be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During Project construction, material safety data sheets for all applicable materials present at the site will be made readily available to on-site personnel.

2.4.13 Hazardous Waste

Small quantities of hazardous waste will most likely be generated over the course of construction. This waste may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers will be trained to properly identify and handle all hazardous materials. Hazardous waste will be either recycled or disposed of at a permitted and licensed treatment, recycling, or disposal facility in accordance with law. All hazardous waste shipped off site will be transported by a licensed hazardous waste hauler.

2.4.14 Commissioning

As part of Project construction activities, and after installation, equipment will be tested and commissioned. Commissioning work will be completed by qualified personnel, and in accordance with various codes, standards and specifications including IEEE, Institute of Electrical and Electronic Engineers, NEC National Electrical Code (NFPA 70), NETA International Electrical Testing Association, specific provisions of NFPA National Fire Protection Association, and the relevant OEM / manufacturers installation and commissioning manuals. Documentation necessary for commissioning will include (but is not limited to) complete sets of electrical plans, itemized equipment descriptions, control narratives, and other procedural requirement such as persons or entities to notify when equipment has become available for acceptance tests.

Commissioning will include testing of mechanical, electrical, fire protection, and other systems at substantial completion. Systems to be commissioned and tested include (but are not limited to) BESS enclosures, PCS units, auxiliar service transformers, MV collection system, DC cables, SCADA systems, power backup systems, and fire protection system. Performance testing will also be completed to ensure charge and discharge performance of the systems as designed and in accordance with the utility requirements. Full details of the commissioning activities will be made available in a commissioning plan, prepared by the BESS supplier and construction contractor and reviewed by the Engineer of Record, as part of the construction documentation package.

2.5 Operations and Maintenance

Once constructed, the Project will be available to operate 7 days per week, 365 days per year. The facility will be remotely monitored and operated by an Owner contracted O&M provider, by means of a NERC-CIP compliant remote operations center. Project operations will be monitored remotely through the SCADA system and by the Project's anticipated full-time operations staff members. It is estimated that there will be four (4) full-time staff members for remote monitoring and 16 full-time operations staff members on site.

On-site maintenance will be required, which will include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. During operation of the Project substation, O&M staff will visit the substation periodically for switching and other operation activities. Light duty maintenance trucks will be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one (1) major maintenance inspection will take place annually. Even when considering routine maintenance and augmentation activities, the project expects to provide no less than a 96% annual availability factor to the grid.

Batteries within utility-scale BESS facilities degrade with use over time, leading to a loss of capacity. To maintain the Project's capacity in compliance with interconnection requirements and commercial contracts, periodic augmentation by installing new batteries and related equipment within the Project site will occur to maintain the capacity over an approximate 40-year life. As batteries slowly lose their capacity to store energy, extra batteries will be installed at the beginning of the Project and at several intervals through the Project life, which is referred to as augmentation. Augmentation is expected to occur in order to maintain an annual lifetime capacity of 9,200MWh. If the project were to discharge for 8 hours daily and have an annual availability of 96% then the Project would have an annual capacity factor of approximately 32%. The Project's final augmentation strategy will be determined by market based contracting requirements. Augmentation may include constructing new foundations, installing BESS equipment on the foundations, and completing electrical work within the existing Project footprint. The preliminary site layout depicted on Figure 2-1, Project Site Plan, shows an "end of life" configuration, meaning it shows the equipment layout after all augmentation units are implemented. The construction sequencing and equipment usage assumptions in Tables 2-5 and 2-6 above, and environmental analyses in subsequent chapters, conservatively assume that all initial BESS equipment and augmentation BESS equipment are constructed at the same time.

2.5.1 Solid and Non-hazardous Waste

The Project will produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning electrical materials, empty containers, and other miscellaneous solid waste, including typical refuse generated by workers. Most of these materials will be collected and delivered back to the manufacturer or to recyclers. Non-recyclable waste will be placed in covered dumpsters, located near the O&M buildings, and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

2.5.2 Hazardous Materials

Limited amounts of hazardous materials will be stored or used on the site during operations, including diesel fuel, gasoline, and motor oil for vehicles; refrigerant within the BESS enclosures; mineral oil to be sealed within the transformers; and lead-acid-based batteries for emergency backup. Appropriate spill containment and cleanup kits will be maintained during operation of the Project. A spill prevention control and countermeasures plan will be developed for site operations.

2.5.3 Hazardous Waste

Fuels and lubricants used in operations will be subject to the spill prevention control and countermeasures plan to be prepared for the proposed Project. Solid waste, if generated during operations, will be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

2.6 Decommissioning

In general, the BESS will be recycled at the expiration of the Project's life (estimated to be 40 years). Most parts of the proposed system are recyclable. Batteries include lithium, which degrades but can be recycled or repurposed. Steel, wood, and concrete from the decommissioned facilities will be recycled. Metal and scrap equipment and parts that do not have free-flowing oil may be sent for salvage. Materials 3 feet or more below the ground surface will be left in place.

Fuel, hydraulic fluids, and oils will be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks and vessels will be rinsed and transferred to tanker trucks. Other items that are not feasible to remove at the point of generation, such as smaller container lubricants, paints, thinners, solvents, cleaners, batteries, and sealants, will be kept in a locked utility structure with integral secondary containment that meets Certified Unified Program Agencies and Resource Conservation and Recovery Act requirements for hazardous waste storage until removal for proper disposal and recycling. It is anticipated that all oils and batteries will be recycled at an appropriate facility. Site personnel involved in handling these materials will be trained to properly handle them. Containers used to store hazardous materials will be inspected regularly for any signs of failure or leakage. Additional procedures will be specified in a Hazardous Materials Business Plan closure plan submitted to the Certified Unified Program Agencies. Transportation of the removed hazardous materials will comply with regulations for transporting hazardous materials, including those set by the Department of Transportation, the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol, and California State Fire Marshal. See Appendix F, Decommissioning Plan, for additional information.

2.7 Project Site Selection

The Project site and related facilities were selected taking into consideration engineering constraints, site geology, environmental impacts, water, waste and fuel constraints, and electric transmission constraints, among other factors. The Project location was selected, in part, due to it being large enough to support development of the Project, its close proximity to existing electrical infrastructure and the Vincent Substation, thereby minimizing the length of the proposed gen-tie line to the POI and ability to deliver power to the Los Angels Basin local reliability area during peak demand, and because it is located immediately adjacent to existing roadways for construction and O&M access.

The Project is uniquely suited to help California achieve its GHG reduction requirements and support LA Basin reliability requirements. The Vincent substation is located at a key point in the electrical grid, Service Path 26, which enables it to deliver energy from renewable resources outside of the LA Basin Resource Area to meet LA Basin Local Capacity Requirements (LCR), with tie lines into the Western and Eastern LA Basin. LCR refers to the minimum amount of local generation capacity needed within specific areas to meet reliability criteria, particularly in areas where transmission constraints limit the ability to import power and is a critical metric for understand energy needs which are necessary to meet future grid demand. The LA Basin LCR is increasing, primarily due to load growth. The 2024-2025 Transmission Plan shows that peak load in the SCE Main area is forecasted to grow from 25,265MW in 2026 to 27,929MW in 2034 (CAISO 2025a), representing a 9.5% increase over 8 years. The 2026 LCR Tech Study also shows that the local capacity needed in the LA Basin is expected to increase from 5,812MW in 2026 to 7,226MW in 2030, which is an approximate 20% increase in required capacity in 4 years. Compared with the 2025 LCR study, demand for the LA Basin is 429MW higher than last year's forecast and the forecasted LCR needs have increased by 1,689MW due to load forecast increase (CAISO 2025b). In addition, CAISO is projecting that there will be a total potential curtailment of 1,300 gigawatt hours of wind and solar from the SCE North area in 2034, absent storage availability (CAISO 2025a). Locating this important energy storage ~~e~~ Project ~~at~~ with efficient and environmentally sound access to the Vincent Substation provides the Project with the ability to help reduce wind and solar curtailment while also supporting the growing LCR needs in the LA Basin, allowing stored resources to be dispatched when needed.

The Project site was selected in furtherance of the Project Objectives detailed in Section 2.2 above. The site selection criteria are discussed in detail in Chapter 4, Alternatives.

2.8 References

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Phaiboon, S., V. Vivek, and S. Somkuarnpanit. 2000. "Analysis and Measurement of Radio-Frequency Interference Due to the Corona From 500kV Transmission Lines." *IEEE*.

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Project Parcels (APN #)
Proposed BESS Facility Site
Existing SCE Vincent Substation (Point of Interconnection)
Transmission Pole (SCE)
Transmission Pole

Proposed Fiber Optic and Gen-Tie Routes
Underground Fiber Optic Route (SCE)
Underground Fiber Optic Route
Overhead Gen-Tie Route (SCE)
Overhead Gen-Tie Route
Overhead Southern Gen-Tie Route Option
Overhead Northern Gen-Tie Route Option

BESS Proposed Features
BESS Array
Project Substation
Storm Water Retention Area
O&M Area
Laydown Area
Driveway Entrance
Water Tank and Fire Pump House
BESS Access Roads

Work Areas
Gen-Tie Work Area
Construction Laydown Area
Gen-Tie Access Roads

SOURCE: World Imagery; Los Angeles County
Acton & Pacifico Mountain Quadrangle

DUDEK

0 500 1,000 Feet

FIGURE 2-1
Project Site Plan
Prairie Song Reliability Project

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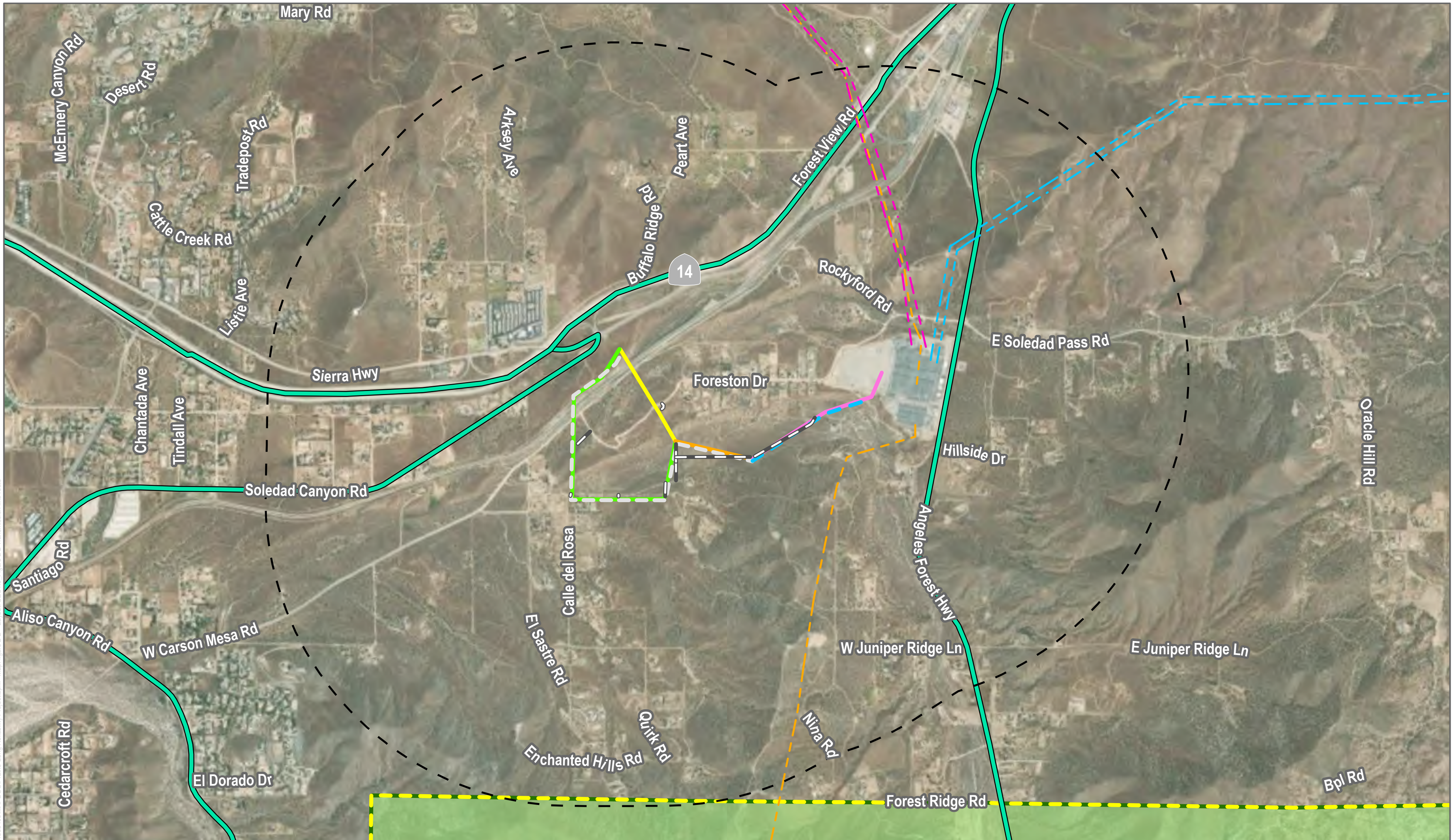

Transmission Lines
- Eagle Rock-Pardee & Antelope-Vincent No.1 Transmission Corridor (Tehachapi Renewable)
- Midway-Vincent No. 1 and No. 2
- Vincent-Lugo No. 1 and No. 2

Scenic Resources
- Scenic Drives
- Los Angeles National Forest

Proposed Fiber Optic and Gen-Tie Routes

Fiber Optic Routes
- Underground Fiber Optic Route (SCE)
- Underground Fiber Optic Route

Gen-Tie Routes
- Overhead Gen-Tie Route (SCE)
- Overhead Gen-Tie Route

Gen-Tie Route Options
- Overhead Southern Gen-Tie Route Option
- Overhead Northern Gen-Tie Route Option
- Gen-Tie Access Roads
- 1-mile Gen-Tie Buffer

SOURCE: Los Angeles County; USFWS; CEC

DUDEK

0 1,000 2,000 Feet

FIGURE 2-2

Transmission Line Route

Prairie Song Reliability Project

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Attachment 24

Section 3.15, Water Resources - Redline Version

3.15 Water Resources

This section describes the potential effects the construction and operation of the Prairie Song Reliability Project (Project) may have on water resources at and in the vicinity of the Project site. The Project will consist of an up to 1,150-megawatt (MW) containerized battery energy storage system (BESS) facility utilizing lithium-iron phosphate cells, or similar technology, operations and maintenance (O&M) buildings, a Project substation, a 500-kilovolt (kV) overhead generation interconnection (gen-tie) transmission line, and interconnection facilities within the existing Southern California Edison (SCE) owned and operated Vincent Substation.

The information presented is based on a site-specific drainage analysis, water supply assessment (WSA), and readily available resources provided online. This evaluation of water resources includes the following elements:

- Section 3.15.1 describes the existing environment that could be affected, including drainage features, groundwater, water quality, and flooding.
- Section 3.15.2 identifies potential environmental impacts that may result from Project construction, operation, maintenance, and decommissioning.
- Section 3.15.3 discusses potential cumulative effects.
- Section 3.15.4 identifies avoidance and mitigation measures that should be considered during Project construction, operation, maintenance, and decommissioning.
- Section 3.15.5 presents laws, ordinances, regulations, and standards (LORS) applicable to water resources.
- Section 3.15.6 identifies regulatory agency contacts and describes permits required for the Project related to water resources.
- Section 3.15.7 provides references used to develop this section.

The following environmental setting and impact evaluation is based in part on the following Project-specific technical documents, included as appendices to this application:

- Appendix 2A – Site Plan Package
- Appendix 3.15A – Water Quality Management Plan (Sargent & Lundy 2025), includes Hydrology Report (Westwood 2025a) and Preliminary Stormwater Management Report (Westwood 2025b)
- Appendix 3.15B – Water Supply Assessment (WSA) (Dudek 2025a)
- Appendix 3.15C – Title 22 Water Quality Sampling Memorandum (Dudek 2025b)

A summary of the water resources evaluation is provided in the table below.

		Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:					
1	Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality?	☐	☐	☒	☐
2	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
3	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: a. Result in substantial erosion or siltation on- or off-site; b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; c. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; and/or d. Impede or redirect flood flows?	☐	☐	☒	☐
4	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
5	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

3.15.1 Affected Environment

This subsection describes existing climate, drainage features, groundwater, water quality, water supply, and flooding potential at the Project site and surrounding region.

3.15.1.1 Climate

The Project site is located in an area characterized by a warm-summer Mediterranean climate, with temperatures typically varying between 35°F to 93°F (WRCC 2025). The average maximum temperature in the Project vicinity, based on temperature data recorded at the Acton, CA Remote Automatic Weather Station (National Weather Service Station No. 045438), for the period from 1995 to 2025 ranges from 54°F to 88°F, and the average minimum temperature ranges from 44°F to 75°F (WRCC 2025). Maximum temperatures in the summer typically reach the low-100s (°F) and minimum temperatures in the winter reach the mid-20s (°F). The average annual precipitation at the Acton, CA weather station for the period from 1995 to 2025 is approximately 9.36 inches (WRCC 2025).

Projected future climate conditions in California indicate gradual warming, with an increase in extremely hot days relative to historical norms, and greater year-to-year precipitation variability. Warming of approximately 3.6°F to 12.6°F is expected by the end of the century (Pierce et al. 2018). Additionally, there will be fewer wet days, but increased precipitation on the wettest days (i.e., wetter winters and drier springs and autumns), resulting in modest annual precipitation changes but an increase in the frequency of dry years (Pierce et al. 2018).

3.15.1.2 Drainage Features

The Project site lies within the greater Los Angeles Region, which encompasses all coastal watersheds and drainages flowing to the Pacific Ocean between Rincon Point (on the coast of western Ventura County) and the eastern Los Angeles County line, as well as the drainages of five (5) coastal islands (Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente). Surface waters within the region are overseen by the Los Angeles Region 4 Regional Water Quality Control Board (RWQCB) and its water quality control plan known as the Basin Plan (Los Angeles RWQCB 2014). Regionally, the Project site is located within the Santa Clara River Watershed, named after the largest river system in Southern California that still remains largely in its natural state. The Santa Clara River Watershed (HUC-08) drains approximately 1,200 square miles traversing Los Angeles and Ventura counties (SWRCB 2025a) (Figure 3.15-1, RWQCB Hydrologic Setting, and Figure 3.15-2, USGS Hydrologic Setting). The river originates in the northern slope of the San Gabriel Mountains and flows in a nearly east to west direction before emptying into the Pacific Ocean halfway between the cities of San Buenaventura and Oxnard. Tributaries to Santa Clara River include Bouquet, Placerita, San Francisquito, Castaic, Piru, and Sespe creeks. In addition, there are numerous unnamed tributaries that flow north into Santa Clara River just south of the vicinity of the Project site (Westwood 2025). The Project site is located within the Kentucky Springs Canyon – Santa Clara River Watershed (HUC-12 No. 180701020102), with the westernmost area of the Project overlapping into the Arrastre Canyon – Santa Clara River subwatershed (No. 180701020105) (Figure 3.15-1) (EPA 2025a).

In the vicinity of the Project site, the Santa Clara River flows just outside of the southwestern boundary in a northeast to southwest direction. The Project is located on moderate terrain that generally slopes to the southwest toward the Santa Clara River (Figure 3.15-3, Local Drainage Features). The Project site contains varying slopes from 2% to greater than 10%, with steeper slopes existing in the southwest portion of the site (Westwood 2025). An unnamed tributary to the Santa Clara River runs through the site from northeast to southwest.

3.15.1.3 Groundwater

3.15.1.3.1 Groundwater Basin Description

The Project overlies the Antelope Valley Groundwater Basin (DWR Basin No. 6-044), which covers an area of 1,580 square miles (Figure 3.15-4, Groundwater Basins and Water Agency Boundaries) (Dudek 2025a). The California Department of Water Resources (DWR) has designated the Basin as very low priority with regard to enacting the Sustainable Groundwater Management Act of 2014 (DWR 2025). Approximately 90% of the Basin was adjudicated in 2015 and the adjudicated portion is not subject to the requirements of the Sustainable Groundwater Management Act (SGMA), but is instead subject to groundwater pumping allocations under the court adjudication set up to sustainably manage the Basin to reverse groundwater level declines and reduce subsidence (Dudek 2025a). The Project site is located within the remaining 10% of the Basin, which is the non-adjudicated area.

The two (2) primary water-bearing units of the Basin include Holocene[1] and Pleistocene[2] unconsolidated alluvial and lacustrine deposits. These two (2) primary aquifers (upper and lower) are separated by thick, low permeability clay deposits that can reach as thick as 400 feet. The generally unconfined upper aquifer is the primary source of groundwater for the valley. Specific yield for this aquifer ranges from 1% to 30%, and well production is typically moderate to highly productive, with well yields reported to average just under 300 gallons per minute (Dudek 2025a). The lower aquifer is generally confined. A small portion of the Basin that extends southwest into the San Gabriel mountains is composed of older alluvial and lacustrine deposits, as well as Mesozoic[3] and Precambrian[4] igneous and metamorphic rock complexes. The Project is located in this area.

The Basin is generally bound on the north by Fremont Valley Groundwater Basin; on the east by ridges, buttes and low hills forming a drainage divide; on the southwest by the San Andreas fault zone at the base of the San Gabriel mountains; and on the northwest by the Garlock fault zone at the base of the Tehachapi Mountains (DWR 2004).

The total groundwater storage capacity of the Basin is estimated to be around 68,000,000 to 70,000,000 AF (Dudek 2025a). Subsidence from over-extraction has occurred in parts of the Basin, in some areas as much as 6 feet (Dudek 2025a). Groundwater extraction was at its highest in the 1950s, but as land use converted from agricultural to urban and with introduction of SWP water in 1972, groundwater pumping decreased until the mid-1980s, when the area started to experience rapid population growth (Dudek 2025a).

Subsurface flow between the adjudicated and unadjudicated portions of the Basin are considered nominal (Dudek 2025a). There is limited groundwater production data for the Project area, which is located outside of the adjudicated portion of the Basin.

The Basin primarily receives recharge from perennial runoff from the surrounding mountains. Most recharge occurs at the foot of the higher elevation areas by percolation through the head of alluvial fan systems. The Big Rock and Little Rock Creeks in the southern part of the Basin contribute about 80% of runoff into the Basin (DWR 2004). Groundwater levels in the Basin have ranged from an increase of 84 feet to a decrease of 66 feet from the mid-1970s to late 1990s. The largest declines have been observed in the urban areas such as Lancaster and Edwards Air Force Base. These areas have also experienced subsidence because of groundwater pumping (DWR 2004). Depth to groundwater in the vicinity of the Project site has historically ranged from approximately 40 feet belowground surface to upwards of 200 feet below ground surface between 1960 and 2005 (DWR 2025).

While the Project site is located within the jurisdiction of the Los Angeles RWQCB, the Antelope Valley Groundwater Basin is included within the Lahontan Region 6 RWQCB Basin Plan. The Lahontan Basin Plan includes objectives for the Antelope Valley Groundwater Basin, which state that groundwaters shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor in excess of the groundwater objectives described in Chapter 3 of the Basin Plan (Lahontan Region RWQCB 2021). These objectives define the upper concentration or other limit that RWQCB considers protective of beneficial uses. These objectives apply to all groundwaters, rather than only at a wellhead, at a point of consumption, or at point of application of discharge.

1 The Holocene Epoch began about 11,600 years ago and continues to present day.
2 The Pleistocene Epoch began about 2.6 million years ago and lasted until about 12,000 years ago.
3 The Mesozoic Epoch began about 245 million years ago and lasted until about 65 million years ago.
4 The Precambrian Epoch began about 4,600 million years ago and lasted until about 544 million years ago.

3.15.1.3.2 Groundwater Wells

A review of the following databases for information about wells on the Project site was completed as part of the WSA prepared for the proposed Project: SGMA Data Viewer, National Water Information System Mapper, and Groundwater Ambient Monitoring and Assessment Program Groundwater Information System (Dudek 2025a). The location of groundwater wells on and in the vicinity of the Project site is shown in Figure 3.15-5, Groundwater Wells within 0.5 Miles, and a summary of well completion information and historical groundwater level data is provided below in Table 3.15-1.

Table 3.15-1. Groundwater Well Inventory

Site Name	Well Depth (ft)	Land Surface Elevation (ft MSL)	Start Date	End Date	Range of water levels (ft MSL)	Distance from Project Site (Miles)	USGS Site Status
05N012W29R002S	Unknown	2,962	11/1/1965	3/29/1978	2,747.9– 2,964.9	0.11	Inactive
05N012W28F001S	Unknown	3,120	11/30/1965	11/30/1965	2,953.7	0.25	Inactive
05N012W32M001S	131.3	2,835	9/15/1978	3/30/2005	2,710.5–2,797.6	0.89	Inactive
05N012W22K001S	Unknown	3,247	11/30/1965	11/30/1965	2,903.3	1.21	Inactive
04N013W12C003S	115	2,635	12/4/1950	3/15/2022	2,587.8–2,634.8	3.33	Active

Source: USGS 2025b, as cited in Dudek 2025a.
Notes: ft = feet; MSL = mean sea level.

Dudek performed a site reconnaissance on November 18, 2024 and located two (2) existing groundwater wells on the Project site. One (1) well, no longer connected to power, was observed on APN 3056-017-021, one well was observed on APN 3056-019-026, which likely supplies potable water to the adjacent residence (observed well located toward the south-west of the Project site). According to well completion reports for wells drilled in the Project vicinity, wells in the area typically yield between 10 to 20 GPM, with a select few wells that yield up to 50 GPM (Dudek 2025a).

3.15.1.4 Water Quality

3.15.1.4.1 Surface Water Quality

As noted above, the Project site is primarily located in the Kentucky Springs Canyon – Santa Clara River subwatershed, with the western most area of the Project overlapping into the Arrastre Canyon – Santa Clara River subwatershed. The Santa Clara River is the primary natural surface water feature closest to the Project site along with an unnamed drainage that cuts across the site (Figure 3.15-3). According to the U.S. Environmental Protection Agency watershed database, water quality is not monitored in either the Kentucky Springs Canyon or Arrastre Canyon subwatersheds (EPA 2025a). The closest impaired water bodies to the Project site include Palmdale Lake, located approximately 4 miles north of the Project site and Little Rock Reservoir, located approximately 6.5 miles east of the Project site (Figure 3.15-6, Impaired Waterbodies). Palmdale Lake is impaired by pesticides, and Little Rock Reservoir is impaired by mercury, metals, and PCBs (EPA 2025c). Both of these water bodies are located in other watersheds, whereas, downstream of the Project site, water quality of reaches 6 and 7 of the Santa Clara River in the Sand Canyon-Santa Clara River subwatershed (No. 180701020107) are monitored for physical, chemical and biological factors (EPA 2025a). According to the monitoring data, Mint Canyon Creek Reach 1, Santa Clara River Reach 6, and Santa Clara River Reach 7 are found to be impaired (EPA 2025b). Mint Canyon Creek Reach 1 is used for drinking water and found to be impaired by nitrogen and/or phosphorous. Santa Clara River Reach 6 has beneficial uses of aquatic life, recreation, and other and has identified issues with pesticides, salts, and total toxic chemicals (EPA 2025b). Reach 7 of the Santa Clara River has beneficial uses of recreation and identified issues of bacteria and other microbes (EPA 2025b).

3.15.1.4.2 Groundwater Quality

Water quality in the Basin varies but is generally of good quality and found to be suitable for domestic, agricultural, and industrial uses (Dudek 2025a). Water quality impairments in groundwater from wells in the vicinity of the Project site include elevated total dissolved solids and nitrate-nitrogen (Dudek 2025a). High fluoride, boron, nitrates, and arsenic have been reported in some areas of the Basin (Dudek 2025a). Los Angeles County Water District 37 (District 37) annual water quality reports from 2020 to 2023 show maximum nitrate concentrations in groundwater were as high as 8.7 milligrams per liter (mg/L) but have not exceeded the maximum contaminant level of 10 mg/L (LACWD 2025b, as cited in Dudek 2025a). In the adjacent LACWD District No. 40 – Antelope Valley (District 40), the maximum reported nitrate concentrations were lower at 4.2 mg/L. The maximum reported concentration of arsenic in District 37 water in 2023 (the most recent water quality report) was 2.2 parts per billion, much lower than the maximum contaminant level of 10 parts per billion.

Table 3.15-2. Groundwater Quality Data

Site Name	Start Date	End Date	Water Quality Concerns	Max Concentration Measured	Distance from Project Site (Miles)
05N12W28F001S	12/29/1950	3/16/1972	Nitrate	11.5 mg/L	0.25
05N12W28L001S	4/24/1975	3/24/1981	Nitrate, TDS	23.7 mg/L, 1800 mg/L	0.25
05N12W32F003S	3/16/1972	3/14/1989	None	—	0.77
05N12W31H002S	4/21/1971	4/21/1971	None	—	1.25
04N12W05G002S	4/25/1975	3/14/1989	None	—	1.35
04N12W02E002S	9/17/1967	3/14/1989	None	—	1.35
05N12W30K001S	3/30/1953	4/20/1967	Nitrate	12.5 mg/L	1.5
Well 37-01	4/23/1987	11/29/2022	Nitrate	13 mg/L	2.85

Source: SWRCB 2025a, as cited in Dudek 2025a.
Notes: mg/L = milligrams per liter; TDS = total dissolved solids; — = not available.

District 37 blends the pumped groundwater with purchased imported surface water from Antelope Valley–East Kern Water Agency (AVEK). The imported surface water generally has lower nitrate and total dissolved solids concentrations, resulting in higher quality water for consumption.

Little data from the on-site wells are known; however, from a previous site reconnaissance conducted on December 20, 2022, the property owner of the two (2) on-site wells reported no known contaminants (Dudek 2025a).

In addition, Title 22 water quality sampling of the domestic groundwater well located at 1222 Soledad Canyon Road was completed. This well is anticipated to be used for Project operations. On August 22, 2025, Dudek collected a groundwater sample from the well and delivered it to Clinical Laboratory of San Bernardino for analysis of the full California Title 22 list of drinking water constituents. The groundwater sample was analyzed for the full Title 22 analytical suite, including general chemical and physical, microbiological, metals, radiochemistry, volatile and semi-volatile organic compounds, synthetic organic compounds, and asbestos analyses by Clinical Laboratory. Constituents that were detected above laboratory reporting limits were compared against California Title 22 primary maximum contaminant levels for regulated constituents in drinking water and against secondary maximum contaminant levels related to aesthetic aspects of drinking water (i.e., taste, odor, and appearance). None of the constituents detected in the groundwater sample collected from the domestic well at 1222 Soledad Canyon Road exceeded respective primary or secondary maximum contaminant levels. Additional details regarding the water sampling effort and results are included in Appendix 3.15C (Dudek 2025b).

3.15.1.5 Flooding Potential

Flood zones are identified on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) as Special Flood Hazard Areas (SFHAs) and "other areas of flood hazard." An SFHA is defined as the area that would be inundated by a flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance flood is also referred to as the base flood or 100-year flood, and is the national standard used by all federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development. Similarly, the 0.2% annual chance flood is referred to as the 500-year flood. According to FEMA FIRM mapping (Panel 06037C0885G), the Project site does not contain any FEMA Flood Hazard zones (Westwood 2025a) (Figure 3.15-7, FEMA Flood Zones).

The California Department of Water Resources (DWR) has also conducted their own study to identify flood-prone areas within the state. This study, which mapped flood zones and floodplains for the 100-year, 200-year, and 500-year floods, has been created to supplement the studies that have been conducted by FEMA. The 100-year flood zones, referred to as "Flood Awareness Zones," were reviewed as part of the Preliminary Hydrology Study for the Project site and found not to contain any 100-year Flood Awareness Zones (Westwood 2025a).

In addition, the Project site will not be subject to seiche or tsunami (due to the great distance to the ocean or any enclosed or semi-enclosed large body of water).

3.15.2 Impact Analysis

The following sections present the potential effects on water resources from construction, operation, maintenance, and decommissioning of the proposed Project.

3.15.2.1 Methodology

The impact analysis is based on a site-specific hydrology/water quality report, WSA, engineering drawings, and readily available resources provided online. Potential direct and indirect Project impacts related to water resources were evaluated against the California Environmental Quality Act (CEQA) significance criteria and are discussed below. The impact analysis evaluates potential Project impacts during Project construction, operation, and decommissioning.

3.15.2.2 Impact Evaluation Criteria

CEQA Guidelines Appendix G is a screening tool, not a method for setting thresholds of significance. CEQA Guidelines Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to make a determination as to whether a project requires an EIR, a Mitigated Negative Declaration or a Negative Declaration. As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects, but does not provide a means of judging whether they are indeed significant in a given set of circumstances."

The answers to the CEQA Guidelines Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Guidelines Appendix G are instructive. With respect to hydrology and water quality, CEQA Guidelines Appendix G asks, in part, would the Project:

- Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality?
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    a. Result in substantial erosion or siltation on- or off-site;
    b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

c. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; and/or
d. Impede or redirect flood flows;

- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

3.15.2.3 CEQA Appendix G Assessment Criteria

3.15.2.3.1 Would the Project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality?

Construction

Less than Significant. Construction of the Project will have the potential to result in substantial additional sources of polluted runoff that will potentially have short-term impacts on surface water quality through activities such as clearing and grading, stockpiling of soils and materials, concrete pouring, painting, and asphalt surfacing. Typically, BESS and gen-tie line construction includes equipment such as bulldozers, graders, water trucks, rollers, backhoe/trenching machines, excavators, concrete trucks/concrete pumps, cranes, dump trucks, flatbed and low-bed trucks, pickup trucks, small hydraulic cranes, and rough-terrain cranes/forklifts. Pollutants associated with these construction activities that could substantially degrade water quality include soils, debris and other materials generated during clearing, fuels and other fluids associated with the equipment used for construction, paints, concrete slurries, asphalt, and other hazardous materials.

Non-stormwater discharges during construction will include periodic application of water for dust control. Since the practice of dust control is necessary during windy and dry periods to prevent wind erosion and dust plumes, water will be applied in sufficient quantities to wet the soil, but not so excessively as to produce runoff from the construction site. Water applied for dust control will either quickly evaporate or locally infiltrate into shallow surface soils. This means that water applied for dust control is unlikely to appreciably affect groundwater or surface water features and thus will not cause or contribute to exceedances of water quality objectives contained in the Basin Plan.

Pollutants associated with construction could degrade water quality if they are mobilized by stormwater or non-stormwater flows into surface waters. Sediment is often the most common pollutant associated with construction sites because of the associated earth-moving activities and areas of exposed soil. Sediment that is washed off site can result in turbidity in surface waters, which can impact aquatic species. In addition, when sediment is deposited into receiving waters it can smother species, alter the substrate and habitat, and alter the drainage course. Hydrocarbons such as fuels, asphalt materials, oils, and hazardous materials such as paints and concrete slurries discharged from construction sites could also impact aquatic plants and animals downstream. Debris and trash could be washed into existing storm drainage channels to downstream surface waters and could impact wildlife and aesthetic value.

Stormwater runoff from the Project site ultimately flows to the Santa Clara River, which is currently listed on the 303(d) list of impaired water bodies for bacteria and other microbes (Reach 7) and pesticides, salts (i.e., chloride), and total toxic chemicals (Reach 6) (EPA 2025b). The closest portion of the Project site to the impaired reach of the

Santa Clara River is approximately 13 miles southwest. No TMDLs have been established for these pollutants for these nearby reaches of Santa Clara River; however, Reach 3 further downstream has a TMDL for Chloride with intentions of establishing TMDLs in Reaches 5 and 6 in the future. Other nearby impaired water bodies are shown in Figure 3.15-6.

However, under the NPDES CGP permit program, SWPPPs are required to be prepared and the best management practices (BMPs) identified in the SWPPPs implemented for all construction sites greater than 1 acre to reduce the potential for off-site discharges of pollutants in surface water. In compliance with the CGP, the Project will implement construction BMPs that minimize disturbance, protect slopes, reduce erosion, and limit or prevent various pollutants from entering surface water runoff.

The Project's grading plans will include details on the location and type of BMPs necessary to reduce the potential for Project-induced erosion and scour, including temporary BMPs to be implemented during construction (per the statewide CGP), and permanent BMPs to be installed and maintained (per the County BMP Design Manual). The exact location and type of temporary BMPs to be installed during construction depend on site-specific conditions, construction schedule, and proposed activities, all of which are outlined in the construction SWPPP that will be prepared for the Project. Typical temporary BMPs used for similar projects include energy dissipaters, silt fences, fiber rolls, gravel/sand bags, construction road stabilization, and stabilized construction entrances. As the Project-specific SWPPP is prepared, the location, type, and number of specific BMPs may be refined based on the final designs to most effectively achieve the objective of reducing turbidity and other pollutant loads in stormwater runoff. The provisions of the CGP ensure that site-specific conditions are taken into consideration when developing construction SWPPPs, that personnel developing and implementing construction SWPPPs are qualified, and that BMPs are adequately monitored and maintained.

As discussed in the environmental setting, the Project is unlikely to encounter shallow groundwater, and dewatering is not expected to be required. The Geotechnical Engineering Report conducted for the Project, dated May 14, 2025 states that "According to data collected from the Water Data Library for the State of California from a nearby well, located approximately 0.5 miles north of the site in State Well Number 05N12W28F001S, historic groundwater levels around November 30, 1965, were recorded at greater than 100 feet bgs.1 Recent publicly available data (within the last 20 years) is not available within a 1-mile radius from the site boundary. As such, groundwater is not anticipated to occur within the depth of excavations or foundation installations at the site" (see Appendix 3.4A, page 7).

Because the actual presence or absence of shallow groundwater is dependent on local geologic and climatic conditions it is possible that locally perched groundwater could be encountered. Therefore, it is possible that construction-related dewatering discharges could be required. Nonetheless, any dewatering activity that would discharge to the land surface would need to comply with the provisions of General WDRs and ensure compliance with the Basin Plan. If required, a Notice of Intent to comply with General WDRs would be submitted to the Los Angeles RWQCB, in addition to a discharge monitoring plan, and any additional information requested by the Los Angeles RWQCB. RWQCB staff would then determine whether coverage under the General WDRs is appropriate and, if so, would notify the applicant by letter of coverage. This permit process is the mechanism by which the Los Angeles RWQCB would ensure that discharges of groundwater would not violate Basin Plan standards. If contaminated groundwater is unexpectedly discovered during discharge monitoring, the Los Angeles RWQCB will be notified. Groundwater would be passed through a treatment unit prior to being discharged to land or surface water.

Operations

Less than Significant. Once constructed, the proposed BESS facility will result in a substantial increase in impervious surfaces at the site, currently entirely pervious, which could potentially result in discharge of polluted stormwater runoff. Potential sources of polluted runoff include incidental spills of petroleum products and hazardous substances from maintenance vehicles and equipment.

In compliance with the Los Angeles County BMP Design Manual, private development projects are required to implement permanent water quality BMP measures to ensure that pollutant discharges and runoff flows from development are reduced to the maximum extent practicable, and receiving water quality objectives are not violated throughout the life of the Project. In compliance with the County BMP Design Manual, a Preliminary Stormwater Management Report has been developed for the proposed Project (Westwood 2025b), to provide the calculations on how the proposed stormwater facilities will comply with the County stormwater management requirements. The proposed substation and BESS will be constructed on a raised pad and runoff from this area will drain southwest into catch basins located across the site. A storm sewer network will route water from the catch basins into underground infiltration chambers and infiltration trenches. Infiltration trenches along the southern end of each drainage area connected to the chamber system will aid in meeting the infiltration volume requirement.

Infiltration facilities are proposed to provide rate control and treatment of stormwater runoff to meet the requirements of the State of California and Los Angeles County. An infiltration rate of 0.57 inches per hour was used in the analysis of the site based on the percolation testing provided by Terracon. The storage volume provided within the infiltration facilities will infiltrate into the soil for treatment and provide a reduction in runoff rate and volume.

In accordance with County requirements, because the Project discharges to a natural drainage system and is tributary to the Santa Clara River, stormwater controls are required to be implemented to prevent adverse effects from the changes in drainage patterns (Westwood 2025b). The Project is required to fully mitigate off-site drainage impacts caused by the Project for the LID, 2-, 5-, 10-, 25-, and 50-year storm events per the Los Angeles County Low Impact Development Standards Manual. The infiltration facilities will be sized to store and infiltrate the difference in runoff between existing and proposed conditions up to the 50-year 24-hour storm event for the two (2) drainage areas on site. According to the Preliminary Stormwater Management Report, the total volume that will be required to achieve runoff difference will be 13.16 acre-feet (Westwood 2025b).

The County also requires the Project to retain 100% of the Stormwater Quality Design Volume (SWQDv) on site. According to calculations in the Preliminary Stormwater Management Report, the total volume required to provide on-site retainment will also be 13.16 acre-feet (Westwood 2025b). Other water quality BMPs that will be implemented on site as part of the WQMP would include: maximizing natural infiltration capacity; preserving existing drainage patterns and time of concentration; protection of existing vegetation and use of a vegetative buffer surrounding the impervious improvements; revegetation of disturbed areas; avoidance of soil stockpiling; ongoing maintenance of detention basins chambers; water efficient landscaping; use of culverts to manage upstream off-site stormwater runoff throughout the Project site; and slope and channel buffers that are maintained to decrease potential for erosion (Sargent & Lundy 2025).

By implementing the pollution control measures described in the Preliminary Stormwater Management Report, as well as the appropriate monitoring program included there within, the proposed Project will limit the possibility of contributing contaminants that might exceed local water quality objectives or contribute to the degradation of beneficial uses of Santa Clara River, in compliance with the County requirements and the Regional MS4 Permit.

As a result, the proposed Project will not violate applicable water quality objectives or waste discharge requirements, and will comply with all federal, state, and local laws addressing water quality in stormwater and non-stormwater discharges.

Potential construction and operations impacts will be **less than significant.**

3.15.2.3.2 Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

Less than Significant. Water supply for construction will be sourced from off-site water delivered by truck and water for O&M will be sourced from an on-site well(s). The project is anticipated to require approximately 55 AF for construction over an approximate 20-month period (assumed that BESS facility and gen-tie will be constructed simultaneously), and approximately 1.5 AFY for operation (Dudek 2025a). Based on this, the total Project water demand is estimated to be approximately 82 AF over the 20-year, SB 610 planning horizon and 170 AF over the life of the Project (43 years) (Appendix 3.15B; Dudek 2025a).

The Project site is located within AVEK's service area, which is a wholesale water supplier of SWP water to the greater Antelope Valley region that provides potable water sourced from either State Water Project (SWP) water treated at AVEK water treatment plants, or groundwater that is either recovered from recharge in previous years or part of AVEK's adjudicated groundwater production rights. As a water wholesaler, AVEK does not typically sell to individuals and will not be available as a direct source of water for the Project, rather, water provided by AVEK will likely need to be purchased through one of the retail water agencies that AVEK serves.

PWD sources raw water from Littlerock Dam and the SWP, with the remaining water (approximately 33%) pumped from local groundwater wells (Dudek 2025a). According to the WSA prepared for the proposed Project, the groundwater level trends in wells near the Project site have been stable indicating that there is sufficient groundwater available to satisfy Project water demands and the demands of all other groundwater users during normal, single dry, and multiple dry years over a 20-year projection and the life of the Project (43 years) (Dudek 2025a). Similarly, based on review of AVEK's projected water supplies and demands, AVEK/retail water agencies in the region, including PWD, have sufficient supplies to serve the Project during normal, single dry, and multiple dry years over a 20-year projection and the life of the Project. The majority of Project water use will be of short duration for construction and decommissioning and water use for Project O&M will be *de minimis*. The amortized demand of the Project will be a nominal 4 AFY so the additional demand on groundwater resources or AVEK's/retail water agencies' water supplies will be negligible (Dudek 2025a).

Furthermore, as noted above, the proposed Project improvements will be required to implement drainage control features that will be sized to store and infiltrate the difference in runoff between existing and proposed conditions up to the 50-year 24-hour storm event for the two (2) drainage areas on site (Appendix 3.15A). Therefore, even though the Project will introduce new impervious surfaces, the adherence to County drainage requirements will provide onsite infiltration of stormwater runoff such that the potential to substantially decrease groundwater recharge will be minimized.

Therefore, the water supply needs for the Project will be sourced in part from AVEK through a water retail provider such as PWD in a mostly adjudicated basin that is managed by court order to ensure that sustainability goals are maintained as well as through use of the on-site well(s). Local groundwater level trends are stable and determined to have sufficient ability to supply the Project (Dudek 2025a). In addition, groundwater recharge will continue at the site with the construction and operation of infiltration facilities on site. As a result, the potential impacts to groundwater supplies for construction and operations will be **less than significant**.

3.15.2.3.3 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

A. Result in substantial erosion or siltation on- or off-site;

B. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

C. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; and/or

D. Impede or redirect flood flows?

Less than Significant. Construction of the Project will alter drainage patterns at the site by introducing new impervious surfaces to the site. As mentioned above in Section 3.15.2.3.1, part of adherence to County requirements requires analysis of existing and proposed stormwater conditions that will occur due to implementation of the Project. To analyze the potential impacts of the proposed Project in relation to the hydrology and drainage patterns threshold, watershed hydrologic runoff calculations were performed in accordance with County requirements. Existing and proposed runoff were completed for the Project using modeling software consistent with the County's Low Impact Development Standards Manual. As noted above, the Project is required to capture and infiltrate the difference in runoff between existing and proposed conditions up to the 50-year 24-hour storm event for the two (2) drainage areas on site.

The proposed grading and hydraulic structures will be designed to route off-site runoff through and around the site, maintain overall existing drainage patterns, and route on-site runoff to the proposed infiltration facilities. Water quality treatment and hydromodification requirements will be met through the use of infiltration chambers and trenches. Upstream off-site runoff will be diverted both around and through the Project site using culverts. The culverts would be required to be sized for the 100-year, 24-hour rain event. Large outfall velocities for the culverts routed through and around the BESS and substation site will be minimized using energy dissipators and riprap (Sargent & Lundy 2025).

As a result, the proposed Project will not substantially alter the existing drainage pattern of the site or increase impervious surfaces in a manner that will result in substantial erosion or siltation on or off site; substantially increase the rate or amount of runoff that will result in flooding on or off site; or contribute runoff that will exceed the capacity of existing or planned stormwater drainage systems. (See Section 3.15.2.3.1 regarding potentially polluted runoff.). As a result, potential stormwater drainage impacts from construction and operations will be less than significant.

The BESS site is not located within a 100-year floodplain as mapped by FEMA and not within a Flood Awareness Zone as determined by the Department of Water Resources (Westwood 2025a). As shown in Figure 3.15-7, some portions of the proposed gen-tie line will be located within a 100-year flood zone; however, these tower structures have a relatively minimal aboveground profile and will have negligible effects related to impeding or redirecting flood flows. Stormwater runoff from the gen-tie pad areas will drain to infiltration ponds located at each pad. The new roads leading to the gen-tie pads would be gravel-surfaced and drain through perforated underdrains to the infiltration basin located at each of the gen-tie pads. Therefore, the Project will not substantially impede or redirect 100-year flood flows. In an analysis of flood conditions, the 100-year analysis of the proposed conditions shows similar flooding depth patterns to those of the existing conditions, but with slight variations in flood depths around the unnamed flow path in the central portion of the site (Westwood 2025a). However, the proposed drainage system will be constructed such that stormwater runoff will be controlled and contained, resulting in minimal stormwater runoff flowing off site. The majority of stormwater runoff will flow toward the infiltration facilities. As a result, construction and operations of proposed improvements will not substantively impede or redirect flood flow, resulting in **less than significant** impacts.

3.15.2.3.4 In flood hazard, tsunami, or seiche zones, would the Project risk release of pollutants due to Project inundation?

Less than Significant. As noted above, the Project site is not located within a 100-year flood hazard area and is located well inland such that it is not susceptible to tsunami hazards. Seiche hazard zones are limited to areas immediately adjacent to enclosed or semi-enclosed bodies of water, and there are no such features in the vicinity of the site. Furthermore, O&M activities associated with a BESS facility will require limited storage of hazardous materials and those that will be on site will be stored in designated, secured areas with secondary containment. A Hazardous Materials Business Plan for site operations will ensure that all handling, storage, and disposal of hazardous materials associated with Project operation will be appropriately secured and conducted in accordance with all regulatory requirements. As such, the potential construction and operations impacts related to risk of release of pollutants due to Project inundation will be **less than significant.**

3.15.2.3.5 Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant. As noted above, the proposed Project will adhere to all applicable drainage control requirements and will not include any other water discharge that is not already discussed in Section 3.15.2.3.1. Adherence to these stormwater quality control requirements are consistent with RWQCB Basin Plan policies and the construction and operation of the Project will not conflict or obstruct implementation of the Basin Plan and the potential construction and operations impacts will be less than significant.

Water supply for the Project will be provided by an on-site well(s), and/or delivery of off-site water via truck deliveries provided by AVEK/retail water agencies, such as PWD, which sources surface water from the SWP and from groundwater supply wells that are located in the Antelope Valley Groundwater Basin. The majority of the Basin is adjudicated and not required to develop a Groundwater Sustainability Plan pursuant to SGMA. The non-adjudicated portion of the Basin is also not required to develop a Groundwater Sustainability Plan pursuant to SGMA because DWR has designated the Basin as very low priority. AVEK, a public water supplier within whose service area the Project lies, concluded in its more recent Urban Water Management Plan that sufficient supplies exist to serve future water demands of development intensities consistent with the proposed Project, if necessary. As a result, there is no applicable Groundwater Sustainability Plan. Therefore, the Project will not conflict or obstruct implementation of a sustainable groundwater management plan and the potential from construction and operations impacts will be **less than significant.**

3.15.3 Cumulative Effects

As defined by Public Resources Code Section 21083; Title 14 CCR, Sections 15064(h), 15605(c), 15130, and 15355, a cumulative effect refers to a proposed project's incremental effect paired with closely related past, present, and reasonably foreseeable future projects whose impacts compound or increase the incremental effect of the proposed Project.

The geographic scope of cumulative effects on hydrology and water quality differs somewhat depending on the issue being addressed. The geographic scope for surface water quality and hydrology is typically watershed-based, whereby projects contributing flow to the same water bodies as the proposed Project will be considered. For groundwater impacts, the geographic scope of cumulative effects will be the groundwater aquifer affected by the proposed Project. As discussed above, the potential Project impacts to surface water and groundwater were determined to be less than significant.

Surface Water

Not cumulatively considerable. In the absence of regulatory controls, the primary impact of the proposed Project in the cumulative scenario will be increases in the area covered by impervious surfaces, development of access driveways and utility corridors, and the release of non-point-source pollutants (e.g., motor fuels, trash, sediment). The proposed Project, along with other cumulative projects occurring within the Santa Clara River Watershed will be required to comply with applicable federal, state, and local water quality regulations. The proposed Project, along with other projects of greater than 1 acre (which includes most of the projects in the cumulative scenario), will be required to obtain coverage under the NPDES CGP, which requires project proponents to identify and implement stormwater BMPs that effectively control erosion and sedimentation and other construction-related pollutants. Further, nearly all projects identified in the cumulative scenario will meet the definition of "new development and redevelopment projects" under the Los Angeles County MS4 Permit. Such projects are required to implement site design; source control; and, in some cases, treatment control BMPs to control the volume, rate, and water quality of stormwater runoff from the project during long-term operations. This is implemented locally by the County by requiring new development projects to submit and implement a Stormwater Quality Management Plan. These drainage control regulatory requirements are watershed-based, and therefore, water quality impacts will not be cumulatively considerable.

Groundwater Resources

Not cumulatively considerable. The proposed BESS site is located in the Antelope Valley Groundwater Basin, which is considered by the California Department of Water Resources to be a low priority basin due to the adjudication of the Basin. The adjudication provides a framework to sustainably manage the basin to reverse groundwater level declines and reduce subsidence. The Basin has a safe yield of 82,000 acre-feet per year, which is the amount considered to provide a sustainable amount of extraction without causing adverse effects. Total production for 2023 was 64,517.97 acre-feet, well below the safe yield. Therefore, because a Groundwater Sustainability Plan is not required for the Basin and the court order is already providing a mandated sustainability framework for the Basin, there is no cumulative impact to groundwater resources and the Project cannot incrementally contribute to a cumulative impact. As a result, groundwater impacts will not be cumulatively considerable.

Hydrology and Drainage Pattern

Not cumulatively considerable. In the absence of regulatory controls, the primary impact of the proposed Project in the cumulative scenario will be alteration of the natural hydrology of the region through increases in the area covered by impervious surfaces. The typical impact of substantial increases in impervious surfaces is that peak flows within the watershed's drainages are greater in magnitude, shorter in duration, and more responsive to storm events, since a greater portion of precipitation is carried by surface runoff rather than percolated into the soil. New roads and/or transmission line corridors can often block or redirect stormwater flows if improperly designed. These impacts are undesirable with respect to management of stormwater flow capacities and flood hazards.

However, based on the Preliminary Stormwater Management Report (Westwood 2025b), increased Project stormwater runoff rates resulting from increased impervious surfaces will be reduced to less than or equal to existing conditions through construction of infiltration facilities. Cumulative project development within the Santa Clara River Watershed will similarly be required to reduce stormwater runoff rates in accordance with regulatory requirements. As a result, the additional impervious surfaces associated with cumulative development will have minimal to no hydrologic impact on receiving waters in the watershed. Therefore, hydrologic impacts will not be cumulatively considerable.

Flood Hazards

Not cumulatively considerable. The proposed BESS site is not located within an identified flood hazard area (i.e., 100-year FEMA flood zone); however, portions of the proposed gen-tie line are located within a flood hazard area. For the proposed Project, the 100-year analysis of the proposed conditions shows similar flooding patterns to those of the existing conditions, but with slight variations in flood depths around the unnamed flow path in the central portion of the BESS site (Westwood 2025b). In accordance with local stormwater drainage control requirements, cumulative projects, like what is discussed above for the proposed Project, are required to provide on-site detainment of any increases in stormwater runoff associated with any increases in impervious surfaces. Further, cumulative project development will also be subject to CEQA, which mandates that development within a floodplain does not substantially impede or redirect flood flows and cause off-site flood-related impacts. As a result, the proposed Project will not combine to contribute to cumulatively considerable flood-related impacts.

Water Planning

Not cumulatively considerable. The Project site overlies the Antelope Valley Groundwater Basin, an adjudicated basin and not subject to a Groundwater Sustainability Plan per SGMA. As noted above, the proposed Project is not expected to violate any water quality standards and measures will be taken both during construction and throughout operation to prevent potential contaminants from leaving the site by runoff. All cumulative projects will equally be required to comply with these regulations and standards, which are consistent with Basin Plan policies and thus, through compliance with RWQCB requirements and a NPDES permit, implementation of a SWPPP, the Project will not cumulatively conflict with or obstruct implementation of the Los Angeles RWQCB Basin Plan.

3.15.4 Mitigation Measures

No mitigation measures beyond the Project design's avoidance and minimization measures are required as no significant impacts will occur.

3.15.5 Laws, Ordinances, Regulations, and Standards

Federal, state, and local LORS applicable to water resources are discussed in this subsection and are summarized in Table 3.15-3.

Table 3.15-3. LORS Applicable to Water Resources

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
Federal	Clean Water Act	Requires adherence to NPDES stormwater and water discharge requirements.	**Yes.** Project will include preparation and implementation of a SWPPP and construction BMPs during construction activities to prevent off-site transport of pollutants. For operation, project will design and construct stormwater treatment controls to protect water quality of receiving waters.	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.2.3.5 Section 3.15.5.1
Federal	Antidegradation Policy	Requires states to develop statewide antidegradation policies and identify methods for implementing them.	**Yes.** Project will implement construction and post-construction BMPs to prevent off-site transport of pollutants.	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.5.1
Federal	Safe Drinking Water Act	The act authorizes EPA to set national health-based standards for drinking water.	**Yes.** Treatment controls of stormwater (e.g., on-site infiltration) will aid in the protection of receiving waters and groundwater to ensure that water resources used for drinking water are protected.	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.5.1
Federal	National Flood Insurance Act	Established the National Flood Insurance Program to provide flood insurance within communities willing to adopt floodplain management programs to mitigate future flood losses.	**Yes.** Stormwater drainage controls (i.e., infiltration facilities) will ensure that project peak storm runoff does not exceed stormwater volumes under existing conditions.	Section 3.15.2.3.4 Section 3.15.5.1
Federal	Executive Order 11988	FEMA requires local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that	**Yes.** Stormwater drainage controls (i.e., infiltration facilities) will ensure that project peak storm runoff does not exceed stormwater volumes under existing conditions.	Section 3.15.2.3.4 Section 3.15.5.1

Table 3.15-3. LORS Applicable to Water Resources

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
		specifies minimum requirements for any construction within the 100-year floodplain.		
State	Porter-Cologne Water Quality Control Act	The basic water quality control law establishes the legal and regulatory framework for California's water quality control to implement the provisions of the CWA.	**Yes.** Stormwater drainage controls (i.e., infiltration facilities) will provide post-construction treatment of stormwater runoff and prevent off-site transport of pollutants. In addition, the Project is expected to require a waste discharge requirements (WDR) from RWQCB. ~~A WDR application is included as Appendix 3.2E of this application.~~	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.5.2
State	California Water Code	Establishes districts and local agencies with specific statutory provisions to manage surface water and authority to exercise some forms of groundwater management.	**Yes.** Stormwater drainage controls (i.e., infiltration facilities) will provide post-construction treatment of stormwater runoff and prevent off-site transport of pollutants.	Section 3.15.2.3.1 Section 3.15.2.3.2 Section 3.15.2.3.3 Section 3.15.5.2
State	California Toxics Rule	Establishes water quality criteria for certain toxic substances to be applied to waters in the state.	**Yes.** Stormwater drainage controls (i.e., post-construction treatment controls) will ensure that water quality of receiving waters is protected.	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.5.2
State	Sustainable Groundwater Management Act	SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge.	**Yes.** Project is located in Antelope Valley Groundwater Basin, which is not subject to SGMA due to its adjudication.	Section 3.15.2.3.2 Section 3.15.2.3.5 Section 3.15.5.2
Local	Municipal NPDES Permit	This permit also serves as an NPDES permit under the federal CWA, as well as waste discharge	**Yes.** Project design will include post-construction treatment controls to protect water quality.	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.2.3.5

Table 3.15-3. LORS Applicable to Water Resources

Jurisdiction	LORS	Applicability	Project Conformity	Opt-In Application Reference
		requirements under California law.		Section 3.15.5.3
Local	LA County LID Manual	Also known as the Los Angeles Water Quality Ordinance, the manual provides standards to comply with the requirements of the NPDES MS4 Permit for stormwater and non-stormwater discharges.	**Yes.** The Project's stormwater management features will be designed consistent with the County's manual to ensure consistency with the MS4 Permit.	Section 3.15.2.3.1 Section 3.15.2.3.3 Section 3.15.2.3.5 Section 3.15.5.3

3.15.5.1 Federal LORS

Clean Water Act

The CWA was first introduced in 1948 as the Water Pollution Control Act. The CWA authorizes federal, state, and local entities to cooperatively create comprehensive programs for eliminating or reducing the pollution of state waters and tributaries. The primary goals of the CWA are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. As such, the CWA forms the basic national framework for the management of water quality and the control of pollutant discharges. The CWA also sets forth a number of objectives in order to achieve the abovementioned goals. These objectives include regulating pollutant and toxic pollutant discharges; providing for water quality that protects and fosters the propagation of fish, shellfish, and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of non-point sources of pollution.

Since its introduction, major amendments to the CWA have been enacted (e.g., 1961, 1966, 1970, 1972, 1977, and 1987). Amendments enacted in 1970 created the U.S. EPA, while amendments enacted in 1972 deemed the discharge of pollutants into waters of the United States from any point source unlawful unless authorized by an EPA National Pollutant Discharge Elimination System (NPDES) permit. Amendments enacted in 1977 mandated development of a Best Management Practices Program at the state level and provided the Water Pollution Control Act with the common name of "Clean Water Act," which is universally used today. Amendments enacted in 1987 required EPA to create specific requirements for discharges.

In response to the 1987 amendments to the CWA and as part of Phase I of its NPDES permit program, EPA began requiring NPDES permits for (1) municipal separate storm sewer systems (MS4s) generally serving, or located in, incorporated cities with 100,000 or more people (referred to as municipal permits); (2) 11 specific categories of industrial activity (including landfills); and (3) construction activity that disturbs 5 acres or more of land. Phase II of EPA's NPDES permit program, which went into effect in early 2003, extended the requirements for NPDES permits to (1) numerous small MS4s, (2) construction sites of 1 to 5 acres, and (3) industrial facilities owned or operated by small MS4s. The NPDES permit program is typically administered by individual authorized states.

In 2008, EPA published draft effluent limitation guidelines for the construction and development industry. On June 27, 2016, EPA finalized its 2016 Effluent Guidelines Program Plan.

In California, the NPDES stormwater permitting program is administered by the State Water Resources Control Board (SWRCB), which was created by the legislature in 1967. The joint authority of water distribution and water quality protection allows SWRCB to provide protection for the state's waters through its nine (9) RWQCBs. The RWQCBs develop and enforce water quality objectives and implement plans that will best protect California's waters, acknowledging areas of different climate, topography, geology, and hydrology. The RWQCBs develop basin plans for their hydrologic areas, issue waste discharge requirements, enforce action against stormwater discharge violators, and monitor water quality.

Section 303 of the Clean Water Act (Beneficial Use and Water Quality Objectives)

The Los Angeles RWQCB is responsible for the protection of the beneficial uses of waters within the Project area in the County. The Los Angeles RWQCB uses its planning, permitting, and enforcement authority to meet its responsibilities adopted in its Basin Plan (Los Angeles RWQCB 2014) to implement plans, policies, and provisions for water quality management.

In accordance with state policy for water quality control, the Los Angeles RWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. Under CWA Section 303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The Los Angeles RWQCB has developed TMDLs for select reaches of water bodies.

Section 401 of the Clean Water Act (Water Quality Certification)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., a U.S. Army Corps of Engineers [USACE] Section 404 permit) obtain certification from the state, ensuring that discharge to waters of the United States would comply with provisions of the CWA and with state water quality standards. For example, an applicant for a permit under Section 404 of the CWA must also obtain water quality certification per Section 401 of the CWA. Section 404 of the CWA requires a permit from USACE prior to discharging dredged or fill material into waters of the United States, with exceptions. For the Project area, the Los Angeles RWQCB must provide the water quality certification required under Section 401 of the CWA in order to minimize or eliminate the potential water quality impacts associated with the action(s) requiring a federal permit.

Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System)

The NPDES permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States (33 USC 1342). In the State of California, EPA has authorized SWRCB permitting authority to implement the NPDES program.

Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres (small construction activity). The regulations also require that stormwater discharges from small MS4s be regulated by an NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit), Order No. 99-08-DWQ. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which describes BMPs the discharger would use to protect stormwater runoff. The SWPPP must contain a visual monitoring program, a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs, and a sediment-monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. On September 8, 2022, SWRCB issued a new Construction General Permit (Order No. 2022-0057-DWQ, NPDES No. CAS000002), which became effective September 1, 2023.

Section 404 of the Clean Water Act

Section 404 of the CWA established a permitting program to regulate the discharge of dredged or filled material into waters of the United States, which include wetlands adjacent to national waters (33 USC 1344). This permitting program is administered by USACE and enforced by EPA.

The Project will include preparation and implementation of a SWPPP and construction BMPs during construction activities to prevent offsite transport of pollutants. For operation, Project will design and construct stormwater treatment controls to protect water quality of receiving waters.

Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR 131.12) requires states to develop statewide antidegradation policies and identify methods for implementing them. Pursuant to the federal regulation, state antidegradation policies and implementation methods shall, at a minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

The Project will implement construction and post-construction BMPs to prevent offsite transport of pollutants.

Safe Drinking Water Act

Congress passed the Safe Drinking Water Act in 1974 to protect public health by regulating the nation’s public drinking water supply. The act authorizes EPA to set national health-based standards for drinking water to protect against both naturally occurring and human-made contaminants that may be found in drinking water.

Per Section 1424(e) of the Safe Drinking Water Act, EPA established the Sole Source Aquifer Program in 1977 to help prevent contamination of groundwater from federally funded projects. The Sole Source Aquifer Program allows for EPA environmental review of any project that is financially assisted by federal grants or federal loan guarantees to determine whether such projects would have the potential to contaminate a sole source aquifer. The Wellhead Protection Program was developed as a part of the Ground Water Protection Strategy for States and Tribes under the 1986 Amendments to the Safe Drinking Water Act. The Wellhead Protection Program includes delineation of Wellhead Protection Program areas, detection of possible contamination, remediation and monitoring of contamination, contamination prevention, and public education and participation. In March 2021, EPA made a determination to issue drinking water regulations for perfluorooctanoic acid (PFOA) and per- and polyfluoroalkyl substances (PFAS) and as part of that process issued a PFAS Strategic Roadmap in October 2021. This roadmap states that EPA will issue drinking water regulations for PFAS under an accelerated time frame.

The Project's treatment controls of stormwater (e.g., on-site infiltration) will aid in the protection of receiving waters and groundwater to ensure that water resources used for drinking water are protected.

National Flood Insurance Act

The National Flood Insurance Act of 1968 established the National Flood Insurance Program to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The act also required the identification of all floodplain areas within the United States and the establishment of flood-risk zones within those areas. FEMA is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing FIRMs that delineate the areas of known special flood hazards and their risk applicable to the community. The program encourages the adoption and enforcement by local communities of floodplain management ordinances that reduce flood risks. In support of the program, FEMA identifies flood hazard areas throughout the United States on FEMA flood hazard boundary maps.

The Project's stormwater drainage controls (i.e., infiltration facilities) will ensure that Project peak storm runoff does not exceed stormwater volumes under existing conditions.

Executive Order 11988

Under Executive Order 11988 – Floodplain Management, the FEMA is responsible for management of floodplain areas defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a 1% or greater chance of flooding in any given year (the 100-year floodplain). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. Executive Order 11988 addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to avoid incompatible floodplain development, be consistent with the standards and criteria of the National Flood Insurance Program, and restore and preserve natural and beneficial floodplain values.

The Project's stormwater drainage controls (i.e., infiltration facilities) will ensure that Project peak storm runoff does not exceed stormwater volumes under existing conditions.

3.15.5.2 State LORS

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act of 1967 (California Water Code Section 13000 et seq.) is the basic water quality control law for California. The act established the legal and regulatory framework for California's water quality control. The California Water Code authorizes SWRCB to implement the provisions of the CWA, including the authority to regulate waste disposal and require cleanup of discharges of hazardous materials and other pollutants.

As discussed previously, the State of California is divided into nine (9) RWQCBs, governing the implementation and enforcement of the California Water Code and the CWA. The Project site is located within Region 4, also known as the Los Angeles Region. Each RWQCB is required to formulate and adopt a Basin Plan for its region. The Los Angeles RWQCB Basin Plan is a comprehensive document that reports beneficial uses for surface and groundwaters, defines narrative and numeric parameters to protect water quality, and describes implementation programs to protect waters throughout the region. This Basin Plan must adhere to the policies set forth in the California Water Code and established by SWRCB. Each RWQCB is also given authority to include within its Basin Plan water discharge prohibitions applicable to particular conditions, areas, or types of waste. The original 1975 Basin Plan for the Los Angeles Region has been amended over time and is reviewed and updated as necessary with a triennial review that occurs on an ongoing basis (Los Angeles RWQCB 2014). While within the jurisdiction of the Los Angeles Region 4 RWQCB, the Project site is underlain by the Antelope Valley Groundwater Basin, which is under the jurisdiction of the Lahontan Region 6 RWQCB.

The Project's stormwater drainage controls (i.e., infiltration facilities) will provide post-construction treatment of stormwater runoff and prevent off-site transport of pollutants.

In addition, pursuant to provisions of the Porter–Cologne Water Quality Control Act (Porter–Cologne Act), the RWQCBs regulate discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code Section 13260[a]). The State Water Resources Control Board defines a water of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]). All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, "under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation" (SWRCB 2021). If a CWA Section 404 permit is not required for a project, the RWQCB may still require a permit (waste discharge requirements) for impacts to waters of the state under the Porter–Cologne Act.

The Project is expected to require a WDR from RWQCB. ~~A completed WDR application is included as Appendix 3.2E of this application.~~

National Pollutant Discharge Elimination System Industrial General Permit

The Industrial General Permit (State Board Order WQ 2014-0057-DWQ, as amended by Order WQ 2015-0122-DWQ and Order WQ 2018-0028-DWQ) regulates industrial stormwater discharges and authorized non-stormwater discharges from industrial facilities in California. The Industrial General Permit is called a general permit because many industrial facilities are covered by the same permit, but comply with its requirements at their individual industrial facilities. The State Water Resources Control Board and ~~Regional Water Quality Control Boards~~RWQCBs (collectively, the Water Boards) implement and enforce the Industrial General Permit. The stormwater regulations require a broad range of industrial facilities to comply with the Industrial General Permit. They include manufacturing facilities, mining operations, disposal sites, recycling yards, transportation facilities, and other (SWRCB 2025b). Based on a review of Attachment A of the Industrial Storm Water General Permit (IGP), which contains a complete list of required facilities, the Project is not subject to an IGP.

California Water Code

The California Water Code includes 22 kinds of districts or local agencies with specific statutory provisions to manage surface water. Many of these agencies have statutory authority to exercise some forms of groundwater management. For example, a water replenishment district (California Water Code Section 60000 et seq.) is authorized to establish groundwater replenishment programs and collect fees for that service, while a water conservation district (California Water Code Section 75500 et seq.) can levy groundwater extraction fees. Through special acts of the legislature, 13 local agencies have been granted greater authority to manage groundwater. Most of these agencies, formed since 1980, have the authority to limit export and even control some in-basin extraction upon evidence of overdraft or the threat of an overdraft condition. These agencies can also generally levy fees for groundwater management activities and for water supply replenishment.

The Project's stormwater drainage controls (i.e., infiltration facilities) will provide post-construction treatment of stormwater runoff and prevent off-site transport of pollutants.

California Toxics Rule

In 2000, EPA promulgated the California Toxics Rule, which establishes water quality criteria for certain toxic substances to be applied to waters in the state. In 1994, a California state court revoked the state's water quality control plans, which contained numeric criteria for water quality. This was in direct violation of the CWA and required EPA action. EPA then implemented the California Toxics Rule. EPA promulgated this rule based on Section 303(c)(2)(B) of the CWA, which dictates that states must adopt numeric criteria in order to protect human health and the environment. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by the RWQCBs as having beneficial uses protective of aquatic life or human health.

The Project's stormwater drainage controls (i.e., post-construction treatment controls) will ensure that water quality of receiving waters is protected.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Brown signed into law a three-bill legislative package—Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319—collectively known as SGMA. SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through SGMA, the California Department of Water Resources provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins sustainably and requires those Groundwater Sustainability Agencies to adopt groundwater sustainability plans for critical (i.e., medium- to high-priority) groundwater basins in California. The vast majority (approximately 90%) of the Antelope Valley Groundwater Basin (No. 6-044) was adjudicated in 2015 and is not subject to the requirements of SGMA.

The Project is located in Antelope Valley Groundwater Basin, which is not subject to SGMA due to its adjudication.

3.15.5.3 Local LORS

Municipal National Pollutant Discharge Elimination System Permit

The County is a co-permittee under the "Waste Discharge Requirements for Municipal Stormwater and Urban Runoff Discharges within the County of Los Angeles," issued by the Los Angeles RWQCB (Order No. R4-2021-0105), adopted July 23, 2021. This order applies to the following:

1. Los Angeles County Flood Control District (LACFCD)
2. Unincorporated areas of Los Angeles County under County jurisdiction, with the exception of a portion of Antelope Valley and the City of Avalon
3. 84 cities within the LACFCD, with the exception of the City of Long Beach

This permit also serves as an NPDES permit under the federal CWA (NPDES No. CAS614001), as well as waste discharge requirements under California law (the Municipal NPDES Permit), and as a co-permittee under the Municipal NPDES Permit the County is required to adopt ordinances and implement procedures with respect to the entry of non-stormwater discharges into the MS4s.

The Los Angeles MS4 Order incorporates most of the pre-existing requirements of the previous 2001 Los Angeles MS4 Order, including the water quality-based requirement to not cause or contribute to exceedances of water quality standards in the receiving water. The Los Angeles MS4 Order also requires permittees to comply with new water quality-based requirements to implement 33 watershed-based total maximum daily loads (TMDLs) for the region. The Order links both of these water quality-based requirements to the programmatic elements of the Order by allowing permittees to comply with the water quality-based requirements, in part, by developing and implementing a watershed management program (WMP) or enhanced watershed management program (EWMP).

The Project design will include post-construction treatment controls to protect water quality.

Los Angeles County Low Impact Development Manual

The County of Los Angeles prepared the 2014 Low Impact Development Standards Manual (LID Standards Manual) to comply with the requirements of the NPDES MS4 Permit for stormwater and non-stormwater discharges from the MS4, within the coastal watersheds of Los Angeles County (CAS004001, Order No. R4-2012-0175), also known as the Los Angeles Water Quality Ordinance. This permit covers 84 cities, including Gardena, and the unincorporated areas of Los Angeles County. Under the permit, the LACFCD is designated as the principal permittee, and the County, along with 84 incorporated cities, is designated as a permittee. In compliance with the permit, the permittees have implemented a stormwater quality management program, with the ultimate goal of accomplishing the requirements of the permit and reducing the amount of pollutants in stormwater and urban runoff, wherein new development/redevelopment projects are required to prepare a LID report.

The Los Angeles County LID Standards Manual provides guidance for the implementation of stormwater quality control measures in new development and redevelopment projects in unincorporated areas of the County, with the intention of improving water quality and mitigating potential water quality impacts from stormwater and non-stormwater discharges. The LID Standards Manual addresses the following objectives and goals (LACPW 2014):

- Lessen the adverse impacts of stormwater runoff from development and urban runoff on natural drainage systems, receiving waters, and other water bodies
- Minimize pollutant loadings from impervious surfaces by requiring development projects to incorporate properly designed, technically appropriate BMPs and other LID strategies

Minimize erosion and other hydrologic impacts on natural drainage systems by requiring development projects to incorporate properly designed, technically appropriate hydromodification control development and technologies.

The Project's stormwater management features will be designed consistent with the County's manual to ensure consistency with the MS4 Permit.

3.15.6 Agency Contacts, Permits, and Permit Schedule

Applicable agency contacts for hydrology and water quality are shown in Table 3.15-4. Approval of an HMBP from the Los Angeles County Fire Department, Health Hazardous Materials Division will be superseded by CEC approval of the Project under the opt-in program. The Project will prepare a SPCC, and approval of the SPCC will also be superseded by CEC approval under the opt-in program. In addition, the Project will be designed per Los Angeles County Fire Department requirements and standards for BESS; however, approval from the Los Angeles County Fire Department will also be superseded by CEC approval of the Project under the opt-in program.

Table 3.15-4. Permits and Agency Contacts

Issue/Approval	Agency Contact	Applicability
NPDES GCP	Los Angeles County Regional Water Quality Control, Industrial and Construction Stormwater Programs, Compliance & Enforcement Nerissa Schrader, Supervisor Documents submitted via SMARTS* 213.620.2243 stormwater@waterboards.ca.gov Nerissa.Schrader@Waterboards.ca.gov	SWPPP for construction activities
Waste Discharge Requirements	Same contact as above.	Discharge of fill to waters of the state under the Porter–Cologne Act
HMBP	Los Angeles County Fire Department, Health Hazardous Materials Division Mario Tresierras, Division Chief 5825 Rickenbacker Road Commerce, California 90040 323.890.4045 Fire-HHMDCERS@fire.lacounty.gov	Hazardous materials compliance
SPCC	Same contact as above.	Hazardous materials compliance

Note: NPDES = National Pollutant Discharge Elimination System; GCP = General Construction Permit; SMARTS = Stormwater Multiple Application and Report Tracking System; SWPPP = stormwater pollution prevention plan; HMBP = Hazardous Materials Business Plan; SPCC = Spill Prevention Control and Countermeasures.

3.15.7 References

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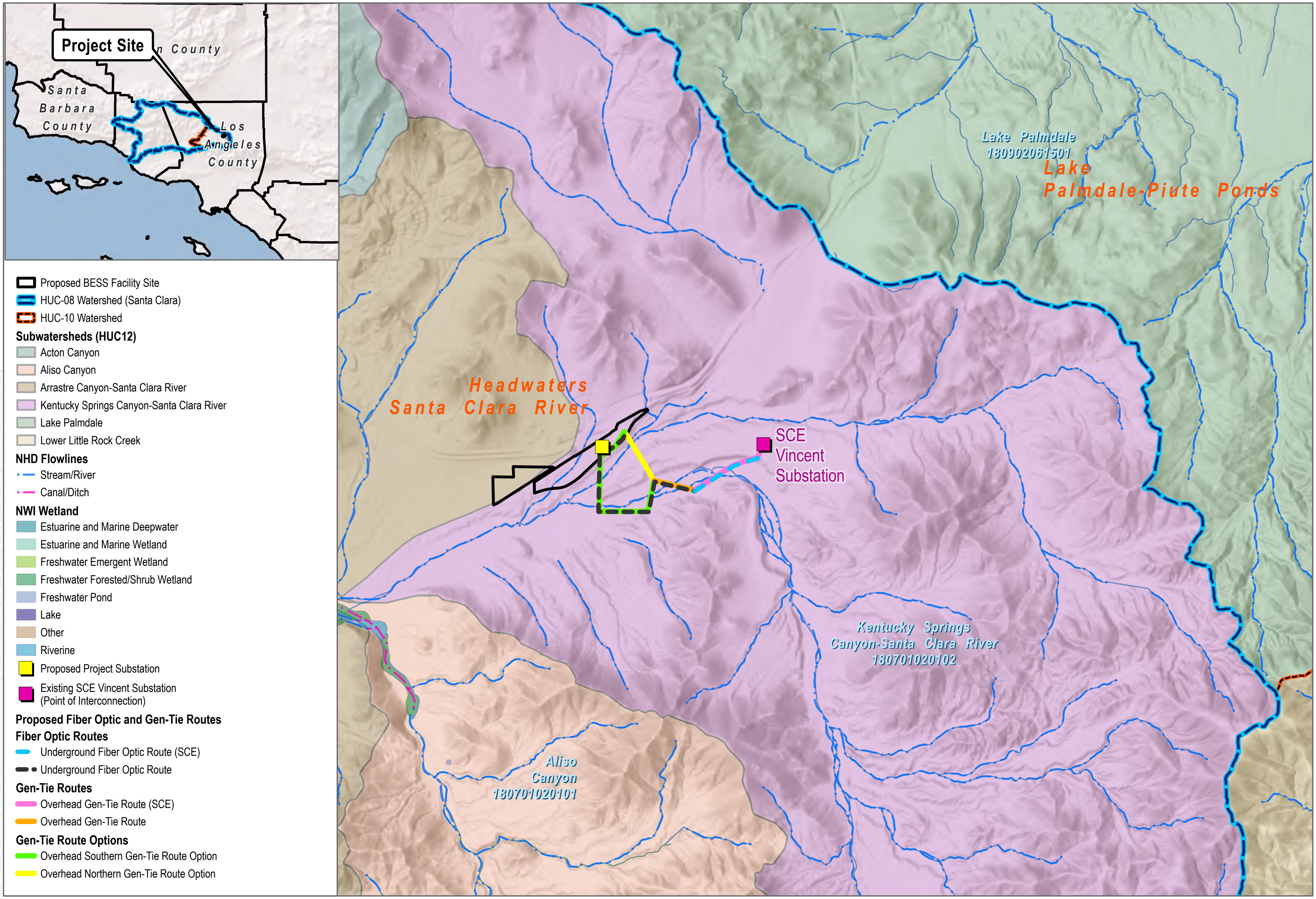

SOURCE: World Hillshade; SWRQCB

DUDEK

0 2,000 4,000 Feet

FIGURE 3.15-1

RWQCB Hydrologic Setting

Prairie Song Reliability Project

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