4.5 Cultural, Tribal Cultural, and Paleontological Resources

This section provides information on existing cultural resources, tribal cultural resources, and paleontological resources in and surrounding the Aera East Cat Canyon Oil Field Redevelopment Plan Project (Project) area. The California Environmental Quality Act (CEQA) requires that the effects of discretionary projects on cultural, tribal cultural, and paleontological resources be considered in the planning process. This section evaluates the proposed Project's potential impacts to these resources, as well as cumulative impacts. Alternative impacts and their comparison to the proposed Project are discussed in Section 5.0.

Cultural resources reflect the history, diversity, and culture of the region, as well as the people who created them. Cultural resources are unique in that they are often the only remaining evidence of human activity that occurred in the past. Cultural resources can be natural or built, purposeful or accidental, physical or intangible. They encompass archaeological, traditional, and built environment resources, including but not necessarily limited to buildings, structures, objects, districts, and sites. Cultural resources include locations of important events, traditional cultural places, sacred sites, and places associated with important people. Many cultural resources are present in the region surrounding the proposed Project area, located both on the ground surface and buried beneath the ground surface, which could be affected by development without adequate protections in place.

Paleontological resources, or fossils, are the evidence of once-living organisms preserved in the geologic record. They include both the fossilized remains of ancient plants and animals, and the traces thereof (e.g., track ways, imprints, burrows, etc.). In general, fossils are greater than 5,000 years old (i.e., Middle Holocene) and are typically preserved in sedimentary rocks. Paleontological resources include not only the actual fossils, but also the collecting localities and the geological deposits that contain the fossils. Paleontological resources are considered nonrenewable resources because the organisms they represent no longer exist. Thus, once destroyed, these resources can never be replaced.

Unless otherwise noted, this section is based on the technical reports that were designed to assess the sensitivity and impacts of the Project on any existing cultural or paleontological resources. A records and literature review was conducted, four field surveys of the Project area were completed, as well as a buried sites sensitivity study, a geoarchaeological study, and an extended Phase I subsurface testing study of the 0.3-mi. 115 kV power line (Table 4.5-1).

Table 4.5-1. Cultural and Paleontological Studies

Report Title	Author	Publication Year
Review of a Previously Completed Records Search, Phase I Cultural Resources Survey, and Impact Analysis Aera Energy LLC East Cat Canyon – Oil Field Redevelopment, Santa Barbara County, California	C. Denardo et al.	2013, revised 2014
Final Report Review of a Previously Completed Records Search and Phase I Cultural Resources Survey and Evaluation for the Gas Pipeline Route in Support of the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California	C. Denardo and R. Letter	2014a
Final Report Review of a Previously Completed Records Search and Phase I Cultural Resources Survey for the PG&E 115 kV Electric Supply Route in Support of the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California	C. Denardo and R. Letter	2014b
Supplemental Cultural Resources Survey, East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California	R. Letter	2016, revised 2017
Paleontological Record Search, Aera Energy East Cat Canyon Oil Field Redevelopment Plan, Santa Barbara County, California	E. Snelling	2016

Table 4.5-1. Cultural and Paleontological Studies

Report Title	Author	Publication Year
Final Buried Site Sensitivity Analysis, East Cat Canyon Oil Field Redevelopment Plan, Santa Barbara County, California	R. Letter	2017
Historic Resources Inventory and Evaluation: Southern California Gas Pipeline Route in Support of Aera Energy's East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California	C. Denardo and J. Severn	2017
Geoarchaeological Exploration of ERG West Cat Canyon Production Plan Project, Santa Barbara, California	S. Willis and J. Meyer	2017
Cultural Resources Information Summary, East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California	Padre Assoc., Inc.	2017
Extended Phase I Testing Results, East Cat Canyon Oil Field Redevelopment Plan, Santa Barbara County, California	R. Letter	2018
Padre Associates correspondence responding to County comments detailing and verifying avoidance of sites PGE-1 and SCGP-1.	R. Letter	2018
Addendum Report Historic Roads Inventory and Evaluation Southern California Gas Pipeline Route In Support of AERA Energy's East Cat Canyon Oil Field Redevelopment Project Santa Barbara County, California	C. Denardo and J Brandoff Provenience Group	2018

4.5.1 Environmental Setting

The Project is located entirely in Santa Barbara County and extends from the Los Alamos Valley in the south, to the Santa Maria Valley in the north. The Project area is situated along a series of sloping peri-coastal ridges, hills, and valleys located approximately 20-miles east of the Pacific Ocean. This section includes a summary of cultural, tribal cultural, and paleontological regional background information. A description of known cultural, tribal cultural, and paleontological resources within the Project area and vicinity is provided.

4.5.1.1 Cultural Resources

Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnohistoric, and historic. Prehistoric archaeological resources are associated with the human occupation and use of California prior to prolonged European contact. In California, the prehistoric period began over 12,000 years ago and extended through the eighteenth century until AD 1769, when the first Spanish missionaries settled in central California. Ethnohistoric and ethnographic resources are used in this analysis to evaluate cultural and tribal cultural resources, including documents that represent the heritage of ethnic or cultural groups, such as Native Americans or African, European, Latino, or Asian immigrants. Historic-period resources, both archaeological and architectural, are associated with European, Mexican and American exploration and settlement of the area, and occur during the time of written records. The following prehistoric, ethnohistoric, and historical background provides the context for the evaluation of the California Register of Historical Resources (CRHR) eligibility of any identified cultural resources or tribal cultural resources within the study area for this Project.

Prehistoric Setting

This review of Santa Barbara regional prehistory is organized into five cultural time periods: the Pleistocene/Holocene Transition (13,000-10,000 years before present [BP]), Millingstone Period (10,000-6,300 BP), Early Period (6,300-2,700 BP), Middle Period (2,700-900 BP), and Late Period (Post-900 BP). Although largely pertaining to the Santa Barbara Channel area to the southwest, this chronology and

associated cultural developments are nonetheless significant to the prehistoric cultures that occupied the current Project area.

Pleistocene/Holocene Transition (13,000 - 10,000 BP)

The earliest documented human occupation of the Santa Barbara Channel area dates to more than 10,000 BP; however, it is not until approximately 9000 BP that human populations became more widespread. The term "Paleocoastal" refers to the possible descendants of local Paleoindians who inhabited the coast and exploited marine resources prior to the Millingstone Period. The Pleistocene/Holocene Transition has been described as a time of low population density, expedient stone tool technology, and egalitarian social organization. People appear to have subsisted largely on plants, shellfish, and some vertebrate species. Few Paleocoastal sites have been identified, possibly due to the small inhabiting population or loss of resources through erosion and other natural forces (Santa Barbara County Planning & Development Department 2015:4.5-1).

Millingstone Period (10,000-6,300 BP)

The Millingstone Period is best known along the southern coast of California, but its manifestations are increasingly being recognized throughout central California as well. The Millingstone Period is defined by a prevalence of handstones and milling slabs, indicating a reliance on seeds and other plant foods. Well-developed middens also have been associated with this period, suggesting more regular and continuous use of habitation sites. During this period, people subsisted on a mixture of plant foods, shellfish, and a limited array of vertebrate species. However, researchers working at inland locations have reported differently on food preferences during the Millingstone Period, which may reflect high mobility and variable access to coastal and inland food resource locations. Important sites dating to this time have been found on San Miguel, Santa Rosa, and Santa Cruz islands.

Early Period (6,300-2,700 BP)

Cultural changes during the Early Period are thought to have resulted from environmental shifts, rising sea levels, and an increase in population size. The response to these changes by people of this period is evidenced by sites that appear more settled, but not permanent, with an increase in specialized sites for resource procurement activities such as hunting, fishing, and plant material processing. As a result of increased population, trade between regions expanded, as evidenced by the presence of exotic shell beads and obsidian materials. Like the Millingstone Period, artifact assemblages dating to the Early Period are dominated by handstones and milling slabs. Toward the end of the period; however, mortars and pestles appear, possibly indicating systematic exploitation of acorns and other nut resources. Improvements to maritime technology led to greater commerce across the Santa Barbara Channel, with shell beads and ornaments moving from the island to the mainland, and terrestrial land mammal goods, such as hair pins made from deer bone, being transported to island groups. Greater emphasis on status differentiation is indicated in cemeteries, where items of wealth were differentially spread across the population more than in previous time.

Middle Period (2,700-900 BP)

The Middle Period is defined by continued specialization in resource exploitation and increased technological complexity that led to an increase in the number and size of archaeological sites in the Santa Barbara region. An expansion of settlement occurred, possibly due to major changes in the subsistence economy, which led to changes in the organization and distribution of settlements. Fish and acorns become dominant food sources during the Middle Period, with a greater use of seasonal resources and

the first attempts at food storage. A stronger emphasis on fishing and sea mammal hunting in the Santa Barbara Channel is attributed to the introduction of circular shell fishhooks at about 2600 BP, and use of barbed harpoons and plank canoes after 1,500 BP, the latter evidenced by canoe drills and asphaltum plugs. Higher degrees of sedentism are inferred from the discovery of semi-subterranean houses and ceremonial structures, as well as more formalized cemeteries. It has also been proposed that demographic changes along the coast resulted in more intensive occupation of the interior mountain areas, and that interior settlements quickly engaged in a series of sophisticated trade networks designed to move seed resources to the coast in exchange for a variety of marine foods and other goods.

Late Period (Post-900 BP)

Maritime adaptations continued to intensify along the Santa Barbara coast during the Late Period, leading to the development of large permanent coastal villages and further development of the trade network between the islands, mainland coast, and interior regions. Island people, particularly those on Santa Cruz Island, were in an excellent position to specialize in bead money production because the necessary raw materials (i.e., high quality chert for drills, *Olivella* shells for beads) were only available in appreciable amounts on the Island. The emergence of several large Late Period villages along the Santa Barbara mainland coast reflects a higher population density during this time. By the Late Period local Native American cultures, known broadly as the Chumash, were probably very similar to what the Spanish observed upon arrival in the region. The southern Chumash had developed increasingly complex religious, social, political, and economic systems. Artifact assemblages from the Late Period contain arrow points, small bead drills, bedrock mortars, hopper mortars, *Olivella* beads, and steatite disk beads (Santa Barbara County Planning & Development Department 2015:4.5-2, 3).

Ethnohistoric Setting

Chumash is a name derived from the traditional island Chumash language. It is used by anthropologists and descendants of Native Americans baptized in the Spanish missions in Chumash territory. The name is often used to refer to several closely related groups of Native Americans that spoke similar languages (Santa Barbara County Planning & Development Department 2015:4.5-3). At the time of European contact, Chumash territory extended along the coast from San Luis Obispo County, south to Malibu Canyon, and west to encompass the northern Channel Islands. Chumash territory extended east as far as the Sierra Madre Mountains, near present-day Interstate Highway-5. It included all of Santa Barbara County, and most of Ventura, San Luis Obispo, southwestern Kern, and western Los Angeles counties (King 2004:206).

The current Project area lies within the lands of the Purisimeño, which covered the coastal plain from the western Santa Barbara Channel northward through the Vandenberg region to a point north of the Santa Maria River. Historical documentation of the Purisimeño identified twenty-two (22) villages, noting they were smaller and lacked formal structure compared to those found in the Santa Barbara Channel area. Purisimeño homes are described as small, domed, and round, with some families choosing to live out on the open landscape free of structures (Greenwood 1978). Some villages were organized as twin settlements situated on opposite sides of rivers or streams (Greenwood 1978). The Purisimeño utilized cactus spines and sardines to catch large fish, but for the most part subsisted on the seasonally abundant native plants, seeds, nuts, and terrestrial land mammals.

Historic villages located near study area, but several miles away, include *Tematatimi* (also known as *Stemectatimi*) to the west, and to the south *Huasna* (also known as *Guasna*) and *Axuwapsh*. The exact location of the village Temetatimi is not known; however, approximately 81 Chumash people from this location were baptized at San Luis Obispo Mission (King 2004:222). Information about Huasna is available from Chumash descendent, Maria Solares, who describes the place as the location from which the road

to the sky begins (Blackburn 1975:235). It was in general perceived to be near the edge of the Chumash world (King 2004:238). Sixty-four individuals were recruited and baptized at the San Luis Obispo and La Purisima Missions (King 2004:222). Little is known about the village of *Axuwapsh*, but many village members were baptized at La Purisima Mission (Denardo and Severn 2017).

Due to the high level of ecological diversity within the larger Chumash territory, a great deal of trade took place between Chumash settlements. Food items, medicines, manufactured goods, and raw materials moved from one village to the next, and much of this exchange was facilitated through the use of shell bead money. Trade between the islands and mainland occurred by canoe transport that was also regulated by high status individuals. Much of this activity focused on the production of stone drills and shell beads on the islands, and the control of canoe transport back and forth from the mainland where the beads were exchanged for mainland foods and raw materials. Due to the broad scope of these relationships, hereditary chiefly families ultimately developed power over multiple families. However, in the Purisimeño region, it is more likely that social and political relationships were less structured, or had become less structured by the time Spanish missions were established (Greenwood 1978).

Historical Setting

This review of the Project area's regional and local history and can be organized into three significant cultural themes: the Mission and Rancho Era (1780s to 1860s), Early American Period (1860s to 1890s), and the Cat Canyon Oil Field (1890s to present).

Mission and Rancho Era (1780s to 1845)

Although Chumash villages were present in the Santa Maria Valley, and Chumash families and individuals from the valley were taken into the Spanish mission system, no Spanish-era missions were established there. The nearest mission establishments were those of La Purísima Concepción (1787), and Santa Inés (1804); located about fifteen miles southwest and southeast from the Project area. A segment of the historic El Camino Real, also known as the California Mission Trail, is located near the Project area, and is currently U.S. Route 101. The El Camino Real is an approximate 600-mile road connecting the Spanish missions, pueblos, and presidios from San Diego in the south to Sonoma in the north. Portions of the El Camino Real were paved and covered in the early twentieth-century for the construction of modern roads and highways, including U.S. Route 101.

Following Mexican independence from Spain in 1822, the Mexican government gained control over California. About five-hundred (500) land grants were given to Mexican citizens during the Rancho Period. Despite the fact that ten (10) rancho land grants formed a contiguous ring around the Santa Maria Valley, the sandy valley floor and scrub-covered hills remained unclaimed. The land grant of Rancho Los Alamos, located south of the Project area, was given to José Antonio Carrillo in 1839. Carrillo reportedly made some use of the area for pasturage.

Early American Period (1845 to 1880)

The first major influx of American settlers to the Santa Maria Valley occurred in 1867, when the first quarter-section of public land was homesteaded. The settlers concentrated in more favorable locations to the west and northwest of the project area, where water was more readily available. The realization that farming was possible in the valley ushered in a new era as farmers experimented with a variety of crops to see what might be viable and commercially advantageous. The town site of Central City (now known as Santa Maria) was laid out in 1875, providing a focal point for settlement and commerce (Joslin 2014:110).

The Project area, located in the broken terrain of the Solomon Hills on the east side of Route 101 and north of the small town of Los Alamos, remained undeveloped until the late 1870s. U.S. General Land Office (GLO) master plat files confirm that the project area was subdivided into small holdings – generally in the form of 160-acre homesteads – from 1876 through 1892 (Joslin 2014:11).

Early farming in the Santa Maria Valley concentrated on grain, but by the 1880s the emphasis was on orchard crops. Contributing to the influx of settlers was the extension of the narrow-gauge Pacific Coast Railway from San Luis Obispo through Arroyo Grande to Los Alamos in 1882. Access to this early railroad made it possible for Santa Maria Valley and Cat Canyon farmers to transport produce to the port of Avila for shipment to San Francisco markets. By the turn of the twentieth-century, fruit crops had lower yields and poorer quality fruit, which suggested the general unsuitability of the Santa Maria Valley for tree fruit. At the same time oil exploration gained a foothold in the area (Joslin 2014:13).

After the Homestead Act passed in 1861, settlers attracted by the promise of free government land began arriving to file homestead claims as early as 1867. However, the year brought torrential rains, followed by crops spoiled by grasshopper pestilence and several years of extreme drought, most notably 1863-1864, which created livestock starvation and contributed to the obliteration of cattle herds and financial woes for Santa Barbara County ranchers. Only 5,000 of the 250,000 head of cattle survived. Americans began to supplant the Californios following the severe drought. The newcomers, who were attracted to the beauty and climate of Santa Barbara County, transformed ranch land into farms with cultivated fields and vegetable crops.

La Graciosa had been one of the earliest settlements in northern Santa Barbara County, serving as a stagecoach stop for the Coast Line Stage between Los Alamos and Guadalupe as early as 1867. The O'Neill family established a stage station and horse barn, and they operated a mercantile there. In 1869, early settlers to La Graciosa included Thomas Brookshire, Abner Stubblefield and Colman Stubblefield. Within three years, the town boasted 370 residents, and a saloon, plus the first post office, church, and school in the area. According to some sources, by 1877, a property quarrel erupted after land baron Henry Mayo Newhall purchased acreage from the Hartnell heirs that included La Graciosa, and as a result, he evicted the squatters and demolished all the buildings. However, McKenney's Pacific Coast Directory for 1883-1884 published in 1882 provided the following information that suggests the residents were not evicted, "La Graciosa. Santa Barbara County. Post-office Santa Maria: about 10 miles southwest of Santa Maria. Arellanes Juan, a stock raiser, Latourette J., general merchandise, Rouard J. M. blacksmith, Sansom A., constable."

Today, there is no known evidence of the exact location of the former settlement. However, one source states the settlement "was just over a half-mile south of the town of Orcutt….a town site was surveyed but never developed." Another source places it approximately 0.5-mile southwest of Orcutt.

Roads and Transportation (1911 to 1950)

The roads within the proposed natural gas pipeline alignment constitute transportation routes, some of which came into existence as wagon roads between Mexican Period ranchos beginning in 1847. They include routes related to early homesteads and settlements associated with the 1868 community of La Graciosa and the burgeoning agricultural economy, followed by development of the local oil industry in the early twentieth century and establishment of the town of Orcutt. One road, Clark Avenue, crossed over El Camino Real, the oldest highway in California, which served as the main transportation corridor between San Luis Obispo and Santa Barbara. As the population and homesteading increased after 1860, transportation routes, in the form of wagon roads, connected far flung homesteads in the area, including Rancho Los Alamos, and the towns of Gary and Sisquoc near the Sisquoc River.

With continued oil development roads that were previously simple graded dirt became improved dirt roads surfaces with oil soaking initially followed by asphalt surfacing to aid in communication between homesteads and the transportation of materials to the oil fields and transfer of product from the fields. Development slowed during the years of World War II and later resumed, bringing changes to the road designs and landscape setting as technology and equipment changed.

Cat Canyon Oil Field (1890s to present)

Oil prospecting and production in the form of asphaltum mining was under way in the Project area by 1896, as evidenced by the acquisition of a portion of Section 19 by the Santa Maria Asphalt Company. The discovery of the nearby Orcutt field in 1901 intensified the search. Within ten (10) years the Project area was transformed from a fruit-growing sub-region of the Santa Maria Valley into a booming oil field, although agricultural production and cattle herding also persisted (Joslin 2014:14).

After unsuccessful attempts to locate oil in Cat Canyon in 1904, the Palmer Oil Company finally succeeded, developing a producing well in 1908. The discovery well eventually developed into a gusher yielding more than 10,000 barrels a day. By 1912, twenty-six different companies were operating in the field, although only three of the thirty-six oil wells were consistent producers. Over the course of the past century, the oil field has experienced several episodes of expansion and contraction depending on demand and on the limits of petroleum extraction technology. Cat Canyon crude is heavy, and new methods of extraction have revitalized the oil field throughout its operation. Part of the early development of the field included the construction of worker housing, a school, and transport infrastructure, including extension of the Santa Maria Valley Railroad from Betteravia to the Dominion Oil Company refinery at Roadamite, and the extension of the Pacific Coast Railway from the Suey Junction to Palmer Canyon, by way of Garey and Sisquoc (Joslin 2014:14).

The Development of Orcutt (1880-1915)

William W. Orcutt graduated from Stanford University in 1895, and by 1899, he began to serve as the petroleum geologist for Union Oil Company's Geological, Land, and Engineering departments. Oil exploration in the Santa Maria Oil Fields (later renamed the Orcutt Oil Field after oil was also discovered in Santa Maria), from as early as the 1860s, had not been very fruitful, but a research report prepared by Mr. Orcutt in 1901 suggested exploration in the area had the potential to be very productive and profitable. Union Oil Company President Lyman Stewart valued Orcutt's opinion and quickly leased over 70,000 acres, which included acreage on the Hartnell property. By 1903, they had already sunk 22 wells in the Orcutt oil field that produced 8,000 barrels of oil per day. Although exploration of the Orcutt Oil Field began in 1902, it was not until Union Oil Hartnell No. 1 produced the legendary gusher "Old Maud" in 1904 that the region received acclaim by the oil industry. Production of 12,000 barrels of oil a day by "Old Maud" insured jobs and economic growth in the area for decades. "Old Maud" continued to produce oil until 1988. After the discovery of "Old Maud" Orcutt became a boomtown, despite a lack of water and power amenities until the 1920s. By 1908, the town supported over 1,000 individuals, and featured two subdivisions, three school districts, one hotel, two restaurants, three taverns, and several mercantiles (Denardo and Severn, 2017:12-13).

The Pacific Coast Railway supplanted the stage in 1883 with a route that extended from San Luis Obispo to Los Alamos; it passed south from Santa Maria to the Graciosa Station near Graciosa Canyon before ascending 200 feet to the Divide Station. There appears to have been a small settlement at the Divide Railway Station, with reportedly some evidence of the railroad bed observed as a cut in the hill at Benchmark 485 north of the former Divide Station. In 1903, in order to provide easy access for transport of oil by rail car, a Pacific Coast Railway siding, dubbed the Orcutt Siding, was completed at the east side

of the County Road (later named South Broadway) on the west end of what would become the boom town of Orcutt.

In 1904, William Orcutt founded a company town to house the growing number of Union Oil workers employed in the nearby oil fields. He selected the area next to the railway siding, at the northeast corner of Hartnett's former *Todos Santos y San Antonio* land grant, to develop a town that would also serve as the local hub for Union Oil's operations. The 1904 survey of the town plat depicts 15 sections–A through O of the Torrance Subdivision, with the north boundary at County Road (now Clark Avenue) (Figure 3). The south boundary stood at the south of the Pinal Avenue parcels, with the east boundary to the east of the First Street parcels. The west boundary sat to the east of what would later become Marcum Street. Near the Orcutt Siding, Union Oil built a pump station, water tank, fuel tank, oil storage tanks, warehouses, and office buildings in sections D, F, G, and O. The remaining sections comprised sections A, B, C, H, I, J, K, L, M, and N, which were mostly reserved for boarding houses, dormitories, and cottages to accommodate Union Oil employees and their families. In addition, Section E held a public school (moved from La Graciosa in 1877) for employees' children to attend.

The Town of Roadamite (1911 to 1950)

In 1911, the small town of Roadamite became the terminus at the Santa Maria Oil Fields for the Santa Maria Valley Railway (SMVR) system. The railway ran 23 miles from Guadalupe to Roadamite. As early as 1912, Santa Maria oil and asphalt were processed at the Roadamite refinery before being transported on the SMVR to the Southern Pacific Railroad in Guadalupe. In 1925, George Allan Hancock purchased Roadamite and the SMVR from Santa Maria Oil Fields, Inc. At that time, Hancock established the Dominion Oil Company at Roadamite and reorganized the SMVR as the Santa Maria Valley Railroad (known as "SMVRR"). Subsequent owners of Roadamite and its oil refinery included the Gilmore Oil Company in 1929 and the Socony-Vacuum Oil Company by 1940. In 1950, the segment of the SMVRR line from Gates to Roadamite was removed, ending the nearly 40-year era of the company town of Roadamite. The historic site of Roadamite is also important because of its association with George Allan Hancock, who was one of the most important individuals tied to the Santa Maria area in California. His prominence as a resident of Santa Maria is exemplified by the naming of the local college, Allan Hancock College, and Hancock Field, the original Santa Maria airport, which was founded in 1927 (Denardo and Letter, 2014).

4.5.1.2 Cultural Resources within the Project Area

The cultural resources study area includes the locations of 4 test wells, 2 water wells, 4 existing ERG producing wells, proposed locations of 296 wells (including steam, production, produced water re-injection, and water), a new central processing facility, 7 steam generators, 9 miles of roadways, 14-mi. long natural gas pipeline, 1,500-foot 115 kV power line, and a Conservation Easement for biological resource mitigation that consists of 600 or more acres (see Figures 2-1 and 2-6).

Records Searches

Three records searches of the California Historical Resources Information System (CHRIS) Central Coast Information Center (CCIC) at the University of California, Santa Barbara were conducted between 2011 and 2012 for portions of the proposed Project site (Gill 2011a, Gill 2011b, Gill 2012). The searches included previously recorded cultural resources and studies within a 0.5-mile radius of the 2012 proposed Project site. In May 2013, GANDA requested a search of the CHRIS CCIC for the segments of the proposed Project site that fell outside of the 2011-2012 study areas. The 2013 search examined previously-recorded cultural resources and studies within a 0.25-mile radius of the proposed Project site, including the natural gas pipeline, 115 kV power line, and an additional four acres in the southern portion of the proposed Project

area. Table 2 presents all 22 CCIC previously identified cultural survey reports, and Table 3 contains a list of the seven cultural resources located inside the Project site and within a 0.5-mile radius of the Project site boundary.

During the 2011-2012 records searches, the following sources were consulted:

- CCIC base maps, USGS 7.5-minute series topographic quadrangles for the Project Site, and other historic maps;
- Pertinent survey reports and archaeological site records were examined to identify recorded archaeological sites and historic-period built-environment resources (such as buildings, structures, and objects) within or immediately adjacent to the Project Site; and
- The California Department of Parks and Recreation's California Inventory of Historic Resources (1976) and the Office of Historic Preservation's Historic Properties Directory (2007), which combines cultural resources listed on the California Historical Landmarks, California Points of Historic Interest, and those that are listed in or determined eligible for listing in the NRHP or the CRHR.

Additional research in 2013 (Denardo et al. 2013, revised 2014) also reviewed the DOGGR database to identify the presence of historic-aged wells within the Project Site.

Table 4.5-2. Previous Cultural Resources Studies Within 0.5 Mile of the Project Site

Study No.	Author, Year	Title
E-343	Van Horn 1979	An Overview of Potential Impacts to Cultural Resources Resulting from Proposed Alternative Transmission Lines Serving the LNG Facility at Point Conception, California.
E-494	Spanne 1972a	Archaeological and Historical Impact Statement: Oakview Mobile Estates – Los Alamos, California.
E-495	Spanne 1984	Summary Report on Phase I Archaeological Survey for Proposed Drill Sites Williams Fee 161-36 and 171-36 in Cat Canyon, Santa Barbara County.
E-809	Clewlow 1976	Archaeological Resources Along the Proposed LNG Gas Transmission Pipeline from Point Conception to Arvin and Arvin to El Cajon, California.
E-810	Dames and Moore 1975	Detailed Environmental Analysis Concerning Proposed Liquefied Natural Gas Facilities and Associated Gas Transmission Pipelines for Western LNG Terminal Company, Point Conception, California.
E-1152	Edmonson 1991	Negative Archaeological Survey Report: Proposed Caltrans Concrete 0verlay on Portions of Foxen Canyon Road.
E-1262	McKenna 1991	Phase I Cultural Resources Investigations for the Proposed Pipeline Alternatives, the Unocal-Sisquoc Pipeline, Santa Barbara County, California.
E-1318	Carbone and Snethkamp 1992	Final Report: Shell Western E & P Inc. Phase I Archaeological Survey, Los Alamos Seismic Testing Region.
E-1329	Dahl 1992	Sisquoc Trail: Heavy Maintenance and Continuing Use of the Forester's Leap Segment.
E-1569	Gibson 1986	Cities Service Oil and Gas Corporation and Celeron Pipeline Company of California.
E-1613	Maki 1994	A Phase I Cultural Resources Survey of 88 Acres at the S.P. Milling Sisquoc Plant for the Processed Sisquoc River Aggregate Mining Plan, Sisquoc, Santa Barbara County, California.
E-2091	Hunter 1997	Negative Archaeological Survey Report (Highway Project Description).
E-2108	Singer 1992	Cultural Resources Survey and Impact Assessment for the Coast Rock Products Mining and Reclamation Plan in San Luis Obispo and Santa Barbara Counties, California.
E-2159	Carbone 1998	Phase I Archaeological Investigation for New Off-Channel Mining Areas at Kaiser Sand and Gravel Units in the Sisquoc Region, County of Santa Barbara.

Table 4.5-2. Previous Cultural Resources Studies Within 0.5 Mile of the Project Site

Study No.	Author, Year	Title
E-2273	Beard 1998	Cultural Resources Study for Beringer Wine Estates-River Bench Ranch, Santa Barbara, California.
E-2662	Gibson and Parsons 2001	Results of Archival Records Search and Phase One Archaeological Surface Survey for Four Building Envelopes and Access Roads on the Los Flores Ranch, Chevron, USA (99-LLA-031), Santa Barbara County, California.
E-2711	Carbone 2001	Phase I Cultural Resources Investigation for a Proposed Lot Line Adjustment, 7200 Foxen Canyon Road, County of Santa Barbara, California
E-4067	URS 2007	Tepusquet Bridge Project, Santa Barbara County, California, Caltrans District 5 – Santa Barbara County EA No. 05-927386L.
E-4481	Gill et al. 2009	Cultural Resources Inventory for the City of Santa Maria Integrated Waste Management Facility, Santa Barbara, California.
—	Gill 2011a	Cultural Resources Assessment for the East Cat Canyon Exploratory Oil Well Project, East Cat Canyon, Santa Barbara County, California.
—	Gill 2011b	Cultural Resources Assessment for the East Cat Canyon 2D Seismic Survey Project, East Cat Canyon, Santa Barbara County, California.
—	Gill 2012	Cultural Resources Assessment for the East Cat Canyon 3D Seismic Survey Project, East Cat Canyon, Santa Barbara County, California.

Table 4.5-3. Previous Cultural Resources Within 0.5 Mile of the Project Site

Site No.	Author, Year	Description
CA-SBA-1214H	Spanne 1972b	Early 20th century trash scatter
CA-SBA-3628	Gibson 2001	Lithic and shellfish scatter
CA-SBA-4003H*	Gill 2011c	Industrial scatter
CA-SBA-4024	Conway 2011a	Lithic and shellfish scatter
CA-SBA-4026H	Conway 2011b	Historic and industrial trash scatter
CA-SBA-4027	Conway 2011c	Lithic scatter
P-42-040943*	Gill 2011d	Industrial scatter

* Sites located within the Project Site.

Native American Heritage Commission

The Native American Heritage Commission (NAHC) maintains two databases to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans, referred to by NAHC staff as Native American ethnographic resources. The NAHC Sacred Lands database has records for places and objects that Native Americans consider sacred or otherwise important, such as cemeteries and gathering places for traditional foods and materials. The NAHC Contacts database has the names and contact information for individuals, representing a group or themselves, who have expressed an interest in being contacted about development projects in specified areas.

On behalf of Aera, GANDA contacted the NAHC by email on June 3, 2013, to obtain information on known cultural resources and traditional cultural properties, and to obtain a list of Native Americans tribal representatives who may have interest in consulting about the Project. The NAHC responded on June 10, 2013 with the information that the Sacred Lands File (SLF) database indicated that there are no known sacred sites in the Project vicinity. The NAHC also forwarded a list of 24 Native American groups or

individuals interested in development projects in the Project vicinity (Denardo and Letter, 2014). GANDA sent letters to all 24 contacts provided by the NAHC on June 11, 2013. These letters were sent prior to AB 52 and are not considered government-to-government tribal consultation for the proposed Project. Letters notified tribes of the Project and requested comment. Two responses were received (see Appendix I).

In 2016, Padre Associates, Inc., (Padre) submitted a second request to the NAHC for a search of the Sacred Lands File and an updated tribal contacts list. The NAHC responded on November 29, 2016 confirming that no sacred sites are known to exist in the proposed project site. A list including five recommended contacts was provided, and project information letters were sent to each (Letter 2016). In 2017, Dudek, on behalf of Aera, had written follow-up letters sent to the five tribal contacts provided by the NAHC in 2016 (Stone 2017).

AB 52 Consultation

AB 52 directs tribes to contact all CEQA lead agencies to formally request to be notified of projects in the region with which the tribe is traditionally affiliated. Under AB 52, to qualify as a tribal cultural resource (TCR), the resource must either: 1) be listed on, or be eligible for listing on, the California Register of Historical Resources or other local historic register; or 2) constitute a resource that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as a TCR (PRC § 21074). AB 52 establishes that California Native American tribes that are traditionally and culturally affiliated with a geographic area can provide expert knowledge of TCRs. Upon determining that an application for a project is complete, the CEQA lead agency must provide written notification to all tribes that have requested this notification. Notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to CEQA Section 21080.3.1.

To date, the only tribe that has requested that Santa Barbara County provide notice under AB 52 is the Barbareño/Ventureño Band of Mission Indians. Per the AB 52 and related Public Resources Codes, on January 6, 2017 the County sent a formal written notice to the Barbareño/Ventureño Band of Mission Indians stating the County's decision to undertake this project. A copy of this letter is included in Appendix I. The Barbareño/Ventureño Band of Mission Indians had 30 days to formally request consultation. No such request was received.

Native American Outreach

In addition, during the Project's Public Scoping period, Mr. Freddie Romero of the Santa Ynez Band of Chumash Indians requested to receive information related to cultural resources surveys and resources present within the Project site and proposed pipeline route. In response, the County held a meeting for interested parties to discuss in detail the proposed Project components, planned construction activities, and identify any tribal concerns. Participants included Mr. Romero and staff from the County, the Applicant, the Applicant's consultants and Aspen. No tribal cultural resources, as defined in Public Resources code 21074(a)(1) and Section 21074(b), were identified by Mr. Romero. However, Mr. Romero expressed concern about the overall high sensitivity of the Project site and raised concern for the strong likelihood of encountering buried cultural resources, which was based on his understanding of the high density of prehistoric resources present in the region surrounding the Project area. Dr. David Stone of Dudek, on behalf of Aera, worked with Mr. Romero to revise the Applicant Proposed Avoidance and Minimization Measures (AMMs) applicable to cultural and tribal cultural resources. These revisions were adopted by Aera and are presented in Appendix C.

Field Surveys

Cultural resources pedestrian surveys for the proposed Project were conducted by Padre in June 2013, January 2014, February 2014, and June 2016. A built environment survey was completed by C. Denardo and J. Severn in 2017. The field surveys examined areas proposed for the drilling of new wells, construction of new roads, maintaining well pads, building new facilities, other production related facilities, and routes for a natural gas pipeline and 115 kV transmission line. The pedestrian surveys were performed by walking and visually examining the ground surface and landscape for any potential cultural resources. Surface visibility at the existing well pads, unpaved roads, and facilities was poor to moderate and hindered by vegetation. Table 4.5-4 presents the thirteen cultural resources located within the Project area that were identified during all survey events (Padre, 2017:3-4 and 3-5). Padre's recommended eligibility to the CRHR is provided for each resource, as well as a description of where each resource is located within the Project area. Five isolated historic artifacts were also identified, but do not have diagnostic attributes or manufacture maker's marks, and are thus not associated with a single cultural event or living location. Isolates recorded for this Project do not meet the definition of unique archaeological or historical resources under the CEQA and thus are not included in Table 4.5-4.

Table 4.5-4. Cultural Resources Identified During Surveys 2013-2018*

Resource Identifier	Description	CRHR Eligibility	Proximity to Project Construction/Restoration Areas
Aera-1 Primary No.: P-42-004138 Trinomial: CA-SBA-4138H	Moderate sized historic brick and industrial scatter	Ineligible	Inside Project area; Located in proposed oak planting area and conservation area.
Aera-3 Primary No.: P-42-004139 Trinomial: CA-SBA-4139H	Large historic brick and industrial scatter	Ineligible	Inside Project area; Adjacent to new well pad.
Aera-4 Primary No.: P-42-004144 Trinomial: CA-SBA-4144H	Historic earthen channel lined with concrete slabs	Ineligible	Inside Project area but outside construction/restoration areas.
Aera-5 Primary No.: P-42-004140 Trinomial: CA-SBA-4140H	Small historic artifact scatter	Ineligible	Inside Project area but outside construction/restoration areas.
Aera-6 Primary No.: P-42-004145 Trinomial: CA-SBA-4145H	Moderate sized historic brick and industrial scatter	Ineligible	Inside project area; Adjacent to existing road.
Aera-7 Primary No.: P-42-041187 Trinomial: None	Historic tanks	Ineligible	Inside Project area; Located on previously disturbed pad surrounded by oak restoration area.
Aera-11 Primary No.: P-42-004146 Trinomial: CA-SBA-4146H	Historic man-made depression	Ineligible	Inside Project area; Located in coastal scrub conservation area.
Aera-12 Primary No.: P-42-041118 Trinomial: None	Historic tank with pump	Ineligible	Inside Project area; Located in proposed oak planting area.
Primary No.: P-42-040943 Trinomial: None	Historic brick scatter	Ineligible	Inside project area; Adjacent to existing road.
Primary No.: None Trinomial: CA-SBA-4003H	Historic boiler and debris	Ineligible	Inside Project area; Outside construction/restoration area.

Table 4.5-4. Cultural Resources Identified During Surveys 2013-2018*

Resource Identifier	Description	CRHR Eligibility	Proximity to Project Construction/Restoration Areas
SCGP-1 Primary No.: P-42-004142 Trinomial: CA-SBA-4142H	Historic brick and industrial artifact scatter	Undetermined	Inside Project area; Located adjacent to natural gas pipeline ROW but avoided
SCGP-2 Primary No.: P-42-041182 Trinomial: None	Historic concrete culvert	Ineligible	Inside Project area; Located in natural gas pipeline ROW.
PGE-1 Primary No.: P-42-004141 Trinomial: CA-SBA-4141H	Historic artifact scatter	Undetermined	Inside Project area; Located 192-ft. southeast of 115 kV power line terminus. Site avoided.
Graciosa Road (SR 135) Primary No.: Pending Trinomial: Pending	Historic Road	Ineligible	Inside Project area; Located in natural gas pipeline ROW.
Orcutt Road Primary No.: Pending Trinomial: Pending	Historic Road	Ineligible	Inside Project area; Located in natural gas pipeline ROW.
Clark Avenue Primary No.: Pending Trinomial: Pending	Historic Road	Ineligible	Inside Project area; Located in natural gas pipeline ROW.
Dominion Road Primary No.: Pending Trinomial: Pending	Historic Road	Ineligible	Inside Project area; Located in natural gas pipeline ROW.
Palmer Road Primary No.: Pending Trinomial: Pending	Historic Road	Ineligible	Inside Project area; Located in natural gas pipeline ROW.
Cat Canyon Road Primary No.: Pending Trinomial: Pending	Historic Road	Ineligible	Inside Project area; Located in natural gas pipeline ROW.

*Does not include isolated artifacts or fossils, which do not meet the formal definition of a site.

Of the 19 resources historical resources identified in Table 4.5-4., 17 were recommended as ineligible to the CRHR and 2 were not evaluated since they are avoided by project design. CRHR evaluations are based on the following:

- Aera 2 and Aera 9 are isolated fossils and not Historical Resources.
- Resources AERA-4 and -11 are less than 50 years of age and therefore do not qualify as historical resources per CEQA guidelines and local regulations.
- Resources AERA-8, AERA-10, and PGE-ISO-1 are isolated artifacts and not eligible to the CRHR.
- AERA-1, -3, -5, and -6 were examined by Denardo et al. (2013, revised 2014). The field studies concluded that the resources consisted of artifacts deposited in a secondary context, probably resulting from road cuts that appear on a 1954 USGS topographic map. Therefore, these resources no longer retain sufficient integrity to support a recommendation as eligible to the CRHR.
- Resources AERA-7 and -12 are concrete culverts of historic age, however the resource type is ubiquitous in the state of California and thus does not represent a unique archaeological resource. The two resources are not recommended as eligible to the CRHR.

- Resources P-42-040943 and CA-SBA-4003H were evaluated by Gill (2013) and determined ineligible to the CRHR. The Applicant's cultural resources studies concur with this finding.
- Resource SCGP-2, a 1950 concrete culvert under Dominion Road was determined exempt from the CRHR per Caltrans (2004).
- All six historic roads in the pipeline route were evaluated by the Provenience Group in August 2018 and found to be ineligible to the CRHR.
- Two sites, PGE-1 and SCGP-2, are avoided by project design and were not evaluated.

4.5.1.3 Paleontological Resources

Information pertaining to paleontological resources below was gathered from a review of the paleontological resources report, *"Paleontological Record Search, Aera Energy East Cat Canyon Oil Field Redevelopment Plan, Santa Barbara County, California,"* by Richards et al. of Paleo Solutions, Inc. (2016). The report includes the results of a paleontological records search and paleontological sensitivity study. The results of this report were used in the analysis of paleontological resources located in the Project area and its vicinity.

The Project's potential effects on paleontological resources was evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are discussed in more detail below.

Paleontological History

Geologic mapping of the Project area and its vicinity has been published by Dibblee and Ehrenspeck (1989, 1994) and Dibblee et al. (1994). These reports indicate that the proposed Project area contains 9 geologic units, ranging in age from the late Miocene to present (7.2 million years ago to present). There are four geologic units within the 2,108-acre oil field Project area, including Careaga Sandstone Cebada (Tcac), Graciosa (Tcag), Paso Robles Formation (QTp), Older Quaternary (Pleistocene) alluvium (Qoa), and Quaternary (Holocene) alluvium (Qa). There are two geological units within the 1,200-foot transmission line, Careaga Sandstone: Graciosa Member (Tcag) and Quaternary (Holocene) alluvium (Qa).

There are six geologic units within the 14-mile gas pipeline. These include the Sisquoc Formation (Tsqd), Careaga Sandstone Graciosa (Tcag) Member and undivided (Tca), Paso Robles Formation (QTp), Orcutt Sand (Qo), Dune sand (Qos), and Quaternary (Holocene) alluvium (Qa). There is also potential for excavation related to the proposed pipeline occurring in the southwest portion of the proposed Project area to encounter late Miocene to early Pliocene Sisquoc Formation (Tsqd), which underlay areas mapped as Holocene alluvium (Qa). The sensitivity of each unit is described further below.

Sensitivity Criteria

An analysis of the geologic units within the Project area, as described below, is based on an assessment of the following criteria of paleontological potential of each unit, as defined by the Society of Vertebrate Paleontology (2010):

- High Potential: Rock units from which vertebrate or scientifically significant invertebrate, plant, or trace fossils have been recovered are considered to have a High Potential for containing additional scientifically significant paleontological resources. Paleontological potential consists of both (1) the potential for yielding abundant or scientifically significant vertebrate fossils, or for yielding a few scientifically significant fossils, and (2) the importance of recovered evidence for new and scientifically significant data. Rock units that contain potentially datable organic remains older than late Holocene,

including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways, are also classified as having High Potential.

- Low Potential: Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have a Low Potential for yielding scientifically significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus, fossils are only preserved in rare circumstances; the presence of fossils is the exception, not the rule (e.g., basalt flows or Recent colluvium). Rock units with Low Potential typically do not require impact mitigation measures to protect fossils.
- No Potential: Some rock units have No Potential to contain scientifically significant paleontological resources (e.g., high-grade metamorphic rocks, such as gneisses and schists, and plutonic igneous rocks, such as granites and diorites). Rock units with No Potential require no protection or impact mitigation measures for paleontological resources.
- Undetermined Potential: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have Undetermined Potential. Further study is necessary to determine whether these rock units have High, Low, or No Potential to contain scientifically significant paleontological resources.

Paleontological Resources

The nine major geologic strata in the proposed Project area are described below with their respective sensitivity ratings by the Society of Vertebrate Paleontology (SVP) (SVP 2010). Numerical ages for the geologic units within the Project area and its vicinity are based on information provided by the International Commission on Stratigraphy (2016) and are as follows:

Sisquoc Formation (Tsqd). The late Miocene to early Pliocene age (7.2 to 5.3 million years ago) Sisquoc Formation consists of marine light grey claystone and white to cream-white, punky diatomaceous claystone and diatomite. This unit is locally fossiliferous and in several areas, oil-saturated. In some areas, the oil-saturated portions of the Sisquoc have been burned in natural ground fires which change the diatomaceous rocks to a frothy red stone. The Sisquoc Formation ranges from 1,200 to 1,800 feet thick in the Solomon Hills. SENSITIVITY RATING: High.

Careaga Formation (incl. Tcag, Tcac, and Tca). The late Pliocene (3.6 million years ago) Careaga Formation which lies above the Sisquoc Formation, is comprised of poorly cemented sandstone subdivided into a coarse grained subunit, the Graciosa subunit (Tcag), and a lower fine grained subunit, the Cebada subunit (Tcac). The Graciosa subunit is generally bedded with well sorted gradational layers and thicker, massive, fine grained layers. The unit has yielded numerous microfossil, invertebrate, and vertebrate localities, including specimens of mastodon, sea lion, turtle, mollusks, and foraminifera (Woodring and Bramlette, 1950). SENSITIVITY RATING: High.

Paso Robles Formation (QTp). The late Pliocene to Early Pleistocene age (3.6 to 2.5 million years ago) non-marine Paso Robles Formation is exposed in San Luis Obispo and Monterey Counties and is composed of grayish-red sandstone, claystone, limestone, and conglomerate with clasts of white siliceous shale and chert derived from the underlying Monterey Formation (Tennyson, 1992). The unit has yielded numerous vertebrate localities, including fragments of rodent, horse, and seal bone (Woodring and Bramlette, 1950). In addition, the Paso Robles Formation has yielded a number of invertebrate specimens of gastropod and ostracode fossils. SENSITIVITY RATING: High.

Orcutt Sand (Qo). This Pleistocene aged (2.5 million years ago) unit is composed of nonmarine wind-deposited (dune) sand. The sand is tan to rusty brown, poorly consolidated with a pebble gravel locally present at the base of the formation. This sandy unit is, in general, easily eroded. SENSITIVITY RATING: High.

Dune Sand (Qos). This Pleistocene aged (2.5 million years ago) unit is composed of poorly-consolidated to unconsolidated tan sand deposited in ancient sand dunes. These deposits represent the most recent episode of coastal dune deposition in this part of the Santa Maria Valley. The topography of the area reflects the ancient field of coastal sand dunes. These sands vary in thickness due to topography and the transitional nature of the contact with the Orcutt Formation, but is estimated to be up to 200-feet thick. SENSITIVITY RATING: High.

Quaternary Alluvium (Qa). Holocene aged (11,700 thousand years ago to present) surface deposits of younger Quaternary Alluvium. It is derived mostly as fluvial deposits in drainages, including Graciosa Canyon, Orcutt Creek, Bradley Canyon, Cat Canyon and Sisquoc River. SENSITIVITY RATING: Low.

Older alluvial deposits (Qoa) This geologic unit consists of Upper and middle Pleistocene aged (126,000 to 11,700 thousand years ago) strata. Strata have high variability in color, including non-marine brown, pale-gray, pale-tan, and reddish-brown. Strata are moderately consolidated, crudely stratified, and poorly sorted. Strata can be characterized as clayey to silty, pebbly sand and sandstone, silty to sandy pebble-cobble-boulder gravel, conglomerate, or breccia. Gravel and conglomerate typically occupy paleochannels or form lenticular beds, and contain sub-rounded clasts composed primarily of sandstone derived from Eocene formations exposed in the Santa Ynez Mountains. SENSITIVITY RATING: High.

Table 4.5-5. Geologic Units and Paleontological Sensitivity

Project Area	Geologic Unit(s)	Paleontological Sensitivity
2,108 acre oil field development	Careaga Sandstone: Cebada (Tcac) and Graciosa (Tcag) members	High
	Paso Robles Formation (QTp)	High
	Older Quaternary (Pleistocene) alluvium (Qoa)	High
	Quaternary (Holocene) alluvium (Qa)	Low
1,200 foot electric transmission line	Careaga Sandstone: Graciosa Member (Tcag)	High
	Quaternary (Holocene) alluvium (Qa)	Low
14 mile gas pipeline	Sisquoc Formation (Tsqd) potentially at depth	High
	Careaga Sandstone: Graciosa (Tcag) Member and undivided (Tca)	High
	Paso Robles Formation (QTp)	High
	Orcutt Sand (Qo)	High
	Dune sand (Qos)	High
	Quaternary (Holocene) alluvium (Qa)	Low

Record Searches

At the request of Paleo Solutions, Inc., paleontological record searches of the Project area and a one-mile radius was conducted by Dr. Ken Finger at the University of California, Berkeley, Museum of Paleontology (UCMP), and by Dr. Samuel McLeod at the Natural History Museum of Los Angeles County (LACM).

On November 8, 2016, UCMP identified one vertebrate fossil locality recorded within the Project area. LACM responded on November 29, 2016 with one locality also located within the Project area, and four additional fossil localities from the same geologic units in the Project vicinity (McLeod, 2016). Sediments

belonging to the Sisquoc Formation, which may be encountered at depth in the southwestern portion of the Project area, produced a fossil specimen of the primitive baleen whale (Cetotheriidae) (McLeod, 2016). The Careaga Sandstone has produced two localities within the Project boundaries (localities LACM 7419 and UCMP V71019). Recovered specimens include sea lion (Pinnipedia), Steller's sea cow *(Hydrodamalis cuestae),* shark (Isurus, Galeocerdo, Carcharodon), and whale (Mysticeti, Cetacea) (McLeod, 2016; Finger, 2016). The Paso Robles Formation (locality LACM 7860) produced fossil specimens of mammoth (Mammuthus) and horse (Equus) to the northwest of the Project area (McLeod, 2016). LACM reported two localities from the older Quaternary (Pleistocene) alluvial deposits in the Project vicinity. These included locality LACM 3517, which produced a fossil ground sloth (Paramylodon), and locality 3518 that produced a fossil tortoise (Testudinidae) and horse (Equus). No localities were reported from the Orcutt Sand or dune sand; however, these aeolian deposits have the potential for significant Pleistocene-aged fossils at depth (McLeod, 2016). Fossils are generally unknown from the Quaternary alluvial deposits, due to their young Holocene age (10,000 years ago to present). However, these young deposits are often underlain by older, paleontologically sensitive sediments at depth (McLeod, 2016).

4.5.2 Regulatory Setting

This section describes the cultural resource requirements of CEQA, the California Health and Safety Code (HSC), the Public Resources Code (PRC), California Register Program, the Office of Historic Preservation, the Santa Barbara County Land Use and Development Code, the Santa Barbara County Land Use Element of the Comprehensive Plan, and the County of Santa Barbara's (County) Cultural Resources Guidelines, Archaeological, Historical, and Ethnic Elements as provided in the Santa Barbara County Environmental Thresholds and Guidelines Manual (October 2008, as revised through July 2015).

4.5.2.1 California State Regulations

State of California CEQA Guidelines

State of California CEQA Guidelines require that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process (CCR Title 14(3) §15064.5; PRC §21083.2). If feasible, adverse effects to the significance of historical resources must be avoided or the effects mitigated (CCR Title 14(3) §15064.5(b)(4)). State CEQA Guidelines require that all feasible mitigation be undertaken even if the prescribed mitigation does not mitigate impacts to a less than significant level (California Office of Historic Preservation (OHP) 2001b:6; see also CCR Title 14(3) §15126.5 (a)(1)).

The term that CEQA uses for significant cultural resources is "historical resource," which is defined as a resource that meets one or more of the following criteria: 1) listed in, or determined eligible for listing, in the California Register of Historical Resources (California Register); 2) listed in a local register of historical resources as defined in PRC Section 5020.1(k); 3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or 4) determined to be a historical resource by a project's lead agency (PRC Section 21084.1 and State CEQA Guidelines Section 15064.5(a)). A historical resource consists of:

> *"Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…. Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources"*

CEQA Guidelines Section 15064.5

In accordance with State CEQA Guidelines Section 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a significant effect on the environment.

CEQA requires a lead agency to determine if an archaeological resource meets the definition of a historical resource, a unique archaeological resource, or neither (State CEQA Guidelines Section 15064.5(c)). Prior to considering potential impacts, the Lead Agency must determine whether an archaeological resource meets the definition of a historical resource in State CEQA Guidelines Section 15064.5(c)(1). If the archaeological resource meets the definition of a historical resource, then it is treated like any other type of historical resource in accordance with State CEQA Guidelines Section 15126.4. If the archaeological resource does not meet the definition of a historical resource, then the lead agency determines whether it meets the definition of a unique archaeological resource as defined in CEQA Statutes §21083.2(g). In practice, most archaeological sites that meet the definition of a unique archaeological resource also meet the definition of a historical resource. If the archaeological resource meet the definition of a unique archaeological resource, then it must be treated in accordance with CEQA Statutes §21083.2. If the archaeological resource does not meet the definition of a historical resource or a unique archaeological resource, then effects to the resource are not considered significant effects on the environment (State CEQA Guidelines Section 15064.5(c)(4)).

CEQA includes in its definition of historical resources, "any object [or] site …that has yielded or may be likely to yield information important in prehistory" (14 CCR 15064.5[3]), which is typically interpreted as including fossil materials and other paleontological resources. More specifically, destruction of a "unique paleontological resource or site or unique geologic feature" constitutes a significant impact under CEQA (State CEQA Guidelines Appendix G). CEQA does not provide an explicit definition of a "unique paleontological resource," but a definition is implied by comparable language within the act relating to archeological resources: "The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in: Guidelines for the Implementation of CEQA, as amended March 29, 1999" (Title 14, Chapter 3, California Code of Regulations: 15000 et seq.) (Association of Environmental Professionals, 2012).

Treatment of paleontological resources under CEQA is generally similar to treatment of cultural resources, requiring evaluation of resources in the project; assessment of potential impacts on significant or unique resources; and development of mitigation measures for potentially significant impacts, which may include avoidance, monitoring, or data recovery excavation.

California Health and Safety Code Section 7050.5

California HSC Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the County Coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Public Resources Code Section 5097.5

PRC Section 5097.5 provides for the protection of cultural resources. This PRC section prohibits the removal, destruction, injury, or defacement of archaeological features on any lands under the jurisdiction of State or local authorities.

The PRC Section 5097.5 also affirms that no person shall willingly or knowingly excavate, remove, or otherwise destroy a vertebrate paleontological site or paleontological feature without the express permission of the overseeing public land agency. It further states under PRC 30244 that any development that would adversely impact paleontological resources shall require reasonable mitigation. These regulations apply to projects located on land owned by or under the jurisdiction of the state or city, county, district, or other public agency (California Office of Historic Preservation 2005).

California Register of Historical Resources Criteria of Evaluation

The State of California Historical Resources Commission has designed the California Register for use by State and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The California Register is the authoritative guide to the State's significant historical and archaeological resources.

The California Register program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for State historic preservation grant funding, and affords certain protections under CEQA. The following criterion is used when determining if a particular resource has architectural, historical, archaeological, or cultural significance.

- **Criterion 1:** Is the resource associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States?
- **Criterion 2:** Is the resource associated with the lives of persons important to local, California, or national history?
- **Criterion 3:** Does the resource embody the distinctive characteristics of a type, period, region, method of construction, or represent the work of a master or possesses high artistic values?
- **Criterion 4:** Has the resource yielded, or have the potential to yield, information important to the prehistory or history of the local area, California, or the nation?

AB 52 and Tribal Cultural Resources

AB 52 creates and defines a specific type of cultural resource under CEQA, called "tribal cultural resources." The bill also establishes a formal role for California Native American tribes in the CEQA process and the identification of such resources through consultation with the lead agency (PRC § 21080.3.1(a)). A California Native American tribe is defined as a "Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission" (NAHC). This definition does not distinguish between federally recognized and non-federally recognized tribal groups, and is therefore more inclusive than the federal definition of "Indian tribe" (PRC § 21073). Provided that a California Native American tribe has requested it, CEQA lead agencies are required to consult with tribes about potential tribal cultural resources in the project area, the potential significance of project impacts, the development of project alternatives and the type of environmental document that should be prepared.

Tribal cultural resources, as defined by the California Environmental Quality Act (CEQA) section 21074(a)(1)-(2), includes either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. Included or determined to be eligible for inclusion in the California Register of Historical Resources.

    b. Included in a local register of historical resources as defined in Public Resources Code section 5020.1(k).

2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code section 5024.1(c). In applying the criteria set forth in 5024.1(c) for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Tribal representatives are considered experts appropriate for providing lead agencies with substantial evidence regarding the locations, types, and significance of tribal cultural resources within their traditionally and cultural affiliated geographic area (PRC § 21080.3.1(a)). Consultation in the context of AB 52 is defined as the meaningful and timely process of seeking, discussing, and carefully considering the views of others. Consultation should recognize the tribe's potential need for confidentiality regarding places that hold traditional tribal significance. Any information shared between the Tribes and the lead agency representatives is protected under confidentiality laws and subject to public disclosure (GC § 6254(r); GC § 6254.10) and can be disclosed only with the written approval of the Tribes who shared the information (PCR § 21082.3(c)(1-2)).

A project that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (PRC § 21084.2). Consultation with tribes is considered the best way for lead agencies to determine if a project could result in significant environmental impacts to tribal cultural resources (PRC § 21080.3.1(a); GC § 65352.4).

4.5.2.2 Local Regulations

Santa Barbara County Comprehensive Plan

The Land Use Element of the Comprehensive Plan, as amended December 2016, provides the following policies for historical and archaeological sites:

1. All available measures, including purchase, tax relief, purchase of development rights, etc., shall be explored to avoid development on significant historic, prehistoric, archaeological, and other classes of cultural sites.
2. When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids impacts to such cultural sites if possible.
3. When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate mitigation shall be required. Mitigation shall be designed in accord with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission.
4. Off-road vehicle use, unauthorized collection of artifacts, and other activities other than development which could destroy or damage archaeological or cultural sites shall be prohibited.
5. Native Americans shall be consulted when development proposals are submitted which impact significant archaeological or cultural sites.

Santa Barbara County Land Use and Development Code. The Santa Barbara County Land Use and Development Code, most recently updated in September 2018, repeats four of the five policies in the Comprehensive Plan as standards for archaeological and paleontological resource management (35.60.040) to include resource preservation through avoidance, mitigation of impacts and Native American consultation, as follows:

A. (See 2 above) Development proposed on a lot where archaeological or other cultural sites are located shall be designed to avoid impacts to the cultural sites if possible.

B. (See 3 above) When sufficient planning flexibility does not permit avoiding construction on an archaeological or other cultural site, adequate mitigation shall be required. Mitigation shall be designed in compliance with the guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission.

C. (See 5 above) Native Americans shall be consulted when development proposals are submitted that impact significant archaeological or cultural sites.

D. (See 1 above) All available measures, including purchase of the site, tax relief, purchase of development rights, etc., shall be explored to avoid development on significant historic, prehistoric, archaeological and other classes of cultural sites.

4.5.3 Environmental Thresholds

Santa Barbara County has revised its guidance on the evaluation of cultural resources in the *Guidelines for Determining the Significance of and Impacts to Cultural Resources- Archaeological, Historic, and Tribal Cultural Resources* (Guidelines) (County of Santa Barbara 2008, revised February 2018). The document provides thresholds and guidance for evaluating potential adverse environmental effects that a proposed project may have on cultural resources. The Guidelines incorporate CEQA Sections 15064.5 and 15126.4, which have been thoroughly discussed above.

The County guidelines state that a significant cultural resource is one that is listed or eligible for listing on the CRHR or NRHP. Significance is also assigned to cultural resources listed on local registers. Lastly, a significant resource may be identified by a lead agency as long as there is substantial evidence the resource is eligible for inclusion of the local register, CRHR or NRHP.

The County guidelines also clarify the distinctions between Historical Resources, Historic Resources, Tribal Cultural Resources, and Unique and Non-Unique Archaeological Resources.

The Guidelines Appendix B specifies procedures for cultural resources consultants to follow to identify, evaluate, and mitigate impacts to cultural resources. In brief, Phase 1 reports consist of a field survey and a literature search. If a cultural resource is identified during the Phase 1 study, a Phase 2 study is required to evaluate the significance of the resource. Phase 2 reports include the methods and results of the research and field surveys, an integrity rating and significance evaluation based on criteria provided in the guidelines, and recommendations for mitigation measures to reduce project impacts to any significant resources that cannot be avoided. If significant resources cannot be avoided, then Phase 3 mitigation is required after a Phase 3 proposal is prepared and approved. This proposal would outline the required mitigation, the timeframe for conducting and completing the mitigation, and any costs associated with it. If the mitigation would not reduce impacts to significant cultural resources to less than significant, then an EIR may be required. Additional guidelines are provided for curation of collections, evaluation of ethnic impacts, and steps for a shortened State Clearinghouse review.

Tribal Cultural Resources

As identified above, Public Resources Code section 21074(a)(1) defines a tribal cultural resource as, "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe." Cultural landscapes and "unique" and "nonunique" archaeologic resources (as defined in Pub. Resources Code, section 21074(b), and 21083.2(g-h)) that meet the criteria of subdivision (a), are also considered tribal cultural resources.

A resource shall be considered significant if it is: (1) listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code section 5024.1, subdivision (c). In applying these criteria, the lead agency must consider the significance of the resource to a California Native American tribe.

Therefore, the proposed Project may have substantial adverse change in the significance of a tribal cultural resource if:

- That adverse change is identified through consultation with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project (Pub. Resources Code, § 21084.2); or
- The resource is listed in, or eligible for listing in, the CRHR, or in a local register of historical resources, and it is demolished or materially altered, as described in State CEQA Guidelines section 15064.5, subdivision (b).

With respect to significance determinations, Public Resources Code section 21084.2 states, "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Lead agencies are further directed to avoid damaging effects to tribal cultural resources, when feasible, and incorporate measures to minimize identified effects either through consultation with affected Tribes or, if consultation does not occur, through adoption of the measures (or their equivalent) listed in Public Resources Code section 21084.3.

Paleontological Resources

CEQA Thresholds of Significance. A significant impact on paleontological resources would occur if the direct and indirect changes in the environment that may be caused by the particular build alternative would potentially result in the following future condition:

- The Direct or indirect destruction of a unique paleontological resource or site.

This threshold is consistent with the Environmental Checklist Form provided in Appendix G of the State CEQA Guidelines.

4.5.4 Environmental Impacts and Mitigation Measures

Pursuant to the CEQA Guidelines Section 15064.5(b) and PRC Section 21084.2, a project that causes a substantial adverse change to a historical resource, unique archaeological site, or to the significance of a tribal cultural resource, thereby diminishing the resource's eligibility for inclusion in the NRHR or CRHR, is considered a project that has a significant effect on the environment. Adverse changes to historical resources, unique archaeological sites, tribal cultural resources, or paleontological resources, can be characterized by direct and indirect impacts.

Direct impacts to historical resources and paleontological resources are typically considered permanent considering the non-renewable nature of these resources. Indirect impacts are sometimes intangible and can occur later in time or away from the resource, but are nevertheless reasonably foreseeable. Direct impacts can be caused by Project-related development or construction of pads or wells, roads, gas pipelines, or power lines, as well as operations and maintenance actives. While also causing permanent effects, indirect impacts are often not the result of direct construction impacts, but rather can occur in the distant but still foreseeable future and are connected to direct impacts. Examples of indirect impacts include changes to a landform resulting from grading during road construction and maintenance that causes changes in water runoff, leading to unnatural erosion of cultural deposits. Another type of common indirect impact is the increased potential for looting of cultural, tribal, or paleontological resources following the construction of new roads that provide greater access to remote areas.

In addition, temporary impacts lasting less than a year can occur that cause changes to a historical resource's setting, feeling, or association. Temporary impacts can include visible or audible changes to the physical environment surrounding a resource because of temporary Project laydown areas, or construction noise and activity occurring near Project components.

Direct, indirect, and temporary impacts resulting from the proposed Project and alternatives are assessed for construction and routine O&M phases. Construction activities include grading, well drilling, appurtenant structure construction, natural gas pipeline installation, power line construction, and associated activities. Routine operations include cyclic steaming, oil transport (via trucks or pipeline), and routine maintenance.

Applicant proposed Avoidance and Minimization Measures (AMMs CUL-1 through -7) to address potential impacts to cultural and paleontological resources are provided in Table 4.5-6 and Appendix C.

Table 4.5-6. Applicant Proposed Avoidance and Minimization Measures Related to Cultural/Historic Resources

Number	Measure
CUL-1	**Cultural and Paleontological Resource Monitoring Plan.** Prior to ground-disturbing activities on the Project site and each project component (i.e., natural gas pipeline, electrical transmission lines), a Worker Education Program shall be designed and implemented for all Project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. The Program shall include the following: a. A pre-construction workshop shall be conducted by a County-qualified archaeologist and a Santa Ynez Band of Chumash Indians (SYBCI) tribal representative funded by the applicant. Attendees shall include the applicant, archaeologist, SYBCI representative, construction supervisors, and heavy equipment operators to ensure that all parties understand the cultural resources monitoring program and their respective roles and responsibilities. All construction and/or landscaping personnel who would work on the site during any phase of ground disturbance in archaeologically sensitive portions of the project area shall be required to attend the workshop. b. The names of all personnel who attend the workshop shall be recorded and shall be issued hardhat stickers denoting that they have received workshop training. This workshop content shall be captured and provided to any new employees or subcontractors that may be needed during ground-disturbance construction activities. Names of newly trained personnel shall be recorded and issued appropriate hardhat stickers. c. The workshop shall review the following: types of archaeological resources that may be uncovered; provide examples of common archaeological artifacts and other cultural materials to examine; describe why monitoring is required; what makes an archaeological resource significant; identify monitoring procedures; what would temporarily halt construction and for how long; describe a reasonable worst-case resource discovery scenario (i.e., discovery of intact human remains or an unknown, intact, substantial midden deposit); and describe reporting requirements and the responsibilities of the construction supervisor and crew. d. Examples of archaeological artifacts (e.g., ground and chipped stone tools) and other cultural materials (soils containing evidence of food refuse, localized activity areas such as roasting pits) that may be reasonably encountered during construction shall be illustrated on posters that are shown at the workshop. The posters shall remain in construction worker break room or similar common onsite areas where they may be accessible for reference as necessary. The workshop shall make attendees aware of prohibited activities, including vehicle use in protected areas, and educate construction workers about the inappropriateness of unauthorized collecting of artifacts that can result in impacts on cultural resources.
CUL-2	Prior to ground-disturbing activities at the Project site and at each project component (i.e., natural gas pipeline, electrical transmission lines), a Cultural Resources Management Plan (CRMP) shall be prepared that specifies policies and procedures to manage and protect known and unknown cultural resources on the entire Project site. This shall include: a. A register of all recorded sites, their mapped location, and associated site records; b. Procedures to ensure that exposed resources are adequately protected from inadvertent disturbances including illicit artifact collection; c. A monitoring plan to be followed during all ground disturbance activities, including routine monitoring protocols; and, Discovery plans including treatment plans for discovery of any human remains.
CUL-3	Proposed ground disturbances within previously undisturbed areas of high and moderate archaeological sensitivity shall be addressed by a High and Moderate Archaeological Sensitivity Area Monitoring Plan. The Plan shall be developed jointly by a County-qualified archaeologist and a SYBCI representative as a result of additional site visits and review of proposed Project grading plans. The resulting Plan shall identify specific areas within the previously defined High and Moderate Archaeological Sensitivity Areas that shall be monitored by the Project archaeologist and SYBCI representative. The Final High and Moderate Archaeological Sensitivity Area Monitoring Plan approved by the SYBCI representative shall be reviewed and approved by the County prior to issuance of land use clearance for grading.

Table 4.5-6. Applicant Proposed Avoidance and Minimization Measures Related to Cultural/Historic Resources

Number	Measure
CUL-4	If previously unrecorded archaeological sites are encountered during ground disturbing activities during construction monitoring within any of the high, moderate, or low archaeological sensitivity areas, all work shall temporarily cease within 50 feet of the discovery and activity redirected until the archaeological monitor and SYBCI representative can document and assess the find, and mitigate any potentially significant impacts. Work shall be allowed to continue in the area of the find once the archaeologist, SYBCI representative, and Aera have identified and implemented appropriate mitigation measures.
CUL-5	In the event that human remains and any related artifacts are encountered, all work shall temporarily cease within 100 feet of the discovery. The Santa Barbara County coroner shall be notified immediately pursuant to Public Resources Code 5097.98. The SYBCI shall be notified to identify a Most Likely Descendant who shall work with Aera to determine the appropriate disposition of the remains in an area that shall ensure any future disturbances are avoided.
CUL-6	**Avoidance of Cultural or Historic Resources During Natural Gas Import Pipeline Installation**. a. The natural gas import pipeline is planned to be located within the west side of Dominion Road in the area within 0.25 mile (1,320 feet) of SCGP-1 and the Roadamite area, in accordance with the Garcia and Associates' Review of a Previously Completed Records Search and Phase I Cultural Resources Survey and Evaluation for the Gas Pipeline Route in Support of the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California (2014b). No ground disturbing activities are planned to occur on the east side of Dominion Road within 0.25 mile (1,320 feet) of SCGP-1 and the Roadamite area. b. Archaeological monitoring will occur within 0.25 mile (1,320 feet) of SCGP-1 and the Roadamite area of the Project Site to ensure no previously unidentified resources are discovered during construction. If avoidance of SCGP-1 is not feasible or in the event of the discovery of unanticipated cultural resources that are eligible or potentially eligible for the California Register of Historic Resources are found during construction, then Phase II testing (excavation) of the area will be required to evaluate archaeological sites for significance in accordance with the California Register of Historic Resources.
CUL-7	**Avoidance of Cultural or Historic Resources During Electrical Line Route Installation.** A 50-foot buffer will be staked around the resource boundary (PGE-1 and PGE-ISO-1). A qualified archaeologist will provide cultural resources awareness training for construction personnel prior to the start of work. Construction personnel will be briefed on laws that protect cultural resources and procedures to be followed in the event that unique archaeological resource, historical resource, or human remains are encountered during construction.

4.5.4.1 Oil Field Development and Operation

Most of the proposed Project's potential impacts to cultural, tribal, and paleontological resources would occur from installing well pads, roads, and other Project infrastructure; installing underground and aboveground intra-facility pipelines; the operation of new facilities and drilling; and planting of oak trees in the Conservation Area. Table 4.5-6 provides a summary of potential impacts to known historical resources resulting from these activities as reported in the Applicant's Cultural Resources Information Summary (Padre, 2017) (Appendix N).

Five studies addressing the oil field and Conservation Easement have been completed by the Applicant since 2013, including two Phase I cultural resources records searches and pedestrian surveys (Denardo et al. 2013, revised 2014; Letter, 2016, revised 2017), two buried sites sensitivity analyses (Letter, 2017; Willis and Meyer, 2017), and a synthesis of all of the above with Applicant's impacts analysis (Padre, 2017). These studies did not identify any prehistoric resources within or adjacent to Project area. However, 19 historic-aged resources were identified in the oil field or Conservation Easement areas (Padre, 2017). These resources are presented in Table 4.5-6, along with the results of the Applicant's impacts analysis (Padre, 2017:3-6 to 3-10). Specific Project activity areas and associated potential impacts to historical resources are discussed below.

Table 4.5-6. Impact Summary Table for Historical Resources Identified by Applicant 2013-2018.

Resource Identifier	Potential Impacts Resulting from Project Activities
Aera-1 Primary No.: P-42-004138 Trinomial: CA-SBA-4138H	Minimal site disturbance resulting from tree planting.
Aera-3 Primary No.: P-42-004139 Trinomial: CA-SBA-4139H	Eastern boundary could be impacted by grading during pad construction.
Aera-4 Primary No.: P-42-004144 Trinomial: CA-SBA-4144H	No impact.
Aera-5 Primary No.: P-42-004140 Trinomial: CA-SBA-4140H	No impact.
Aera-6 Primary No.: P-42-004145 Trinomial: CA-SBA-4145H	Eastern boundary could be impacted during road improvements.
Aera-7 Primary No.: P-42-041187 Trinomial*: None	Minimal site disturbance resulting from tree planting.
Aera-11 Primary No.: P-42-004146 Trinomial: CA-SBA-4146H	No impact.
Aera-12 Primary No.: P-42-041118 Trinomial*: None	Minimal site disturbance resulting from tree planting.
Primary No.: P-42-040943 Trinomial: None	Eastern boundary could be impacted during road improvements.
Primary No.: None Trinomial: CA-SBA-4003H	No impact.
SCGP-1 Primary No.: P-42-004142 Trinomial: CA-SBA-4142H	No impact. Site avoided.
SCGP-2 Primary No.: P-42-041182 Trinomial: None	Removal from pipeline placement.
PGE-1 Primary No.: P-42-004141 Trinomial: CA-SBA-4141H	No impact. Site avoided.
Graciosa Road (SR 135) Primary No.: Pending Trinomial: Pending	Excavation of 8-inch diameter gas pipeline 42 inches below surface.
Orcutt Road Primary No.: Pending Trinomial: Pending	Excavation of 8-inch diameter gas pipeline 42 inches below surface.
Clark Avenue Primary No.: Pending Trinomial: Pending	Excavation of 8-inch diameter gas pipeline 42 inches below surface.
Dominion Road Primary No.: Pending Trinomial: Pending	Excavation of 8-inch diameter gas pipeline 42 inches below surface.

Table 4.5-6. Impact Summary Table for Historical Resources Identified by Applicant 2013-2018.

Resource Identifier	Potential Impacts Resulting from Project Activities
Palmer Road Primary No.: Pending Trinomial: Pending	Excavation of 8-inch diameter gas pipeline 42 inches below surface.
Cat Canyon Road Primary No.: Pending Trinomial: Pending	Excavation of 8-inch diameter gas pipeline 42 inches below surface.

Impact CULT-1: The proposed Project may cause a substantial adverse change in the significance of a historical resource, unique archaeological resource, or tribal cultural resource.

No historical resources, unique archaeological resources, or tribal cultural resources have been identified within the proposed oil field development and operation areas or Conservation Easement within the Project site. However, based on a review of Willis and Meyer (2017) and Letter 2017, it can be concluded that moderate to high sensitivity Holocene soils are present throughout these areas. Holocene-aged soils represent a critical span of 12,000 years when humans are known to have lived and occupied the region in prehistory. Holocene sediments are primarily located in drainage bottoms and river valleys, and occur in the northernmost portion of the Conservation Easement, and across the northern, mid-eastern, and southeastern Project site areas (Letter 2017, Figure 4). In addition, as discussed in Section 4.5.1.2, Mr. Freddie Romero of the Santa Ynez Band of Chumash Indians identified the Project site area as having high sensitivity for the presence of buried cultural resources, although no specific cultural resource locations were disclosed.

Direct impacts to presently unidentified historical resources, unique archaeological resources, or tribal cultural resources could occur as a result of ground disturbing activities in previously undisturbed Holocene sediments, such as would be experienced in the construction of new well pads or drilling of wells; grading or cutting new access roads; construction of new processing facilities, support infrastructure facilities, intra-field pipeline installation and related facilities; as well as planting of oak, other sensitive plants, or irrigation systems within the Conservation Easement. Ground disturbance from these activities could result in loss of information about history and prehistory, thereby degrading the preservation value of these resources. Physical disturbance of CRHR-eligible resources would constitute a significant impact under the CEQA. Therefore, there is potential for adverse direct effects on buried cultural resources that may be present. **Potential impacts to buried resources inadvertently discovered during construction would be less than significant (Class II) with the implementation of Applicant proposed Avoidance and Minimization Measures (AMMs CULT-1 through CULT-5 and Mitigation Measures (MMs) CULT-1 through CULT-5**.

Ground disturbance as described above also has potential to cause indirect impacts to unknown buried cultural and tribal cultural resources. **MM CULT-1 through CUL-5 would reduce indirect impacts on as-yet unidentified cultural resources resulting from Project construction to an insignificant level (Class II).**

MM CULT-1 **Worker Environmental Awareness Program (WEAP).** Prior to supervisors and crew undertaking Project pre-construction and construction activities, the Applicant shall submit evidence to County Planning and Development (P&D) that WEAP training has been provided to construction supervisors and crew to ensure their awareness of requirements regarding the protection of historical resources, unique archaeological resources, tribal cultural resources, and paleontological resources, and the procedures to be implemented in the event that historical resources or paleontological resources are encountered while

conducting ground-disturbing activities. Prior to conducting the training, the materials will be prepared by the Project Cultural Resources Specialist and Paleontological Specialist (MM CULT-2), and will be reviewed and approved by P&D. The WEAP will be presented to workers by a Secretary of the Interior and County-qualified cultural resources specialist, qualified paleontologist who meets minimum Society of Vertebrate Paleontology (SVP) educational requirements, and tribal representative designated by the Santa Ynez Band of Chumash Indians (SYBCI).

PLAN REQUIREMENTS and TIMING: All construction supervisors and crew members (including landscaping crew and heavy equipment operators) shall be required to undergo cultural and tribal cultural resources WEAP training prior to commencement of ground-disturbing activities or prior to beginning work on the project site. A sign-in sheet will record names of crew members who have completed training, and hard hat stickers will be issued to crew members upon completion of training.

MONITORING: P&D permit compliance staff shall confirm WEAP training during field work spot checks, and upon receipt of sign-in sheet copies.

MM CULT-2a **Cultural and Tribal Resource Monitors.** The Owner/Applicant shall have all ground disturbing activities monitored by P&D approved archaeologists and a Native American consultant in compliance with the provisions of the County Archaeological Guidelines. Cultural resource monitoring shall occur in all Project activity areas located in moderate to high sensitivity areas (as identified in MM-CULT-2c), or undisturbed Holocene sediments, including within Project oil development areas, the Conservation Easement, and along the 115 kV power line and natural gas pipeline installation routes.

PLAN REQUIREMENTS and TIMING: Prior to issuance of the Zoning Clearance, the Owner/Applicant shall submit for P&D review and approval a contract or Letter of Commitment between the Owner/Applicant and the archaeologist, consisting of a project description and scope of work, and once approved by P&D, shall execute the contract. The Owner/Applicant shall provide P&D compliance monitoring staff with the name and contact information for the assigned onsite monitor(s) prior to grading/building permit issuance and pre-construction meeting.

MONTIORING: P&D compliance staff shall confirm monitoring by the archaeologist and Native American consultant and P&D permit compliance staff shall spot check field work.

MM-CULT-2b **Cultural Resources Management Plan (CRMP).** Prior to cultural and tribal monitor work commencing, a P&D approved archaeologist shall prepare a CRMP that identifies monitoring policies, procedures, and protocols. The CRMP shall include a description of all resources present in the Project site, 115 kV power line route, and natural gas pipeline route; a map showing location of all resources; safety protocols for monitors; and discovery and treatment plans for the inadvertent discovery of historical resources and human remains.

PLAN REQUIREMENTS and TIMING: Prior to issuance of the Zoning Clearance, the Owner/Applicant shall submit a CRMP for P&D review and approval.

MONTIORING: P&D compliance staff shall spot check field work to confirm monitors are working in accordance with the CRMP approved guidelines, procedures, and protocols.

MM-CULT-2c **Archaeological Sensitivity Area Monitoring Plan (ASAMP).** Prior to issuance of Zoning Clearance, the Owner/Applicant shall prepare and submit an ASAMP for all areas of proposed grading. The ASAMP shall include maps designating moderate and high sensitivity areas within the Project site and along the 115 kV power line and natural gas pipeline routes, and shall include maps with clearly labelled locations of all known resources. Areas denoted in the ASAMP as having moderate sensitivity shall require part-time monitoring, while a high sensitivity rating shall require full-time monitoring during all ground disturbance activities.

PLAN REQUIREMENTS and TIMING: Prior to issuance of the Zoning Clearance, the Owner/Applicant shall submit an ASAMP for P&D review and approval.

MONTIORING: P&D compliance staff shall spot check field work to confirm monitors are working in accordance with the ASAMP.

MM CULT-3 **Stop Work at Encounter.** The Owner/Applicant and/or their agents, representatives or contractors shall stop or redirect work immediately in the event that archaeological, tribal or human remains are encountered during grading, construction, landscaping or other construction-related activity. The Owner/Applicant shall immediately contact P&D staff and retain a P&D-approved archaeologist and Native American representative to evaluate the significance of the find in compliance with the provisions of the County Archaeological Guidelines and conduct appropriate mitigation funded by the Owner/Applicant.

PLAN REQUIREMENTS and TIMING: This condition shall be printed on all building and grading plans.

MONITORING: P&D permit processing planner shall check plans prior to issuance of the Zoning Clearance and P&D permit compliance monitoring staff shall spot check in the field throughout grading and construction.

MM CULT-4 **Incidental Discovery of Historical Resources or Unique Archaeological Resources.** In the unlikely event that previously unidentified historical resources or unique archaeological resources are discovered during implementation of the proposed Project, all work within 20 feet (6-meters) of the discovery shall be halted. The Owner/Applicant shall retain a P&D-approved cultural resources specialist to evaluate and treat the discovery, which shall be funded by the Owner/Applicant. All documents associated with the evaluation and treatment of any resource shall be prepared following professional best practice standards and shall comply with guidelines set forth by the County of Santa Barbara. All documentation, reports, notes, and collections, if made will be deposited and curated at the CCIC at UCSB.

PLAN REQUIREMENTS and TIMING: This condition shall be printed on all building and grading plans.

MONITORING: P&D permit compliance staff shall document Owner/Applicant compliance with the requirements described herein and shall conduct site inspections in the event historical or unique resources are discovered.

MM CULT-5 **Incidental Discovery of Tribal Cultural Resources.** In the event that unanticipated tribal cultural resources (e.g., resources that are significant because of the sacred and/or cultural tribal value as defined in Section 4.5.2.1 of this EIR) are encountered during ground-disturbing or other construction activities, work must cease within 20-feet (6-

meters) of the discovery and P&D staff and local tribal representatives shall be notified by phone and in writing. Work may continue only after the resources are recorded and evaluated by a P&D-approved cultural resources specialist in archaeology and is examined by tribal representatives qualified to identify tribal cultural resources as defined in AB 52 (PRC § 21080.3.1(a)).

PLAN REQUIREMENTS and TIMING: This condition shall be printed on all building and grading plans.

MONITORING: P&D permit compliance staff shall document Owner/Applicant compliance with the requirements described herein and shall conduct site inspections in the event tribal cultural resources are discovered.

Impact CULT-2: The proposed Project could damage human remains during ground disturbing activities occurring in the Project site.

No human remains have been found within the proposed Project site, including the oil development field or Conservation Easement area. However, it is possible that previously unidentified remains may be discovered during ground disturbing activities. In the event that any human remains or related resources are discovered, such resources shall be treated in accordance with State and local regulations and guidelines for disclosure, recovery, relocation, and preservation, as appropriate, including CEQA Guidelines Section 15064.5(e). **Implementation of MM CULT-6 would reduce potential impacts to human remains to a less than significant level (Class II).**

MM CULT-6 **Incidental Discovery of Human Remains.** In accordance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98, if human remains are found, all ground disturbing activities shall halt within 165 feet (50-meters) of the discovery. The Owner/Applicant shall contact the Santa Barbara County Coroner within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie potential remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains do not require an assessment of cause of death and that the remains are or are believed to be Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with Section 5097.98 of the California Public Resources Code, the NAHC must immediately notify those persons it believes to be the Most Likely Descendent (MLD) of the deceased Native American. The descendants shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative shall then determine, in consultation with the County, the disposition of the human remains.

PLAN REQUIREMENTS and TIMING: This condition shall be printed on all building and grading plans.

MONITORING: P&D permit compliance staff shall document Owner/Applicant compliance with the requirements described herein and shall conduct site inspections in the event human remains are discovered.

Impact CULT-3: The proposed Project may result in a significant impact to paleontological resources due to the direct or indirect destruction of a unique paleontological resource or site located in the Project site.

Of the nine major geologic strata identified in the proposed Project site, four are present in the oil field development and Conservation Easement Project areas (McLeod 2016). These include the Careaga Sandstone Cebada (Tcac) and Graciosa (Tcag) members, Paso Robles Formation (QTp), Older Quaternary (Pleistocene) alluvium (Qoa), and Quaternary (Holocene) alluvium (Qa). All but the Quaternary (Holocene) alluvium are rated as high sensitivity according to SVP guidelines (2010). Ground disturbance in these geologic sediments could cause irreparable damage or destruction to paleontological fossils or sites. **Implementation of MMs CULT-1, and CULT-7 through CULT-9 (below) would reduce impacts to paleontological resources to less than significant (Class II).**

MM CULT-7a **Paleontological Resource Monitor.** The Owner/Applicant shall have all ground disturbing activities located in high sensitivity geologic units or sediments be monitored by a P&D approved paleontologist. Intensity of paleontological monitoring shall be determined in the Paleontological Resources Management Plan (PRMP) and shall include all high paleontological sensitivity areas within the oil development area, the Conservation Easement, and along the 115 kV power line and natural gas pipeline installation routes.

PLAN REQUIREMENTS and TIMING: Prior to issuance of the Zoning Clearance, the Owner/Applicant shall submit for P&D review and approval a contract or Letter of Commitment between the Owner/Applicant and the paleontologist, consisting of a project description and scope of work, and once approved by P&D, shall execute the contract. The Owner/Applicant shall provide P&D compliance monitoring staff with the name and contact information for the assigned onsite monitor(s) prior to grading/building permit issuance and pre-construction meeting.

MONTIORING: P&D compliance staff shall confirm monitoring by the paleontologist and P&D permit compliance staff shall spot check field work.

MM-CULT-7b **Paleontological Resources Management Plan (PRMP).** Prior to paleontological monitor work commencing, a P&D approved paleontologist who meets or exceeds educational qualifications established by the Society for Vertebrate Paleontology (SVP shall prepare a PRMP that identifies monitoring policies, procedures, and protocols. The PRMP shall include a description of all resources present in the Project site, 115 kV power line route, and natural gas pipeline route; a map showing location of all sensitive sediments and known fossil localities; safety protocols for monitors; and discovery and treatment plans for the inadvertent discovery of paleontological resources.

PLAN REQUIREMENTS and TIMING: Prior to issuance of the Zoning Clearance, the Owner/Applicant shall submit for P&D review and approval a PRMP.

MONTIORING: P&D compliance staff shall spot check field work to confirm monitors are working in accordance with the PRMP approved guidelines, procedures, and protocols.

MM CULT-8 **Stop Work at Encounter.** The Owner/Applicant and/or their agents, representatives or contractors shall stop or redirect work immediately in the event that paleontological resources, including isolated fossil occurrences, are encountered during grading, construction, landscaping or other construction-related activity. The Owner/Applicant shall immediately contact P&D staff and retain a P&D-approved paleontologist and Native

American representative to evaluate the significance of the find in compliance with the provisions of the County Archaeological Guidelines and conduct appropriate mitigation funded by the Owner/Applicant.

PLAN REQUIREMENTS and TIMING: This condition shall be printed on all building and grading plans.

MONITORING: P&D permit processing planner shall check plans prior to issuance of the Zoning Clearance and P&D permit compliance monitoring staff shall spot check in the field throughout grading and construction.

MM CULT-9 **Incidental Discovery Paleontological Resources.** In the unlikely event that previously unidentified paleontological resources are discovered during implementation of the proposed Project, all work within 20 feet (6-meters) of the discovery shall be halted. The Owner/Applicant shall retain a P&D-approved paleontologist to evaluate and treat the discovery, which shall be funded by the Owner/Applicant. All documents associated with the evaluation and treatment of any resource shall be prepared following professional best practice standards and shall comply with guidelines set forth by the California Office of Historic Preservation.

PLAN REQUIREMENTS and TIMING: This condition shall be printed on all building and grading plans.

MONITORING: P&D permit compliance staff shall document Owner/Applicant compliance with the requirements described herein and shall conduct site inspections in the event paleontological resources are discovered.

4.5.4.2 Transmission Line Construction and Operation

Impact CULT-1: The proposed Project may cause a substantial adverse change in the significance of a historical resource, unique archaeological resource, or tribal cultural resource.

As identified in Denardo and Letter (2014b), one historic-aged resource (PGE-1) was identified within the 115 kV power line right-of-way and surrounding 50-ft. work area radius. This historic refuse scatter has not been subject to a Class III subsurface testing program to assess the resource's significance per the CEQA guidelines, i.e., Criteria 1-4 (see Section 4.5.2.1); however, in accordance with Santa Barbara County Land Use Element of the Comprehensive Plan (2016) and Cultural Resources Preservation Requirement A, the Applicant proposes AMM CUL-7, which includes staking a 50-ft. buffer around the resource boundary to ensure avoidance during power line installation.

Based on a review of Letter (2017) and Willis and Meyer (2017), there are three areas of highly sensitive Holocene soils present at the 0.3-mi. 115 kV power line's northern terminus (Letter 2017, Figure 5; Willis and Meyer 2017, Figure 3). Subsurface testing of Holocene sediments was completed by the Applicant to a maximum depth of 1-meter in the general location of the proposed five interconnection structures situated along the 0.3 connection line in the southern portion of the Project site (Letter 2018). No cultural material was observed in the 1-meter soil samples tested using a 19.7-in. diameter hand operated auger bucket and dry-screening of augered soil samples through 1/8-inch shaker screen mesh (Letter 2018:2). However, the proposed depth of the monopoles' concrete foundation disturbance could reach up to 35-ft. deep. The study described by Letter (2018) is limited in depth (max. depth = 1 meter), and therefore, unable to eliminate the potential for adverse impacts to buried historical resources, unique archaeological resources, or tribal cultural resources. Also, the entire route of the 115 kV power line has been identified

by Mr. Romero of the Santa Ynez Band of Chumash Indians as having high sensitivity for containing tribal cultural resources, although no specific tribal cultural resource locations were disclosed along the 115 kV power line route.

Direct impacts to presently unidentified historical resources, unique archaeological resources, or tribal cultural resources could occur as a result of ground disturbing activities in previously undisturbed Holocene sediments along the 115 kV power line route. These activities include construction of concrete foundations and installation of up to ten monopoles along the power line route, as well as ground disturbance caused by vegetation clearance and construction of equipment laydown and storage areas. Ground disturbance from these activities could result in loss of information about history and prehistory, thereby degrading the preservation value of these resources. Physical disturbance of CRHR-eligible resources would constitute a significant impact under the CEQA. Therefore, the potential for adverse direct effects on known resources (PGE-1) and buried unidentified cultural or tribal cultural resources is moderate to high. **Potential impacts to buried tribal cultural resources and unidentified cultural resources would be less than significant (Class II) with the implementation of AMM CUL-1 through CUL-5 and CUL-7, as well as MMs CULT-1 through CULT-5 (above), and CULT-10.**

Ground disturbance as described above also has potential to cause indirect impacts to buried cultural and tribal cultural resources. Indirect effects and temporary effects would be associated with visual intrusions into the historic setting of PGE-1 and as-of-yet unidentified cultural resources. **MMs CULT-1 through CULT-5, and MM CULT-10 would reduce indirect impacts resulting from Project construction to a less than significant level (Class II).**

MM CULT-10 **Resource Flag and Avoid.** Prior to commencement of Project pre-construction and construction activities along the 115 kV power line route or natural gas pipeline route, the Applicant shall install staked flagging at 50-ft. radius around the resource boundaries of previously recorded resources PGE-1 and SCGP-1. WEAP training (MM CULT-1) will include discussion of staked flagging to ensure supervisors and worker crews understand that workers shall not enter or disturb the area contained within flagging.

PLAN REQUIREMENTS and TIMING: Staked flagging shall be installed up to one-week prior of pre-construction activities occurring along the 115kV power line route and natural gas pipeline route. Flagging shall be replaced as needed to maintain visibility throughout the power line and natural gas pipeline installation process.

MONITORING: P&D permit compliance staff shall confirm appropriate staked flagging has been installed around PGE-1 and SCGP-1 one week prior to construction beginning and during field work spot-checks along the 115 kV power line route and natural gas pipeline route.

Impact CULT-2: The proposed Project could damage human remains during ground disturbing activities occurring in the Project site.

No human remains have been found within the proposed 115 kV power line route. However, it is possible that previously unidentified remains may be discovered during ground disturbing activities. In the event that any human remains or related resources are discovered, such resources shall be treated in accordance with State and local regulations and guidelines for disclosure, recovery, relocation, and preservation, as appropriate, including CEQA Guidelines Section 15064.5(e). **Implementation of MM CULT-6 would reduce Impact CULT-2 to a less than significant level (Class II).**

Impact CULT-3: The proposed Project may result in a significant impact to paleontological resources due to the direct or indirect destruction of a unique paleontological resource or site located in the Project site.

Two major geologic strata have been identified by the Applicant as being present in the proposed 115 kv power line route (Richards and Aron 2016; McLeod 2016). These include the Graciosa (Tcag) members and Quaternary (Holocene) alluvium (Qa). The Careaga Sandstone: Graciosa (Tcag) sediment is rated as high sensitivity according to SVP guidelines (2010), while the latter is rated as low sensitivity for containing paleontological resources. Ground disturbance in high sensitivity geologic sediments could cause irreparable damage or destruction to paleontological fossils or sites. **Implementation of MMs CULT-1, and CULT-7a/b through CULT-9 would reduce impacts to paleontological resources to less than significant (Class II)**.

4.5.4.3 Natural Gas Pipeline Construction and Operation

Impact CULT-1: The proposed Project may cause a substantial adverse change in the significance of a historical resource, unique archaeological resource, or tribal cultural resource.

As identified in Denardo and Letter (2014a), one historic-aged resource (SCGP-1) was identified within the natural gas pipeline ROW and surrounding 50-ft. work area radius. This historic brick and industrial refuse scatter was recommended eligible to the CRHR, per the CEQA guidelines, i.e., Criteria 1-4 (see Section 4.5.2.1). In accordance with Santa Barbara County Land Use Element of the Comprehensive Plan (2016) and Cultural Resources Preservation Requirement A, the Applicant proposes AMM CUL-6, which includes cultural resources monitoring during construction activities near the resource, and avoidance of the resource within a 0.25-mi. (1,320-ft.) radius. AMM CUL-6 also states that if avoidance of SCGP-1 is not feasible, or if the resource is encountered in subsurface contexts beyond the current known boundaries of the resource, then extended Phase II testing of the resource will occur to further evaluate the resource.

According to Letter (2017) and Willis and Meyer (2017), there are highly sensitive Holocene soils present at the natural gas pipeline's western and eastern termini (Letter 2017, Figure 5; Willis and Meyer 2017, Figure 3). In addition, the entire route of the natural gas pipeline has been identified by Mr. Romero of the Santa Ynez Band of Chumash Indians as having high sensitivity for containing tribal cultural resources, although no specific tribal cultural resource locations were disclosed.

Direct impacts to presently unidentified historical resources, unique archaeological resources, or tribal cultural resources could occur as a result of ground disturbing activities in previously undisturbed Holocene sediments or near resource SCGP-1 along the natural gas pipeline route or associated 30 to 50-foot right-of-way. These activities include excavation of horizontal directional drilling work areas of 50 by 200-feet with an exit area of 50 by 100-feet as well as a temporary work area on the exit side of the drill measuring 10-feet by 1,650-feet. Horizontal bores are usually placed 10 to 15-feet deep, and can require entry pits up measuring 15 by 40-feet wide. Ground disturbance from these activities could result in loss of information about history and prehistory; thereby, degrading the preservation value of these resources. Physical disturbance of CRHR-eligible resources would constitute a significant impact under the CEQA. Therefore, the potential for adverse direct effects on known resources (SCGP-1) and buried cultural or tribal cultural resources is moderate to high.

Potential impacts to buried tribal cultural resources and as-of-yet unidentified cultural resources would be less than significant (Class II) with the implementation of AMM CUL-1 through CUL-5 and CUL-6, as well as MMs CULT-1 through CULT-5.

Ground disturbance as described above also has potential to cause indirect impacts to buried cultural and tribal cultural resources. Indirect effects and temporary effects would be associated with visual intrusions into the historic setting of PGE-1 and as-of-yet unidentified cultural resources. **MMs CULT-1 through CULT-5would reduce indirect impacts resulting from Project construction to a less than significant level.**

Impact CULT-2: The proposed Project could damage human remains during ground disturbing activities occurring in the Project site.

No human remains have been found within the proposed natural gas pipeline route. However, it is possible that previously unidentified remains may be discovered during ground disturbing activities. In the event that any human remains or related resources are discovered, such resources shall be treated in accordance with State and local regulations and guidelines for disclosure, recovery, relocation, and preservation, as appropriate, including CEQA Guidelines Section 15064.5(e). Implementation of **MM CULT-6 would reduce the potential impacts to human remains to a less than significant level (Class II)**.

Impact CULT-3: The proposed Project may result in a significant impact to paleontological resources due to the direct or indirect destruction of a unique paleontological resource or site located in the Project site.

Six major geologic strata have been identified by the Applicant as being present in the proposed natural gas pipeline route and associated right-of-way (Richards and Aron 2016; McLeod 2016). These include the Careaga Sandstone: Graciosa (Tcag) members, Sisquoc Formation (Tsqd), Paso Robles Formation (QTp), Orcutt Sand (Qo), Dune Sand (Qos), and Quaternary (Holocene) alluvium (Qa). All but the Quaternary (Holocene) alluvium (Qa) are determined to have high sensitivity for containing paleontological resources according to SVP guidelines (2010). Ground disturbance in high sensitivity geologic sediments could cause irreparable damage or destruction to paleontological fossils or sites. **Implementation of MMs CULT-1 and CULT-7 through CULT-9 would reduce impacts to paleontological resources to less than significant (Class II).**

4.5.5 Cumulative Effects

The proposed Project could result in adverse effects on cultural resources (historical and paleontological) that are cumulatively considerable when evaluated in conjunction with other past or present projects in the vicinity. Most of the cumulative projects involve oil field expansions and related projects, such as the ERG West Cat Canyon Revitalization Project and PetroRock Project within Cat Canyon. These projects have potential to impact sensitive cultural resources through ground disturbance and through visual impacts associated with further transition of a rural landscape to an industrial landscape. It is likely that such projects would add to the cumulative effect of impacts to cultural resources.

The proposed Project would contribute to adverse cumulative effects to cultural resources in conjunction with other nearby projects. Mitigation measures recommended for the proposed Project would minimize the Project's incremental contribution to cumulative effects on cultural resources. This mitigation includes cultural and tribal monitoring, and authority to halt worker crews during ground disturbance in Holocene sediments (MM CULT-1a, MM CULT-2) and plans for the inadvertent discovery of historical resources, unique archaeological resources, tribal cultural resources or human remains (MM CULT-3a, MM CULT-3b, MM CULT-3c). The mitigation measures recommended for the Project would reduce any impacts to less than significant with mitigation (Class II). Therefore, the proposed project's contribution to cumulative cultural impacts would not be considerable.

4.5.7 Mitigation Monitoring Program

Table 4.5-7. Mitigation Monitoring and Reporting Plan

MM #	MM Title	Monitoring/ Reporting Action	Timing & Method of Verification	Agency or County Responsibilities	Applicant Responsibilities
Cultural/Historical Resources, Paleontology, Tribal Cultural Resources					
CULT-1	Worker Environmental Awareness Program (WEAP)	Provide WEAP training to supervisors and field crews. Cultural Resources Specialist and Tribal Representative to prepare training.	Prior to commencement of pre-construction and construction activities. Provide WEAP sign-in sheet on day of training. Provide WEAP training sticker for hard hat upon completion of WEAP training.	County to approve WEAP. County to review WEAP sign-in sheets. County to conduct field check of crew and monitor hard hat stickers.	The Owner/Applicant shall ensure WEAP is written by a Secretary of the Interior qualified and County approved archaeologist. Owner/Applicant shall have all construction supervisors, worker crews, heavy equipment operators, and landscaping staff complete WEAP training prior to beginning ground disturbing construction activities.
CULT-2a	Cultural and Tribal Resource Monitors	Archaeological and Native American monitoring within moderate to high previously undisturbed sensitive Holocene sediments.	Provide contract/ letter with Project archaeological monitor prior to issuance of Zoning Clearance Monitoring during construction	County to approve archaeological monitor County to approve Native American monitor County to conduct field check of archaeological and Native American monitors	The Owner/Applicant shall have all ground disturbances occurring within moderate to high sensitive Holocene sediments throughout the Project oil development area, Conservation Easement, 115 kV power line route, and natural gas pipeline route monitored by a P&D approved archaeologist and a Native American consultant in compliance with the provisions of the County Archaeological Guidelines. Applicant shall retain a cultural resources specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards in archaeology. Applicant shall retain a Native American monitor if prehistoric cultural resources are identified by the qualified archaeological monitor. The archaeological monitor shall document interim results of the construction monitoring with logs and photographs. Copies of daily logs and a summary of activities shall be provided to the County if no resources are identified. A Cultural Resources Report shall be prepared and provided to the County and CHRIS if resources are identified.

Table 4.5-7. Mitigation Monitoring and Reporting Plan

MM #	MM Title	Monitoring/ Reporting Action	Timing & Method of Verification	Agency or County Responsibilities	Applicant Responsibilities
Cultural/Historical Resources, Paleontology, Tribal Cultural Resources					
CULT-2b	Cultural Resources Management Plan (CRMP)	P&D approved archaeologist shall prepare a CRMP document prior to issuance of the Zoning Clearance.	To be completed prior to issuance of Zoning Clearance Implement during construction	County reviews and approves CRMP. Conduct field spot-checks during construction to ensure compliance with CRMP.	Applicant shall retain a cultural resources specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards in archaeology to prepare the CRMP. Applicant shall ensure protocols, guidelines, and procedures of the CRMP are adhered to during pre-construction and construction activities.
CULT-2c	Archaeological Sensitivity Area Monitoring Plan (ASAMP)	P&D approved archaeologist shall prepare an ASAMP document prior to issuance of the Zoning Clearance.	To be completed prior to issuance of Zoning Clearance Implement during construction	County reviews and approves ASAMP. Conduct field spot-checks during construction to ensure compliance with ASAMP.	Applicant shall retain a cultural resources specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards in archaeology to prepare the ASAMP. Applicant shall ensure protocols, guidelines, and procedures of the ASAMP are adhered to during pre-construction and construction activities.
CULT-3	Stop Work at Encounter	Redirect work in the event archaeological or human remains are encountered and evaluate significance of the find.	Confirm this requirement is printed on all building and grading plans prior to issuance of Zoning Clearance Implement during construction	County reviews building and grading plans. Monitor during construction.	The cultural resources specialist shall notify the County and Applicant of work stoppage. Applicant shall ensure that CULT-3 requirements are printed on all building and grading plans. Applicant shall retain a cultural resources specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards in archaeology to evaluate and treat the discovery. Implement during construction.

Table 4.5-7. Mitigation Monitoring and Reporting Plan

MM #	MM Title	Monitoring/ Reporting Action	Timing & Method of Verification	Agency or County Responsibilities	Applicant Responsibilities
Cultural/Historical Resources, Paleontology, Tribal Cultural Resources					
CULT-4	Incidental Discovery of Historical Resources or Unique Archaeological Resources	Evaluation and treatment of previously unidentified historical or archaeological resources.	During construction	County ensures a qualified specialist is hired to evaluate and treat resource.	If an incidental discovery of historical or archaeological resources is made, work shall halt immediately within 20 feet (6 meters) of the discovery. Applicant shall retain a cultural resources specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards to evaluate and treat the discovery.
CULT-5	Incidental Discovery of Tribal Cultural Resources	Evaluation and treatment of discovered Tribal Cultural Resources	During construction	County ensures that a qualified specialist is hired to evaluate and treat resource.	If an incidental discovery of tribal cultural resource is made, work shall halt immediately within 20 feet (6 meters) of the discovery. Applicant shall notify the County and local tribal representative by phone and in writing. Applicant shall retain a cultural resources specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards to evaluate and record the discovery. Applicant shall allow the discovery to be examined by a tribal representative qualified to identify tribal cultural resources as defined in AB 52. The applicant shall not share any information gathered during tribal AB 52 consultation without prior written tribal consent.

Table 4.5-7. Mitigation Monitoring and Reporting Plan

MM #	MM Title	Monitoring/ Reporting Action	Timing & Method of Verification	Agency or County Responsibilities	Applicant Responsibilities
Cultural/Historical Resources, Paleontology, Tribal Cultural Resources					
CULT-6	Incidental Discovery of Human Remains	If human remains are found, all ground disturbing activities shall halt within 165 ft. (50 meters). Evaluation and treat-ment of discovered human remains in accordance with CA Health & Safety Code 7050.5 and PRC Section 5097.98.	During construction	The Santa Barbara County Coroner shall determine if the remains are Native American within 2 working days of notification of the discovery. The County Coroner must notify the NAHC within 24 hours after the remains have been determined to be Native American. The NAHC must immediately notify those persons it believes to be the MLD. The County shall consult with the MLD in regards to the disposition of human remains	If human remains are discovered, all work shall halt immediately within 165 feet (50 meters) of the discovery. Applicant shall contact the Santa Barbara County Coroner within 24 hours of the discovery. The applicant shall grant the MLD access to the site so they can complete their inspection of the remains.

Table 4.5-7. Mitigation Monitoring and Reporting Plan

MM #	MM Title	Monitoring/ Reporting Action	Timing & Method of Verification	Agency or County Responsibilities	Applicant Responsibilities
Cultural/Historical Resources, Paleontology, Tribal Cultural Resources					
CULT-7a	Paleontological Resource Monitor	Paleontological monitoring within high sensitivity geologic sediments, as defined by SVP (2010).	Provide contract/ letter with Project paleontological monitor prior to issuance of Zoning Clearance Monitoring during construction	County to approve a paleontological monitor County to conduct field check of paleontological monitor	The Owner/Applicant shall have all ground disturbances occurring within high sensitive geologic sediments throughout the Project oil development area, Conservation Easement, 115 kV power line route, and natural gas pipeline route monitored by a P&D approved paleontologist to ensure compliance. Applicant shall retain a paleontological resources specialist who meets or exceeds the SVP's educational standards for paleontology. The paleontological monitor shall document interim results of the construction monitoring with logs and photographs. Copies of daily logs and a summary of activities shall be provided to the County if no resources are identified. A Paleontological Resources Report shall be prepared and provided to the County and appropriate local paleontology repository if resources are identified.
CULT-7b	Paleontological Resources Management Plan (PRMP)	P&D approved paleontologist shall prepare a PRMP document prior to issuance of the Zoning Clearance.	To be completed prior to issuance of Zoning Clearance Implement during construction	County reviews and approves PRMP. Conduct field spot-checks during construction to ensure compliance with PRMP.	Applicant shall retain a paleontology resources specialist who meets or exceeds the SVP's Professional Qualification Standards in paleontology to prepare the PRMP. Applicant shall ensure protocols, guidelines, and procedures of the PRMP are adhered to during preconstruction and construction activities.

Table 4.5-7. Mitigation Monitoring and Reporting Plan

MM #	MM Title	Monitoring/ Reporting Action	Timing & Method of Verification	Agency or County Responsibilities	Applicant Responsibilities
Cultural/Historical Resources, Paleontology, Tribal Cultural Resources					
CULT-8	Stop Work at Encounter	Redirect work in the event paleontological resources are encountered and evaluate significance of the find.	Confirm this requirement is printed on all building and grading plans prior to issuance of Zoning Clearance Implement during construction	County reviews building and grading plans. Monitor during construction.	The paleontologist shall notify the County and Applicant of work stoppage. Applicant shall ensure that CULT-8 requirements are printed on all building and grading plans. Applicant shall retain a paleontology specialist who meets or exceeds the Secretary of Interior's Professional Qualification Standards in archaeology to evaluate and treat the discovery. Implement during construction.
CULT-9	Incidental Discovery Paleontological Resources	Redirect work in the event paleontological remains are encountered and evaluate significance of the find.	Confirm this requirement is printed on all building and grading plans prior to issuance of Zoning Clearance Implement during construction	County reviews building and grading plans. Monitor during construction.	The paleontological resources specialist shall notify the County and Applicant of work stoppage. Applicant shall ensure that CULT-7b requirements are printed on all building and grading plans. Applicant shall retain a paleontological resources specialist who meets or exceeds the SVP's educational standards in paleontology to evaluate and treat the discovery. Implement during construction.
CULT-10	Resource Flag and Avoid	Prior to pre-construction activities, stake flagging to ensure avoidance of resources PGE-1 and SCGP-1. Maintain flagging for the duration of construction activities occurring along the 115 kv power line and natural gas pipeline installation.	Prior to pre-construction and construction activities Renew flagging as needed	P&D shall conduct a field visit during pre-construction activities to confirm flagging has been staked using a 50-ft. buffer surrounding each resource. P&D shall conduct field spot-checks to confirm flagging surrounding each resource is intact and visible.	Applicant shall ensure that flagging is staked at the correct resource location and using a 50-ft. buffer surrounding each resource. Applicant shall ensure that discussion of flag and avoid measures are included in WEAP training and understood by supervisors and worker crews.