



**CULTURAL RESOURCES SURVEY REPORT FOR THE LONG
BEACH MUNICIPAL URBAN STORMWATER TREATMENT
(MUST) PROJECT, CITY OF LONG BEACH, LOS ANGELES
COUNTY, CALIFORNIA**

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MANAGEMENT SUMMARY

The Long Beach Municipal Stormwater Treatment (MUST) Project encompasses a horizontal area of approximately 47 acres and is entirely within the City of Long Beach, generally extending along the Los Angeles River for a distance of approximately eight miles. The project is intended to improve the water quality of existing urban runoff to the Los Angeles River, and ultimately to the Long Beach Harbor.

The proposed project includes subgrade excavation for the construction of diversion and connection structures, and the MUST facility which will extend to a maximum vertical depth of 30 feet below surface. Ground disturbing work related to the construction of conveyance facilities will extend to a maximum vertical depth of 15 feet below surface.

The California Historical Information System records search revealed that all of the 16 prior studies that included portions of the Project Area were negative for cultural resources within the current project bounds. A total of 57 cultural resources have been previously documented outside project bounds but within the half-mile search radius. These consist of three prehistoric sites, one multicomponent site, one historic archaeological site and 52 historic built environment resources.

The Native American Heritage Commission reported no sacred lands within a half mile. The City of Long Beach is conducting Native American consultation and the results will be reported in the project environmental document.

Cogstone conducted an intensive pedestrian survey of all accessible portions of proposed project-related ground disturbance on March 29, 2017. One built environment resource was encountered, consisting of two segments of the Pacific Electric Railway, Long Beach Line, designated here as the Pacific Electric Railway Freight Line resource. The segments are part of a single track and are recommended as not eligible for listing on the California Register of Historic Resources (CRHR).

The results of the pedestrian survey cannot be considered conclusive due to the presence of heavy vegetation and artificial urban landscape. In the event of an unanticipated discovery of other cultural resources during project related activities, all work shall be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately and proper notifications under state law shall be made.

INTRODUCTION

PURPOSE OF STUDY

The purpose of this study is to identify cultural resources potentially present in the Municipal Stormwater Treatment (MUST) Project Area located in the City of Long Beach in Los Angeles County, California (Figure 1). The project extends eight miles adjacent to a section of the Los Angeles River.

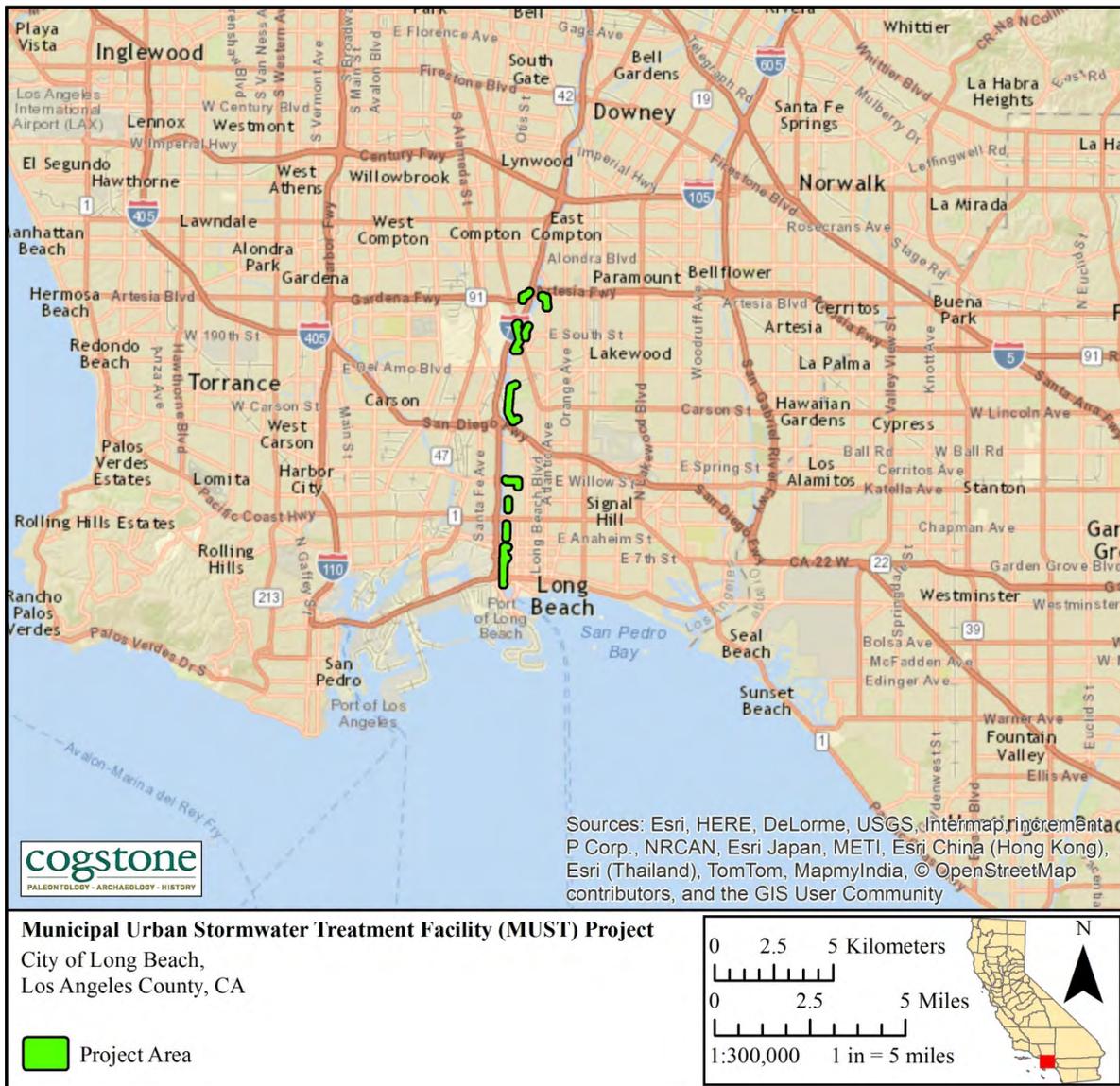


Figure 1. Project vicinity map

PROJECT LOCATION AND DESCRIPTION

The proposed MUST Project (project) is located entirely within the City of Long Beach, generally extending along the Los Angeles River for a distance of approximately eight miles. The approximate limits of the project site are from State Route 91 (SR-91) to the north to Ocean Boulevard to the south. The project is intended to improve the water quality of existing urban runoff to the Los Angeles River, and ultimately to the Long Beach Harbor. Currently, pollutants (metals, bacteria, hydrocarbons, pesticides, and trash) enter the Los Angeles River via urban runoff; the proposed project would divert flows from tributary areas immediately east and west of the river to the MUST facility for treatment prior to discharge, resulting in water quality benefits in the Project Area.

The proposed project would include two primary project components: 1) the MUST facility; and 2) conveyance facilities. A brief summary of these facilities is provided below:

- **MUST Facility:** The MUST facility would be sited in close proximity to the City's existing Pump Station No. SD-01, on the east side of the Los Angeles River near the existing Shoemaker Bridge. The MUST facility would include facilities related to solids removal, oxidation, filtration, and disinfection, followed by a treated water terminal storage pond. Project related ground disturbance at the MUST facility would extend to a maximum vertical depth of 30 feet below ground surface.
- **Conveyance Facilities:** The project would include conveyance facilities to carry stormwater from tributary areas to the MUST facility. Stormwater would be conveyed to the MUST facility via a combination of existing and proposed conveyance facilities. The project would include a total of 11 segments of new conveyance facilities that would provide the connections that would complete the approximately 8-mile conveyance system. Nine of these segments are located east of the Los Angeles River, one west of the river, and one within the Long Beach Boulevard Bridge. Two options exist for conveyance – as underground pipelines, or as open channel facilities that provide for biofiltration pre-treatment and open space/aesthetic opportunities. A combination of the two options would be implemented. Project related ground disturbance at all conveyance facilities would extend to a maximum vertical depth of 15 feet below ground surface.

It is anticipated that the project would occur entirely within existing public rights-of-way, and no right-of-way acquisition would be required for project implementation.

PROJECT PERSONNEL

Cogstone's key staff includes professionals with over 35 years of experience in cultural resources management. Molly Valasik, MA, RPA, who has over 8 years of professional and academic research experience in archaeology, served as Principal Investigator for Archaeology. Tim Spillane, MA, RPA, also with 8 years of experience in cultural resource management, authored the majority of the report. Lynn Furnis, MA, RPA, is an architectural historian and historical archaeologist with over 40 years of experience. Ms. Furnis recorded and evaluated the Pacific Electric Railway Freight Line resource for this report. Sherri Gust, MS, who has more than 38 years of experience in cultural resource management, provided QA/QC and wrote the regulatory setting and prehistoric setting. Megan Wilson, MA, RPA conducted the records search and Native American consultation. Archaeologist Holly Duke, BA, conducted the intensive pedestrian survey. Short resumes are appended.

REGULATORY ENVIRONMENT

STATE LAWS AND REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

TRIBAL CULTURAL RESOURCES

As of 2015, CEQA established that “[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” (Pub. Resources Code, § 21084.2). In order to be considered a “tribal cultural resource,” a resource must be either:

- (1) listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or
- (2) a resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource.

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (CRHR) is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks number No. 770 and above. The California

Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources that meet the California Register criteria are resources which must be given consideration under CEQA (see above). Other resources, such as resources listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register, is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state or national level under one or more of the following four criteria:

- 1) It is 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;
- 2) It is associated with the lives of persons important to local, California, or national history;
- 3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- 4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

NATIVE AMERICAN HUMAN REMAINS

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law (i.e., Health and Safety Code §7050.5 and Public Resources Code §5097.98), as reviewed below:

In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that “No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value.”

BACKGROUND

ENVIRONMENTAL SETTING

Los Angeles County is located on the coastal side of the Peninsular Range Province and is known for its semi-arid Mediterranean climate with hot summers and cool winters. The project alignment bisects the western part of the City of Long Beach, extending southward along the east side of the Los Angeles River for roughly eight miles from SR-91 in the north to Ocean Boulevard in the south. The Project Area lies entirely within the floodplain of the Los Angeles River which was channelized in the 1940s and is characterized today by dense urban development. As Palmer notes, “it is perhaps the most completely urbanized and channelized major stream in America” (Palmer 2012:241). The topography is mostly level and surface sediments consist of unconsolidated silt, sand, and gravel accumulated from recurrent flooding (Schoenherr 1992:313).

Native vegetation consists primarily of chaparral with riparian species present along the Los Angeles River and its tributary streams. Among the purple sage (*Salvia leucophylla*), Eastwood's manzanita (*Arctostaphylos glandulosa glandulosa*), Catalina ironwood (*Lyonothamnus floribundus*), California scrub oak (*Quercus dumosa*), big-leaf maple (*Acer macrophyllum*), and coast cholla (*Opuntia prolifera*) (Caughman and Ginsberg 1987:278; Wilson 2016). Other riparian woodland species include California laurel (*Umbellularia californica*), Western Sycamore (*Platanus racemosa*), and Black Willow (*Salix gooddingii*), Pacific Willow (*Salix lasiandra*), Fremont Cottonwood (*Populus fremontii*) as well as a variety of shrubs and grasses (Schoenherr 1992:393–395). Today, after approximately a century of urban and suburban development and the channelization, the vegetation of the area is instead typified by imported species of grasses such as slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), and Giant reed (*Arundo donax*); shrubs, such as saltcedar (*Tamarix ramosissima*) and blackwood acacia (*Acacia melanoxylon*); as well as trees including eucalyptus (*Eucalyptus globulus*), Brazilian pepper (*Schinus terebinthifolius*), and saltcedar (*Tamarix* spp.) (Cal-IPC 2006).

Native fauna of the region include mammals such as mule deer (*Odocoileus hemionus*), bighorn sheep (*Ovis canadensis cremnobates*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), antelope, white-tailed jackrabbit (*Lepus townsendii*), mountain lion (*Felis concolor*), desert woodrat, (*Neotoma lepida*), and formerly, grizzly bear (*Ursus arctos*). Amphipian and reptile species include Monterey salamander (*Ensatina eschscholtzii eschscholtzii*), sagebrush lizard (*Sceloporus graciosus*), and common kingsnake (*Lampropeltis getulus*). Among native bird species are California thrasher, (*Toxostoma redivivum*), California towhee (*Pipilo crissalis*), and great horned owl (*Bubo virginianus*) (Schoenherr 1992). The Los Angeles River was once host to arroyo chub (*Gila orcuttii*), Santa Ana sucker (*Catostomus santaanae*), and speckled dace

(*Rhinichthys osculus*), which now survive only in the river's tributaries (Palmer 2012:242). In recent history, urban development has driven many of these species from the area.

PREHISTORIC SETTING

Review of archaeological data has resulted in a revised synthesis of cultural change as evidenced by material culture and archaeologically visible cultural practices. A large part of what was previously referred to as the Millingstone Period is now called the Topanga pattern of the Encinitas Tradition (Sutton and Gardner 2010; Table 1). This pattern is replaced in the Project Area by the Angeles pattern of the Del Rey Tradition later in time (Sutton 2010; Table 1).

Topanga Pattern groups were relatively small and highly mobile. Sites tend to be along the coast in wetlands, bays, coastal plains, near-coastal valleys, marine terraces and mountains. The Topanga toolkit is dominated by manos and metates with projectile points scarce (Sutton and Gardner 2010:9).

In Topanga Phase I, other typical characteristics include a few mortars and pestles, abundant core tools (scraper planes, choppers and hammerstones), relatively few large, leaf-shaped projectile points, cogged stones, and early discoidals (Table 1). Secondary inhumation under cairns was the common mortuary practice. In Orange County as many as 600 flexed burials were present at one site and dated 6435 radiocarbon years before present (Sutton and Gardner 2010:9, 13).

In Topanga Phase II, flexed burials and secondary burial under cairns continued. Adoption of the mortar and pestle is a marker of this phase. Other typical artifacts include manos, metates, scrapers, core tools, discoidals, charmstones, cogged stones and an increase in the number of projectile points. In Orange County, stabilization of sea level during this time period resulted in increased use of estuary, near shore, and local terrestrial food sources (Sutton and Gardner 2010:14-16).

In Topanga Phase III, there was continuing abundance of metates, manos, and core tools plus increasing amounts of mortars and pestles. More numerous and varied types of projectile points are observed along with the introduction of stone-lined earthen ovens. Cooking features such as these were possibly used to bake yucca or agave. Both flexed and extended burials are known (Sutton and Gardner 2010:17).

Table 1. Cultural Patterns and Phases

Pattern	Phase	Dates (BP)	Material Traits	Other Traits
Encinitas	Topanga I	8,500 to 5,000	Abundant manos and metates, many core tools and scrapers, few but large points, charmstones, cogged stones, early discoidals, bone gorge fishhooks, faunal remains rare; Olivella spire/end lopped beads appear	Estuary/lagoon shellfish and sharks/rays common, hunting important, secondary burials under metate cairns (some with long bones only), some extended inhumations, no cremations
	Topanga II	5,000 to 3,500	Abundant but decreasing manos and metates, adoption of mortars and pestles, smaller points, cogged stones, late discoidals, fewer scraper planes and core tools, some stone balls and charmstones; inhumations common; Olivella Grooved Rectangular beads introduced	Estuary/lagoon shellfish and sharks/rays common,, addition of acorns, reburial of long bones only, addition of flexed inhumations (some beneath metate cairns), cremations rare
Angeles	Angeles I	3,500 to 2,600	Appearance of Elko dart points and an increase in the overall number of projectile points from Encinitas components; beginning of large-scale trade in small steatite artifacts (effigies, pipes, and beads) and <i>Olivella</i> shell beads; appearance of single-piece shell fishhooks and bone harpoon points; Coso obsidian becomes important; appearance of donut stones; appearance of <i>Mytilus</i> beads	apparent population increase; fewer and larger sites along the coast; collector strategy; less overall dependence on shellfish but fishing and terrestrial hunting more important; appearance of flexed and extended inhumations without cairns, cremations uncommon
	Angeles II	2,600 to 1,600	Continuation of basic Angeles I material culture with the addition of mortuary features containing broken tools and fragmented cremated human bone; fishhooks become more common	Shellfish change to mudflat species, more emphasis on fish, birds and mammals, continuation of basic Angeles I settlement and subsistence systems; appearance of a new funerary complex
	Angeles III	1,600 to 1,250	Appearance of bow and arrow technology (e.g., Marymount or Rose Spring points); changes in <i>Olivella</i> beads; asphaltum becomes important; reduction in obsidian use; Obsidian Butte obsidian largely replaces Coso	larger seasonal villages; flexed primary inhumations but no extended inhumations and an increase in cremations; appearance of obsidian grave goods
	Angeles IV	1,250 to 800	Cottonwood points appear; some imported pottery appears; birdstone effigies at the beginning of the phase and “spike” effigies dropped by the end of the phase; possible appearance of ceramic pipes, <i>Mytilus</i> shell disks	change in settlement pattern to fewer but larger permanent villages; flexed primary inhumations continue, cremations uncommon
	Angeles V	800 to 450	Trade of steatite artifacts from the southern Channel Islands becomes more intensive and extensive, with the addition or increase in more and larger artifacts, such as vessels and comals; larger and more elaborate effigies; portable mortars and pestles	strengthening of ties, especially trade, with southern Channel Islands; expansion into the northern Santa Ana Mountains and San Joaquin Hills
	Angeles VI	450 to 150	Addition of Euroamerican material culture (e.g., glass beads and metal tools), locally made pottery, metal needle-drilled <i>Olivella</i> beads	change of settlement pattern, movement close to missions and ranches; use of domesticated species obtained from Euroamericans; flexed primary inhumations continue; apparent adoption of Chingichngish religion

The Angeles pattern generally is restricted to the mainland and appears to have been less technologically conservative and more ecologically diverse, with a largely terrestrial focus and greater emphases on hunting and nearshore fishing. In Angeles Phase I Elko points for atlatls or darts appear, small steatite objects such as pipes and effigies are found, shell beads and ornaments increase, fishing technologies increase including bone harpoons/fishhooks and shell fishhooks, donut stones appear, and hafted micro blades for cutting/graving wood or stone appear. In addition, several Encinitas traits, such as discoidals, cogged stones, plummet-like charm stones and cairn burials virtually disappear from the record. Mortuary practices changed to consist of primarily flexed primary inhumations, with extended inhumations becoming less common. Settlement patterns made a shift from general use sites being common to habitation areas separate from functional work areas. Subsistence shifted from mostly collecting to increased hunting and fishing (Sutton 2010).

The Angeles Phase II is identified primarily by the appearance of a new funerary complex, with other characteristics similar to Angeles I. The complex features killed (broken) artifacts plus highly fragmented cremated human bones and a variety of faunal remains. In addition to the cremains, the other material also often burned. None of the burning was performed in the burial feature (Sutton 2010).

The Angeles III Phase is the beginning of what has been known as the Late Period and is marked by several changes from Angeles I and II. These include the appearance of small projectile points, steatite shaft straighteners and increased use of asphaltum all reflecting adoption of bow and arrow technology, obsidian sources changed from mostly Coso to Obsidian Butte and shell beads from Gulf of California species began to appear. Subsistence practices continued as before and the geographic extent of the Angeles Pattern increased (Sutton 2010).

Angeles Phase IV is marked by new material items including Cottonwood points for arrows, *Olivella* cupped beads and *Mytilus* shell disks, birdstones (zoomorphic effigies with magico-religious properties) and trade items from the Southwest including pottery. It appears that populations increased and that there was a change in the settlement pattern to fewer but larger permanent villages. Presence and utility of steatite vessels may have impeded the diffusion of pottery into the Los Angeles Basin. The settlement pattern altered to one of fewer and larger permanent villages. Smaller special-purpose sites continued to be used (Sutton 2010).

Angeles V components contain more and larger steatite artifacts, including larger vessels, more elaborate effigies and comals. Settlement locations shifted from woodland to open grasslands.

The exploitation of marine resources seems to have declined and use of small seeds increased. Inhumations contained grave goods while cremations did not. [Sutton 2010]

The Angeles VI phase reflects the post-contact (i.e., post-A.D. 1542) period. One of the first changes after contact was undoubtedly population loss due to disease, coupled with resulting social and political disruption. Angeles VI material culture is essentially Angeles V augmented by a number of Euroamerican tools and materials, including glass beads and metal tools such as knives and needles (used in bead manufacture). The frequency of Euroamerican material culture increased through time until it constituted the vast majority of materials used. Locally produced brownware pottery appears along with metal needle-drilled *Olivella* disk beads. [Sutton 2010]

The subsistence system was based primarily on terrestrial hunting and gathering, although nearshore fish and shellfish played important roles. Sea mammals, especially whales (likely from beached carcasses), were prized. In addition, a number of European plant and animal domesticates were obtained and exploited. [Sutton 2010]

ETHNOGRAPHY

The Project Area was within the territory of the Tongva (Gabrielino) (McCawley 1996). The Tongva geographical territory includes large portions of Los Angeles County, the northern part of Orange County, small sections of Riverside and San Bernardino Counties as well as the southern Channel Islands of Santa Barbara, San Clemente, San Nicolas, and Santa Catalina. The name “Gabrielino” is Spanish in origin and was used in reference to the Native Americans associated with the Mission San Gabriel. Today community members call themselves “Tongva”, meaning “people of the earth” (Gabrielino/Tongva Tribal Council of San Gabriel 2015). At the time of European contact, there were an estimated 5,000 Tongva living at 31 known villages (McCawley 1996).

The Tongva language is classified as part of the Uto-Aztecan language family, under the Takic branch. It is now generally accepted that the Gabrielino language is a stand-alone Takic language, distinct from the Cupan sub-group (Mithun 1999:539).

Much of the southern California archaeological literature argues that the Gabrielino moved into southern California from the Great Basin around 4,000 Before Present (B. P.), “wedging” themselves between the Hokan-speaking Chumash, located to the north, and the Yuman-speaking Kumeyaay, located to the south (see Sutton 2009 for the latest discussion). This Shoshonean Wedge, or Shoshonean “intrusion” theory, is counter to the Gabrielino community’s

knowledge about their history and origins. Oral tradition states that the Gabrielino have always lived in their traditional territory, with their emergence into this world occurring at Puvungna, located in Long Beach located on the Alamitos Plain (Martinez and Teeter 2015:26).

The Tongva are considered to have been one of the wealthiest of all Shoshonean tribes and to have greatly influenced tribes they traded with (Kroeber 1976:621). Houses were domed and circular structures thatched with tule or similar materials (Bean and Smith 1978:542). The best known artifacts were made of steatite and were highly prized. Many common everyday items were decorated with inlaid shell or carvings reflecting an elaborately developed artisanship (Bean and Smith 1978:542).

The main food zones utilized were marine, woodland, and grassland (Bean and Smith 1978). Plant foods were, by far, the greatest part of the traditional diet at contact. Acorns were the most important single food source. Villages were located near water sources necessary for the leaching of acorns, which was a daily occurrence. Grass seeds were the next most abundant plant food used along with chia. Seeds were parched, ground, and cooked as mush in various combinations according to taste and availability. Greens and fruits were eaten raw or cooked or sometimes dried for storage. Bulbs, roots, and tubers were dug in the spring and summer and usually eaten fresh. Mushrooms and tree fungus were prized as delicacies. Various teas were made from flowers, fruits, stems and roots for medicinal cures as well as beverages (Bean and Smith 1978:538-540).

The principal game animals were deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, quail, dove, ducks and other birds. Most predators were avoided as food, as were tree squirrels and most reptiles. Trout and other fish were caught in the streams, while salmon were available when they ran in the larger creeks. Marine foods were extensively utilized. Sea mammals, fish and crustaceans were hunted and gathered from both the shoreline and the open ocean, using reed and dugout canoes. Shellfish were the most common resource, including abalone, turban, mussels, clams, scallops, bubble shells, and others (Bean and Smith 1978:538-540). The nearest recorded Tongva village is located approximately 1.5 miles west of the Project Area. This village name was *Tevaaxa'anga*. The village's location was once within a forested and marshy area into which the Los Angeles River drained until a flood in 1825 caused it to cut a channel to the ocean (McCawley 1996:59).

HISTORIC SETTING

SPANISH AND MEXICAN ERA SETTING (1542-1847)

Juan Cabrillo was the first European to sail along the coast of California in 1542 and was followed in 1602 by Sebastian Vizcaino (Rawls and Bean 1993). Between 1769 and 1822 the Spanish had colonized California and established missions, presidios, and pueblos (Bean and Rawls 1993). In 1821, Mexico won its independence from Spain and worked to reduce the wealth, power, influence held by the missions since the earliest colonial settlement. The Secularization Act was passed in 1833 and the new government began awarding vast tracts of mission lands to private citizens (Robinson 1948:13).

Rancho Los Nieto

While widespread privatization began in earnest after 1833, certain large tracts of California land were granted to private citizens during the earlier Spanish Era, particularly to well-respected military men who had distinguished themselves in service to the Spanish throne (Figure 3). Nearly all of the lands now comprising the City of Long Beach were part of Rancho Los Nieto, a massive 300,000-acre allotment granted by Spanish governor Pedro Fages to soldier-rancheros, Manuel Pérez Nieto and José María Verdugo in 1784. A portion of the rancho was confiscated by the San Gabriel Mission in 1796 for use as tribal land, though Nieto retained a 167,000-acre portion which his family was cultivating, ranching, or otherwise actively utilizing by that time (Bancroft 1886:662). The much reduced plot nevertheless stretched all the way from the hills north of Whittier, Fullerton, and Brea, south to the Pacific ocean, and from today's Los Angeles River east to the Santa Ana River (Robinson 1966). Nieto died in 1804 and by 1834 the land was subdivided into five separate ranchos, the Santa Gertrudis, Las Bolsas, Los Coyotes, Los Cerritos, and Los Alamitos (Robinson 1948:50; Robinson 1966:29). The greater part of the modern City of Long Beach falls within bounds of the latter two (Garoogian 2013:194).

Rancho Los Cerritos which contained the Los Nietos Ranch was parceled off and gifted to Nietos' daughter, Manuela Cota, in 1834. Fewer than 10 years later an American named John Temple purchased Los Cerritos in full, building up a prosperous cattle ranch and constructing an adobe house, the Los Cerritos Ranch House, which still stands today (Robinson 1966:28) as a California Historic Landmark and located less than 0.5 miles east of the project alignment. Temple also purchased a part of the Rancho Palos Verdes in 1859 (Sapphos Environmental, Inc. 2009). Rancho Los Alamitos was inherited by Nieto's son, Juan José Nieto, and in 1834 was sold

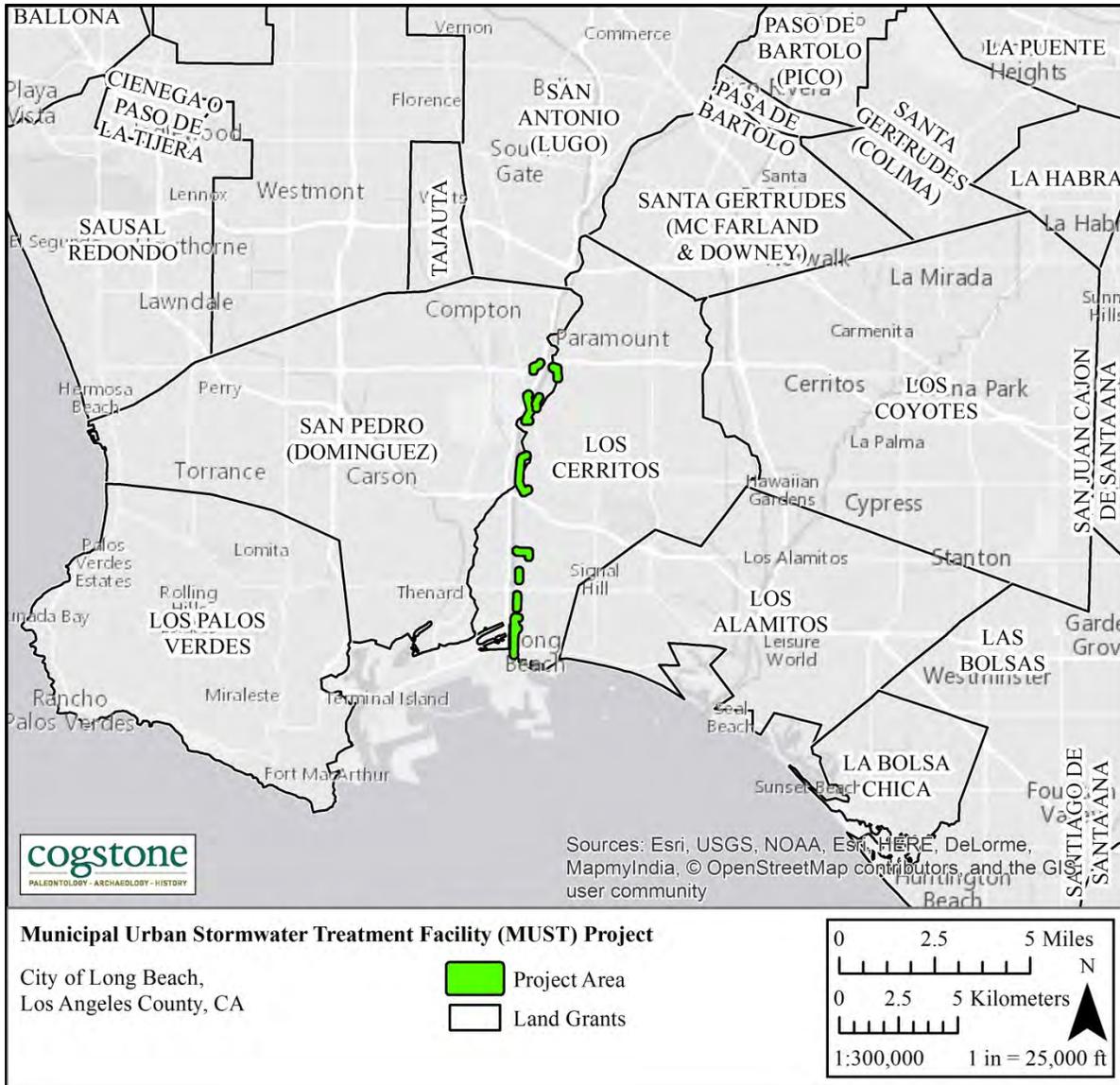


Figure 3. Map of Spanish/Mexican period Land Grants

to Mexican Governor José Figueroa at an unusually low price. By 1842, the property and its livestock were in the possession of Abel Stearns, an American born in Massachusetts. The severe draught which struck the Los Angeles area in the 1860s destroyed the viability of both Temple’s and Stearns’ ranching ventures, leading to the resale of Los Cerritos and Los Alamitos (Robinson 1966:28).

Rancho San Pedro/ Dominguez

Portions of western Long Beach lie within the bounds of the smaller Spanish land grant, Rancho San Pedro or Rancho Dominguez. Originally encompassing 75,000 acres, Rancho San Pedro was granted in 1784 to Juan José Domínguez, a soldier who served on the Portolà Expedition (Bancroft 1886; Gillingham 1961). The land was re-granted during the Mexican Period in 1822 to Cristóbal Dominguez, nephew of Juan José, and later, to Cristóbal's son, Manuel Domínguez. Complicating claims to ownership, Jose Dolores Sepúlveda was granted permission by the executor of the Domínguez estate to herd cattle in the southwestern portion of Rancho San Pedro in 1810. This later became grounds for the Sepúlveda's acquisition of a 31,629-acre segment of which became known as Rancho de los Palos Verdes. Other portions of the original Rancho San Pedro remained in the hands of the Domínguez family until the mid-twentieth century while others were leased or sold to farmers during the nineteenth century and earlier in the twentieth century. These agriculturalists settled on the land, building houses and raising grains, vegetables, and livestock. The area continued as a farming community through the end of the nineteenth century and remained so through the first two decades of the twentieth century and beyond. (Robinson 1948).

AMERICAN ERA SETTING (1848-1899)

Early in the American Era, John Temple sold the Rancho Los Cerritos to a sheep-raising firm from Northern California, Flint, Bixby & Company. For management purposes, the company at first elected personnel to oversee portions of the property. Prior to 1880 one of these managers, Jonathan Bixby, formed the Bixby Land Company and sold 4,000 acres of the rancho to William E. Willmore, who wanted but failed to create a farming community to be called Willmore City. Subsequent to this failure, he sold his acreage to the Long Beach Land and Water Company based in Los Angeles, who changed the community name to Long Beach, named for the area's long and wide beaches, and incorporated as a city in 1888 (Lewis Publishing Company 1889:792; Sapphos Environmental, Inc. 2009:36).

During the last decades of the nineteenth century, the former Rancho Los Cerritos was parceled off and sold for the establishment of farming communities focusing on dairy cattle and crops for the cows to eat, including barley and alfalfa. It was during this time that the-then farming communities surrounding what is now northern Long Beach were established, including Bellflower, Paramount, Signal Hill, and Lakewood (Wilson 1880:146; Sandul 2014).

Rancho San Pedro continued to decline in size throughout the century, as the original Dominguez family's children divided among themselves or sold parts of it. Two daughters of

Manuel Domínguez married prominent Anglo-Americans. Dolores was wed to James A. Watson, who went on to serve in the state legislature and form the Watson Land Company, which in the 1880s developed parts of the rancho. Another daughter, Victoria, married George Carson. Carson managed their part of the rancho as a farming enterprise for a number of years before, along with his brother-in-law James Watson and their children, dividing most of the land so that the married children could live on the family estate.

Other ranch partitions took the land out of family hands. A large part, over 30,000 acres, of the rancho was taken by the Mexican governor of California in 1834 to give as a land grant to the Sepulveda family. Twenty years later nearly 2,500 acres of land were sold to a developer to create the port of Wilmington. In 1867 a ten square mile tract of land was sold to a man named George Dickenson Compton, representing a number of interested families, to create a settlement within a mild climate. In 1887 the land that would become Redondo Beach was sold, and in 1911 the land now hosting the city of Torrance was also parceled off. The family members' need to pay high property taxes necessitated the land sales (Grenier 2015).

20TH CENTURY SETTING (1900- PRESENT)

At the beginning of the twentieth century, the Pacific Electric Trolley reached downtown Long Beach (1902), which resulted in the city's becoming both a resort and commercial hub. The trolley also played a part, along with the port's success, in Long Beach becoming the fastest growing city in the United States between 1902 and 1910. Another great commercial success of the city was the finding of oil at Signal Hill in 1921, in turn fueling a million-dollar-per-month building boom in the downtown area (Garoogian 2013:194). In addition to the Pacific Electric Trolley, there was, from the last decade of the nineteenth century, increasing competition between the rival Southern Pacific and Atchison, Topeka, & Santa Fe Railways to provide passenger and freight services all over southern California, including extensions to the new resort of Long Beach. Parallel to the railroad developments and encouraging them as well, the city of Los Angeles granted the new city of Long Beach the marshy lands and tidal mudflats at the mouth of the Los Angeles River. These were dredged, and breakwaters constructed, to develop the Port of Long Beach. The port grew in importance over time, with the next leaps coming in 1930, when oil was discovered in the harbor, and in 1940, when the U.S. Navy purchased land on Terminal Island and established a base there (Sapphos Environmental, Inc. 2009:159–160).

Increasing commerce brought by the railroads, the oil industry, the port, and eventually the U.S. military's expansion into Long Beach and the rest of the Los Angeles area increasingly changed

all of Long Beach as well as surrounding towns from farming communities to suburbs. Long Beach was transformed first in the early twentieth century due to the arrival of the Pacific Electric Railway, which made commuting longer distances to work possible, the World War II development of Long Beach as a shipbuilding area for the military, which attracted workers who in turn needed housing, and finally the dual post-World War II developments of tract housing filled by returning veterans and families, along with the rise of the automobile. These industrial and transportation changes that affected Long Beach and California filled in what had been small and separate farming communities with almost endless suburbs (California Department of Transportation 2011:10, 58). The Project Area is typified by tract housing of various periods. Much of the north side of the Project Area is typified by suburban blocks filled with 1920s Spanish Revival homes through 1960s Ranch houses. Other portions are characterized by apartment buildings and additional postwar tract housing, as well as several recreational areas along the Los Angeles River, Houghton Park, the Virginia Country Club, and Drake Park. Along the shoreline on the south end of the Project Area upscale apartments are broken up with hotels, commercial and civic buildings, and entertainment facilities (Sapphos Environmental, Inc. 2009).

PROJECT SPECIFIC HISTORY (1902- 1981)

The presence of a railroad track within the southern portion of the Project Area, near W. Shoreline Drive Overpass/Bridge was first depicted on a 1942 USGS topographic map (NETR 1942), which extended north, then northeast, to a warehouse cluster, then north again to join the main Pacific Electric Railway, Long Beach Line. This 1942 line also extended south, to Ocean Boulevard, then east to Long Beach Boulevard (formerly American Avenue), where it turned north and ran through Dominguez Junction, Compton, Watts, and beyond, finally terminating in downtown Los Angeles (Crump 1970:98). Based on its location and association with warehouses, this north-south segment of the Pacific Electric Railway would appear to be a route used for freight service, rather than passenger service.

The Pacific Electric Railway (PERY), Long Beach Line began its passenger service to Long Beach in 1902 and terminated it in 1961 (Crump 1970:98). Ironically, these were the first and last actions of the PERY. In order to further compete with the dominant and rival Southern Pacific Railroad (SPRR) in the area, the PERY added freight service to its offerings early in its life. The particular line here, along the east flank of the Los Angeles River and north of Ocean Boulevard, does not appear to have been constructed until the beginning of World War II or a few years before that. During World War II, commuter and freight business increased dramatically for the PERY, due to the intense war effort and its focus on the Long Beach harbor

for shipment of people and supplies to local and overseas destinations (Crump 1970:23). Based on topographic maps, the PERY freight line through the Project Area continued in place, with several spurs serving warehouses immediately south of Anaheim Street, between the river and Magnolia Avenue from 1949 to at least 1981 (NETR 1949, 1964, 1972, 1981, 2015). Though the PERY was out of business in 1961, it is possible the Project Area tracks were still in use after that, but by SPRR, as by 1964, a tall, wide loop railroad bridge crossed the Los Angeles River south of Shoreline Drive Overpass/Bridge which connected tracks on the west side of the river with those on the east (NETR 1964, 1972, 1981, 2015). Between 1994 and 2015, the loop bridge was removed.

The PERY freight line and its spurs on the east side of the river, up to Anaheim Street, are visible on aerial photographs as late as 1980 and may possibly have still been in use, as a few individual train cars appear to be standing on the tracks near the warehouses at that time (NETR 1980, 1994). By 1994, the tracks appear to have been mostly removed, though the location of the railbed can still be seen, clearly ending at Anaheim Street.

RECORDS SEARCH

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

A search for archaeological and historical records was completed by archaeologist Megan Wilson of Cogstone on February 27, 2017 at the South Central Coast Information Center (SCCIC), of the California Historical Resources Inventory System (CHRIS) located on the campus of the California State University, Fullerton. The record search covered a half-mile radius around the Project Area boundaries. The search included any previously recorded cultural resources and investigations within approximately 0.5-mile of the Project Area. The CHRIS search also included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California State Historical Landmarks list, the Archaeological Determinations of Eligibility list, the Historic Properties Directory, the Archaeological Determinations of Eligibility List, the California Inventory of Historic Resources, and local historic resources inventories.

Results of the CHRIS records search indicate that 16 prior studies included portions of the Project Area, while an additional 43 cultural resources investigations have been completed previously within a half-mile radius of the Project Area (Table 2). The previous studies within the half-mile radius included 19 completed between a 0-0.25-mile radius of the Project Area and 24 between a 0.25-0.5-mile radius.

The CHRIS records search also revealed that of the 16 studies that included portions of the Project Area, all were negative for cultural resources within the current project bounds. A total of 57 cultural resources have been previously documented within the half-mile search radius (Table 3). These consist of three prehistoric sites, one multicomponent site, one historic archaeological site and 52 historic resources.

Table 2. Previous Cultural Resource Studies

Report No.	Author(s)	Title	Year	Distance from PA	Quad
LA-00083	Rosen, Martin D.	Evaluation of the Archaeological Resources and Potential Impact of the Joint Outfall System's Improvements on Sewer Treatment Plants and Installation Routes for New Large Diameter Sewers, Los Angeles County	1975	Within	Long Beach and Southgate
LA-00358	Stickel, Gary E.	An Archaeological and Paleontological Resource Survey of the Los Angeles River,	1976	Within	Long Beach

Report No.	Author(s)	Title	Year	Distance from PA	Quad
		Rio Hondo River and the Whittier Narrows Flood Control Basin, Los Angeles, California			and Southgate
LA-00503	Dixon, Keith A.	Archaeological Resources and Policy Recommendations of Long Beach	1974	0.25-0.5	Long Beach
LA-01158	Desautels, Roger J.	Archaeological Test Report and Assessment on the Whiteman Airport Site Located in the Pacoima Area of the County of Los Angeles	1981	0.25-0.5	Long Beach
LA-01193	Singer, Clay A.	Cultural Resource Survey and Impact Assessment for 3.12 Acres Located Adjacent to 17339 Tramonto Drive, Pacific Palisades	1982	Within	Long Beach
LA-01228	Westermeier, John F.	Draft Environmental Impact Report for Acton Recreational Vehicle Park	1979	0-0.25	Long Beach
LA-02665	Cottrell, Marie G., James N. Hill, Stephen Van Wormer, and John Cooper	Cultural Resource Overview and Survey for the Los Angeles County Drainage Area Review Study	1985	0-0.25	Long Beach
LA-02882	McKenna, Jeanette A.	Cultural Resources Investigations, Site Inventory, and Evaluations, the Cajon Pipeline Project Corridor, Los Angeles and San Bernardino Counties, California	1993	Within	Long Beach
LA-02910	Stickel, Gary E.	A Literature Search for Shipwrecks in the Los Angeles - Long Beach Harbors and at the US Naval Facility at Terminal Island	1981	0-0.25	Long Beach
LA-02970	Chamberlaine, Pat and Jean Rivers-Council	Cajon Pipeline Project Draft Environmental Impact Statement Environmental Impact Report	1992	Within	Long Beach
LA-03102	McCawley, William, John Romani, and Dana Slawson	The Los Angeles County Drainage Area Subsequent Environmental Impact Report	1994	Within	Long Beach and Southgate
LA-03384	Bell, Daniel A. and Warren Riess	Final Report: Marine Archaeological Investigations of Berth 60 & 61, Port of Long Beach	1989	0.25-0.5	Long Beach
LA-03385	Farnsworth, Paul S.	A History of the Procter and Gamble Plant Long Beach, California 1931-1988	1990	0.25-0.5	Long Beach
LA-03422	Bissell, Ronald M.	Cultural Resources Research in Support of the Rancho Los Cerritos Seismic Upgrade, Long Beach, Los Angeles County, California	1996	0.25-0.5	Long Beach
LA-03508	Van Wormer, Stephen R.	Historical Resource Overview and Survey for the Los Angeles County Drainage Area Review Study	1985	0-0.25	Long Beach
LA-03576	Wlodarski, Robert J.	Phase I Archaeological Study: Glendale Senior Housing Project City of Glendale, County of Los Angeles	1997	0.25-0.5	Long Beach
LA-03707	Clellow, C. William Jr.	Preliminary Report of the Potential Impact on Archaeological Resources of the Proposed Gas Transmission Pipeline From Los Angeles Harbor to Yorba Linda - Southern California Gas Co.: Environmental Analysis	1974	Within	Long Beach
LA-04025	King, Chester	Archaeological Reconnaissance at 30181 Cuthbert Road, Malibu, California	1988	Within	Long Beach
LA-04324	Unknown	Archaeological Resources Survey West Coast-	1977	0-0.25	Long

Report No.	Author(s)	Title	Year	Distance from PA	Quad
		midcontinent Pipeline Project Long Beach to Colorado River			Beach
LA-04512	Eggers, A.V.	Cultural Resources Inventory of the City of Carson, California	1977	0.25-0.5	Long Beach
LA-05078	Lapin, Philippe	Cultural Resource Assessment for Pacific Bell Wireless Facility La 010-03, County of Los Angeles, Ca	2000	0.25-0.5	Long Beach
LA-05402	Smith, Philomene C.	Negative Archaeological Survey Report: 07-la-91kp17.91-170-3n3401	2000	0.25-0.5	Long Beach
LA-05403	Moffatt, Nicole	Environmental Impact Report Queensway Bay Master Plan State Clearinghouse No. 94081033 EIR No. E-13-94	1994	Within	Long Beach
LA-05887	Duke, Curt	Cultural Resource Assessment AT&T Wireless Services Facility No. 05081a-01 Los Angeles County, California	2002	0.25-0.5	Long Beach
LA-06047	Duke, Curt	Cultural Resource Assessment AT&T Wireless Services Facility No. 05265 Los Angeles County, California	2002	0.25-0.5	Long Beach
LA-06051	Duke, Curt	Cultural Resource Assessment AT&T Wireless Services Facility No. 05311a Los Angeles County, California	2002	0-0.25	Long Beach
LA-06062	Sylvia, Barbara	Highway Project to Cold Plane and Overlay With Rubberized Asphalt Concrete Type G on the Mainline and Ramps Along Route 710 Between the Pico Avenue Northbound On-ramp and the Route 1 Separation.	2001	0-0.25	Long Beach
LA-07010	Gelgemaker, Gerhardt H.	6172-78 Long Beach Blvd, Long Beach, Painting Hud970926c	2000	0.25-0.5	Long Beach
LA-07162	Anonymous	Cultural Resource Assessment Santa Fe Pacific Pipeline Expansion Project, Los Angeles County, California	1997	Within	Long Beach
LA-07950	Harper, Caprice D.	Archaeological Survey Report for the Interstate 105 (I-105) Dewatering Wells Beneficial Re-use of Groundwater Project, in the Cities of Paramount, Compton, Long Beach, and Carson, Los Angeles County, California	2006	Within	Long Beach
LA-07984	Michalsky, Jay and Deborah McLean	Cultural Resource Assessment Seaside Park, City of Long Beach, Los Angeles County, California	2005	0.25-0.5	Long Beach
LA-08225	Maki, Mary K.	Phase I Archaeological Survey for the Altamira Canyon Drainage Control Project City of Rancho Palos Verdes, Los Angeles County, California	2001	0-0.25	Long Beach
LA-08312	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, Llc Candidate La0576a (Video Verizon), 5901 Atlantic Avenue, Long Beach, Los Angeles County, California	2006	0.25-0.5	Long Beach
LA-08465	Bonner, Wayne H.	Cultural Resources Records Search Results and Site Visit for Sprint Candidate La70xc306b (Optometry/Clear Channel), 5290 Long Beach Boulevard, Long Beach, Los	2005	0.25-0.5	Long Beach

Report No.	Author(s)	Title	Year	Distance from PA	Quad
		Angeles County, California			
LA-08470	Bonner, Wayne H.	Cultural Resources Records Search Results and Site Visit for Sprint Telecommunications Facility Candidate La60xc358a (Vinotemp Warehouse), 17621 South Susana Road, Rancho Dominguez, Los Angeles County, California	2004	0.25-0.5	Long Beach
LA-08724	Bonner, Wayne H. and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, LLC Candidate La2807a (Superfreezers), 625 West Anaheim Street, Long Beach, Los Angeles County, California	2006	0-0.25	Long Beach
LA-08725	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate La13128b (Coin Laundry), 2200 North Pacific Avenue, Long Beach, Los Angeles County, California	2007	0.25-0.5	Long Beach
LA-09129	Strudwick, Ivan	Cultural Resources Analysis for the Shoemaker Street Bridge Project in the City of Long Beach, Los Angeles County, California	2007	Within	Long Beach
LA-09213	Bonner, Wayne H.	Direct Project Area Historic Architectural Assessment for Royal Street Communications, LLC Candidate LA2838A (Long Beach Discount Center), 520 West Willow Street, Long Beach, Los Angeles County, California	2007	0-0.25	Long Beach
LA-09217	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, LLC Candidate LA 2838A (Long Beach Discount Center), 520 West Willow Street, Long Beach, Los Angeles County, California	2007	0-0.25	Long Beach
LA-09344	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate LA13128C (Fisher Apartments), 2390 Cedar Avenue, Long Beach, Los Angeles County California	2008	0-0.25	Long Beach
LA-09456	Crawford, Kathleen	Direct Project Area Historic Architectural Assessment for T-Mobile Candidate LA13128C (Fisher Apartments), 2390 Cedar Avenue, Long Beach, Los Angeles County, California	2008	0-0.25	Long Beach
LA-09569	Wlodarski, Robert J.	Proposed Bechtel Wireless Telecommunications Site LA0176 (Sue's Corner), 5324 Long Beach Blvd., Long Beach, Los Angeles County, California.	2006	0-0.25	Long Beach
LA-09571	Fulton, Phil	Cultural Resource Assessment, Verizon Wireless Services, Compton College Facility, City of Compton, Los Angeles County, California.	2009	0.25-0.5	Long Beach
LA-10567	Hogan, Michael, Bai "Tom" Tang, Josh Smallwood, Laura Hensley	Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals	2005	0-0.25	Long Beach

Report No.	Author(s)	Title	Year	Distance from PA	Quad
	Shaker, and Casey Tibbitt				
LA-10864	Bonner, Wayne	Direct Project Area Historic Architectural Assessment for T-Mobile Candidate L:A13128B (Coin Laundry), 2200 North Pacific Avenue, Long Beach, Los Angeles County, California	2007	0.25-0.5	Long Beach
LA-11029	Wlodarski, Robert J.	Record Search and Proposed AT&T Wireless Telecommunications Site LAC072, Located at 800 West 15th Street, Long Beach, California 90813	2011	0-0.25	Long Beach
LA-11150	Maxwell, Pamela	West Basin Municipal Water District Harbor/South Bay Water Recycling Project	2003	0.25-0.5	Long Beach
LA-11949	Bonner, Wayne	Cultural Resources Records Search and Site Visit Results for Sprint Nextel Candidate LA59XC301 (New Directions), 5870 Atlantic Avenue, Long Beach, Los Angeles County, California	2012	0.25-0.5	Long Beach
LA-12057	Bonner, Wayne	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA13128C (LA3128 Fisher Apartments), 2390 Cedar Avenue, Long Beach, Los Angeles County, California	2012	0-0.25	Long Beach
LA-12329	Gibson, Heather, Kry, Linda, and Amaral, Adela	Archaeological Assessment for the New Long Beach Courthouse Project, City of Long Beach, California	2013	0.25-0.5	Long Beach
LA-12330	Slawson, Dana and Kay, Michael	Rancho Los Cerritos Visitor Center and Arroyo Restoration Project Cultural Resources Monitoring Report	2013	0.25-0.5	Long Beach
LA-12389	Chasteen, Carrie	Identification and Evaluation of Smokehouses Port of Long Beach Long Beach, Los Angeles County, California	2012	0-0.25	Long Beach
LA-12668	Brunzell, Dave	Cultural Resources Assessment of the Compton Project, Long Beach, Los Angeles County, California (BCR Consulting Project No. TRF1415)	2014	0-0.25	Long Beach
LA-12808	Chasteen, Carrie, Tiffany Clark, Richard Hanes, and Michael Mirro	Cultural Resources Study of the Wilmington Oil and Gas Field, Los Angeles County, California in Support of Analysis of Oil and Gas Well Stimulation Treatments in California Environmental Impact Report	2014	Within	Long Beach and Southgate
LA-12951a	Loftus, Shannon	Cultural Resource Records Search and Site Survey, AT&T Site LAR504	2012	Within	Long Beach
LA-12951b	Loftus, Shannon L.	Historical Architectural Resource-Inventory and Assessment AT&T Site LAR504	2012	Within	Long Beach
LA-12959	Carmack, Shannon and Kevin Hunt	City of Long Beach Civic Center Project, Cultural Resources Study	2015	0.25-0.5	Southgate
LA-12981	Haas, Hannah, Duane Vander Pluym, and Robert Ramirez	Archaeological Monitoring for the Agoura Hills Recreation Center Project, Agoura Hills, Los Angeles County, California	2014	Within	Long Beach

Table 3. Previously Recorded Cultural Resources

Primary Number (P-19-)	Other Identifier	Site Type	Site Description	Address	Year Recorded	Distance from the PA (miles)	Quad
000693	CA-LAN-693	Prehistoric Archaeological Site	Human remains, shell midden		1974	0-0.25	Long Beach
000695	CA-LAN-695	Prehistoric Archaeological Site	Shell midden, site speculated to be former location of <i>Abaungna</i> , a Gabrielino village site		1974	0-0.25	Long Beach
000696	CA-LAN-696H	Multicomponent site	Prehistoric: Cogstones, discoidal, pottery, lithic tools, groundstone. Historic: Adobe rubble, ceramics, glass, ceramics, buttons, metal pieces		1974	0-0.25	Long Beach
000697	CA-LAN-697	Prehistoric Archaeological Site	Human remains		1974	0-0.25	Long Beach
004313	4313H	Historic Archaeological Site	Historic refuse deposits		2011	0.25-0.5	Long Beach
150348	091901	Historic Resource	Single family residence, Mediterranean style, 1929	726 Maine Avenue	1996	0-0.25	Long Beach
150350	29608	Historic Resource	Multiple family residence, Craftsman style "Wolton Apartments: 1913	530 Chestnut Ave	1996	0.25-0.5	Long Beach
150352	086182	Historic Resource	Single family residence, Victorian style: 1903	535 Chestnut Ave	1996	0.25-0.5	Long Beach
150356		Historic Resource	Single family residence, Victorian style: 1904	520 Chestnut Ave	1996	0.25-0.5	Long Beach
150361		Historic Resource	Multiple family residence, Mediterranean style: 1916	1916-18 Magnolia Avenue	1996	0.25-0.5	Long Beach
178682	NR No. 12000810 HRI 029362	Historic Resource	Religious building, Romanesque style, "First Congregational Church of Long	241 Cedar Avenue	2012	0.25-0.5	Long Beach

Primary Number (P-19-)	Other Identifier	Site Type	Site Description	Address	Year Recorded	Distance from the PA (miles)	Quad
			Beach": 1919				
178699	NRHP 05000002 (1S)/ CRHP/ HRI 029380	Historic Resource	Single family residence, Queen Anne Victorian style "Bembridge House": 1906	953 Park Circle Drive	2001, 2004	0-0.25	Long Beach
179099	029787	Historic Resource	Multiple family residence, Beaux-Arts influence: 1926	241 Cedar Avenue	2005	0.25-0.5	Long Beach
179270	696H CRHL No. 978	Historic Resource	Single family residences, Monterey style adobe ranch house, "Temple Residence/Rancho Los Cerritos Adobe": 1844. Also location of prehistoric site (CA-LAN-696H).	400 Virginia Road	1988, 1989, 1990		Long Beach
187501	NR No. 99000579-0001, HRI 086099	Historic Resource	Multiple family residence, Italian Renaissance style, "The Willmore/The Stillwell": 1927	315 West Third street	1999		Long Beach
187118		Historic Resource	Single family residence, Mission revival style: 1932	1980 Cedar Avenue	1996		Long Beach
187133		Historic Resource	Single family residence, Victorian style: 1922	2443-45 1/2 Elm Avenue	1999		Long Beach
187181	122849	Historic Resource	Single family residence, Bungalow: 1947	1444 W. 20th Street	1999		Long Beach
187204		Historic Resource	1-3 story commercial building, Modern style: 1924	5350 Long beach Blvd.	1997		Long Beach
187235	12346	Historic Resource	Single family residence, Bungalow: 1938	719 W. 19th Street	1999		Long Beach
188401		Historic Resource	Bridge, single-span, steel-riveted Warren truss bridge, "Long Beach Blvd. Under Union Pacific Railroad": 1932		2008		Long Beach
188912		Historic Resource	1-3 story commercial	2200 N. Pacific	2007		Long Beach

Primary Number (P-19-)	Other Identifier	Site Type	Site Description	Address	Year Recorded	Distance from the PA (miles)	Quad
			building, Modern style: 1951	Ave.			
189246		Historic Resource	Transmission Line, Southern California Edison: 1929		2007		Long Beach
189450	NR No. 190547 174435	Historic Resource	Unidentified, "Bradly and Smith Killingsworth": 1955	3827 Long Beach Blvd.	2009		Long Beach
186746		Historic Resource	Religious building, A-Frame Contemporary: 1939	6380 Orange Ave. Long Beach, 90805	2002	0.25-0.5	Long Beach
187005	NR 05000773 HRI No. 122929	Historic Resource	3+ story commercial building: Art Deco style, "Long Beach Professional Building": 1929	117 East 8th Street	2005	0.25-0.5	Long Beach
187122		Historic Resource	Single family residence, Bungalow style: 1939	319 E. Marker Lane Long Beach 90805	1997	0-0.25	South Gate
187137		Historic Resource	Single family residence : WWII Bungalow	34 E. 69th St. Long Beach 90805	1996	0-0.25	South Gate
187183		Historic Resource	Single family residence, Bungalow style: 1948	265 E 69th St. Long Beach 90805	1999	0.25-0.5	South Gate
187191		Historic Resource	1-3 story commercial building, unidentified style: 1940	5376-78 Long Beach Blvd. Long Beach 90805	1997	0-0.25	Long Beach
187192		Historic Resource	1-3 story commercial building, unidentified style: 1924	5382 Long Beach Blvd. Long Beach 90805	1997	0-0.25	Long Beach
187199		Historic Resource	Single family residence, Bungalow style: 1922	711-713 Loma Vista Avenue	1997	0-0.25	Long Beach
187200		Historic Resource	Single family residence, Bungalow style:	517 W. 9th Street	1997	0-0.25	Long Beach

Primary Number (P-19-)	Other Identifier	Site Type	Site Description	Address	Year Recorded	Distance from the PA (miles)	Quad
			1910				
187209		Historic Resource	Single family residence: Victorian style: 1927	344 E. 57th St. Long Beach 90805	1997	0.25-0.5	Long Beach
187215	122902	Historic Resource	Single family residence, Bungalow style: 1948	6851 Beechley Ave. Long Beach 90805	1999	0-0.25	Long Beach
187218		Historic Resource	Single family residence, Bungalow style: 1915/1923	1122 Crystal Court/1123 Magnolia Avenue	1997	0-0.25	Long Beach
187223	114740	Historic Resource	Single family residence, Eclectic style: 1921	508-514 W. 10th Street	1997	0-0.25	Long Beach
187224		Historic Resource	Single family residence, Colonial style: 1924	165 W. Market St.	1997	0-0.25	Long Beach
187228	123260	Historic Resource	Single family residence, Bungalow style: 1948	6875 White Ave.	1999	0-0.25	South Gate
187234	123247	Historic Resource	Single family residence, Bungalow style: 1922	1622-23 Rose Avenue	1997	0.25-0.5	Long Beach
187248	123252	Historic Resource	Single family residence, Bungalow style: 1939	331 Heath Lane	1999	0-0.25	Long Beach
190000	148057	Historic Resource	Theatre, Art Deco style with Streamline influence: 1940	5870-5874 Atlantic Ave.	2003	0.25-0.5	Long Beach
190716	148629	Historic Resource	1 story commercial building, Industrial style: 1952	1350 Daisy Avenue	2004	0-0.25	Long Beach
190717	148628	Historic Resource	1 story commercial building, Modern style: 1922	551 W. Anaheim	2004	0-0.25	Long Beach
190718	148622	Historic Resource	Industrial buildings, Spanish Colonial Revival style "Home Ice & Cold Storage Co.": 1914	625 West Anaheim St.	2004	0-0.25	Long Beach
190765		Historic Resource	Hotel/motel, unidentified: 1936	5151 N. Long Beach	1996	0.25-0.5	Long Beach

Primary Number (P-19-)	Other Identifier	Site Type	Site Description	Address	Year Recorded	Distance from the PA (miles)	Quad
				Blvd.			
190766		Historic Resource	Single family residence, Spanish Colonial style: 1925	14 Zane St.	1996	0.25-0.5	Long Beach
190767		Historic Resource	Single family residence, Spanish Colonial style: 1928	16 Zane St.	1996	0.25-0.5	Long Beach
190768		Historic Resource	Historic District (21 buildings)	5115-5151 N. Long Beach Blvd.	1996	0.25-0.5	Long Beach
190239	172599	Historic Resource	Multiple family residence, Spanish Eclectic style, "Fisher apartment": 1931	2390 Cedar Ave.	2008	0.25-0.5	Long Beach
190588		Historic Resource	Industrial buildings (multiple), "Port of Long beach Smokehouses": 1929-1952		2012	0-0.25	Long Beach
190723	86123	Historic Resource	Single family residence, Neoclassical cottage: 1905	226 W. 5th Street	2005	0.25-0.5	Long Beach
190725		Historic Resource	1-3 story commercial building, Vernacular: 1902	233-235 w. 4th Street	2005	0.25-0.5	Long Beach
190738		Historic Resource	Multiple family residence, Modern style, "Cedarhurst": 1956	436-438 Cedar Ave.	2005	0.25-0.5	Long Beach
190739		Historic Resource	Multiple family residence, Spanish Eclectic style: 1923	442 Cedar Ave	2005	0.25-0.5	Long Beach
190740		Historic Resource	Multiple family residence, 1-3 story commercial building, Vernacular style: 1902-1950	458 Cedar Ave.	2005	0.25-0.5	Long Beach
192337		Historic Resource	Urban Open Space/Recreational Facility, Minimal Traditional style, "Will J. Reid Scout Park": 1950's	4747 Daisy Ave.	2014	0-0.25	Long Beach

OTHER SOURCES

In addition to the records at the SCCIC, Megan Wilson consulted a variety of sources in March 2017 to obtain information regarding the cultural context of the Project Area (Table 4). Sources included the NRHP, the CRHR, CHRI, CHL, and CPH. Specific information about the Project Area, obtained from historic maps and aerial photographs, is presented in the Project Area History.

Table 4. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP; 1979-2002 & supplements)	Negative
Historic USGS Topographic Maps	Negative
Historic US Department of Agriculture Aerial Photographs	Historic aerials indicate the PA was a heavily urban area in 1953.
California Register of Historical Resources (CRHR; 1992-2014)	Negative
California Historical Resources Inventory (CHRI; 1976-2014)	Negative
California Historical Landmarks (CHL; 1995 & supplements to 2014)	Negative
Local Historic Inventories	Positive, the southern boundary of the PA is located on the western boundary of the Drake Park/Wilmore City Historic District http://www.lbds.info/planning/historic_preservation/drake_park.asp
California Points of Historical Interest (CPHI; 1992 to 2014)	Negative
Bureau of Land Management (BLM) General Land Office Records	Positive (see Table 3)

NATIVE AMERICAN CONSULTATION

The Native American Heritage Commission (NAHC) was contacted on February 23, 2017 to perform a search of the Sacred Lands File (SLF) and provide a consultation list under AB52. The NAHC responded on February 27, 2017 stating there were no known sacred lands within a half mile of the Project Area. The NAHC also provided a list of six Native American individuals and organizations that may have knowledge of cultural resources within the Project Area. Two additional tribes contacted the City of Long Beach requesting that they be notified of project related activities that could impact resources within their respective tribal territories. The City is

conducting Native American consultation and the results will be reported in the project environmental document.

SURVEY

The survey stage is important in a Project's environmental assessment phase to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of cultural resources sensitivity. Cogstone archaeologist Holly Duke conducted an intensive pedestrian survey of all accessible portions of proposed project-related ground disturbance on March 29, 2017 (Figures 4a – 4d). Given that the project extends several linear miles, is comprised of multiple parcels with different owners, and is within a highly developed area, ground surface visibility during the survey was variable but generally poor, ranging from 0 to 10 percent in most areas which were paved and heavily landscaped obscuring the ground almost entirely. The few unpaved locations offered limited surface visibility but was over 50 percent in some instances. A few locations were inaccessible due to fencelines and other obstructions, while a smaller number of locations in close proximity to freeway on-ramps were unsurveyed to ensure surveyor safety.

Generally, the northern portion of the Project Area had 0 percent visibility. This includes Proposed Conveyance Segments 1 to 11. Along the Segment 1 alignment, existing hardscape and ornamental vegetation obscured the surface entirely (Figure 10). The same was true for Segment 2, with the exception of an area immediately south of the connection structure which, while vegetated, provided a view of a small dirt path (Figure 5). The portion of Segment 3 on the west side of the Los Angeles River had 0 percent visibility where accessible, while a small unpaved path running south from Long Beach Boulevard was blocked by a secured chain-link fence, making visibility only possible from a distance. The portion of Segment 3 along Market Street on the east side of the river was entirely landscaped and paved providing 0 visibility, with the exception of the same unpaved pathway which was again fenced off and inaccessible. Hardscape and vegetation completely obscured the ground in Segments 4. At the Virginia Country Club on the north end of Segment 5 the alignment was largely unpaved, though covered in many areas with wood mulch (Figure 7). Surface visibility was at roughly 50 percent. The portion of Segment 5 south of the country club was paved with 0 percent ground visibility. The entire length of Segments 6 to 8 was covered in hardscape and ornamental vegetation (Figures 5-10). Ground visibility at these locations was 0.



Figure 4a. Survey Map 1 of 4

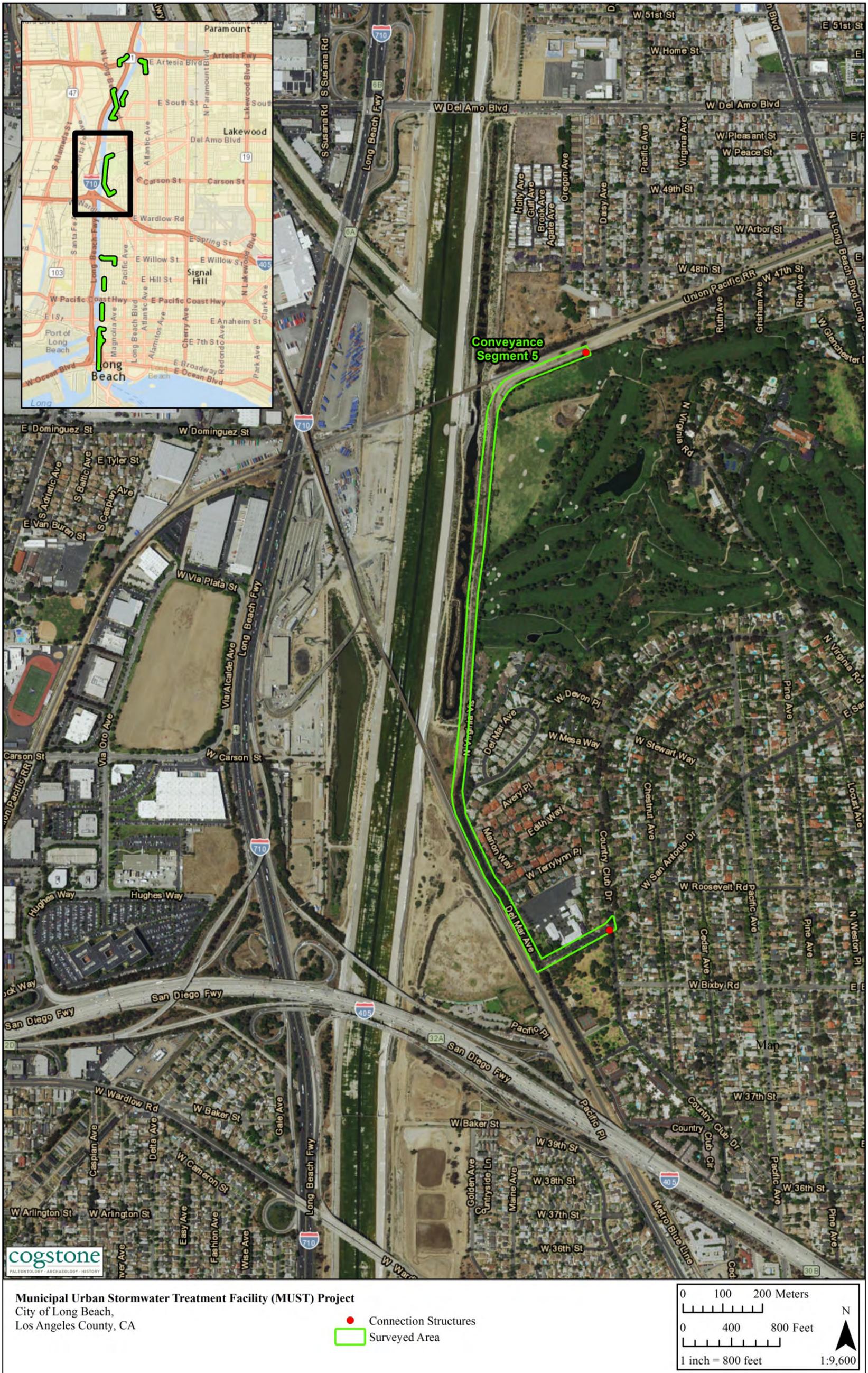


Figure 4b. Survey Map 2 of 4

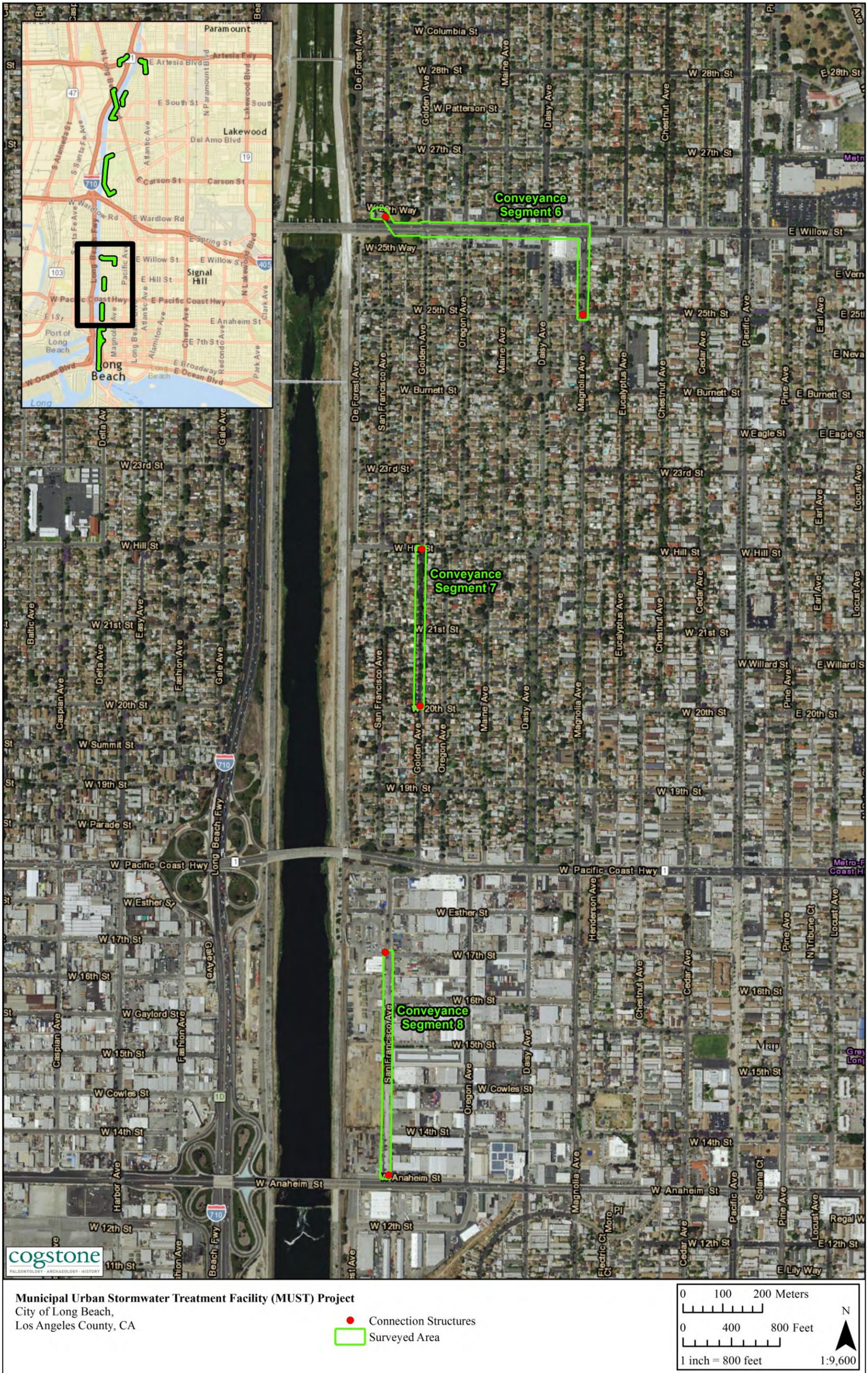


Figure 4c. Survey Map 3 of 4

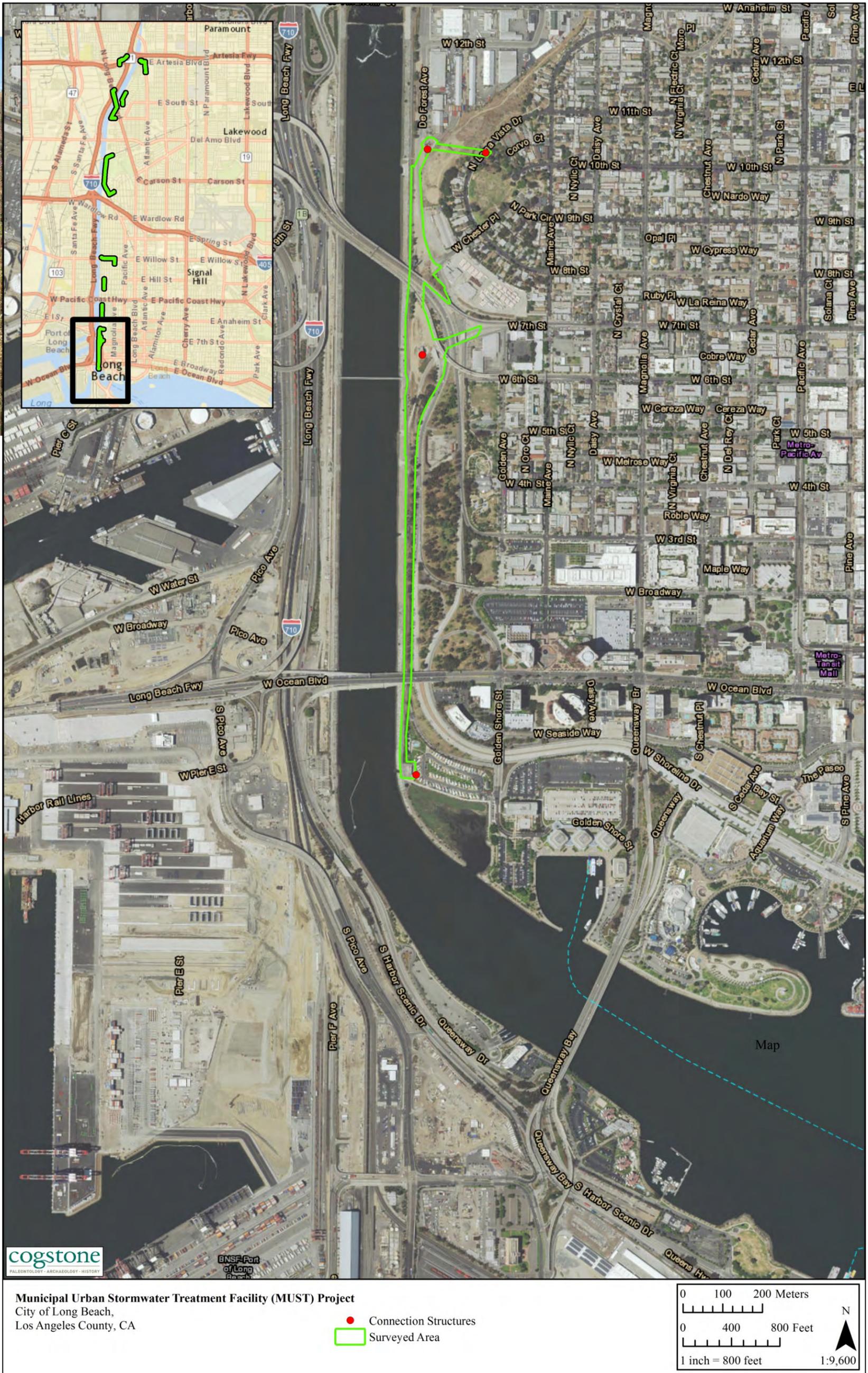


Figure 4d. Survey Map 4 of 4

On the far south side of the project alignment at Segments 9 to 11 and the site of the MUST facility south of Drake Park, visibility was better. An unpaved dirt road lines much of Segments 9 and 10 and provided more than 80 percent visibility, though vehicle and pedestrian traffic had disturbed soils along the path to some degree. Visibility in areas off the road was highly variable, averaging roughly 50 percent, while modern hardscape, modern refuse, homeless camps, and vegetation obscured the rest (Figure 8). The portion of Segment 9 located between De Forest Avenue and North Loma Vista Drive was inaccessible. Finally, the northern end of Segment 11 was located between and on an off-ramp for the 710 freeway and so was inaccessible. Roughly the remaining portion had up to 10 percent visibility through a chain link fence, though was obscured by hardscape and dense vegetation.

RESULTS

Cogstone conducted an intensive pedestrian survey of all accessible portions of proposed project-related ground disturbance on March 29, 2017. One built environment resource was encountered within the southernmost section (see Figure 4d), consisting of two segments of the Pacific Electric Railway, Long Beach Line, designated here as the Pacific Electric Railway Freight Line resource (Figures 11 and 12 and Appendix B).

The railroad segments recorded are thought to be at least 75 years old, possibly several years older. They are segments of the Pacific Electric Railway, but were most likely used for freight rather than for passengers and were added to the Pacific Electric Railway, Long Beach Line several decades after its founding. The two railroad segments observed on the ground surface at and near De Forest Avenue are short remnants of a much longer railroad track which was part of a PERY loop that began and ended just north of Long Beach. The segments retain their steel rails, spikes, and some other metal track hardware, and their wooden ties, though only the steel rails, a bit of wood, and a few spikes are visible on the northern segment that crosses De Forest Avenue.

The two segments of abandoned railroad track are located approximately 408 ft apart, but once were connected as part of one railroad track segment. The southernmost segment is located beneath the W. Shoreline Drive Overpass and is approximately 5 ft long, oriented northeast-southwest, and 8 ft wide (length of ties). The second, northern segment is visible on De Forest Avenue and on the ground surface immediately southwest of the street and is approximately 60 ft long and 5.25 ft wide (outer edge of rail to outer edge of rail). Current aerial photographs depict

a trace of the track route on the northeast, then east flank of De Forest Avenue, paralleling the street for another 192 ft to the north. Presumably, the original track also ran between the observed surface segments. The total observable route, based on ground and aerial observations is approximately 680 ft (207m) long.



Figure 3. Direct path cover in wood mulch at 6th St.



Figure 4. Dirt path with modern refuse at south end of Segment 10



Figure 5. Highly developed area at San Francisco Ave. between Anaheim and 17th



Figure 6. High developed suburban area at 20th and Golden Avenue



Figure 7. Highly developed and paved area of DeForest Avenue



Figure 8. Overpass at Butler Avenue view to Artesia

The two discontinuous segments are devoid of ballast, signage, signals, and all other possible structures that might be found on a mid-twentieth century railroad track. The majority of this freight line, at least between Anaheim Avenue and Ocean Boulevard, has been removed.

The PERY freight line first appeared on a map in 1942, but may have been constructed a few years before that (post-1934). It may have been built to facilitate movement of people and supplies to and from the Long Beach community as well as to the harbor during World War II. By 1949, a portion of the line continued to function for freight, but only as far north as Anaheim Avenue. It was still connected along the south, where it turned east at Ocean Boulevard, at its storage yards, then headed north along American Street (now Long Beach Boulevard).



Figure 11. Northern track segment on DeForest Ave., overpass in background, view to southwest



Figure 12. Southernmost railroad track segment, under the W. Shoreline Drive Overpass/Bridge, view to east.

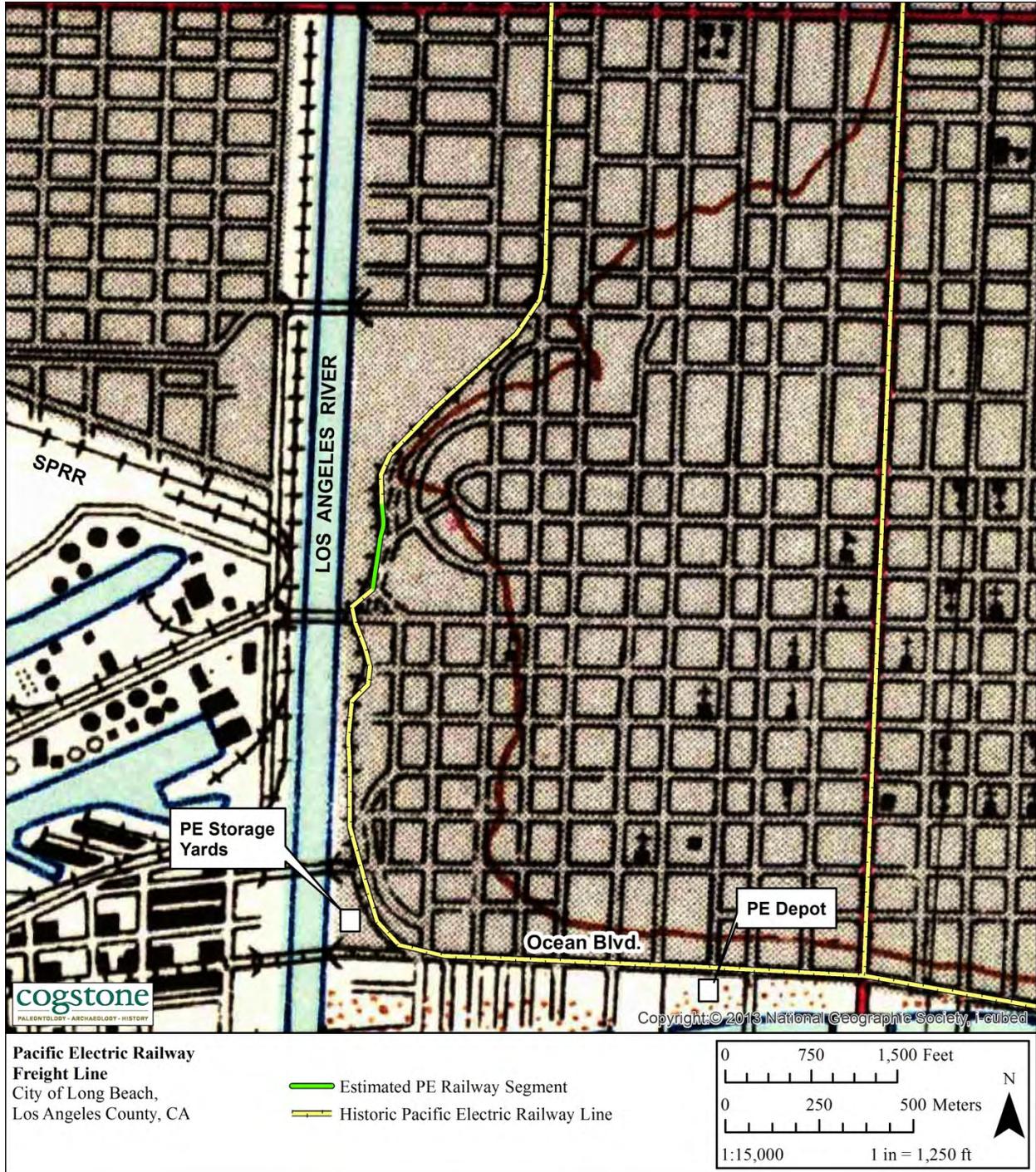


Figure 13. 1942 topographic map showing PERY Long Beach loop.

EVALUATION AND RECOMMENDATIONS

One built environment resource was encountered during the intensive Project Area survey, consisting of two segments of the Pacific Electric Railway, Long Beach Line, designated here as the Pacific Electric Railway Freight Line resource (Appendix B). The railroad segments recorded are thought to be at least 75 years old, possibly several years older. They are historic in age. They are segments of the Pacific Electric Railway that were used for freight rather than for passengers and were added to the Pacific Electric Railway, Long Beach Line several decades after its founding.

They are evaluated here according to the California Register of Historic Resources (CRHR) criteria for significance.

Criterion 1: The railroad line in question first appeared on a map in 1942, but may have been constructed a few years before that (post-1934). It may have been built to facilitate movement of people and supplies to and from the Long Beach community as well as to the harbor during World War II. By 1949, a portion of the line continued to function for freight, but only as far north as Anaheim Avenue. This freight line appears to be associated with events that have made a significant contribution to the broad patterns of our local and regional history, i.e., the World War II war effort in southern California. The site, therefore, appears to be eligible for listing on the CRHR under Criterion 1.

Criterion 2: While a significant person in the history of southern California – Henry Huntington – directly was associated with the founding and operating of the Pacific Electric Railway in 1902, and during ensuing years until 1910, he was not involved with the PERY during the period that the newly-recorded segments were in existence. By then, they were under Southern Pacific Railroad (SPRR) ownership, though still PERY in name. The SPRR was a significant force in the area in the 1870s to the early 1900s. This site is not known to be associated with persons important in our history during its years of existence and, therefore, is not eligible for listing on the CRHR under Criterion 2.

Criterion 3: The two segments of railroad track do not represent the work of a master craftsman or possess high artistic values, nor do they embody distinctive characteristics of mid-twentieth century railroad tracks. They are, therefore, not eligible for listing on the CRHR under Criterion 3.

Criterion 4: Since the resource is a built environment resource and not an archaeological resource, Criterion 4 is not applicable.

Integrity: The two railroad segments observed on the ground surface at and near De Forest Avenue are short remnants of a much longer railroad track which was part of a PERY loop that began and ended just north of Long Beach. As shown on Figure 13, our 680 ft long segment (when the two observed segments are combined with estimated route in between them) is a small part of the PERY loop of 1942. The segments retain their steel rails, spikes, and some other metal track hardware, and their wooden ties, though ties and most metal hardware are not visible on the northern segment that crosses De Forest Avenue. The two segments are discontinuous and are devoid of ballast, signage, signals, and all other possible structures that might be found on a mid-twentieth century railroad track. The majority of this freight line, at least between Anaheim Avenue and Ocean Boulevard, has been removed. The two segments retain their integrity of materials, workmanship, design, and location, but have lost their integrity of feeling, setting, and association. Though the PERY Freight Line is eligible for listing under Criterion 1 for its association with World War II, it lacks sufficient integrity and, therefore, is recommended as not eligible for CRHR listing.

Due to the poor ground visibility in much of the Project Area, it is possible that additional segments of the PERY freight line may be encountered within the southern portion of the Project Area during construction. The tracks may well have been located for a long way within this Project section. In the event of an unanticipated discovery of cultural resources during project related activities, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it.

In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately. In accordance with California Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Work may not resume in the vicinity of the find until all requirements of the health and safety code have been met.

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APPENDIX A. QUALIFICATIONS

TIM SPILLANE, MA, RPA
Project Manager/Principal Investigator I

EDUCATION

- 2010 Master of Arts in Text and Material Culture (Archaeological Approaches), Roehampton University, London
- 2008 Dual Bachelor of Arts in Anthropology (Archaeology Emphasis) & English Literature San Francisco State University.

SUMMARY QUALIFICATIONS

Tim Spillane is a Registered Professional Archaeologist with more than eight years of experience working with agencies in the public and private sectors on cultural resource management projects. He has developed particular expertise in the historic and prehistoric archaeology of the San Francisco Bay Area and larger Northern California region, and has a thorough understanding of Section 106, NEPA, and CEQA compliance. He is a cross-trained paleontologist with more than 40 hours of training focused on the identification and collection of paleontological resources and associated data. He has carried out a wide range of management work for the Golden Gate National Recreation Area, the San Francisco Planning Department, the Golden Gate National Parks Conservancy, the California State Parks, PG&E and numerous other agencies.

SELECTED PROJECTS

Golf Course Replacement Project, Veteran's Affairs, Long Beach, CA. Project Manager/Principal Investigator I. Conducted analysis of historical archaeological features and artifacts dating late 19th to mid 20th century. Also conducted analysis of prehistoric artifacts recovered. Prepared artifact analysis sections of report and evaluated features to National Register criteria. Report co-author. 2016-2017

Purple Line Extension Project, Metro/FTA, Los Angeles, CA. Project Manager/Principal Investigator I. Conducted analysis of historical archaeological features and artifacts dating late 19th to mid 20th century. Prepared artifact analysis section of report and evaluated features to National Register criteria. Prepared majority of report. 2016-2017

Presidio Parkway Project, San Francisco County, California. Project Manager/Principal Investigator I. Currently managing monitoring of the numerous prehistoric and historic archaeological sites. Catalogs all artifactual recoveries; composes weekly and semi-annual project reports summarizing monitoring activities and critically examining archaeological discoveries; and develops archaeological treatment and testing plans when necessary. Prepares semiannual reports. 2014-present.

Phase I Archaeological Testing of the Building 83 Garden Site, Alcatraz Island, San Francisco County, California. Project Manager/Principal Investigator I. Assisted National Park Service Archaeologists in Phase I testing of the Building 83 Garden Site, a historic deposit of refuse associated with the Occupation of Alcatraz by American Indians of All Tribes between 1969 and 1971. Spillane carried out site reconnaissance and surface collection of artifacts, assisted in site mapping, placed a series of test excavation units, screened and collected diagnostic resources, and contributed to site documentation. 2016

Embarcadero & Livingston HPR Project, Oakland, Alameda County, California. Archaeologist. Monitored construction activities related to gas line replacement at the Oakland Embarcadero and in an area of high prehistoric and moderate historic archaeological sensitivity, working to identify archaeological features and diagnostic artifacts on site; composing daily monitoring reports; collecting GPS data; photographing discoveries; and coordinating with contractors and the client regarding ground-disturbing activities and monitoring schedules. 2015

555 Fulton Retail-Residential Project, San Francisco County, California. Archaeologist. Monitored the construction of a large retail and residential development in Hayes Valley in San Francisco. He identified numerous historic artifacts and features; composed daily monitoring reports; collected GPS data on resources identified; produced daily project maps in ArcGIS; completed DPR forms for the project site and associated resources; and contributed to the final monitoring report. 2014



PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MOLLY VALASIK
Project Manager and Principal Archaeologist II

EDUCATION

- 2009 M.A., Anthropology, Kent State University, Kent, Ohio
 2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

EXPERIENCE

Ms. Valasik is a Registered Professional Archaeologist with eight years of professional experience. She is a skilled professional who is well-versed in the compliance procedures of CEQA and Section 106 of the NHPA and regularly prepares cultural resources assessment reports for a variety of federal, state, and local agencies throughout California. She has managed local assistance projects involving sidewalk, road, interchange, and bridge improvements with Caltrans/FHWA as the lead agency. In addition, she has prepared cultural resources reports for CEQA/EIR compliance documents for project-level and program-level Specific Plans, General Plans, Master Plans, and Zoning Amendments for mixed-use, residential, commercial and industrial developments. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*.

SELECTED PROJECTS

Old Town Streetscape, Phase 2, Caltrans District 3, City of Elk Grove, Sacramento County, CA. The City proposed construction of bump outs, sidewalk widening, bus lanes, etc. within a National Register-listed historic district. Managed cultural studies including record search, Sacred Lands File search, Native American consultation, intensive-level pedestrian archaeological and architectural surveys, as well as coordination and approval by District 3 of an APE map. The District record was updated. Author of Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker/PMC. Project Manager/Principal Investigator. 2016

SR-138 Palmdale Boulevard PA/ED (Sierra Highway), Caltrans District 7, City of Palmdale, Los Angeles County, CA. The project involved widening State Route 138 and Sierra Highway. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey, as well as coordinated approval by District 7 of an APE map. Co-author of the Archaeological Survey Report and Historic Properties Survey Report. Sub to Parsons Transportation. Project Manager/Principal Investigator. 2016

Paradise Valley Specific Plan, County of San Bernardino, near Indio, CA. The proposed project, encompassing 5,411 acres, consists of the construction of a planned community. Directed archaeological survey and extended Phase I activities. Lead author of assessment report. Managed subsequent supplemental survey and updated report. Sub to Envicom. Field Director and GIS Manager. 2011-2013; 2014; 2016

Arlington Avenue Widening, Caltrans District 8, City of Riverside Public Works, Riverside County, CA. The City proposed widening Arlington Avenue one linear mile in order to construct safety improvements. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey of the 5-acre site with negative results, as well as coordinated approval by District 8 of an APE map. Co-author of the Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker. Project Manager/Co-Principal Investigator. 2015

Folsom Boulevard Streetscape Enhancement, Caltrans District 3, City of Rancho Cordova, Sacramento County, CA. The City proposed to construct sidewalks, bike lanes, medians, safety fencing, and street and pedestrian lighting along Folsom Boulevard. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey, as well as coordination and approval by District 3 of an APE map. Author of Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker/PMC. Project Manager/Principal Archaeologist. 2015

LYNN FURNIS, RPA
Principal Archaeologist/Architectural Historian

EDUCATION

1999 M.A., Anthropology, University of Nevada, Reno
1972 B.A., Anthropology, University of California at Davis

SUMMARY QUALIFICATIONS

Ms. Furnis is a Registered Professional Archaeologist, historical archaeologist and architectural historian with 45 years of experience in the western United States. She has experience working in California (15 years), Nevada (25 years) and Alaska. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. Ms. Furnis is a skilled professional who is well-versed in the compliance procedures of CEQA, Section 106 of the NHPA and in working with a variety of federal, state, and local agencies. As an architectural historian, she has recorded hundreds of historic buildings and authored major architectural survey reports. Coursework completed in World Architecture, Anthropology of Architecture, Vernacular Architecture, and a workshop on The Identification of Mid-Twentieth Century Buildings. As a historical archaeologist, she has supervised crews, conducted surveys and excavations as part of research and CRM projects. Ms. Furnis has supervised large and small artifact processing labs for historic and prehistoric collections; conducted extensive historic research; written reports for inventory, test excavation, and data recovery projects; and analyzed historic artifacts. She has experience evaluating and recommending historic properties for inclusion on the National Register of Historic Places.

SELECTED PROJECTS

Lake Gregory Dam Rehabilitation EIR MMRP, County of San Bernardino Special Districts Department, Crestline, San Bernardino County, CA. Supported a cultural resources assessment for this rehabilitation project consisting of physical improvement to the dam, earthen material hauling and process, relocation of utilities, and traffic detour routes. Services included a review of existing literature and historic maps, a search of records conducted at the SBAIC, and intensive pedestrian survey of the 28.08 acre Project Area. As a result of the survey, two cultural resources were identified and recorded on Department of Parks and Recreation 523 site forms. Prepared a report documenting historic age buildings. The Dam was recommended as not eligible for listing in the CRHR. Sub to Aspen Environmental Group. Principal Archaeologist/Architectural Historian. 2015

Historical Sites Preservation, Veterans Affairs Long Beach Healthcare System, Long Beach, Los Angeles County, CA. The undertakings involve eleven projects, divided into two construction phases for improvements to the campus. Cogstone reviewed prior reports and site records, conducted Section 106 Native American consultation, conducted consultation to develop a NAGPRA POA for all the projects and updated survey and evaluation of 19 buildings. One National Register-listed prehistoric archaeological site, the Puvungna Indian Village, is known on the campus. Cogstone's review of prior documents and updated building survey resulted in the findings that six historic-age buildings at Site P19-187656 had been determined not eligible for the NRHP in 2006, that one more was determined to be not eligible in 2013, and that six additional buildings previously evaluated had not been reviewed by SHPO. During the architectural survey, it was found that 13 more buildings not previously recorded on site forms or evaluated would be directly or indirectly impacted by the proposed projects. The appropriate Department of Parks and Recreation, Primary Record forms, along with the Building, Structure, and Object Record forms were filled out for the 13 buildings, and updated forms were provided. 2014-Present

Purple Line Extension (Westside Subway), Segment 1, Los Angeles Metropolitan Transportation Authority, Beverly Hills, Los Angeles County, CA. On-call responsibility for issues relating to archaeological resources and historic buildings. Served as a subject matter expert on the Ace Gallery Working Group. Coordinating with the historic preservation subconsultant and Metro for completion of the HABS assessment and photo documentation of the Ace Gallery building, now owned by Metro. Managed monitoring of construction that involved removal of flashing from the historic Beverly Hills Porsche dealership building, which is eligible for listing on the National Register of Historic Places. During advanced utility relocation activities, conducted monitoring of construction close to the Fox Wilshire (Saban) Theater, which is a historic building listed in the National Register of Historic Places. A Sub to WEST. Architectural Historian and Historical Archaeologist. 2015-ongoing

APPENDIX B. DPR 523 SITE FORMS

P1. Other Identifier: Pacific Electric Railway, Long Beach Line

***P2. Location:** Not for Publication Unrestricted *a. County: Los Angeles

*b. USGS 7.5' Quad: Long Beach, Calif. Date: 1964 T 4S: R 13W; ¼ of ¼ of Sec 2; SB B.M.

c. Address: City: Long Beach Zip:

d. UTM: Zone: 11 S; North endpoint: 0388517mE/ 3738191 mN South endpoint: 0388491mE/ 3737985 mN

e. Other Locational Data: AIN 7278-012-906. The site can be reached by proceeding west on West 7th Street in the city of Long Beach, from Alamitos Avenue. Proceed approximately one mile west and turn right (north) onto Maine Avenue. Proceed approximately 400 ft, to W. 8th Street and turn left (west) onto N. Loma Vista Drive. Proceed to the first cross street which is W. Chester Place. Turn left and proceed to De Forest Avenue. Turn right onto De Forest Avenue, then find a place to park off this end of the road. The site is adjacent to De Forest Avenue as well as under the Shoreline Drive Overpass, located southwest of De Forest Avenue approximately 175 ft. Elevation: 12 ft amsl

***P3a. Description:** The site consists of two segments of abandoned railroad track which are located approximately 408 ft apart, but which once were connected as part of one railroad track segment. The southernmost segment is located beneath the W. Shoreline Drive Overpass and is approximately 5 ft long, oriented northeast-southwest, and 8 ft wide (length of ties). The second, northern segment is visible on De Forest Avenue and on the ground surface immediately southwest of the street and is approximately 60 ft long and 5.25 ft wide (outer edge of rail to outer edge of rail). Current aerial photographs depict a trace of the track route on the northeast, then east flank of De Forest Avenue, paralleling the street for another 192 ft to the north. Presumably, the original track also ran between the observed surface segments. The total observable route, based on ground and aerial observations is approximately 680 ft (207m) long. (See attached Continuation Sheet for additional description).

***P3b. Resource Attributes:** AH7: railroad grade/track

***P4. Resources Present:** Building Structure Object Site District Element of District Other



P5b. Description of Photo: Northern segment of track, on DeForest Avenue, overpass in background, view to southwest,

***P6. Date Constructed/Age and Sources:**

Historic Prehistoric Both

Between 1934 and 1942 (NETR 1934, 1942)

***P7. Owner and Address:**

City of Long Beach
333 W. Ocean Blvd.
Long Beach, CA 90802

***P8. Recorded by:**

Holly Duke
Cogstone Resources Management, Inc.
1518 W. Taft Avenue
Orange, CA 92865

***P9. Date Recorded:** March 29, 2017

***P10. Survey Type:** Intensive Pedestrian

***P11. Report Citation:** *Cultural Resources Survey Report for the Long Beach Municipal Urban Stormwater Treatment (Must) Project, City of Long Beach, Los Angeles County, California* (Duke 2017)

***Attachments:** NONE Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record Artifact Record Photograph Record Other:

BUILDING, STRUCTURE, AND OBJECT RECORD

- B1. Historic Name:** Pacific Electric Railway, Long Beach Line
- B2. Common Name:** Pacific Electric Railway, Long Beach Line
- B3. Original Use:** railroad freight transportation **B4. Present Use:** abandoned

***B5. Architectural Style:** railroad utilitarian

***B6. Construction History:** The Pacific Electric Railway (PERY) established its Long Beach Line to Long Beach in 1902 and terminated it in 1961 (Crump 1970:98). The freight line and spurs that comprised the line of which the recorded segments are a part appear to have been constructed between 1934 and 1942 and to have remained in service to at least 1980 (NETR 1934, 1942, 1964, 1972, 1980, 1994, 2015). Since the PERY was out of business in 1961, if the tracks were still in use until 1980, they must have been used by the Southern Pacific Railroad (SPRR) at that time. By 1994, most of the tracks had been removed from this freight segment.

***B7. Moved?** No Yes Unknown **Date:** **Original Location:**

***B8. Related Features:** steel rails, wooden ties

B9a. Architect: N/A

b. Builder: Pacific Electric Railway

***B10. Significance: Theme:** Freight Rail Transportation

Area: Long Beach

Period of Significance: 1935-1970

Property Type: railroad track

Applicable Criteria: A

The railroad segments recorded are thought to be at least 75 years old, possibly several years older. They are historic in age. They are segments of the Pacific Electric Railway, but were used for freight rather than for passengers and were added to the Pacific Electric Railway, Long Beach Line several decades after its founding.

Criterion 1: The property first appeared on a map in 1942, but may have been constructed a few years before that. It may have been built to facilitate movement of people and supplies to and from the Long Beach community as well as to the harbor during World War II. By 1949, a portion of the line continued to function for freight, but only as far north as Anaheim Avenue. It was still connected along the south, where it turned east at Ocean Boulevard, at its storage yards, then headed north along American Street (now Long Beach Boulevard). This freight line appears to be associated with events that have made a significant contribution to the broad patterns of our local and regional history, i.e., the World War II war effort in southern California. The site, therefore, appears to be eligible for listing on the CRHR under Criterion 1. (See Continuation Sheet for additional text).

B11. Additional Resource Attributes: none

***B12. References:**

Crump, Spencer

1970 *Henry Huntington and the Pacific Electric*, Trans-Anglo Books, Los Angeles, CA.

NETR (Nationwide Environmental Title Research, LLC)

1934 USGS Long Beach, Calif. 7.5 min quad, accessed online at www.historicaerials.com on May 4, 2017

1942 USGS Long Beach, Calif. 7.5 min quad, accessed online at www.historicaerials.com on May 4, 2017

1964 USGS Long Beach, Calif. 7.5 min quad, accessed online at www.historicaerials.com on May 4, 2017

1972 USGS Long Beach, Calif. 7.5 min quad, accessed online at www.historicaerials.com on May 4, 2017

1980 Aerial photograph, accessed online at www.historicaerials.com on May 4, 2017

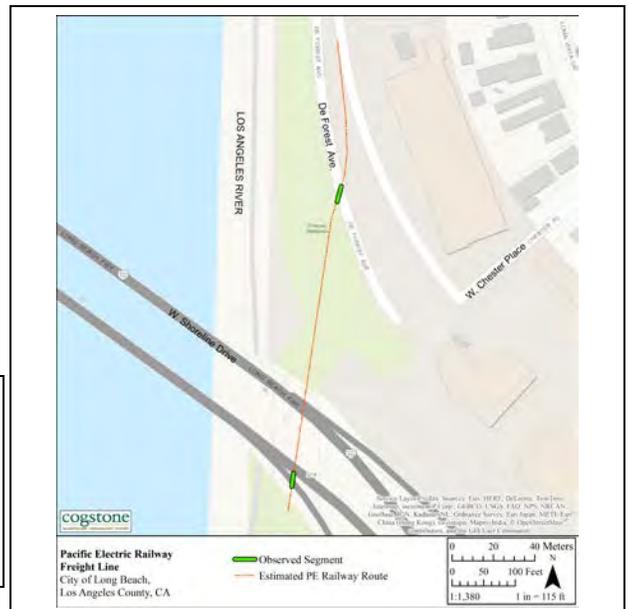
1994 Aerial photograph, accessed online at www.historicaerials.com on May 4, 2017

2015 USGS Long Beach, Calif. 7.5 min quad, accessed online at www.historicaerials.com on May 4, 2017

B13. Remarks:

***B14. Evaluator:** Lynn Furnis

***Date of Evaluation:** May 5, 2017



L1. Historic and/or Common Name: Pacific Electric Railway, Long Beach Line

L2a. Portion Described: Entire Resource Segment Point Observation **Designation:**

b. Location of point or segment: UTM's: Zone: 11 S; North endpoint: 0388517mE/ 3738191 mN
South endpoint: 0388491mE/ 3737985 mN

Legal Description: T 4S: R 13W; ¼ of ¼ of Sec 2; **SB B.M.** The segment is located between the Los Angeles River on the west and De Forest Avenue on the east, and between W. Chester Place and vacant land to the north.

L3. Description: The site consists of two segments of abandoned railroad track which are located approximately 408 ft apart, but which once were connected as part of one railroad track segment. The southernmost segment is located beneath the W. Shoreline Drive Overpass and is approximately 5 ft long, oriented northeast-southwest, and 8ft wide (length of ties). The second, northern segment is visible on De Forest Avenue and on the ground surface immediately southwest of the street and is approximately 60 ft long and 5.25ft wide (outer rail to outer rail width). It is also oriented northeast-southwest. The southern segment consists of one track, with two parallel steel rails, spikes, and other track hardware, and wooden ties. These could not be measured as they were fenced off and were close to homeless people living under the overpass. The northern segment consists of two parallel steel rails, the tops of which are exposed at ground and street level, where they cross De Forest Avenue. No wooden ties are exposed on this segment, though wood parallel to the rails, with some hardware is apparent in one place (see photo on Continuation Sheet). This is an unusual construction, possibly made because the rail is in the roadbed.

L4. Dimensions:

a. Top Width: 63 inches between outer edges of rails on northern segment (60 inches center to center)

b. Bottom Width: 8 ft estimated tie length

c. Height or Depth: estimated 6 inches

d. Length of Segment: North segment is approximately 60 ft long.

South segment is approximately 5 ft long

L4e. Facing:

The segments recorded are both flat, lying directly on current ground surface, with no ballast visible. The northern segment (see photo) appears slightly banked in its modest curve where it crosses De Forest Avenue. No cross-section is given.

L5. Associated Resources: none

L6. Setting: The segments are located close to the Los Angeles River, on its east flank, along a narrow strip of flat, open dirt ground. To the east are industrial buildings, beyond which is a residential neighborhood. To the south and the west are Long Beach Harbor facilities.

L7. Integrity Considerations: The two railroad segments observed on the ground surface at and near De Forest Avenue are short remnants of a much longer railroad track which was part of a PERY loop that began and ended just north of Long Beach. The segments retain their steel rails, spikes, and some other metal track hardware, and their wooden ties, though only the steel rails are visible on the northern segment that crosses De Forest Avenue. But the two segments are discontinuous and are devoid of ballast, signage, signals, and all other possible structures that might be found on a mid-twentieth century railroad track. The majority of this freight line, at least between Anaheim Avenue and Ocean Boulevard, has been removed. No other segments of it were observed during the survey to the north and south of Shoreline Drive Overpass. The two segments retain their integrity of materials, workmanship, design, and location, but have lost their integrity of feeling, setting, and association. The segments lack sufficient integrity and, therefore, are recommended as not eligible for CRHR listing.

L8a. Photograph, Map or Drawing



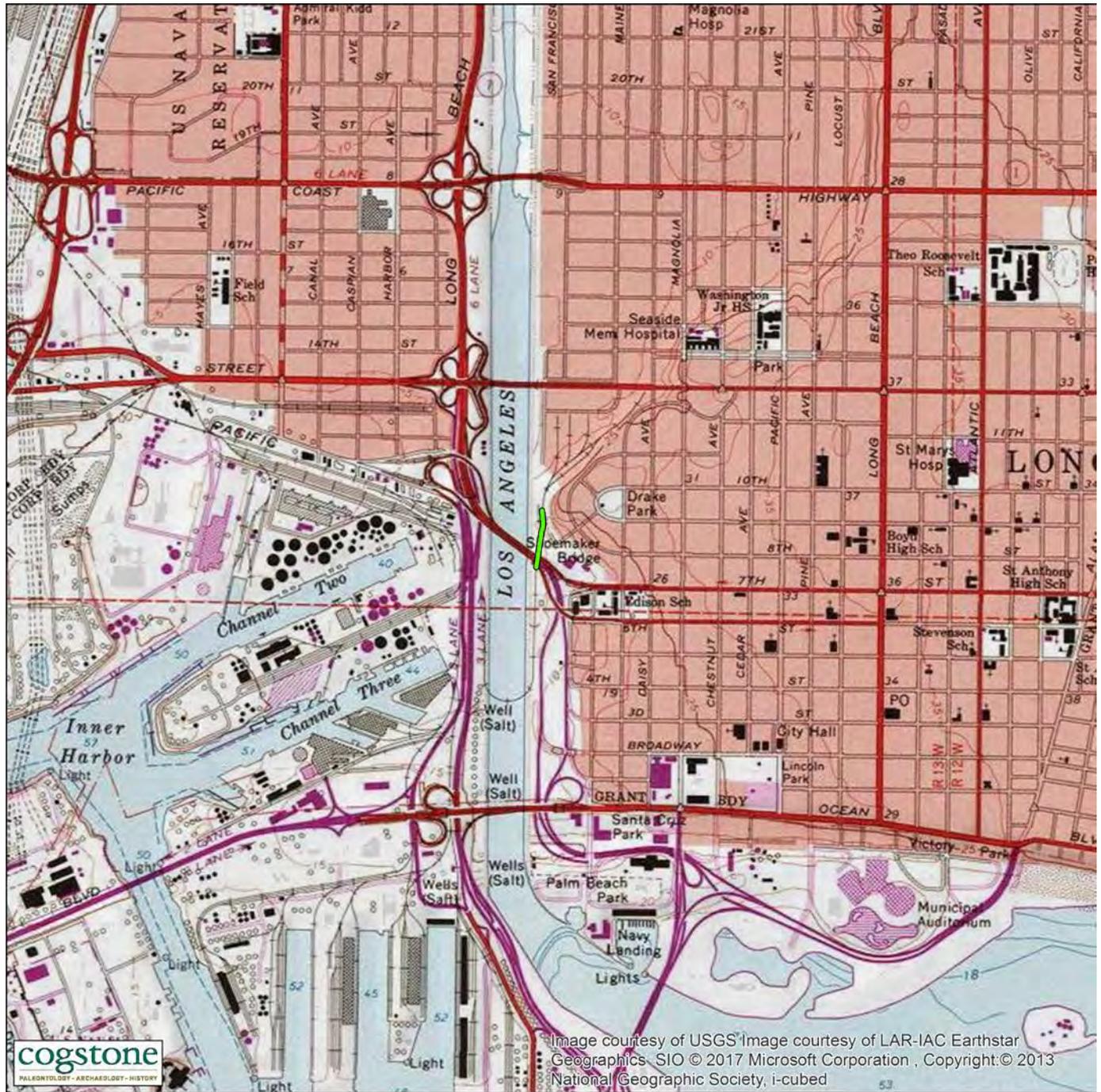
The segments retain their steel rails, spikes, and some other metal track hardware, and their wooden ties, though only the steel rails are visible on the northern segment that crosses De Forest Avenue. But the two segments are discontinuous and are devoid of ballast, signage, signals, and all other possible structures that might be found on a mid-twentieth century railroad track. The majority of this freight line, at least between Anaheim Avenue and Ocean Boulevard, has been removed. No other segments of it were observed during the survey to the north and south of Shoreline Drive Overpass. The two segments retain their integrity of materials, workmanship, design, and location, but have lost their integrity of feeling, setting, and association. The segments lack sufficient integrity and, therefore, are recommended as not eligible for CRHR listing.

L8b. Description of Photo, Map, or Drawing Northern segment of track, on Fairbanks Avenue, overpass in background, view to southwest, frame 2017_03_29_HAD MUST 1 (17).

L9. Remarks:

L10. Form Prepared by: Lynn Furnis

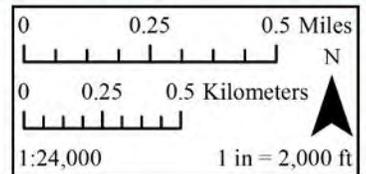
L11. Date: May 5, 2017



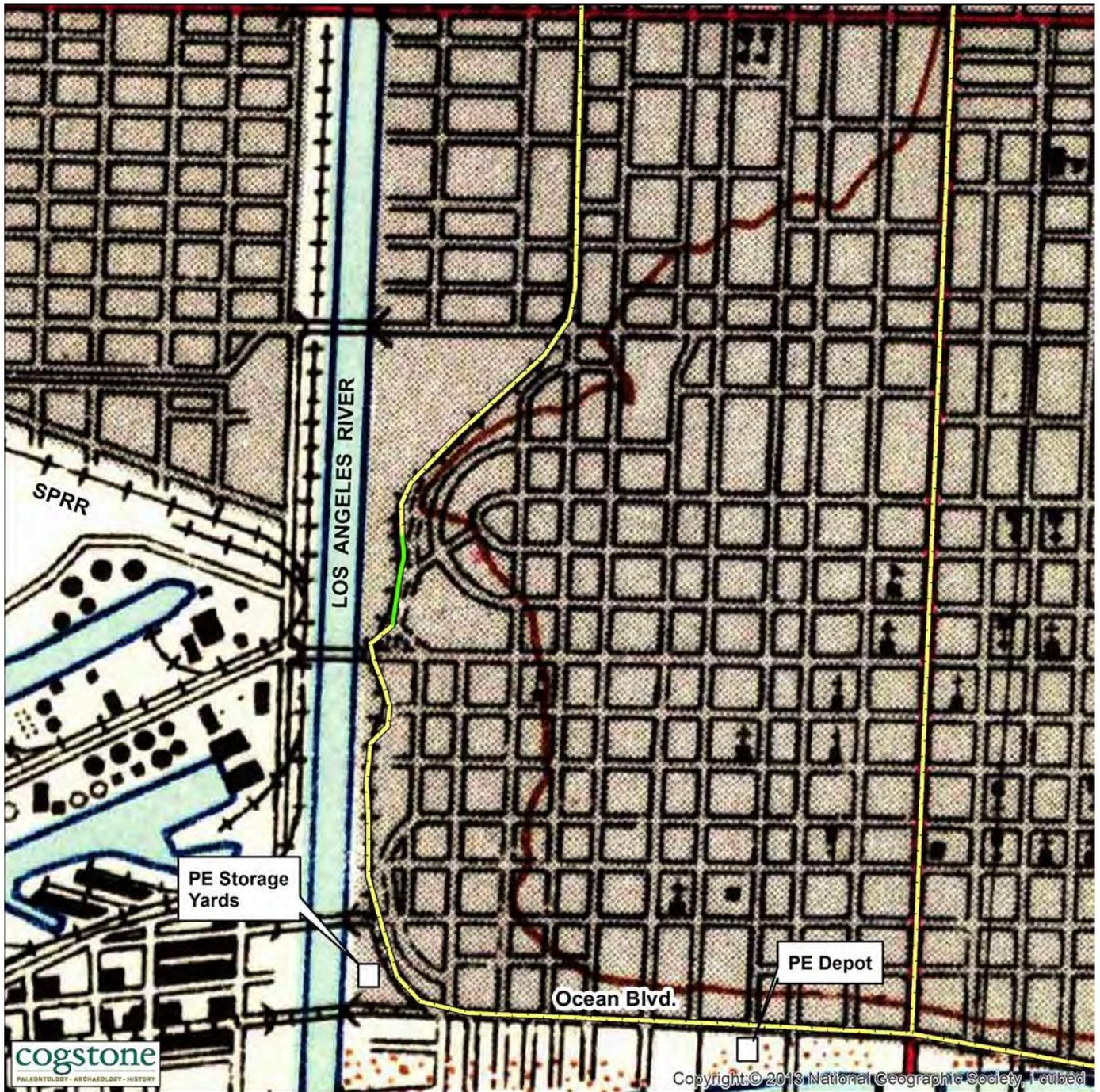
**Pacific Electric Railway
Freight Line**
City of Long Beach,
Los Angeles County, CA

 PE Railroad Segment

USGS 7.5' Quads:
LONG BEACH



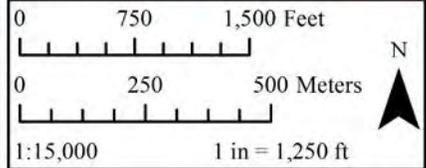
SKETCH MAP



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Pacific Electric Railway
Freight Line
City of Long Beach,
Los Angeles County, CA

- Estimated PE Railway Segment
- Historic Pacific Electric Railway Line



*Drawn By: Megan Wilson

*Date: May 5, 2017

*Recorded by: Holly Duke

*Date: March 29, 2017

***P3a. Description (continued):** The presence of a railroad track at this location was first depicted on a 1942 USGS topographic map (NETR 1942), which extended north, then northeast, to a warehouse cluster, then north again to join the main Pacific Electric Long Beach Line. From the observed track segments, this 1942 line also extended south, to Ocean Boulevard, then east to Long Beach Boulevard (formerly American Avenue), where it turned north and ran through Dominguez Junction, Compton, Watts, and beyond (Crump 1970:98). Based on its location, this north-south segment of the Pacific Electric Railway would appear to be a route used for freight service, rather than passenger service.

The Pacific Electric Railway (PERY), Long Beach Line began its passenger service to Long Beach in 1902 and terminated it in 1961 (Crump 1970:98). In order to further compete with the dominant and rival Southern Pacific Railroad (SPRR) in the area, the PERY added freight service to its offerings early in its life. The particular line here, along the east flank of the Los Angeles River and north of Ocean Boulevard, does not appear to have been constructed until the beginning of World War II. During World War II, commuter and freight business increased dramatically for the PERY, due to the intense war effort and its focus on the Long Beach harbor for shipment of people and supplies to local and overseas destinations (Crump 1970:23). Based on topographic maps, the PERY freight line through the site area continued in place, with several spurs serving warehouses immediately south of Anaheim Street, between the river and Magnolia Avenue from 1949 to at least 1981 (NETR 1949, 1964, 1972, 1981, 2015). Though the PERY was out of business in 1961, it is possible the site area tracks were still in use after that, but by SPRR, as by 1964, a tall, wide loop railroad bridge crossed the Los Angeles River south of Shoreline Drive overpass/Bridge which connected tracks on the west side of the river with those on the east (NETR 1964, 1972, 1981, 2015). Between 1994 and 2015, the loop bridge was removed.

The PERY freight line and its spurs on the east side of the river, up to Anaheim Street, are visible on aerial photographs as late as 1980 and may possibly have still been in use, as a few individual train cars appear to be standing on the tracks near the warehouses at that time (NETR 1980, 1994). By 1994, the tracks appear to have been mostly removed, though the location of the railbed can still be seen, clearly ending at Anaheim Street.

***B10. Significance (continued):**

Criterion 2: While a significant person in the history of southern California – Henry Huntington – directly was associated with the founding and operating of the Pacific Electric Railway in 1902, and during ensuing years until 1910, he was not involved with the PERY during the period that the newly-recorded segments were in existence. By then, they were under Southern Pacific Railroad (SPRR) ownership, though still PERY in name. The SPRR was a significant force in the area in the 1870s to the early 1900s. This site is not known to be associated with persons important in our history during its years of existence and, therefore, is not eligible for listing on the CRHR under Criterion 2.

Criterion 3: The two segments of railroad track do not represent the work of a master craftsman or possess high artistic values, nor do they embody distinctive characteristics of mid-twentieth century railroad tracks. They are, therefore, not eligible for listing on the CRHR under Criterion 3.

Criterion 4: Since the resource is a built environment resource and not an archaeological resource, Criterion 4 is not applicable.

Integrity: The two railroad segments observed on the ground surface at and near De Forest Avenue are short remnants of a much longer railroad track which was part of a PERY loop that began and ended just north of Long Beach. As shown on the large sketch map (attached), our 680 ft long segment (when the two observed segments are combined with estimated route in between them) is a small part of the PERY loop of 1942. The segments retain their steel rails, spikes, and some other metal track hardware, and their wooden ties, though ties and metal hardware are not visible on the northern segment that crosses De Forest Avenue. But the two segments are discontinuous and are devoid of ballast, signage, signals, and all other possible structures that might be found on a mid-twentieth century railroad track. The majority of this freight line, at least between Anaheim Avenue and Ocean Boulevard, has been removed. The two segments retain their integrity of materials, workmanship, design, and location, but have lost their integrity of feeling, setting, and association. Though the PERY Freight Line is eligible for listing under Criterion 1 for its

*Recorded by: Holly Duke

*Date: March 29, 2017

association with World War II, it lacks sufficient integrity and, therefore, is recommended as not eligible for CRHR listing.

L7. Integrity Considerations (continued):

Photographs:



Southernmost observed railroad track segment, located under the W. Shoreline Drive Overpass/Bridge, view to east.



Northernmost segment of track, located on De Forest Avenue, aerial view of rails and wood



**PALEONTOLOGICAL RESOURCES ASSESSMENT FOR
THE LONG BEACH MUNICIPAL URBAN
STORMWATER TREATMENT PROJECT,
CITY OF LONG BEACH,
LOS ANGELES COUNTY, CALIFORNIA**

Prepared for:
Michael Baker International

Author and Principal Investigator:
Kim Scott, Qualified Principal Paleontologist

April 2017

Cogstone Project Number: 3993-00

Type of Study: Paleontological Assessment

Sites: none within the project boundaries

USGS Quadrangle: Long Beach and Southgate

Length: about 8 miles

Key Words: modern artificial fill- very low (PFYC 1); Holocene sediments which may be only 5 feet thick- low (PFYC 2); undifferentiated Pleistocene sediments, Palos Verdes Sand, and San Pedro Formation - moderate but patchy (PFYC 3a)

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SUMMARY OF FINDINGS

The purpose of this document is to assess the potential for impacting paleontological resources resulting from construction of the proposed Long Beach Municipal Urban Stormwater Treatment Project, City of Long Beach, Los Angeles County, California. The project is intended to improve the water quality of existing urban runoff to the Los Angeles River, and ultimately to the Long Beach Harbor. This project area is approximately 8 miles long and is located both east and west of the Los Angeles River. Project excavations are planned to be 15 feet to 30 feet deep.

The project is mapped as modern artificial fill, Holocene and late Pleistocene alluvium and alluvial fans, and late to middle Pleistocene non-marine and nearshore marine deposits. At the eastern edges of the project, is an outcrop of the old marine to non-marine deposits. In the area of the Palos Verdes Hills, both the late to middle Pleistocene Palos Verdes Sand and the early Pleistocene San Pedro Formation are present adjacent to and beneath the old marine to non-marine deposits.

Results of the record search indicate that no previous fossil localities have been recorded within the project boundaries. Three of the ten project segments will affect sedimentary rocks known to produce fossils including Pleistocene alluvium, Palos Verdes Sand and San Pedro Formation.

The surface survey had poor ground visibility, from 0% to 10%, and the only sediments observed were artificial fill or Holocene sediments. No fossils were observed during the survey.

The modern artificial fill is assigned a very low (PFYC 1) fossil potential. The Holocene portions of the alluvium and alluvial fans are assigned a low (PFYC 2) fossil potential. Pleistocene deposits can be encountered in the alluvium and alluvial fans more than 5 feet below the surface. There the sensitivity is raised to moderate but patchy (PFYC 3a). Both the late to middle Pleistocene Palos Verdes Sand and the early Pleistocene San Pedro Formation are ranked as moderate but patchy sensitivity (PFYC 3a).

The linear project alignment is paleontologically sensitive for all excavations more than five feet in depth. Planned excavations range from 15 to 30 feet below the current surface. A Paleontological Resources Management Plan is recommended for this project and should consider subsurface information from geotechnical testing if available.

INTRODUCTION

PURPOSE OF STUDY

The purpose of this document is to assess the potential for impacting paleontological resources resulting from construction of the proposed Long Beach Municipal Urban Stormwater Treatment Project, City of Long Beach, Los Angeles County, California (Figures 1, 2).

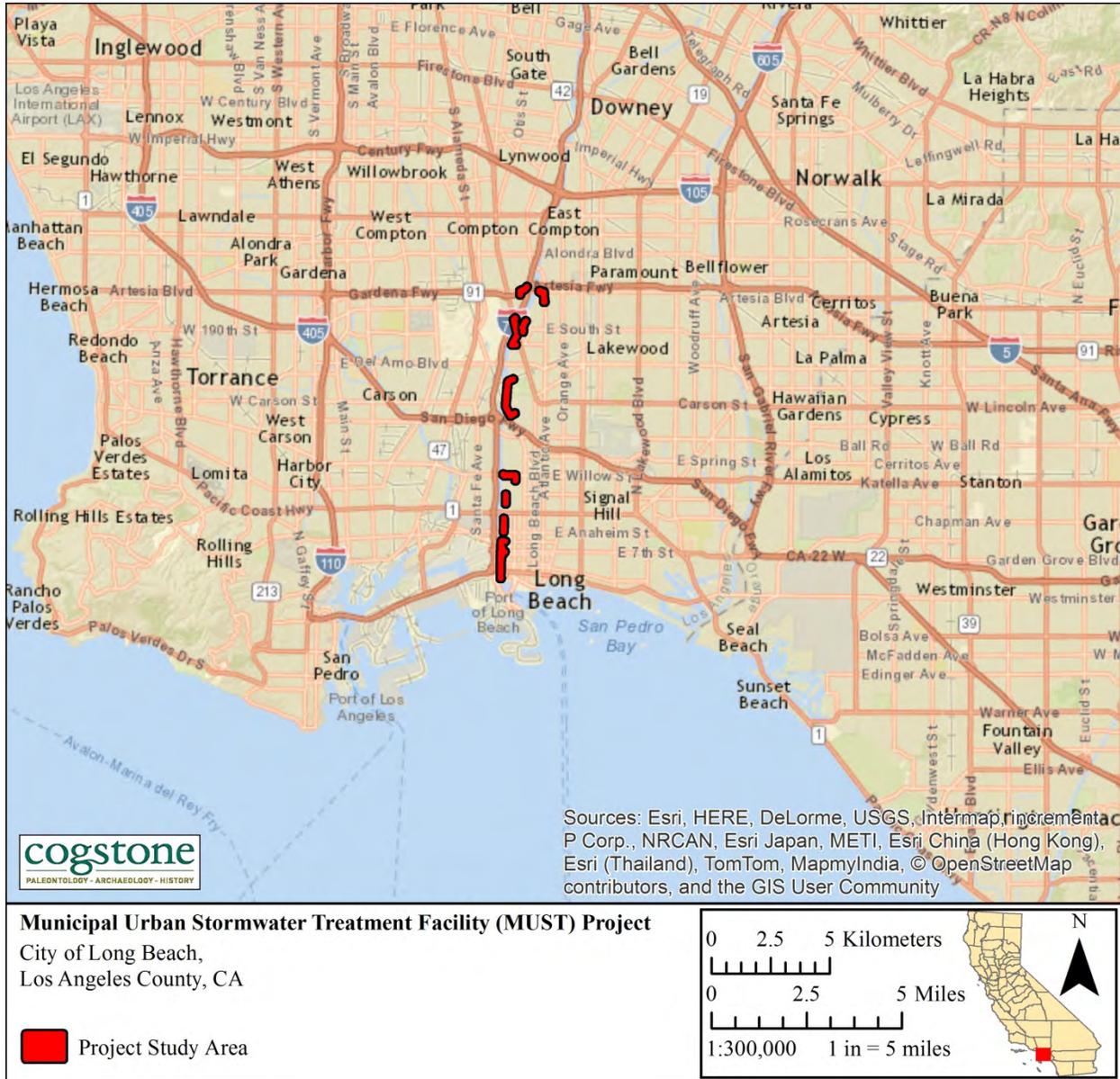


Figure 1. Project vicinity map

PROJECT LOCATION AND DESCRIPTION

The proposed Long Beach Municipal Urban Stormwater Treatment (MUST) Project (project) is located entirely within the City of Long Beach, generally extending along the Los Angeles River for a distance of approximately eight miles (Figure 2). The approximate limits of the project site are from State Route 91 (SR-91) to the north to Ocean Boulevard to the south. The project is intended to improve the water quality of existing urban runoff to the Los Angeles River, and ultimately to the Long Beach Harbor. Currently, pollutants (metals, bacteria, hydrocarbons, pesticides, and trash) enter the Los Angeles River via urban runoff; the proposed project would divert flows from tributary areas immediately east and west of the river to the MUST facility for treatment prior to discharge, resulting in water quality benefits in the project area.

The proposed project would include two primary project components: 1) the MUST facility; and 2) conveyance facilities. A brief summary of these facilities is provided below:

- **MUST Facility:** The MUST facility would be sited in close proximity to the City's existing Pump Station No. SD-01, on the east side of the Los Angeles River near the existing Shoemaker Bridge. The MUST facility would include facilities related to solids removal, oxidation, filtration, and disinfection, followed by a treated water terminal storage pond.
- **Conveyance Facilities:** The project would include conveyance facilities to carry stormwater from tributary areas to the MUST facility. Stormwater would be conveyed to the MUST facility via a combination of existing and proposed facilities. The project would include 11 segments of new conveyance facilities that would provide the connections that would complete the approximately 8-mile conveyance system. 9 of these segments are located east of the Los Angeles River, one west of the river, and one within the Long Beach Boulevard Bridge. Two options exist for conveyance – as underground pipelines, or as open channel facilities that provide for biofiltration pre-treatment and open space/aesthetic opportunities. A combination of the two options would be implemented.

It is anticipated that the project would occur entirely within existing public rights-of-way, and no right-of-way acquisition would be required for project implementation.

PROJECT STUDY AREA

The conveyance facility excavations are planned to be a maximum of 15 feet below surface. Areas where excavation could reach 30 feet would be at the diversion structures, connection structures, and the MUST facility (Figure 2). At present no cut exhibit is available for this project.



Figure 2. Project Study Area Map

Cogstone

This project is mapped on the Long Beach and Southgate 7.5' United States Geological Survey quadrangles (Table 1).

Table 1. USGS 7.5' maps, Township Ranges, and Sections

7.5' Topographic Quadrangle	Map year, year photo revised	Township	Range	Section(s)
Southgate	1964, photo revised 1984	3 South	13 West	25
Long Beach	1964	3 South	13 West	36
Long Beach		4 South	13 West	01, 12, 13, 14, 23, 24, 25, 26 and 36
Long Beach		5 South	13 West	02 and 11

PROJECT PERSONNEL

Cogstone conducted the paleontological resources studies and a brief resume of the principal investigator is appended (Appendix A). Additional qualifications of key Cogstone staff are available at <http://www.cogstone.com/key-staff/>

- Kim Scott served as the Principal Paleontologist for the project and wrote this report. Scott has a M. S. in Biology with an emphasis in paleontology from California State University, San Bernardino, a B.S. in Geology with an emphasis in paleontology from the University of California, Los Angeles, and over 20 years of experience in California paleontology and geology.
- Sherri Gust reviewed this report for quality control. Gust has a M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California at Davis and over 35 years of experience in California.
- André Simmons prepared the Geographic Information System (GIS) maps throughout this report. Simmons has a M.A. in Anthropology from California State University Fullerton, a GIS certification, and over eight years of experience in California archaeology and paleontology.
- Holly Duke of Cogstone performed a joint archaeological and paleontological field evaluation. She has a double B.A. in Archaeology and History from Simon Fraser University, Canada, and over four years of experience in California archaeology and paleontology.

REGULATORY ENVIRONMENT

STATE LAWS AND REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that "No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value."

BACKGROUND

GEOLOGICAL SETTING

The project lies at the western edge of the broad coastal plain of Orange County, California named the Tustin Plain. The Tustin Plain is bounded by the Santa Ana Mountains to the east, the Puente and Coyote Hills to the north, and the San Joaquin Hills to the south. Orange County is part of the coastal section of the Peninsular Range Geomorphic Province, which is characterized by elongated northwest-trending mountain ridges separated by sediment-floored valleys. Faults branching off from the San Andreas Fault to the east create the local mountains and hills. The Peninsular Ranges Geomorphic Province is located in the southwestern corner of California and is bounded by the Transverse Ranges Geomorphic Province to the north and the Colorado Desert Geomorphic Province to the east (Wagner, 2002).

SURFACE STRATIGRAPHY

The project is mapped as Holocene (modern to 11,700 years old) and late to middle Pleistocene (11,700 to 500,000 years old) non-marine and nearshore marine deposits (Figure 3; Saucedo et al. 2016). At the eastern edges of the project, adjacent to and beneath the old marine to non-marine deposits is the late to middle Pleistocene Palos Verdes Sand and the early Pleistocene (500,000 years to 2.6 million years old) San Pedro Formation. Aside from the artificial fill, all sediments were deposited by the Los Angeles River and the Pacific Ocean.

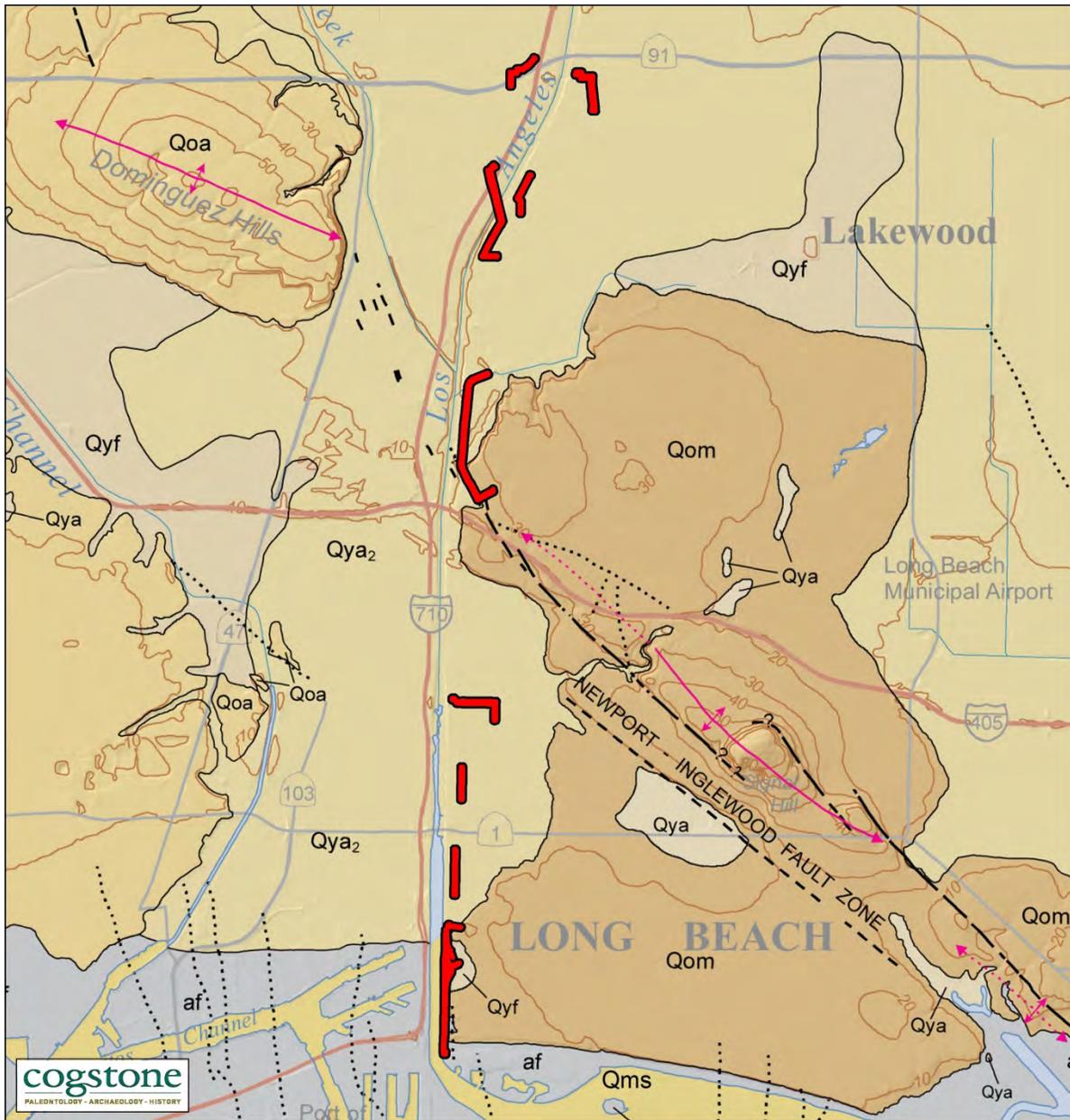
Both the fossiliferous Pleistocene deposits of the Palos Verdes Sand and the San Pedro Formation are present nearby at the surface, while fossiliferous Pleistocene alluvium is present in some nearby areas at 5 feet below the surface (Figure 4).

MODERN ARTIFICIAL FILL

Modern artificial fill (af) from construction activities is present at the southern end of the project. Most fill in California is less than 200 years old and is associated with all construction and mining activities. These sediments will not contain scientifically significant fossils if any are present. Only large areas of fill are typically mapped (Saucedo et al. 2016).

YOUNG ALLUVIUM UNIT 2, HOLOCENE AND LATE PLEISTOCENE

Holocene to late Pleistocene (Qya₂) flood plain deposits consist of poorly sorted, permeable clays to sands. Deposits are poorly consolidated and may be capped by poorly to moderately developed soils. These sediments were deposited by streams and rivers on canyon floors and in the flat flood plains of the area (Saucedo et al. 2016).



Municipal Urban Stormwater Treatment Facility (MUST) Project

City of Long Beach,
Los Angeles County, CA

Geology Legend: modified from Saucedo et al., 2016

 Project Study Area

-  af: artificial fill (late Holocene)
-  Qms: unconsolidated shelf sediment (late Holocene)
-  Qya: young alluvium, undivided (Holocene and late Pleistocene)
-  Qya2: young alluvium, unit 2 (Holocene and late Pleistocene)
-  Qyf: young alluvial fan deposits, undivided (Holocene and late Pleistocene)
-  Qoa: old alluvium, undivided (late to middle Pleistocene)
-  Qom: old shallow marine deposits on wave-cut surface (late to middle Pleistocene)

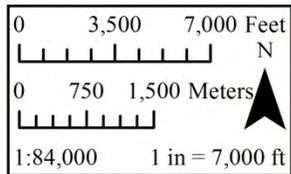


Figure 3. Project geology map

YOUNG ALLUVIAL FAN DEPOSITS, HOLOCENE AND LATE PLEISTOCENE

Holocene to late Pleistocene (modern to 120,000 years old), young alluvial fans have been deposited downslope of canyons by streams, flash floods, and debris flows. During periods of non-deposition, soils could form in the environment. Nearer to the mountains, these sediments are coarse-grained, but farther from the mountains the sediments are finer and are more likely to contain fossils. Although the surficial sediments are less than 11,700 years old and too young to contain fossils, deeper sediments might contain fossils (Qyf; Saucedo et al. 2016).

OLD MARINE TO NON-MARINE DEPOSITS, LATE TO MIDDLE PLEISTOCENE

These late to middle Pleistocene (11,700 to 500,000 years old), which interfinger near shore marine and non-marine sediments, were deposited along the ancient coast. Beach, estuarine, and reddish-brown alluvial deposits of clays to sands and conglomerates are now frequently present as wave cut platforms brought to the surface by uplift (Qom; Saucedo et al. 2016).

OTHER STRATIGRAPHY

Both the late to middle Pleistocene (11,700 to 500,000 years old) Palos Verdes Sand and the early Pleistocene (500,000 to 2.6 million year old) San Pedro Formation are poorly exposed at the surface and are mapped at more than 100 feet below the surface along the center of the Los Angeles channel valley area. However these two units appear at the margins of the late to middle Pleistocene old marine to non-marine deposits (Saucedo et al. 2016) and will likely be present sub-surficially near the border of this unit.

PALOS VERDES SAND, LATE TO MIDDLE PLEISTOCENE

Woodring et al. (1946) mapped the late to middle Pleistocene Palos Verdes Sand just under the sediments that Saucedo et al. (2016) label as late to middle Pleistocene old marine to non-marine deposits (Qom). However, Poland and Piper (1956) included the Palos Verdes Sand in with the deposits that Saucedo et al. (2016) label as late to middle Pleistocene old marine to non-marine deposits.

The Palos Verdes Sand consists of near shore marine sands to pebbles with some silts and clays. These sediments locally occur on the first marine terrace and can range from a few inches to 15 feet thick around the Palos Verdes Peninsula. On Reservation Point near the southwestern end of the Terminal Island, the Palos Verdes Sand was measured to be between 2 and 5 feet thick, while in San Pedro the deposits range from 2.25 feet to 7.75 feet. These sediments were exposed at the surface typically underlying non-marine terrace deposits and overlying the San Pedro Formation (Woodring et al. 1946).

SAN PEDRO FORMATION, EARLY PLEISTOCENE

Underlying the Palos Verdes Sand is the San Pedro Formation. This marine deposit consists of poorly sorted fine- to medium-grained sands, silty sands, and thin pebble lenses from a nearshore marine environment (Saucedo et al. 2016). The sands are cross-bedded or normally bedded and this formation can be as much as 300 feet thick (Woodring et al. 1946).

RECORDS SEARCH

Cogstone requested a records search from the Natural History Museum of Los Angeles County, Department of Vertebrate Paleontology that covered the project area as well as a 1 mile radius (McLeod 2017; Appendix B). In addition, online and print resources including the University of California Museum of Paleontology Database (UCMP 2017), and Woodring et al. (1946) were reviewed. Results of the record search indicate that no previous fossil localities have been recorded within the project boundaries. However, 117 localities with almost 3900 fossil specimens were identified within 5 miles of the proposed project area (Appendix C).

UNDIFFERENTIATED QUATERNARY LOCALITIES

Terrestrial mammal fossils documented from the Quaternary (Holocene and Pleistocene) deposits are most likely from the late Pleistocene alluvium. McLeod (2017), UCMP (2017), and Woodring et al. (1946) identified 25 localities that produced over 1360 fossil specimens, and 16 of these localities contained the remains of fossil vertebrates. Extinct taxa include mammoths, bison, camels, horse and two species of clams. Sea lion, whale, bird, eagle rays, and bony fish were also recovered from these deposits (Appendices B, C). In addition, Bishop pine was recovered from one locality. The rest of the fossils consisted of marine bivalves, snails, scaphopods, bryozoans, and stony coral (Appendix C). Of particular note is that McLeod (2017) indicated that some fossils of extinct animals were present as shallow as 5 feet below the surface (Figure 4).

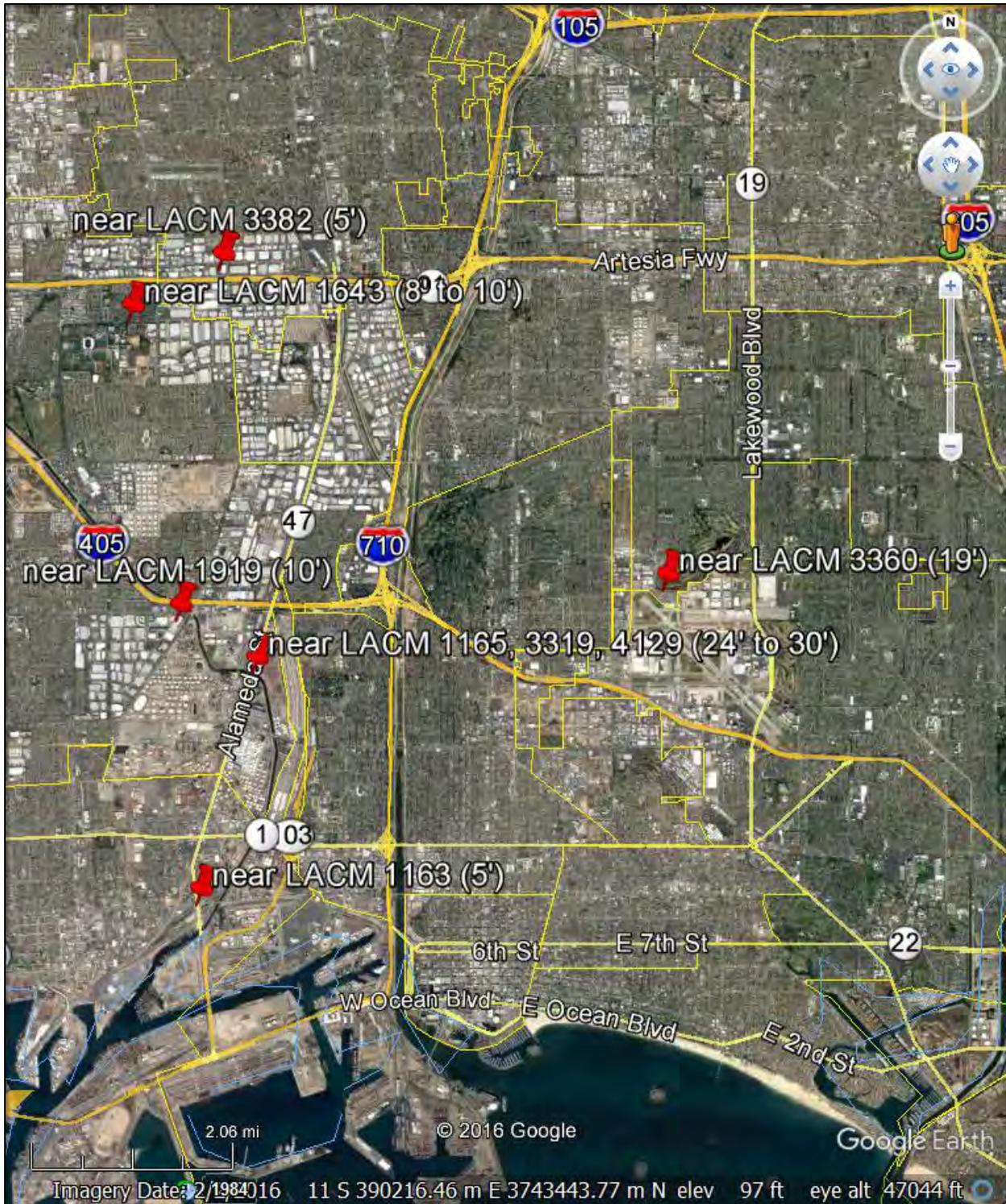


Figure 4. Pleistocene localities where depth of fossils was recorded

PALOS VERDES SAND

The Palos Verdes Sand is present at and near the surface and may occur under the deposits mapped as late to middle Pleistocene old marine to non-marine deposits (Qom; Figure 3). UCMP (2017) identified 77 localities that produced over 400 fossil specimens from the Palos Verdes Sand near to the project. Three of these localities contained the remains of fossil vertebrates. A specimen of the now extinct Law's flightless sea duck was recovered from these sediments. Eared seal, harbor seal, gopher, eagle rays, shark and bony fish were also recovered from these deposits. Most of the marine invertebrates recovered from Pleistocene deposits are still living today and included bivalves, snails, scaphopods, decapods, and echinoderms (Appendix C).

SAN PEDRO FORMATION

The San Pedro Formation is present at and near the surface and may occur under the deposits mapped as late to middle Pleistocene old marine to non-marine deposits (Qom; Figure 3). The UCMP (2017), and Woodring et al. (1946) identified 15 localities that produced over 2100 fossil specimens. At the most important locality, the San Pedro Lumberyard, produced the remains of 550 terrestrial and non-marine vertebrates. Extinct taxa from the San Pedro Lumberyard included ground sloth, dire wolf, sabre-toothed cat, American lion, mammoth, horse, dwarf pronghorn, bison, camels, Law's flightless sea duck, and a harlequin duck. Still living taxa recovered include cougar, sea otter, sea lion, eared seals, dolphins, whales, mule deer, rabbits, rodents, birds, snakes, turtles, amphibians, fish, and decapods. The other 14 localities produced fossils of the Law's flightless sea duck as well as over 1900 specimens of bivalves, snails, scaphopods, shrimp, and crabs (Appendix C).

SURVEY

METHODS

The survey stage is an important part of the project's environmental assessment phase. Its purpose is to confirm that field observations conform to the geological maps of the project area. Sediments are assessed for their potential to contain fossils. Additionally, if there are known paleontological resources the survey will verify the exact location of those resources, the condition or integrity of each resource, and the proximity of the resource to the project area. All undeveloped ground surface areas within the ground disturbance portion of the project area were examined. Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were

visually inspected. Photographs of the project area, including ground surface visibility and items of interest, were taken with a digital camera.

Holly Duke of Cogstone performed a joint archaeological and paleontological field survey of the project area on March 29, 2017. Overall ground visibility ranged from 0% to 10% due to extensive hardscaping.

RESULTS

Due to the poor ground visibility from construction and vegetation throughout the survey area, the only sediments observed consisted of artificial fill or Holocene sediments (Figures 5, 6). No fossils were observed during the survey.



Figure 5. A path in younger alluvial sediments northwest of Artesia Blvd and Atlantic Ave.



Figure 6. Younger alluvial sediments along Fairbanks Ave.

PALEONTOLOGICAL SENSITIVITY

The Potential Fossil Yield Classification (PFYC) utilizes a multi-level scale for fossiliferous sensitivity (BLM 2008; Appendix D). Knowledge of the geological formations gleaned from geological maps, the survey, and records of previous fossils recovered from the area provide the basis for determining the paleontological sensitivity of the sediments found within the project area. In general, invertebrate localities are less sensitive for fossils than vertebrate localities.

The project is mapped as modern artificial fill, Holocene and late Pleistocene alluvium and alluvial fans, and late to middle Pleistocene non-marine and nearshore marine deposits. The latter deposits crop out at the eastern edges of the project. In the area of the Palos Verdes Hills, the late to middle Pleistocene Palos Verdes Sand and the early Pleistocene San Pedro Formation are present adjacent to and beneath the old marine to non-marine deposits.

The modern artificial fill is assigned a very low (PFYC 1) fossil potential. The Holocene portions of the alluvium and alluvial fans are assigned a low (PFYC 2) fossil potential. Pleistocene deposits can be encountered in the alluvium and alluvial fans more than 5 feet below the surface (Figure 4; McLeod 2017). There the sensitivity is raised to moderate but patchy (PFYC 3a). Both the late to middle Pleistocene Palos Verdes Sand and the early Pleistocene San Pedro Formation are ranked as moderate but patchy sensitivity (PFYC 3a).

Table 2. Sensitivity of various formations within the project area

Formation	Very high (PFYC 5)	High (PFYC 4)	Moderate, patchy (PFYC 3a)	Low (PFYC 2)	Very low (PFYC 1)
artificial fill, modern					X
alluvium, Holocene and late Pleistocene			X (starting at 5' deep)	X (surface deposits)	
alluvial fans, Holocene and late Pleistocene			X (starting at 5' deep)	X (surface deposits)	
old marine to non-marine deposits, late to middle Pleistocene			X		
Palos Verdes Sand, late to middle Pleistocene			X		
San Pedro Formation, early Pleistocene			X		

STUDY FINDINGS AND RECOMMENDATIONS

Numerous fossils of extinct animals are known from the undifferentiated Pleistocene sediments, the Palos Verdes Sand, and the San Pedro Formation near the planned project. Planned excavations range from 15 to 30 feet below the current surface. The entire project alignment is sensitive for fossils at depths of five feet or more.

A Paleontological Resources Management Plan is recommended for this project and should consider subsurface geotechnical information if available. The plan shall detail paleontological resources awareness training for earthmoving personnel, provide a rationale for spot-checking to determine when sediments suitable for fossil preservation have been reached in each location and implement monitoring at that point. The plan shall also provide a framework for evaluating fossils recovered for significance under CEQA. Fossils meeting significance criteria shall be prepared, identified by experts and submitted for curation at an accredited museum such as the Natural History Museum of Los Angeles County. The plan should include a curation agreement with the museum so that the museum's data requirements are part of the plan.

REFERENCES CITED

BLM (Bureau of Land Management)

2008 *Potential Fossil Yield Classification (PFYC) System*. Online at:
http://www.blm.gov/style/medialib/blm/ut/natural_resources/cultural/paleo/Paleontology_Documents.Par.97864.File.dat/IM2008-009_att1%20-%20PFYC%20System.pdf

McLeod, S. (Natural History Museum of Los Angeles County)

2017 Vertebrate Paleontology Records Check for paleontological resources for the proposed MUST Facility Project, Cogstone Project # 3993, in the City of Long Beach, Long Beach, Los Angeles County, California, project area. March 9, 2017, 3 pgs. See Appendix B.

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1956 Ground-water geology of the coastal zone, Long Beach - Santa Ana area, California: U.S. Geological Survey, Water-Supply Paper 1109, scale 1:31,680.

Saucedo, G. J., H. G. Greene, M. P. Kennedy, and S. P. Bezore

2016 Geologic map of the Long Beach 30' x 60' quadrangle, California: California Geological Survey Regional Geologic Map Series Map No. 5, version 2.0; map scale 1:100,000.
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UCMP

2017 Online records search of the University of California, Berkeley paleontology database.

Wagner, D. L.

2002 *California Geologic Survey Note 36*. Online at:
http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_36/Documents/note_36.pdf

Woodring, W. P., M. N. Bramlette, and W. S.W. Kew

1946 Geology and paleontology of Palos Verdes Hills, California: U.S. Geological Survey, Professional Paper 207, scale 1:24,000.

APPENDIX A: QUALIFICATIONS

**KIM SCOTT**

Principal Investigator for Paleontology
Field & Lab Director for Paleontology

EDUCATION

2013 M.S., Biology with a paleontology emphasis, California State University, San Bernardino
 2000 B.S., Geology with paleontology emphasis, University of California, Los Angeles

SUMMARY QUALIFICATIONS

Scott has more than 20 years of experience in California paleontology. She is a qualified geologist and field paleontologist with extensive survey, monitoring and fossil salvage experience. In addition, she has special skills in fossil preparation (cleaning and stabilization) and preparation of stratigraphic sections and other documentation for fossil localities. Scott serves as company safety officer and is the author of the company safety and paleontology manuals.

SELECTED PROJECTS

Coto de Caza EIR Subdivision, Coto de Caza, Orange County, CA. The project proposes the subdivision of an existing large estate for development of 28 new residential lots on approximately 50-57 acres of land. Proposed residential lots will be a minimum of one acre in size. Prepared a Paleontological Assessment Report. Contracted to Bill Lyon. Co-Principal Paleontologist/Report Co-author. 2015.

Little Corona, Newport Beach, Orange County, CA. The project is part of the Newport Coast Watershed Management Plan and proposes the diversion of water from Buck Gully Creek into a subsurface infiltration gallery in which the Creek water will be percolated through the sand in order to improve beach conditions. Prepared the Archaeological and Paleontological Assessment Report. Contracted to Michael Baker RBF. Co-Principal Paleontologist/Report Co-author. 2015.

Center Avenue, Huntington Beach, Orange County, CA. The project consisted of constructing an underground parking structure. Sub to Avalon Bay. Supervised archaeological and paleontological field work and prepared the Archaeological and Paleontological Monitoring report. Field and Laboratory Director/ Report Co-author. 2014.

Gene Autry Way, Caltrans District 12, Anaheim, Orange County, CA. Project consisted of extending Gene Autry Way westward from 2,400 feet east of Interstate 5 to Haster Street (6 lanes wide), widening approximately 1,575 feet of Haster Street (520 feet south of Katella Avenue to 600 feet north of Oranewood Avenue) from 4 to 6 lanes plus a center turn lane, and completion of the Gene Autry Way overpass. Prepared a Paleontological Monitoring Report. Contracted to C. C. Myers. Field and Laboratory Director/Report Co-author. 2011-2012.

State Route 57 Northbound Widening Project, Caltrans District 12/ Orange County Transportation Authority (OCTA), Fullerton, Orange County, CA. Caltrans widening to State Route 57 between Lambert and Yorba Linda Avenue. Supervised paleontological monitoring and prepared the Paleontological Monitoring report. Under contract to CC Myers. Field and Laboratory Supervisor/Report Co-author. 2011-2012.

Interstate 5 and Ortega Highway Interchange, San Juan Capistrano, Orange County, CA. The project consisted of reconfiguring the interchange. Sub to ECORP Consulting. Co-authored Paleontological Literature Review. Field and Laboratory Director/ Report Co-author. 2006.

Central Park West Project, Irvine, Orange County, CA. The project consisted of building a housing development with underground parking. Supervised archaeological and paleontological field work and co-authored the Archaeological and Paleontological Assessment and monitoring reports. Sub to Lennar Communities. Field and Laboratory Director/ Report Co-author. 2005-2010.

APPENDIX B. RECORD SEARCH



Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

9 March 2017

Cogstone Resource Management, Inc.
1518 West Taft Avenue
Orange, CA 92865-4157

Attn: Megan Wilson, Archaeologist & GIS Technician

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed MUST Facility Project, Cogstone Project # 3993, in the City of Long Beach, Los Angeles County, project area

Dear Megan:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed MUST Facility Project, Cogstone Project # 3993, in the City of Long Beach, Los Angeles County, project area as outlined on the portions of the South Gate and Long Beach USGS topographic quadrangle maps that you sent to me via e-mail on 22 February 2017. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth

Almost all of the proposed project area has surface deposits composed of younger Quaternary Alluvium, derived as fluvial deposits from the floodplain of the Los Angeles River that currently flows in a concrete channel either through or adjacent to the proposed project area. These younger Quaternary deposits usually do not contain significant fossil vertebrate remains, at least in the uppermost layers, but the underlying older Quaternary deposits found at varying depths may well contain significant vertebrate fossils. In the middle portion of the proposed project area, just east of the interchange between the San Diego Freeway (I-405) and the Long Beach Freeway (I-710), there are surface deposits of older Quaternary Alluvium of lacustrine and estuarine origin. At its very southern end the proposed project area might cross surface deposits

of the same older Quaternary Alluvium, although it appears from the geologic mapping that this portion of the proposed project area mostly occurs within surface material composed of artificial fill.

Almost due west of the northern-most portion of the proposed project area, on the northern flank of the Dominguez Hills west of the Long Beach Freeway(I-710), east of Wilmington Avenue and north of Artesia Boulevard, our older Quaternary vertebrate fossil locality LACM 3382 produced a specimen of fossil mammoth, *Mammuthus*, at a depth of only five feet below the surface. A little further south and west, on the southwest flank of the Dominguez Hills near the intersection of 190th Street and Annalee Avenue, our older Quaternary locality LACM 1643 produced another fossil specimen of mammoth, *Mammuthus*, at a depth of 8-10 feet below the surface.

West of the middle portion of the proposed project area, west of the Long Beach Freeway (I-710) both sides of Alameda Street from Carson Street on the north to Sepulveda Boulevard on the south we have localities LACM 1165, 3319 and 4129 from older Quaternary deposits. From these localities fossil mammoth, *Mammuthus*, was recovered 30 feet below the surface, fossil camel, Camelidae, was found 24 feet down a bore hole and fossil bison, *Bison*, was discovered at unknown depth. Just west of these localities, just west of Wilmington Avenue south of 223rd Street, our fossil vertebrate locality LACM 1919 produced a specimen of fossil mammoth, *Mammuthus*, from about 10 feet below the surface.

To the east of the middle portion of the proposed project area, south of Carson Street along Cover Street between Pixie Avenue and Paramount Boulevard, our older Quaternary locality LACM 3660 produced a specimen of fossil mammoth, *Mammuthus*, at a depth of 19 feet below the surface. Further to the southwest of the proposed project area we have locality LACM 6802, near Bixby Road between Atlantic Avenue and Orange Avenue, that produced fossil specimens of undetermined vertebrates at a depth of 16 feet below the surface. Further south, near the intersection of Spring Street and Cherry Avenue south of the of the San Diego Freeway (I-405), our older Quaternary locality LACM 1021 produced fossil specimens of bird, Aves, and mammoth, *Mammuthus*, at unknown depth.

To the east of the southern portion of the proposed project area we have two vertebrate fossil localities from these older Quaternary deposits: LACM 1144, south of Anaheim Street near the intersection of Loma Vista Drive and Crystal Court, that produced fossil specimens of sea lion, *Zalophus*, camel, *Camelops*, and bison, *Bison*, from a depth of less than 48 feet below the surface; and LACM 6896, further south near the intersection of Magnolia Avenue and Ocean Boulevard, that produced a specimen of fossil whale, Cetacea, from pile driving activities at a depth of less than 100 feet.

To the west of the southern portion of the proposed project area, west of the Terminal Island Freeway (SR 103) along Anaheim Street near the intersection with Henry Ford Avenue, our older Quaternary locality LACM 1163 produced a specimen of fossil bison, *Bison*, at a depth of only five feet below the surface.

Surface grading or shallow excavations in the younger Quaternary Alluvium exposed in almost all of the proposed project area, or in the artificial fill in the southern-most portion of the proposed project area, probably will not uncover any significant vertebrate fossils. Deeper excavations in the those areas, as well as any excavations in the older Quaternary Alluvium exposed in the eastern middle portion of the proposed project area, may well encounter significant vertebrate fossils. Any substantial excavations below the uppermost layers in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

A handwritten signature in cursive script that reads "Samuel A. McLeod".

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

APPENDIX C. FOSSILS IN THE VICINITY OF THE ALIGNMENT

Extinct animals are noted by †; Possibly extinct animals are noted by ‡; * indicates that the locality was referenced in Woodring et al. (1946)

Common Name	Taxon	Depth	Formation	Locality	Location	Reference
mammoth	† <i>Mammuthus</i> sp.	5 feet	Quaternary deposits	LACM 3382	near Dominguez Hills: west of the I-710, east of Wilmington Ave., north of Artesia Blvd.	McLeod 2017
mammoth	† <i>Mammuthus</i> sp.	8-10 feet	Quaternary deposits	LACM 1643	near Dominguez Hills: near E Victoria and Annalee Ave.	
mammoth	† <i>Mammuthus</i> sp.	30 feet	Quaternary deposits	LACM 1165, 3319, 4129	west of the I-710 along Alameda St between Carson St and Sepulveda Blvd.	
camel	†Camelidae	24 feet				
bison	† <i>Bison</i> sp.	unknown				
mammoth	† <i>Mammuthus</i> sp.	10 feet	Quaternary deposits	LACM 1919	west of Wilmington Ave., south of 223rd St	
mammoth	† <i>Mammuthus</i> sp.	19 feet	Quaternary deposits	LACM 3360	south of Carson St; along Cover St between Pixie Ave and Paramount Blvd	
mammoth	† <i>Mammuthus</i> sp.	unknown	Quaternary deposits	LACM 1021	south of I-405; near the Spring St and Cherry Ave intersection	
bird	Aves					
bison	† <i>Bison</i> sp.	5 feet	Quaternary deposits	LACM 1163	west of SR 103; near the Anaheim St and Henry Ford Ave intersection	
sea lion	<i>Zalophus</i> sp.	less than 48 feet	Quaternary deposits	LACM 1144	south of Anaheim St; near the Loma Vista Dr and Crystal Court intersection	
camel	†Camelidae					
bison	† <i>Bison</i> sp.					
whale	Cetacea	less than 100 feet	Quaternary deposits	LACM 6896	near the Magnolia Ave and Ocean Blvd intersection	
indeterminate vertebrates	Vertebrata	unknown	Quaternary deposits	LACM 6802	near Bixby Rd between Atlantic Ave and Orange Ave	
horse	† <i>Equus</i> sp.	unknown	Quaternary deposits	V65109	Signal Hill	UCMP 2017
bony fish	Osteichthys	unknown	Quaternary deposits	V92101	Timms Point Bleifus Collection	
eagle ray	<i>Myliobatis</i> sp.	unknown	Quaternary deposits	IP10763	Wilmington-San Pedro Rd.	
bivalves, snails, scaphopods, and bryozoans	215 specimens of marine invertebrates	unknown	Quaternary deposits	A1483	*Signal Hill	
bony fish	Osteichthys	unknown	Quaternary deposits	A3421	*Signal Hill	
bivalves, snails, scaphopods, and echinoderms	356 specimens of marine invertebrates					
crassinella clams	† <i>Crassinella branneri</i> , † <i>C. nuculiformis</i>	unknown	Quaternary deposits	E9653, E9657	San Pedro	
bivalves and snails	95 specimens of marine invertebrates	unknown	Quaternary deposits	A1493	*Crawfish Georges	
bivalves, snails and scaphopods	113 specimens of marine invertebrates	unknown	Quaternary deposits	IP5022	Harbor Lot/ Shipyard	
bivalves and snails	82 specimens of marine invertebrates	unknown	Quaternary deposits	A1484, D1627	San Pedro Bluffs	
mollusks	Mollusca	unknown	Quaternary	A226	*Graham Bros. Quarry 1	
stony coral	Caryophylliidae	unknown	Quaternary deposits	A8470	*Hilltop Quarry	
Bishop pine	<i>Pinus muricata</i>	unknown	Quaternary deposits	PA606	*Bixby Slough II	
Law's flightless sea duck	† <i>Chendytes lawi</i>	unknown	Palos Verdes Sand	V63583	Harbor Blvd.	
harbor seal	<i>Phoca vitulina</i>	unknown	Palos Verdes Sand	V7004	Union 76 Refinery 1	
eared seal	Otariidae	unknown	Palos Verdes Sand	V7027	Union Oil Refinery 2	
pocket gopher	<i>Thomomys</i> sp.	unknown				
eagle ray	Myliobatidae	unknown				
shark	Carcharhiniformes	unknown				
bony fish	Osteichthyes	unknown	Palos Verdes Sand	E8143	Pacific Ave & Bonita St.	

Extinct animals are noted by †; Possibly extinct animals are noted by ‡; * indicates that the locality was referenced in Woodring et al. (1946)

Common Name	Taxon	Depth	Formation	Locality	Location	Reference
decapod	Decapoda	unknown	Palos Verdes Sand	D6331	San Pedro Lumberyard	UCMP 2017
red foot algae snail	<i>Norrisia norrisi</i>					
bivalves and snails	34 specimens of marine invertebrates	unknown	Palos Verdes Sand	E7393, E7393, E7572, E7604, E7637, E7641, E7661, E700, E7802, E7952, E7068, E8251, E8256, E8411, E8430, E8511, E8512, E8663, E8699, E8778, E8779, E8939, E8959, E8981, E9796	Gaffey St Bridge	
marine worms, barnacles, decopods, bivalves, snails, scaphopods, and echinoderms	302 specimens of marine invertebrates	unknown	Palos Verdes Sand	D390, E7994, E8112, E9006, E9214, E9222, E9245, E9284, E9306, E9319, E9332, E9334, E9346, E9357, E9367, E9415, E9418, E9515, E9538, E9540, E9544, E9563, E9564, E9568, E9603, E9608, E9626, E9647, E9650, E9652, E9654, E9655, E9689, E9724, E9730, E9797	San Pedro	
bivalves and snails	48 specimens of marine invertebrates	unknown	Palos Verdes Sand	E7876, E7918, E8046, E8074, E8313, E8410, E8429, E8501, E8698, E8761, E8948	Vermont & Sepulveda, San Pedro	
Shasta's ground sloth	† <i>Nothrotheriops shastensis</i>	unknown	San Pedro	-2047	*San Pedro Lumber Co	UCMP 2017
ground sloth	† <i>Megalonyx</i> sp.					
dire wolf and canid	† <i>Canis dirus</i> , ‡ <i>Canidae</i>					
sabre-toothed cat	† <i>Smilodon fatalis</i>					
American lion	† <i>Felis atrox</i>					
couger	<i>Felis concolor</i>					
sea otter	<i>Enhydra lutris</i>					
sea lion and eared seals	<i>Zalophus</i> sp., Otariidae					
dolphins and whales	Delphinidae, Cetacea					
mammoth	† <i>Mammuthus</i> sp.					
horse	† <i>Equus</i> sp.					
diminutive pronghorn	† <i>Capromeryx</i> sp.					
bison	† <i>Bison latifrons</i> , † <i>Bison</i> sp.					
camel	† <i>Camelops</i> sp., Camelidae					
mule deer	<i>Odocoileus hemionus</i>					
brush rabbit	<i>Sylvilagus bachmani</i>					
hare	<i>Lepus</i> sp.					
voles	<i>Microtus californicus</i> , <i>Microtus</i> sp.					
dusky-footed woodrat	<i>Neotoma fuscipes</i>					
pocket gophers	<i>Thomomys bottae</i> , <i>Thomomys</i> sp.					
squirrels	<i>Spermophilus beecheyi</i> , <i>Spermophilus</i> sp.					
rodent	Rodentia					
mammal	Mammalia					
ducks, geese, and scoters	<i>Anas americana</i> , <i>A. clypeata</i> , <i>A. crecca</i> , <i>A. platyrhynchos</i> , <i>Anas</i> sp.; <i>Anser albifrons</i> , <i>Branta canadensis</i> , <i>Bucephala albeola</i> , † <i>Chendytes lawi</i> , † <i>Chendytes</i> sp., † <i>Histrionicus carolinensis</i> ; <i>Melanitta deglandi</i> , <i>M. perspicillata</i> ; <i>Oidemia deglandi</i> ,					

Anatidae						
Extinct animals are noted by †; Possibly extinct animals are noted by ‡; * indicates that the locality was referenced in Woodring et al. (1946)						
Common Name	Taxon	Depth	Formation	Locality	Location	Reference
American coot	<i>Fulica americana</i>	unknown	San Pedro	-2047 - continued	*San Pedro Lumber Co - continued	UCMP 2017
grebes	<i>Aechmophorus occidentalis, Podiceps auritus</i>					
auks and murrelet	<i>Ptychoramphus aleuticus, Synthliboramphus antiquus, Synthliboramphus sp.</i>					
loons	<i>Gavia arctica, G. immer</i>					
cormorants	<i>Phalacrocorax auritus, P. penicillatus, Phalacrocorax sp.</i>					
glaucous-winged gull	<i>Larus glaucescens</i>					
albatrosses	<i>Diomedea albatrus, D. nigripes, Diomedea sp.</i>					
shearwaters	<i>Puffinus griseus, P. opisthomelas</i>					
American kestrel	<i>Falco sparverius</i>					
California quail	<i>Callipepla californica</i>					
vultures	<i>Cathartes aura, Coragyps sp.</i>					
sandpiper	<i>Tringa sp.</i>					
unidentifiable birds	Aves					
common kingsnake	<i>Lampropeltis getulus</i>					
gopher snake	<i>Pituophis melanoleucus</i>					
rattlesnakes	<i>Crotalus viridis, Crotalus sp.</i>					
snakes	Serpentes					
turtles	<i>Clemmys marmorata, Clemmys sp.</i>					
turtle or tortoise	Testudines					
toads, frogs, and salamanders	<i>Bufo sp., Rana sp., Tarchia sp., Amphibia</i>					
three-spined stickleback (fish)	<i>Gasterosteus aculeatus</i>					
bony fishes	Osteichthyes					
rays	<i>Urolophus sp., Mylobatidae, Batoidea</i>					
sharks	<i>Carcharhinus sp., Carcharhiniformes, Hexanchus sp., Carcharodon sp., Selachii</i>					
shrimps and crabs	70 specimens of decapods					
Law's flightless sea duck	† <i>Chendytes lawi</i> , † <i>Chendytes sp.</i>	unknown	San Pedro	V2508, E8821	Long Wharf Canyon	
miter snail	<i>Mitra fultoni</i>	unknown	San Pedro	2113-, 4030-, 7102-, A3484, A1489, A2542	*Reservation Point (Deadman Island)	
shrimp, bivalves, snails and scaphopods	664 specimens of marine invertebrates	unknown	San Pedro	A1503	*Nob Hill	
bivalves, snails, scaphopods, shrimp and crabs	985 specimens of marine invertebrates	unknown	San Pedro	2112-, A217, D4733, IP428	San Pedro	
shrimp, bivalves, snails and scaphopods	273 specimens of marine invertebrates	unknown	San Pedro	D5440	San Pedro Hill	
bivalves and snails	34 specimens of marine invertebrates	unknown	San Pedro			

APPENDIX D. SENSITIVITY RANKING CRITERIA

PFYC Description (BLM, 2008)	PFYC Rank
Very Low. The occurrence of significant fossils is non-existent or extremely rare. Includes igneous or metamorphic and Precambrian or older rocks. Assessment or mitigation of paleontological resources is usually unnecessary.	1
Low. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. Includes rock units too young to produce fossils, sediments with significant physical and chemical changes (e.g., diagenetic alteration) and having few to no fossils known. Assessment or mitigation of paleontological resources is not likely to be necessary.	2
Potentially Moderate but Undemonstrated Potential. Units exhibit geologic features and preservational conditions that suggest fossils could be present, but no vertebrate fossils or only common types of plant and invertebrate fossils are known. Surface-disturbing activities may require field assessment to determine appropriate course of action.	3b
Moderate Potential. Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered and of low abundance. Common invertebrate or plant fossils may be found. Surface-disturbing activities may require field assessment to determine appropriate course of action.	3a
High. Geologic units containing a high occurrence of significant fossils. Fossils must be abundant per locality. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.	4
Very High. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.	5