

CULTURAL AND PALEONTOLOGY RESOURCES INVENTORY REPORT FOR THE ENCANTO RESIDENTIAL DEVELOPMENT PROJECT, LAKE FOREST CALIFORNIA

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Management Summary

ICF International, at the request of E|P|D Solutions, Inc., Irvine, California, prepared this cultural and paleontological assessment for the proposed Encanto Residential Development Project (project). The Project would consist of the subdivision of a 5.75-acre property into 52 residential and five open space lots that includes associated streets, retaining walls, and storm drains in the City of Lake Forest, Orange County, California. A Phase I cultural resources inventory and paleontological sensitivity analysis was completed by ICF International for the project, which is located in Township 6 S, Range 8 W within the United States Geological Survey (USGS) El Toro 7.5' quadrangle. The project area is situated approximately three miles northwest of the El Toro "Y" interchange of the Interstate 5 and 405 freeways, and approximately 1/4- mile east-southeast of the Orange County Great Park (the former Marine Corps Air Station El Toro).

A cultural resources literature and records search for the project, located in Lake Forest, California was conducted by ICF archaeologist Michael D. Richards at the South Central Coastal Archaeological Information Center (SCCIC) housed at the Department of Anthropology, California State University, Fullerton. The objective of this search was to identify any previously recorded cultural resources within a 0.5-mile radius of the project study area, located in Lake Forest on the El Toro, Calif. USGS 7.5 Quadrangle (1968; Photorevised 1982). The search included a review of all recorded archaeological sites as well as a review of the cultural resource reports on file. In addition, the California Historical Landmarks (SHL), the California State Historic Resources Inventory (HRI), the California Points of Historical Interest (SPHI), the California Register of Historical Resources (CRHR), and the National Register of Historic Places (NRHP) listings were reviewed. In addition, a paleontological record search was completed. In addition, a vertebrate paleontological resources record search was conducted.

The results of this search indicate that no prehistoric or historic archaeological resources or isolated artifacts have been previously recorded within the boundaries of the project area and 12 prehistoric cultural resources have been recorded within a 1/2-mile radius of the project area. Additionally, the record search indicates that no prehistoric archaeological sites in the vicinity of the project area are listed on the Archaeological Determination of Eligibility (DOE) list. A total of 25 cultural resource studies have been conducted within a 1/2-mile radius of the project area. Of these, 8 studies included the project area and were negative within the project boundaries, observing no prehistoric or historic archaeological resources, isolated artifacts or paleontological resources. Some of the remaining 17 studies, within the 1/2-mile buffer area, produced positive results for cultural resources as mentioned above.

ICF International has contacted the Native American Heritage Commission (NAHC) for a review of the Sacred Lands files, which found that no sacred lands in this vicinity are recorded in the NAHC files. As part of our research, interested parties were contacted, including Native American groups and individuals identified by the NAHC, to help identify any prehistoric sites, sacred sites, or traditional cultural properties located in the vicinity of the project area. A response was received from Mr. Andrew Salas, Chairperson, Gabrieleno Band of Mission Indians on December 13, 2014, requesting the presence of a Native American monitor during any and all ground disturbing activities.

The results of this pedestrian survey indicate that no prehistoric or historic cultural resources are present within the subject parcel area. However, due to the proximity of numerous prehistoric resources within 0.5 mile of the proposed project area, the following measures are recommended: Any forthcoming earth-moving or trenching activities where ground disturbance has the potential to disturb native soils shall be carefully monitored by a qualified professional archaeologist and a Native American monitor. In addition, no previously vertebrate paleontological resources have been recorded. However, because the Capistrano Formation, known to contain significant fossil resources, exists in the proposed project area, it is recommended that any substantial excavations in the project area should be monitored by a paleontological technician to quickly and professionally recover any fossil remains discovered, if observed, while not impeding the progress of project construction.

As stipulated in CEQA, the California Public Health and Safety Code, and the Public Resources Code, the accidental discovery of unexpected cultural materials or human remains during construction grading or trenching will require a work stoppage in the immediate area of the discovery until it is evaluated by a qualified archaeologist. Implementation of this recommendation will ensure satisfactory compliance with applicable regulations as well as protect potential significant cultural resources.

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Acronyms and Abbreviations

amsl	above mean sea level
CEQA	California Environmental Quality Act
Corps	United States Army Corps of Engineers
CHRIS	California Historical Resources Information System
CHL	California Historical Landmark
CRHR	California Register of Historical Resources
GPS	Global Positioning System
HRI	California Historic Resources Inventory
ICF	ICF International
MLD	most likely descendant
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
project	Encanto Residential Development Project
SCCIC	South Central Coastal Information Center
USGS	United States Geological Survey

Chapter 1

Project Information and Introduction

Introduction

This cultural resources inventory report has been prepared by ICF International, at the request of E|P|D Solutions, Inc., Irvine, California, for the Encanto Residential Development Project (project). This project will subdivide the 5.75-acre property into 52 residential and 5 open space lots that includes associated streets, retaining walls, and storm drains in the City of Lake Forest, Orange County, California. A cultural resources survey and a paleontological resources file search were conducted for the project area, which is located in Township 6 S, Range 8 W within the United States Geological Survey (USGS) El Toro 7.5' quadrangle. The project area is situated approximately three miles northwest of the El Toro "Y" interchange of the Interstate 5 and 405 freeways, and approximately 0.25- mile east southeast of the Orange County Great Park (the former Marine Corps Air Station El Toro) (Figure 1).

This study was conducted in compliance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code §21000 et seq.), pursuant to the Guidelines for Implementation of the California Environmental Quality Act (California Code of Regulations, Title 14 §15000 et seq.) and in accordance with industry standards for similar projects in Orange County. This study includes an archival cultural resources records search and intensive archaeological field survey, as well as a paleontological file search, and was designed to identify and record cultural resources within the project area. The purpose of this cultural survey was to assess whether archaeological, built environment, or paleontological resources might be impacted by the proposed project.

Project Location and Description

The project area is located in the northern reaches of the City of Lake Forest in Orange County. (Figure 1). The project is located in Township 6 S, Range 8 W within the United States Geological Survey (USGS) El Toro 7.5' quadrangle. The project area is situated approximately three miles northwest of the El Toro "Y" interchanges of the Interstate 5 and 405 freeways, and approximately 0.25- mile southeast of the Orange County Great Park (the former Marine Corps Air Station [MCAS] El Toro). Alton Parkway runs along the northern boundary of the project site and Commercentre Drive borders the property on the eastern boundary (Figures 2 and 3). The City of Lake Forest encompasses an area of 16.6 square miles located in the heart of south Orange County and Saddleback Valley, between the coastal floodplain and the Santa Ana Mountains. Lake Forest is bordered by the Cities of Laguna Hills and Laguna Woods to the southwest, Irvine to the northwest, and Mission Viejo to the southeast. This project will subdivide the 5.75-acre property into 52 residential and 5 open space lots that includes associated streets, retaining walls, and storm drains.

The former El Toro Marine Base is located to the northwest of the project area and it was constructed in 1942 on a parcel of land acquired from the Irvine Ranch Corporation, a precursor to the Irvine Company. The base was originally built as a wartime air station for the purpose of aircraft squadron formation and a unit training facility prior to overseas combat (Orange County Great Park). The land originally surrounding the base was mostly used for agriculture when it first

opened, but in the late 1980s and early 1990s residential development began in the area and created the communities of Lake Forest, Irvine, Dana Point, Mission Viejo, and others. In 1993, MCAS El Toro was designated for closing by the Base Realignment and Closure Commission and all of its activities were to be transferred to Marine Corps Air Station Miramar. The station officially closed on July 2, 1999. After much dispute, in March 2002 the Department of Defense sold the land to a private interest to be developed into the Orange County Great Park.



Figure 1
Project Location
Commercentre Project

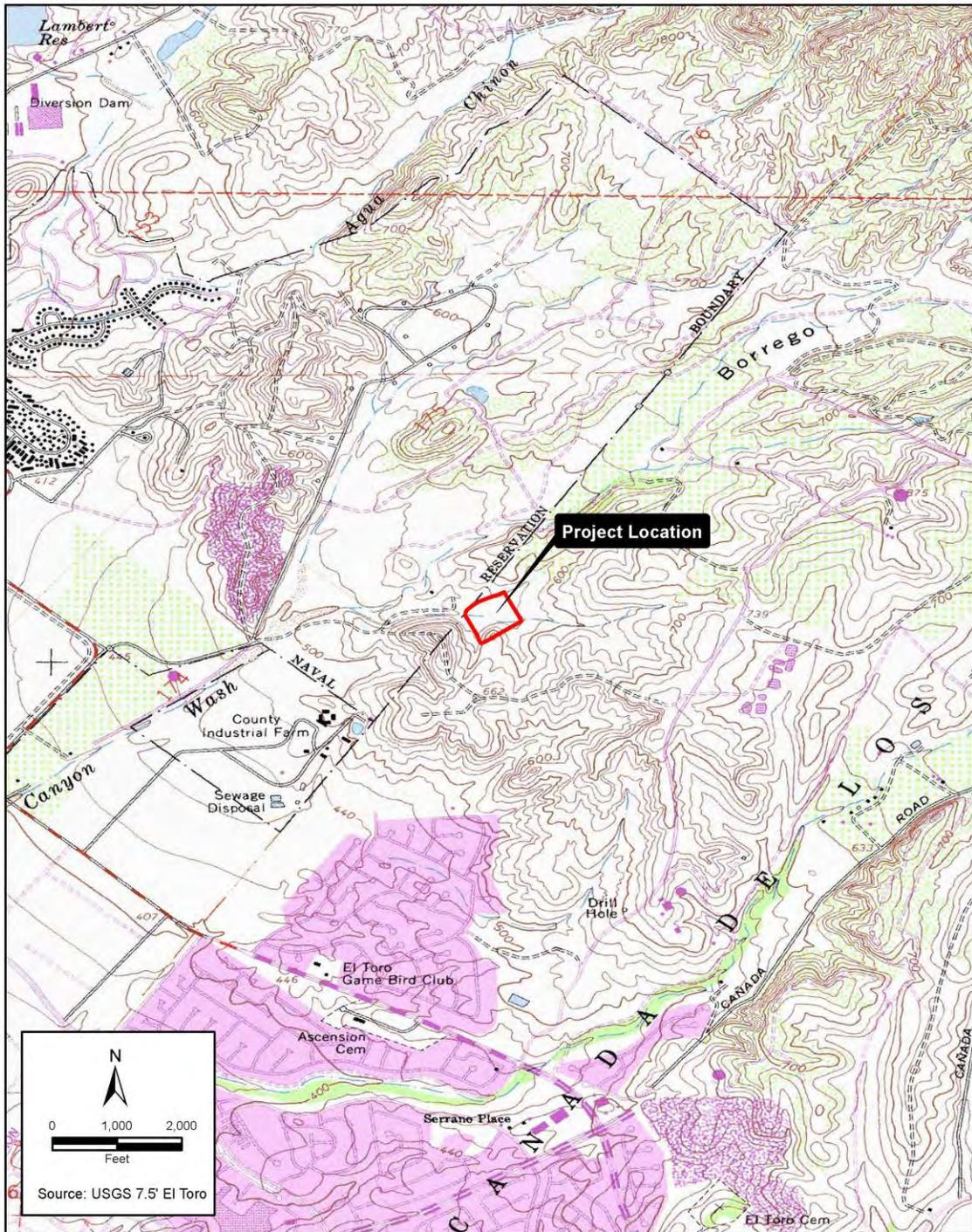


Figure 2
Project Vicinity
Commercentre Project



Figure 3
Aerial Overview of Project Area
Commercentre Project

Project Personnel

ICF archaeologist Michael D. Richards, MA, RPA, performed the cultural resources records search, and completed the intensive pedestrian survey of the subject property on October 16 2014. Mr. Richards, MA, RPA, authored this report with the assistance of archaeologist Karen L. Crawford, MA, RPA. Karolina Chmiel, M.A. provided GIS support for the project. In addition, Timothy Yates, Ph.D. provided the historic background for this report and Samuel A. McLeod Ph.D. of the Los Angeles Natural History Museum performed the vertebrate paleontological records search.

Regulatory Setting

Cultural Resources

State

California Register of Historical Resources

CEQA Guidelines (Section 15064.5) define a significant historical resource as a resource listed in, or determined eligible for listing in the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et seq.). A resource may be eligible for inclusion in the California Register of Historical Resources (CRHR) if it meets one or more of the following criteria:

- A. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- B. It is associated with the lives of important historical figures.
- C. It embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic value.
- D. It has yielded, or may be likely to yield, important prehistoric or historic information.

In addition to meeting one or more of these criteria, to be eligible for listing on the CRHR a resource also must retain integrity. Integrity is defined as the resource's ability to convey its significant qualities or its period of significance and is expressed through seven factors: location, design, setting, workmanship, materials, feeling, and association.

If an archaeological resource does not fall within the definition of an historical resource, but does meet the definition of a "unique archaeological resource" (Pub Res Code 21083.2 (g)) then the site must be treated in accordance with the special provisions for such resources. Archaeological resources will be considered unique if, without merely adding to the current body of knowledge, they:

- Contain information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
- Have a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Even without a formal determination of significance and nomination for listing in the CRHR, the lead agency can determine that a resource is potentially eligible for such listing, to aid in determining whether a significant impact would occur. The fact that a resource is not listed in the CRHR, or has not been determined eligible for such listing, and is not included in a local register of historic resources, does not preclude an agency from determining that a resource may be a historical resource for the purposes of CEQA.

Thresholds of Significance

A project that may cause substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment (State CEQA Guidelines 15064.5(b)). The significance of an historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by the lead agency.

Paleontological Resources

State

California Public Resources Code

Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 (a) states that 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, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands. Violation of this section is a misdemeanor. Section 5097.5 (b) states that "public lands" as used in this section means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

Orange County

Orange County has established methods and standards to mitigate for impacts on paleontological resources (Eisentraut and Cooper 2002: 21). Orange County provides guidance on data collection, level of monitoring, and qualifications of the paleontologist. For data collection, Orange County has established specifics on data collection techniques (such as standardized data collection forms). These techniques and forms are provided in Eisentraut and Cooper (2002). The County has also

established a system for correlating the paleontological sensitivity of the unit with the level of monitoring that may be needed (Table 3.13-2). Orange County also requires that the monitoring be conducted by an Orange County certified paleontologist (Eisentraut and Cooper 2002: 21).

Table 3.13-2. Orange County Guidance on Expected Field Monitoring Time Based on Paleontological Sensitivity of a Geologic Unit

Table 3.13-2. Orange County Guidance on Expected Field Monitoring Time Based on Paleontological Sensitivity of a Geologic Unit Sensitivity	Field Time
Very high	Full
High	Minimum three-quarter
Moderate	Half
Low	One-quarter
None	No
<p>Notes:</p> <p>Full-time and three-quarter time monitoring does not refer to a single person for the project but to a person per single area of concentrated grading activity. If a project has more than one area of concentrated grading activity, more monitors may be required.</p> <p>If paleontological resources are discovered that merit increased monitoring, the field time needed should be left to the paleontologist.</p> <p>Source: Eisentraut and Cooper 2002: 24.</p>	

Lake Forest General Plan

The following goals and policies in the Recreation and Resources Element are intended to conserve the City's paleontological resources.

Goal 4.0: Conservation of important historic, archaeological, and paleontologic resources.

Policy 4.1: Protect areas of important historic, archaeological, and paleontologic resources.

Chapter 2

Natural and Cultural Setting

Natural Setting

The proposed project is located in the northern portion of the City of Lake Forest. The City is bordered by the Cities of Laguna Hills and Laguna Woods to the southwest, Irvine to the northwest, and Mission Viejo to the southeast. Lake Forest encompasses an area of 16.6 square miles located in the heart of south Orange County and Saddleback Valley, between the coastal floodplain and the Santa Ana Mountains. Regional access to the project area is provided by State Route 241 (SR-241) (Foothill Transportation Corridor), located to the north and east of the project site, and Interstates 5 and 405 (I-5 and I-405, respectively), located to the south and west of the project site.

The climate of Southern California is described as Mediterranean, meaning a wet-winter, dry-summer climate. The main watersheds for the Lake Forest area are located within the Aliso Creek and San Diego Creek watersheds. The Aliso Creek Watershed covers 30.4 square miles, or 19,663 acres, and includes portions of the cities of Aliso Viejo, Dana Point, Laguna Niguel, Laguna Woods, Laguna Beach, and Lake Forest. Geologically, the Aliso Creek and San Diego Creek watersheds are located on the western slopes of the Santa Ana Mountains, which are part of the Peninsular Ranges that extend from the tip of Baja California, Mexico northward to the Palos Verdes Peninsula and Santa Catalina Island. The project area elevation ranges from about 540 feet above mean sea level (amsl), in the drainage area, to roughly 600 feet amsl, on the flat graded higher level.

Paleontological Setting

McLeod's (2014) vertebrate paleontological records search (Appendix A) reports that in most of the proposed project area, within the lower lying portions, the surface sediments are composed of younger Quaternary Alluvium, derived as fluvial deposits in the southern drainage that flows to the Borrego Canyon Wash to the west. He states that these types of deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers. However, they may be underlain by older deposits, such as are exposed, in the layers located immediately to the northwest of the project area. In addition, the elevated terrain in the remainder of the proposed project area has exposures of the marine late Miocene Capistrano Formation. Therefore, any grading or shallow excavations related to the proposed project within the younger Quaternary Alluvium, exposed in the drainage and lower lying portions area, are unlikely to uncover significant fossil vertebrate remains. Furthermore, any deeper excavations in the project area that extend down into older sedimentary deposits, as well as any excavations in the exposures of the Capistrano Formation, may well encounter significant vertebrate fossils.

The record search concluded that no fossil vertebrate localities have been identified within the proposed project boundaries, but that there are localities nearby from the same sedimentary deposits that occur in the proposed project area. The closest identified vertebrate fossil locality from the older Quaternary deposits is west-southwest of the project area on the western side of Highway 133, at the southern end of the interchange with the San Diego Freeway (I-405). The elevated terrain in the project area has exposures of the marine late Miocene Capistrano Formation. The

closest vertebrate fossil localities of the Capistrano Formation are situated east-northeast of the proposed project area on the eastern side of the ridge (McLeod 2014).

Cultural Setting

Prehistoric Context

Archaeological investigations along coastal southern California have produced a diverse range of human occupation, extending from the early Holocene into the ethnohistoric period. During the past 70 years, more than a dozen prehistoric cultural sequences have been presented for coastal southern California (Reddy 2000). The goal of each specific chronological sequence has varied considerably, although generally it has been to sequentially divide prehistory based on traits observed in the archaeological assemblages (Reddy 2000). Scholars have produced several terminological frameworks, using such terms as culture, horizon, period, stage, and tradition.

Relatively few archaeological studies have been conducted within the study area. A review of the culture history sections in previously generated technical reports for the project area and surrounding region revealed that no single chronological terminology has received extensive acceptance in this region. Some of the most regularly applied terminological frameworks are the approaches taken by Wallace (1955, 1978), Warren (1968), and Koerper (1981).

Wallace provided a synthesis of existing data for southern California based on broad cultural similarities. This work was based in the normative paradigm of cultural-historical archaeology, with emphasis on cultural descriptions and distributions. Many archaeologists have incorporated, and continue to incorporate, sites into this chronology. The new data has resulted in a necessary refinement to these chronologies, because Wallace formulated his horizon scheme before the availability of radiocarbon dating (Koerper 1981). Warren introduced a terminological framework to replace Wallace's original scheme. Warren's approach reflected a changing archaeological paradigm in which the natural environment is elevated from a casual component to an important part of cultural patterning and change (Koerper 1981, Reddy 2000). Recognizing the lack of agreement concerning the best cultural chronologies for the Tustin Plain-Newport Bay San Joaquin Hills area, Koerper produced a sub-regional chronology specifically for Orange County sites.

Another widely adopted framework for southern California comes from Moratto (1984). Moratto provided a broad synthesis of prehistoric occupation in California that is separated into four temporal horizons, as shown in. The earliest identified archaeological cultures are variously known as either Early Man Horizon (Wallace 1955, Moratto 1984), San Dieguito Tradition (Warren 1968), or pre-Milling Stone Cultures (Koerper 1981). According to Moratto, Early Man Horizon is distinguished by the first appearance of people in this region, approximately 11,000 years ago, until about 5000 B.C. Although little is known about these people, it is assumed that they were semi nomadic and subsisted primarily on game.

The San Dieguito/Early Man Traditions are followed by the archaeological cultures referred to as either Milling Stone Horizon (Wallace 1955, 1978, Koerper 1981, Moratto 1984) or Encinitas Tradition (Warren 1968). However, Koerper (1981) argues this next period begins much earlier (7,500 B.C.). Typically, sites from this time period produce large numbers of millingstones, discoidals, and cogstones. According to Moratto, this horizon appears to represent a diversification of subsistence activities to include plants, and a more sedentary settlement pattern.

Although numerous Milling Stone Horizon sites have been identified in Orange County, the best understood of these is CA-ORA-64, which has been dated radiometrically to about 6,000 B.C. (Breece et al. 1988). Excavations at CA-ORA-64, located near Newport Bay, have been instrumental in the formulation of Orange County research models (Koerper 1981). Although this site is not located within the project area, research at the site suggests that the settlement-subsistence system for Orange County during the Milling Stone Horizon reflects semi-sedentary populations. These populations relied on a central base camp, with small groups of individuals periodically leaving to establish satellite hunting and gathering camps. The purpose of these satellite camps was to exploit seasonally available resources not readily available at the base camp (Greenwood 1990).

Both Wallace's (1955) Intermediate Horizon and Koerper's (1981) Intermediate Cultures Tradition begin around 500 B.C and continue to around A.D. 700 to 1000. This period is defined by a greater reliance on marine resources for coastal populations, while the interior populations developed acorn processing, as demonstrated by substantial increases in mortar and pestle use. Moratto argues that the Intermediate Horizon began around 1500 B.C. and continued until about A.D. 600 to 800. During this time period, projectile points become more abundant and, together with faunal remains, indicate increased use of both land and sea mammals (Moratto 1984).

The Late Prehistoric period (Wallace 1955) begins around A.D. 1000, while the Shoshonean Tradition (Warren 1968), Late Prehistoric Tradition (Koerper 1981), and Moratto's Horizon IV or Late Horizon date between A.D. 600 to 800 (Moratto 1984). Dense populations, diversified hunting and gathering subsistence strategies, extensive trade networks, and use of the bow and arrow characterize the Late Horizon. This period ended with the arrival of Europeans in 1542. Archaeologically, this horizon is represented by the presence of large habitation sites, arrow points, soapstone bowls, steatite effigies, and cremation of the deceased. These settlement and behavioral patterns, artifacts and practices have been linked to the arrival of Shoshonean people from the east into Orange County.

Ethnographic Context

The project area is located approximately 5 miles west of Aliso Creek, a location traditionally noted as an ethnographic transition zone between the Gabrielino and Juaneño. Therefore, both groups are discussed in this section.

Gabrielino

At the time of European contact, the Gabrielino inhabited some 50 to 100 permanent villages in fertile lowlands along streams and rivers and in sheltered areas along the coast. The larger permanent villages most likely had populations ranging from 50 to 200 persons. Sedentary villages also had at varying distances smaller satellite villages that remained connected through economic, religious, and social ties (Bean and Smith 1978). Gabrielino villages contained four basic types of structures. Houses were circular and domed, made of tule mats, fern, or carrizo (Kroeber 1925, Bean and Smith 1978). The Gabrielino also maintained sweathouses, which were small, circular earth covered buildings. Villages may have included menstrual huts and open-air ceremonial structures made with willows inserted in a wicker-weave fashion among willow stakes (Bean and Smith 1978).

The Gabrielino had a rich and varied material culture. Technological and artistic items included shell set in asphaltum, carvings, painting, an extensive steatite industry, baskets, and a wide range of stone, shell, and bone objects that were both utilitarian and decorative (Bean and Smith 1978).

Gabrielino subsistence was based on a composite hunting and gathering strategy that included large and small land animals, sea mammals, river and ocean fish, and a variety of vegetal resources. Generally, Gabrielino settlements were created at the intersection of several ecozones: prairies with foothills, floodplains, and river courses, on the edges of marshes and seashores. The majority of the population drifted in family groups throughout the year to temporary hillside or coastal camps, returning to the central location on ritual occasions or when resources were low and it was necessary to live on stored foods (Bean and Smith 1978).

Offshore fishing was accomplished from boats made of pine planks sewn together and sealed with asphaltum or bitumen. Much of the fishing, shellfish harvesting, and fowling took place along the ocean shoreline or along freshwater courses. Sea mammals were captured with harpoons, spears, and clubs. River and ocean fishing was undertaken with the use of line and hook, nets, basket traps, spears, and poisons (Hudson and Blackburn 1982).

Land animals were hunted with bow and arrow or throwing sticks, and were trapped or clubbed, while smaller animals such as rabbits and ground squirrels were driven out with grass fires and captured with deadfall traps. Larger animals were hunted with sinew-backed bows made of holly, piñon, elder, or juniper, while small game was hunted with bows fashioned from buckeye or elderberry. Seasonal grass fires may have had the effect of promoting new vegetation growth attractive to deer. Burrowing animals could be smoked from their lairs. The transportation of plants and other resources was accomplished through the use of burden devices, such as coiled and woven baskets and hammock carrying nets commonly made from grass and other plant fibers (Bean and Smith 1978).

The Gabrielino were apparently first contacted by Europeans in 1542, when Juan Rodríguez Cabrillo entered the area. Following subsequent Spanish visits to the region, colonization began in 1769, precipitating the establishment of Missions San Gabriel (1771) and San Fernando (1797). Due in part to the introduction of EuroAmerican diseases and the harsh effects of mission life, the Gabrielino population and culture suffered a gradual deterioration. Following the secularization of the missions, most surviving Gabrielino became wage laborers on the ranchos of Mexican California. In the early 1860s, a smallpox epidemic decimated the remaining Gabrielino. By the 1900 federal census, the combination of disease, forceful reduction, and poor diet contributed to population decline of the Gabrielino and their deterioration as a culturally identifiable group (Bean and Smith 1978).

Juaneño/Luiseño

When Spanish missionaries established the Mission San Luis Rey near the San Luis Rey River, the indigenous inhabitants of the northern San Diego area were given the Spanish name Luiseño. Further to the north at the site of Mission San Juan Capistrano, the population was given the name Juaneño. While early researchers, including Kroeber and Harrington, separated the two groups, subsequent studies have indicated the two are linguistically and ethnologically the same. Therefore, the following discussion will use the collective term of “Luiseño” to address the indigenous people who were within the sphere of both the San Luis Rey and San Juan Capistrano missions. However, in some cases, the term “Juaneño” is applied when referring only to the inhabitants around the San Juan Capistrano mission lands (Bean and Shipek 1978).

The Juaneño portion of the larger Luiseño territory extended from the coastal outlet of Aliso Creek northeastward to the west side of Santiago Peak along the crest of the Santa Ana Mountains. Following the crest line southeast, the territory turned southwest just north of Las Pulgas Canyon, following this course until reaching the shoreline of the Pacific Ocean. The language of the Luiseño is classified as belonging to the Takic family (or “Cupan”), Uto-Aztecan stock, and is subdivided into four or more separate dialects (Bean and Shipek 1978).

Luiseño villages were typically situated in defensible positions within sheltered coves and canyons adjacent to adequate water supplies. Each village acted autonomously with specific resources that were exploited by village inhabitants. Deer, antelope, rabbit, woodrats, mice, ground squirrels, quail, doves, and ducks were the dominant game animal utilized by the Luiseño. Moreover, Luiseño subsistence included marine resources like sea mammals, fish, crustaceans, and abalone. Houses were partially subterranean, conical-shaped structures composed of locally available materials including brush, bark, and reeds. Other structures utilized by the Luiseño were brush-covered rectangular structures that were termed “ramadas” by the Spanish. These structures provided shade for outdoor domestic activities. Others structures may have included a subterranean, earth-covered walled enclosure commonly referred to as a sweathouse. The sweathouse was an important feature in the village and was often used during purification and curing rituals. Another ceremonial structure located within the village was the wámkiš. The wámkiš was situated at the center of the village and was bordered by a low fence that may have also contained an altar (Bean and Shipek 1978).

The Luiseño’s first contact with European explorers was in 1769 during Gaspar de Portolá’s expedition and the founding of Mission San Diego de Alcalá. Early Luiseño population figures are not well documented. R.C. White estimated that the Luiseño inhabited some 50 villages with a mean population of approximately 200 residents. White’s population estimates suggest that as many as 10,000 Luiseño occupied the area, which doubles the previous estimate by A.L. Kroeber of 4,000 to 5,000 people (Kroeber 1925). The difficulty in these population estimates can partially be attributed to some Luiseño not accounted for in the mission accounting.

Historic Context

Spanish Period

Beginning in the 16th century, the Spanish first explored the coast of California. The first European to sail along the coast of California was Juan Cabrillo in 1542, followed by Sebastian Vizcaino in 1602 (Bean and Rawls 1993). However, it was not until the 18th century that the Spanish colonized present-day California, establishing a tripartite system consisting of missions, presidios, and pueblos that lasted from 1769 to 1822 (Bean and Rawls 1993). In 1769, a land expedition led by Gaspar de Portolá traveled north from San Diego. The party camped in the San Juan Capistrano Valley and along Trabuco Creek near present-day Rancho Santa Margarita before turning northwest and following the foothills toward present-day Orange and the Santa Ana River. Portolá’s expedition established the main travel route through California, which came to be known as El Camino Real. By 1776, Spanish missionaries had founded the San Juan Capistrano mission. Constructed beginning in 1796, the mission’s stone church was destroyed by an earthquake in 1812 (Hoover et al. 2002)

Mexican Period

Mexico achieved independence from Spain by 1821. The Secularization Act of 1833 downgraded missions to the status of parish churches and gave the Mexican governor of California the power to redistribute the vast mission land holdings in the form of land grants. Secularization freed both the mission lands from clerical control and forced Native American converts to seek wage labor on ranchos or in the pueblos. Between 1835 and 1846, officials granted increasing acreage formerly controlled by the missions to individuals in the form of ranchos. By 1846, more than 500 ranchos existed in California. Governors Juan B. Alvarado and Pío Pico granted portions of the 10,668-acre Rancho Cañada de los Alisos to José Serrano in 1842 and 1846 respectively. One of the rancho adobes built by Serrano stands approximately 2.3 miles southwest of the project site (Hoover et al. 2002; OCCGS 1998).

In 1842, the Rancho Cañada de los Alisos was granted to Jose Antonio Serrano by Governor Alvarado and supplemented by Governor Pio Pico in 1846 (Hoover et al. 2002; OCCGS 1998). The Spanish translation for the rancho means “Glen of the Alders,” which are believed to have lined the drainages in historic times. The rancho was bounded by El Camino Real along the southwest, Ranchos San Joaquin and Lomas de Santiago on the west, and Rancho Trabuco on the east. Serrano had married Petra Avila in 1829 and they had twelve children. After relocating to the rancho from the pueblo at Los Angeles, Serrano constructed a house and outbuildings on a hill overlooking El Camino Real. In 1858, a new adobe residence was constructed on a low hill beside the future Trabuco Road on the southern embankment of Serrano Creek. The family raised cattle until the droughts of the 1860s forced them to divide the ranch and mortgage several sections. Don Serrano died in 1870 and was buried at the Mission San Juan Capistrano (OCCGS 1998).

American Period

After California became a United States territory in 1848 and then became the thirty-first state in 1850, many disillusioned Gold Rush miners began to venture out of the foothills and into the valleys to try their hands at raising livestock and farming. Although most Southern California rancheros refused to partition their lands out to the new arrivals, many ranchos failed economically due to drought during the early 1860s and other challenges. Amid the complex land law of the new state, American newcomers with financial resources and access to effective legal representation seized control of rancho lands across the state. During the 1880s, Dwight Whiting acquired a large portion of Rancho Cañada de los Alisos, including the Serrano adobes. While Whiting only acquired half of the available lots (Lots 1, 4, 5, 9, and 10), this equated to approximately 82 percent of the original Rancho Cañada de los Alisos. The land purchase also provided him with one of the Serrano adobes (State Registered Landmark [SRL] 199) (Hoover et al. 2002; Ruxton and Egan 1885).

In the early 1850s, eucalyptus trees were introduced to the United States from Australia and initially planted as ornamental trees in San Francisco. By the 1860s, eucalyptus trees were being introduced as far south as Los Angeles, where their swift growth and broad adaptability was appreciated for potential commercial enterprises. The relative ease with which the trees attained height and stoutness led to their being planted for windbreaks, fuelwood, and shade trees. At the turn of the 20th century, the economic prospects for eucalyptus trees seemed unlimited, and builders experimented with eucalyptus to produce posts, railroad ties, support timbers, and pier pilings. In 1905, Dwight Whiting planted 1,000 acres at his Cañada de los Alisos ranch to capitalize on these

financial prospects. For a time, his ranch was considered the “most extensive commercial plantation in the State” (CSBF 1908).

The extensive Irvine Ranch took shape west of the project area during the latter nineteenth century. In 1864 James Irvine, Llewellyn Bixby, and Thomas and Benjamin Flint acquired the Rancho San Joaquin, located west of the project area. The group purchased Rancho Lomas de Santiago in 1866, and acquired a portion of Rancho Santiago de Santa Ana in 1868. Within a decade following the Santa Ana purchase, James Irvine bought out his partners and came into control of over 100,000 acres of land that stretched from the Pacific Ocean east to the foothills of the Santa Ana Mountains (Nelson and Olin 2013).

Until the late 1880s, the project vicinity remained part of Los Angeles County. However, area residents soon expressed frustration at having to conduct commerce at great distances and moved to establish a new county. In 1889, the California State Legislature approved the formation of the new County of Orange with the county seat located in Santa Ana. At that time, only three cities, Anaheim, Santa Ana, and Orange, were incorporated into the new county. By the turn of the twentieth century, urban growth began to infringe on agriculture in southern California. William Mulholland brought water to Los Angeles via the Los Angeles Aqueduct in 1913; this water source allowed for explosive growth in both agricultural enterprises and population in Los Angeles and the Santa Ana River Valley. In 1906, the first Pacific Electric Railway, or Red Car line, was completed. The Southern California mass transit system extended from a split in the Long Beach Line and continued through Seal Beach and Huntington Beach to its terminus at Balboa Peninsula in Newport Beach. Extension of the Pacific Electric into Orange County made speculation, settlement, and travel more convenient (Armor 1921; Hoover et al. 2002)

The introduction of the automobile into southern California eventually led to the collapse of the Red Cars. The construction of freeways had been initiated during World War II as a way to transfer goods throughout the country at a rapid pace. World War II also initiated the development of several military bases in Orange County, including the Santa Ana Army Air Base and Marine Corps Air Station El Toro (MCASET), the latter of which is located approximately one mile west of the project area. In 1942 the federal government bought 2,300 acres from the Irvine Company, which controlled the massive Irvine Ranch, in order to develop MCASET. Created to organize squadrons and train pilots for combat, the MCASET was made a permanent installation in 1944. At that time, its 1,248 officers and 6,831 made it the largest of the west coast’s Marine Corps air stations (Nelson and Olin 2013).

After the war, men who had been stationed in Orange County brought their families out west and initiated a period of enormous urban growth. Large freeway construction during the 1950s and 1960s, including I-5, California State Route (SR)-55, SR-22, and I-405, magnified the urban expansion. During the subsequent years, Orange County witnessed the establishment of the aerospace industry in Irvine, and the development of large amusement parks. By 1960, urban sprawl had reached even farther as neighboring Los Angeles metropolitan residents began to settle in the rural Santa Ana Valley (Nelson and Olin 2013).

Other than MCAESET, the earliest development in relatively close proximity to the project area is a minimum security detention facility dating to the 1960s. Originally known as “Honor Farm” or the “County Industrial Farm,” the facility was opened in 1963 and initially accommodated a maximum of 200 male inmates. Over the years, the facility’s capacity has been expanded to 1,250 men and

women. The facility was eventually named the James A. Musick Facility in honor of the man who served as County Sheriff from 1947 to 1974 (Orange County Grand Jury 2012).

Chapter 3

Methods and Results

Background research and field studies were conducted in compliance with CEQA as amended (Public Resources Code §21000 et seq.), pursuant to the *Guidelines for Implementation of the California Environmental Quality Act* (California Code of Regulations, Title 14 §15000 et seq.).

Cultural Resources

Record Search

The record search and literature reviews were undertaken to identify previously documented archaeological, historic, and architectural resources within and near the project area. This background information is also useful in developing a context for assessing resource significance if resources are recorded in the project area.

On October 20, 2014, ICF archaeologist Michael D. Richards conducted a cultural resources records search for the proposed project at the South Central Coastal Information Center (SCCIC), housed at the Department of Anthropology, California State University, Fullerton (Appendix B). The objective of this records search was to identify historical and archaeological resources in or within 0.5-mile of the project area. This research involved a review of the California Historical Resources Information System (CHRIS), National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Historical Resources Inventory (HRI), California Historical Landmarks (CHL), and local historical maps.

A total of 25 cultural resource studies have been conducted in or within a 0.5-mile radius of the project area. Of these, 8 studies included a survey within the project area and were negative within the project boundaries, observing no prehistoric or historic archaeological resources or isolated artifacts. However, the remaining 17 studies, within the 0.5-mile buffer area, produced positive results for cultural resources (Tables 1 and 2).

The results of this records search indicate that no cultural resources have been previously recorded within the boundaries of the project area. However, there are 12 prehistoric cultural resources recorded within a 0.5-mile radius of the project area (Table 3). No archaeological resources in the record search area are listed on the Archaeological Determination of Eligibility (DOE) list.

Table 1. Cultural studies completed within the proposed project area.

Year	Author	Title	Description
1988	Bissell, Ronald M.	Cultural Resources Reconnaissance of the Baker Ranch Property, El Toro Orange County. OR-611	Archaeological Identification Study
1984	Bissell, Ronald M.	Cultural Resources Assessment Los Alisos Research and Development Park El Toro, Orange County, California. OR-748	Archaeological Identification and Evaluation Study
1979	Cooley, Theodore G.	Archaeological Resources Assessment Conducted for Proposed Irvine Ranch Water District Pipeline Right of Ways. OR-1099	Archaeological Identification and Evaluation Study
1994	Demcak, Carol R.	Final Report of Salvage Level Investigations at ORA-758, Alton Parkway Extension Project, County of Orange, California. OR-2928	Archaeological Evaluation Study
2009	Patrick O. Maxon	Phase II Archaeological Evaluation CA-ORA-1004 & CA-ORA-1150. OR-3748	Archaeological Evaluation Study
2008	Patrick O. Maxon	Phase I Cultural Resources Reconnaissance Survey- Proposed Alton Parkway Extension Project, Including Baker Ranch, Lake Forest. CA. OR-3749	Archaeological Identification and Evaluation Study
2012	O'Neil, Stephen	Archaeological Resources Excavation Results Report Alton Parkway Extension Project Orange County, California. OR-4333	Archaeological Evaluation Study
2012	O'Neil, Stephen	Cultural and Paleontological Monitoring Report for the Alton Parkway Extension Project (County Job No ETD2002), City of Irvine, Orange County, California; Project 5780. OR-4334	Archaeological Identification Study

Table 2. Cultural studies conducted within 0.5 mile of the proposed project area.

Year	Author	Title	Description
1978	Mabry, Theo N.	Agua Chinon Flood Control Improvement Project. OR-275	Archaeological Identification Study
1979	Clevenger, Joyce M.	Archaeological Investigations on Portions of CA-ORA-647 and Ca ORA-648: Two Sites Located Within the Santiago Aqueduct Parallel Project. OR-457	Archaeological Identification and Evaluation Study
1985	Cottrell, Marie, Kathleen Del Chario, Vada Drummy-Chapel, and John D. Cooper	Archaeological, Historical, and Paleontological Assessment of the Musick Facility, Orange County, California. OR-813	Archaeological and Paleontological Identification and Evaluation Study
1985	Padon, Beth	Archaeological Resource Inventory City of Irvine and its Sphere of Influence. OR-847	Archaeological Identification and Evaluation Study
1988	Bissell, Ronald M.	Interim Report Test Excavation of Nine Archaeological Sites on the Pacific Commercentre Property, El Toro Area, Orange County California. OR-940	Archaeological Identification and Evaluation Study
1989	Del Chario, Kathleen C., V. Drummy-Chapel, and C. R. Demcak	Cultural Resource Assessment for the Allen McColloch Pipeline (amp) Flow Augmentation Project Reaches S4b/s5. OR-1022	Archaeological Identification and Evaluation Study
1990	Jertberg, Patricia R.	Archaeological Monitoring Report for Rheon USA Project: Parcel Map No. 84-629, Lot 6 Irvine, California. OR-1082	Archaeological and Paleontological Identification and Evaluation Study
1994	Brown, Joan C .	Mitigation and Monitoring of Eight Prehistoric Archaeological Sites, CA-ORA-510, CA-ORA-647, CA-ORA-648, CA-ORA-1062, CA-ORA-1063, CA-ORA-1065, CA-ORA-1066, CA-ORA-1171, Located in Southern Orange County, California. OR-1372	Archaeological Identification and Evaluation Study
1994	Brown, Joan C.	Cultural Reconnaissance for the Service Connection Enlargement of the Flow Control Facility St-04. OR-1407	Archaeological Identification and Evaluation Study
1994	Demcak, Carol R.	Final Report of Test Level Investigation at ORA-758, Alton Parkway Extension Project, County of Orange, California. OR-1408	Archaeological Evaluation Study
1974	Nicoll, Gerald A.	Archaeology and Paleontology Report for Rancho De Los Alisos Area, Orange County, California. OR-1583	Archaeological and Paleontological Identification and Evaluation Study

Year	Author	Title	Description
1987	Cottrell, Marie G. and John Murray	Archaeological Resources Assessment Completed for the Marine Corps Air Station, El Toro, California. OR-1841	Archaeological Identification and Evaluation Study
1997	Allen, Rebecca	Archeological Survey Report Marine Corps Air Station, El Toro. OR-2649	Archaeological Identification Study
2003	Willey, Lorraine M.	MCAS El Toro Monitoring Wells Survey, OR-3056	Archaeological Identification Study
2009	Patrick O. Maxon	Phase II Archaeological Evaluation CA-ORA-1004 & CA-ORA-1150. OR-3748	Archaeological Identification and Evaluation Study
1986	Bissell, Ronald M.	Cultural Resources Reconnaissance of the Pacific Business Park (Diocese Property) in El Toro, Orange County, California. OR-4347	Archaeological Identification Study
2000	Burres, Cara L.	Paleontological and Archaeological Monitoring Report for Pacific Jack, L.L.C. - Palm Terrace, Lake Forest, California. OR-4357	Archaeological and Paleontological Identification and Evaluation Study

Table 3: Cultural resources previously recorded within 0.5 mile of the proposed project area.

Year	Primary / Trinomial#	Author	Description
1977	ORa-617	M. Cottrell	Prehistoric shell scatter with a few pieces of debitage.
1977	ORa-647	T. Schuster, R. Price, M. Cottrell, and F. Cope	Possible prehistoric quarry site with cores, debitage and hammerstones.
1977	ORa-647	M. Cottrell, F. Cope R. Price, and T. Schuster	Prehistoric lithic debitage with possible midden deposit.
1978	ORa-755	Mabry	Prehistoric lithic scatter.
1978	ORa-756	Mabry	Prehistoric lithic scatter with groundstone.
1978	ORa-757	Mabry	Prehistoric lithic scatter with groundstone.
1978	ORa-758	Mabry	Prehistoric lithic scatter with groundstone.
1978	ORa-759	Mabry	Prehistoric lithic scatter with groundstone.
1978	ORa-760	Mabry	Prehistoric lithic scatter with groundstone.
1984	ORa-1063	R. Bissell	Prehistoric lithic scatter with groundstone.
1984	ORa-1064	R. Bissell	Prehistoric lithic scatter with groundstone.
1984	ORa-1065	R. Bissell	Prehistoric lithic scatter with fire-affected rock.
1984	ORa-1066	R. Bissell	Prehistoric lithic scatter with groundstone and fire-affected rock.

Native American Outreach

On October 30, 2014, ICF International contacted the Native American Heritage Commission (NAHC) for a review of the Sacred Lands files. On November 6, 2014, the NAHC replied, stating that no sacred lands in this vicinity are recorded in the NAHC files. The NAHC provided a list of local Native American individuals to contact regarding the proposed project. ICF sent letters to these contacts provided by the NAHC on November 6, 2014, seeking input on the project and any information about prehistoric sites, sacred sites, or traditional cultural properties located in the vicinity of the project area. A response was received from Mr. Andrew Salas, Chairperson, Gabrieleno Band of Mission Indians, on December 13, 2014. Mr. Salas requested the presence of an experienced Native American monitor during any and all ground disturbing activities. On December 15, 2014, follow-up phone calls were made to the other individuals identified by the NAHC. Voice messages were left with each tribe or individual. No responses were received as a result of the follow-up telephone calls. Outreach correspondence is included in Appendix C.

Survey and Research Results

ICF Archaeologist Michael D. Richards conducted an intensive pedestrian survey of the proposed project on October 16, 2014 (Figures 4-8). Parallel transects using 3 meter intervals were employed to ensure total coverage of the surveyed area. A Global Positioning System (GPS) receiver was used in conjunction with a topographic and an aerial map throughout the survey confirm the project boundaries.

The survey concentrated on the identification of cultural features and artifacts within the project area. Overall, ground visibility was very good, with the soil being predominantly exposed. Ground cover included mostly invasive weeds and grasses. The ground surface was examined in order to identify artifacts or other archaeological indicators that might be present. The survey covered 100 percent of the study area.

The project area consists of mostly highly disturbed soils due to modern development, grading, and the dumping of soils from offsite areas. The modern development includes a steel gate and fencing, a paved parking lot with cement curbs, a cinder walled trash area, and light poles. It appears the entire upper area of the project site has been graded flat with a low berm surrounding the boundary. In the center of the project site, comprising eighty percent of the project area, is an approximately 20 foot high pile of soil. In addition, the southern area slopes downward and is bordered by a seasonal drainage that feeds into the Borrego Canyon Wash.

The intensive pedestrian survey identified no evidence indicating the presence of prehistoric or historic cultural resources, including artifacts or features on the project site.

Paleontological Resources Methods and Results

ICF archaeologist Michael D. Richards, who is also a trained paleontological technician, conducted a paleontological pedestrian survey of the project area in order to inspect for and identify any previously undiscovered resources on October 16, 2014. The pedestrian survey consisted of walking transects in a north/south orientation, that were 3 meters apart. All visible ground surfaces were examined, including graded areas, fence lines, drainage channels, and other exposures for resources. Special attention was giving to all rodent burrow mounds. No subsurface investigations or tests were conducted during the actual survey.

The proposed project area is highly disturbed due to modern development, grading, and the dumping soils from offsite areas. The modern development includes a steel gate and fencing, a paved parking lot with cement curbs, a cinder walled trash area, and light poles. It appears the whole upper area has been graded flat with a low berm surrounding the boundary. In the center, comprising roughly 80 percent of the project area and is approximately 20 feet high pile of soil (Figure 3).

In addition, the southern area slopes downward and is bordered by a seasonal drainage that feeds into the Borrego Canyon Wash. Overall, ground visibility was good, with the soil being predominantly exposed. Ground cover included mostly invasive weeds and grasses. No paleontological resources were observed on the surface of the proposed project site.

Subsequent Geotechnical Information on Cutting and Filling in the Project Area

Subsequent to completion of the cultural resources survey, ICF reviewed information prepared by GeoTek, Inc. regarding the history of cutting and filling in the project area (GeoTek, Inc. 2015). The entire project area was previously mass graded, which uncovered some areas of previously placed undocumented fill. The undocumented fill soil, unsaturated alluvium, and unconsolidated soils were then removed to expose bedrock or saturated alluvium. Depths of fill across the parcel range from 2 feet near the south corner of the parcel to 60 feet in the north and west portions of the parcel. The conceptual grading plan, prepared by RBF Consulting in June 2015, proposes completed elevations ranging from 590 to 592 feet above mean sea level (amsl).

GeoTek, Inc. concluded that the only portion of the project area where native soils may be uncovered is in the southwest corner of the parcel within the cut area of the site, where approximately 2 feet of fill (between elevations 590 and 592) was previously placed. Native soils are expected to exist at and below 590 amsl in this area. Additionally, trenches for infrastructure work are expected to reach a maximum of 10 feet in depth in the southwest portion of the parcel and are expected to disturb native soils in this area. The proposed grades in this area range from 595.0 to 597.2, which means a total of 5 to 7.2 feet of fill above native soils.

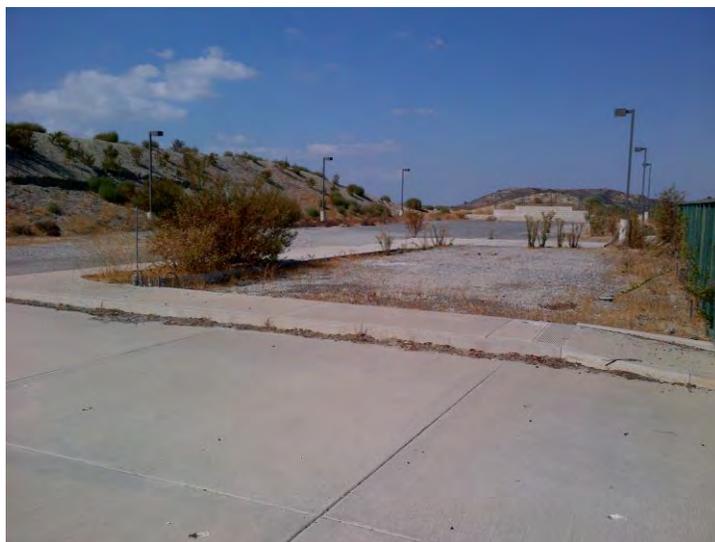


Figure 4. Overview from SE corner with a view to the NE: Developed area.



Figure 5. Overview from SE corner with a view to the SW: Developed area and soils mound.



Figure 6. Overview from NE corner of soils mound with a view to the NW: Unnamed drainage in background; Borrego Canyon Wash to the right.



Figure 7. Overview from SW corner of soils mound with a view to the SW: Unnamed drainage in background.



Figure 8. Overview from NW corner with a view to the NE: adjacent to Alton Parkway; Commercentre Drive in background.

Chapter 4

Conclusions and Recommendations

The primary goal of this study is to identify and document cultural and paleontological resources in the project area. The conclusions and recommendations are based on archival research and intensive pedestrian survey and the professional assessment of archaeological and paleontological sensitivity in the project area and vicinity.

Conclusions

No cultural resources were identified during the current survey. The likelihood of encountering archaeological resources in the proposed project area is considered low because the project site has been extensively altered by previous ground disturbance. The memo prepared by GeoTek, Inc. presents substantial information that the majority of the project area has been cut and filled, and that only the southwest portion of the project area contains native soils that may be disturbed by project construction activities. In addition, the archival research determined that no buildings, structures, roads or infrastructure were present in the project area during the historic period. Buildings, roads and infrastructure that exist in and adjacent to the project area are less than 50 years old.

No paleontological resources were observed during the current survey. Grading or shallow excavations in the younger Quaternary Alluvium exposed in the drainage and lower lying portions of the proposed project area are unlikely to uncover significant fossil vertebrate remains. However, any deeper excavations in those portions of the project area that extend down into older sedimentary deposits, as well as any excavations in the exposures of the Capistrano Formation, have the potential to encounter significant vertebrate fossils.

Management Considerations

No further cultural study is recommended for the project area. However, due to the proximity of the project area to Native American sites, recommendations are as follows: prior to construction, the civil engineer should prepare a figure identifying areas of the project where ground disturbance has the potential to disturb native soils. Only those areas where project ground disturbance has the potential to disturb native soils should require monitoring by a qualified professional archaeologist and a Native American monitor. The archaeologist and the Native American monitor will observe earthmoving and trenching activities within these delineated portions of the project. As stipulated in CEQA and the Public Resources Code, the accidental discovery of unexpected cultural materials or human remains on non-federal land during construction grading or trenching will require a work stoppage in the immediate area of the discovery until it is evaluated by a qualified archaeologist. Implementation of this recommendation, described below, will ensure satisfactory compliance with applicable regulations as well as protect potential significant cultural resources.

Because Capistrano Formation deposits are present in the proposed project area, any substantial excavations in the proposed project area should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossil materials uncovered during construction activities should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

Unanticipated Discoveries

Should buried prehistoric resources (e.g., lithics, ceramics, animal bone, or concentrations of burned rock) or historical resources (e.g., glass, ceramics, or building foundations) be discovered during construction, certain procedures, as stipulated by State regulations, must be followed. Specifically, ground disturbing activities within 50 feet of the resource(s) must be halted until a qualified archaeologist can assess the find(s), determine their significance, and make appropriate treatment recommendations.

If human remains are discovered or recognized during construction-related activities, State law requires there to be no further excavation or disturbance of the immediate location of the remains until the County coroner has been informed and has determined that no investigation of the cause of death is required. If the remains are determined to be of Native American origin, the coroner will notify the Native American Heritage Commission (NAHC), which will then identify a most likely descendant (MLD). The MLD will make a recommendation to the landowner as to the means of treating or disposing of the human remains and any associated grave goods with appropriate dignity, as stipulated in Public Resources Code 5097.98. Upon discovery of human remains, the landowner shall ensure that the immediate vicinity is not damaged or disturbed until specific conditions are met through discussions with the descendants regarding their preferences for treatment (PRC 5097.98 as amended).

If the NAHC is unable to identify a descendant, or the descendant fails to respond within 48 hours after being notified by the NAHC, the landowner is required to reinter the human remains on the property and to protect the site where the remains were reinterred from further and future disturbance.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 states that every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to his or her authority, and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission.

Chapter 5

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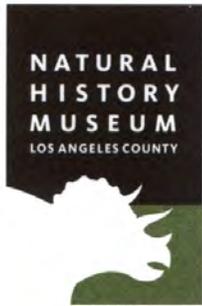
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Appendix A

**Los Angeles County Natural History Museum
Paleontological Record Search Data**

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
Fax: (213) 746-7431
e-mail: smcleod@nhm.org

28 October 2014

ICF International
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131

Attn: Karen L. Crawford, Project Director, Cultural Resources

re: Paleontological Resources for the proposed Commercentre Development Project, in the City
of Lake Forest, Orange County, project area

Dear Karen:

I have conducted a thorough search of our Vertebrate Paleontology records for the proposed Commercentre Development Project, in the City of Lake Forest, Orange County, project area as outlined on the portion of the El Toro USGS topographic quadrangle map that you sent to me via e-mail on 23 October 2014. We have no fossil vertebrate localities that lie directly within the proposed project boundaries, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area.

In most of the proposed project area, the lower lying portions, the surface sediments are composed of younger Quaternary Alluvium, derived as fluvial deposits in the drainage that flows to the Borrego Canyon Wash to the west. These types of deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by older deposits such as are exposed immediately to the northwest. Our closest vertebrate fossil locality from the older Quaternary deposits probably is LACM 7713, west-southwest of the proposed project area on the western side of Highway 133 at the southern end of the interchange with the San Diego Freeway (I-405), that produced a fossil specimen of ground sloth, Mylodontidae, from unstated but shallow depth. The elevated terrain in the remainder of the proposed project area has exposures of the marine late Miocene Capistrano Formation. Our closest vertebrate fossil localities from the Capistrano Formation are LACM 7546-7547, east-northeast of the proposed

project area on the eastern side of the ridge, that produced fossil specimens of long-snouted dolphin, Pontoporiidae, and sea lion, Imagotariinae, respectively.

Grading or shallow excavations in the younger Quaternary Alluvium exposed in the drainage and lower lying portions of the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in those portions of the proposed project area that extend down into older sedimentary deposits, however, as well as any excavations in the exposures of the Capistrano Formation, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossil materials uncovered during mitigation activities 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 B
**South Central Coastal Information Center Record Search
Data--CONFIDENTIAL**

On file with the City of Lake Forest.

Appendix C
Native American Outreach Correspondence



October 30, 2014

Ms. Katy Sanchez
Native American Heritage Commission
1550 Harbor Blvd.
West Sacramento CA 95691

Re: Cultural Resources Inventory for the Commercentre Project, Lake Forest, California

Dear Ms. Sanchez:

This letter is a request for review of the Sacred Lands File for the Commercentre (Project). Any information you are able to provide would be appreciated. Appropriate and other knowledgeable tribal members whose names and addresses you provide will be contacted.

ICF International is preparing a Cultural Resources Inventory for EPD Solutions, Inc.. The Project consists of an in-fill tract project in the City of Lake Forest, CA. The project area measures approximately seven acres. The project area is bordered by Commercentre Drive to the east, Alton Parkway to the north, industrial and commercial areas to the south and open space to the west.

The project site is located in the northern reaches of the City of Lake Forest, Orange County. Specifically, the project site is located within The Canada de Los Alisos Land Grant, Township 6 South , Range 8 West, as mapped on the United States Geological Survey (USGS) 7.5 minute Series El Toro, California quadrangle.

A record search conducted at the South Coastal Information Center on October 20, 2014 reported no previously identified prehistoric resources within the project area.

If you have any questions please feel free to contact me by telephone at 858-444-3936 or e-mail at Karolina.Chmiel@icfi.com. Our fax number is 858-578-0573.

Thank you,

A handwritten signature in blue ink that reads "Karolina Chmiel".

Karolina Chmiel

Encl. Figure 1 – Project Location

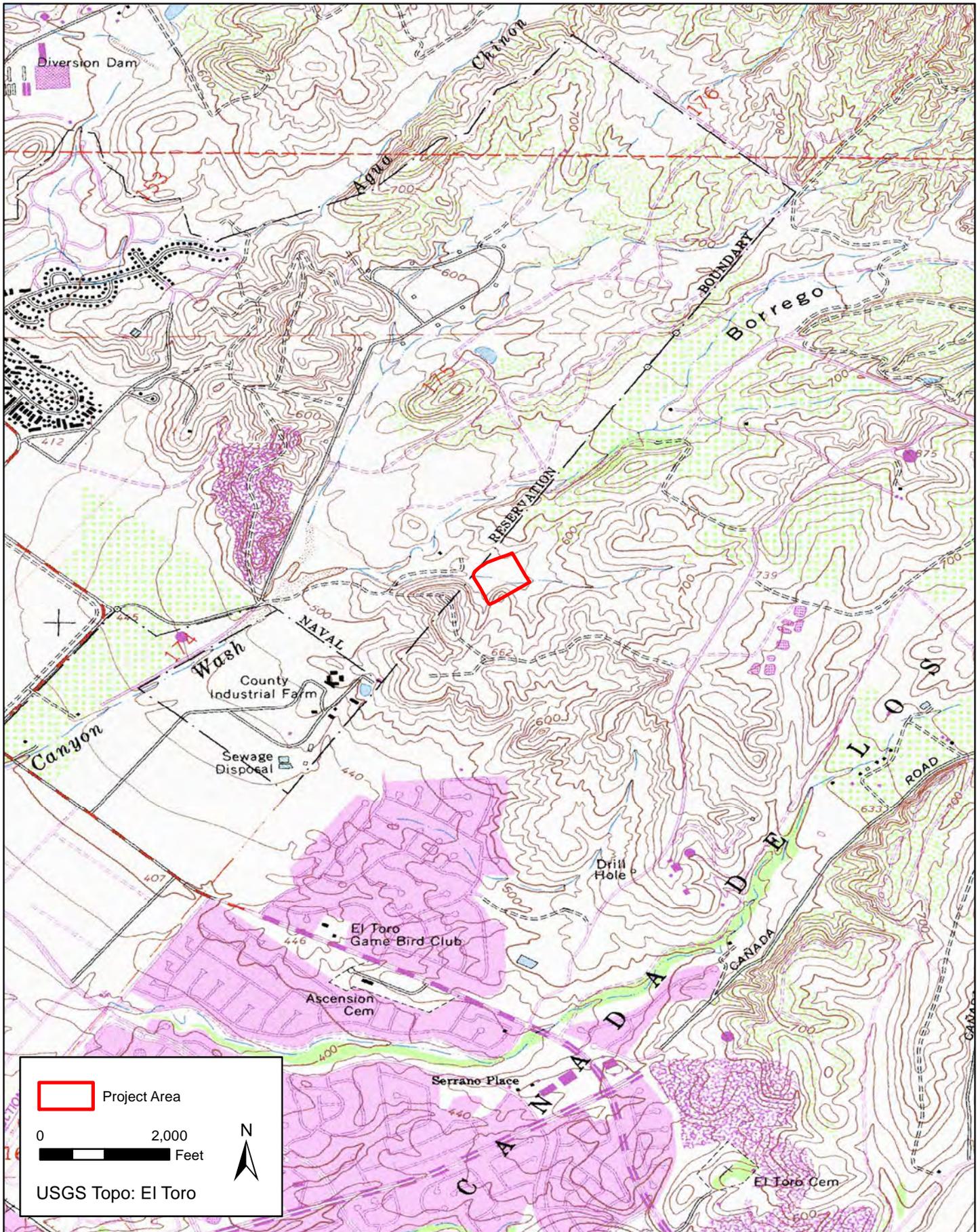


Figure 1
Project Location
Commercentre Project

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-4471



November 6, 2014

Karolina Chmiel
ICF International
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131

Sent by Fax: (858) 578-0573
Number of Pages: 3

Re: Commercentre Project, Lake Forest, Orange County.

Dear Ms. Chmiel,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

A handwritten signature in cursive script that reads "Katy Sanchez".

Katy Sanchez
Associate Government Program Analyst

**Native American Contacts
Orange County
November 5, 2014**

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.

Gabrielino Tongva

tattnlaw@gmail.com
(310) 570-6567

Gabrielino-Tongva Tribe
Bernie Acuna, Co-Chairperson
Contact information unavailable Gabrielino

Last attempted verification 9/5/14

(310) 428-5690 Cell

Gabrielino/Tongva San Gabriel Band of Mission Indian
Anthony Morales, Chairperson

Gabrielino Tongva

P.O. Box 693
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(626) 483-3564 Cell
(626) 286-1262 Fax

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
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(626) 676-1184 Cell

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(951) 807-0479

Gabrielino Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabrielino
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gabrielenoindians@yahoo.
(626) 926-4131

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 Gabrielino Tongva
Bellflower, CA 90707
gtongva@verizon.net
(562) 761-6417 Voice/Fax

Gabrielino-Tongva Tribe
Conrad Acuna
Contact information unavailable Gabrielino
Last attempted verification 9/5/14

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed Commerce Centre Project, Lake Forest, Orange County.

**Native American Contacts
Orange County
November 5, 2014**

Gabrielino /Tongva Nation
Sam Dunlap, Cultural Resources Director
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net
(909) 262-9351

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November 6, 2014

Robert Dorame, Chairperson
Gabrielino Tongva Tribal Indians of California Tribal Council
PO Box 490
Bellflower, CA 90707

Re: *Commercentre Development Project*

Dear Chairperson Dorame:

ICF International is conducting a cultural resources study for EPD Solutions, Inc. for the proposed Commercentre Residential Development project, located on the southwest corner of Alton Parkway and Commercentre drive in the city of Lake Forest, Orange County, California. The Project would consist of the subdivision of a 5.62-acre property into 52 residential and five open space lots that includes associated streets, retaining walls, and storm drains. The project area is located in Township 6 S, Range 8 W within the United States Geological Survey (USGS) El Toro 7.5' quadrangle. It is situated approximately three miles northwest of the El Toro "Y" interchange of the Interstate 5 and 405 freeways, and approximately 1/4- mile east-southeast of the Orange County Great Park (the former Marine Corps Air Station El Toro). Land use in the surrounding area is characterized by residential and light industrial development as well as some open space uses. The purpose of this letter is to comply with CEQA cultural resources guidelines, to notify you of the project, and ask whether you have knowledge of cultural or heritage resources within or adjacent to the project area.

In recent correspondence with the Native American Heritage Commission (NAHC), your name and contact information were provided as one of the Native American individuals/organizations recognized by the NAHC who may have knowledge of cultural resources in or in the vicinity of the Project Area. The NAHC reported that the Sacred Lands File has no record of any sacred sites within the project area. We have enclosed a copy of the NAHC Sacred Lands File Search results, which also contains the list of Native American contacts relevant to the Project.

In September 2014, ICF International conducted a record search at the South Central Coastal Information Center. A total of 25 cultural resource studies have been conducted in or within a 0.5-mile radius of the project area. Of these, 8 studies included a survey within the project area and were negative within the project boundaries, observing no prehistoric or historic archaeological resources or isolated artifacts. The results of this search indicate that no prehistoric or historic archaeological resources or isolated artifacts have been previously recorded within the boundaries of the project area.

If you have information or concerns about cultural resources in the proposed Project area, or if you have any questions or comments about the project, please feel free to contact me by telephone at 858-444-3913 or e-mail at Karen.Crawford@icfi.com. Our fax number is 858-578-0573.

Thank you,

A handwritten signature in black ink, appearing to read "Karen Crawford".

Karen Crawford, Cultural Resources Manager

Enclosed

- Figure 1 – Project Location
- NAHC Sacred Lands File Search Results

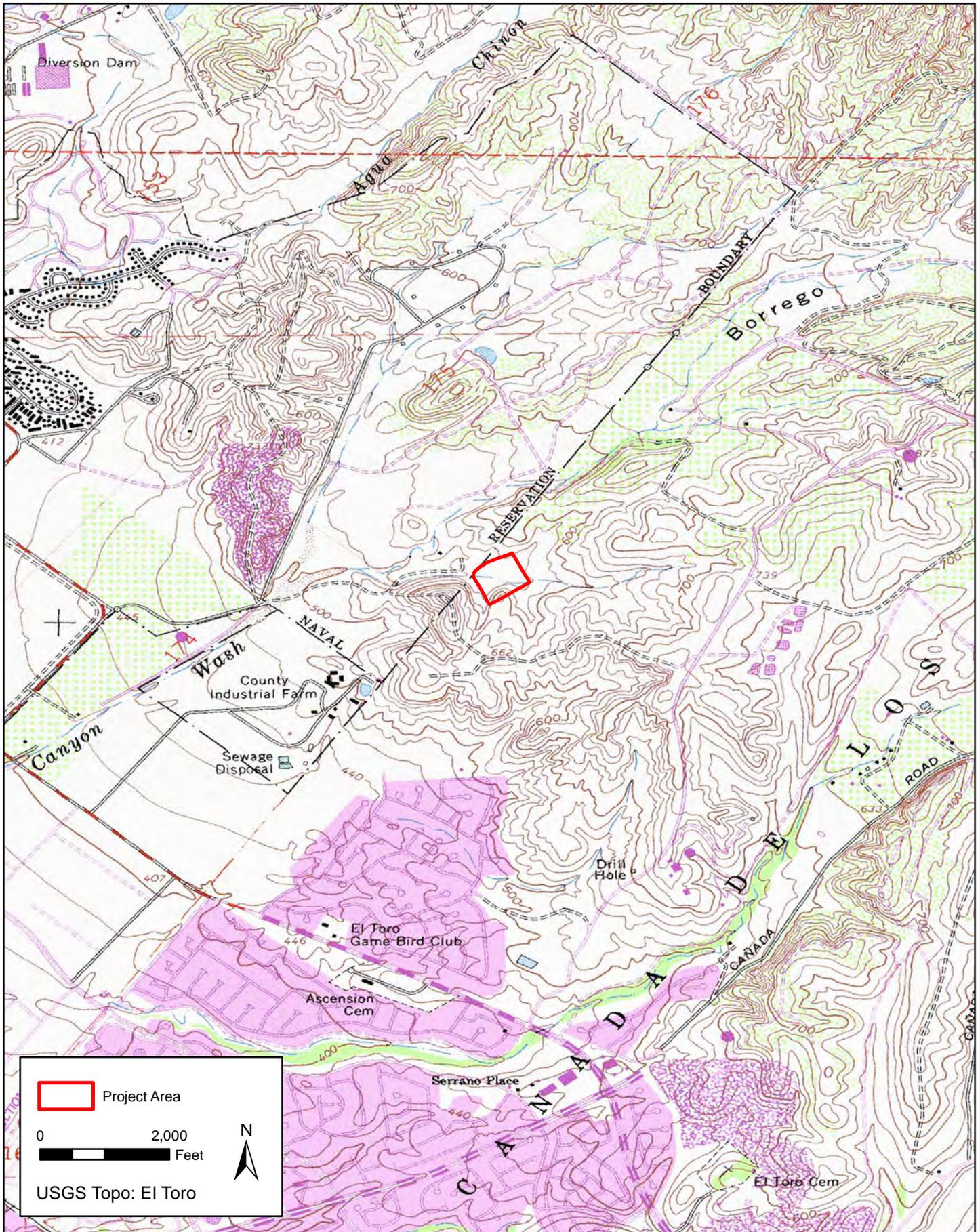


Figure 1
 Project Location
 Commercentre Project

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-4471



November 6, 2014

Karolina Chmiel
ICF International
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131

Sent by Fax: (858) 578-0573
Number of Pages: 3

Re: Commercentre Project, Lake Forest, Orange County.

Dear Ms. Chmiel,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

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Sincerely,

A handwritten signature in black ink that reads "Katy Sanchez".

Katy Sanchez
Associate Government Program Analyst

**Native American Contacts
Orange County
November 5, 2014**

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.

Gabrielino Tongva

tattnlaw@gmail.com
(310) 570-6567

Gabrielino-Tongva Tribe
Bernie Acuna, Co-Chairperson

Contact information unavailable Gabrielino

Last attempted verification 9/5/14

(310) 428-5690 Cell

Gabrielino/Tongva San Gabriel Band of Mission Indian
Anthony Morales, Chairperson

Gabrielino Tongva

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Orange County
November 5, 2014**

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Sam Dunlap, Cultural Resources Director
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
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November 6, 2014

Sam Dunlap, Cultural resources Director
Gabrielino/Tongva Nation
PO Box 86908
Los Angeles, CA 90086

Re: Commercentre Development Project

Dear Mr. Dunlap:

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Thank you,

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Karen Crawford, Cultural Resources Manager

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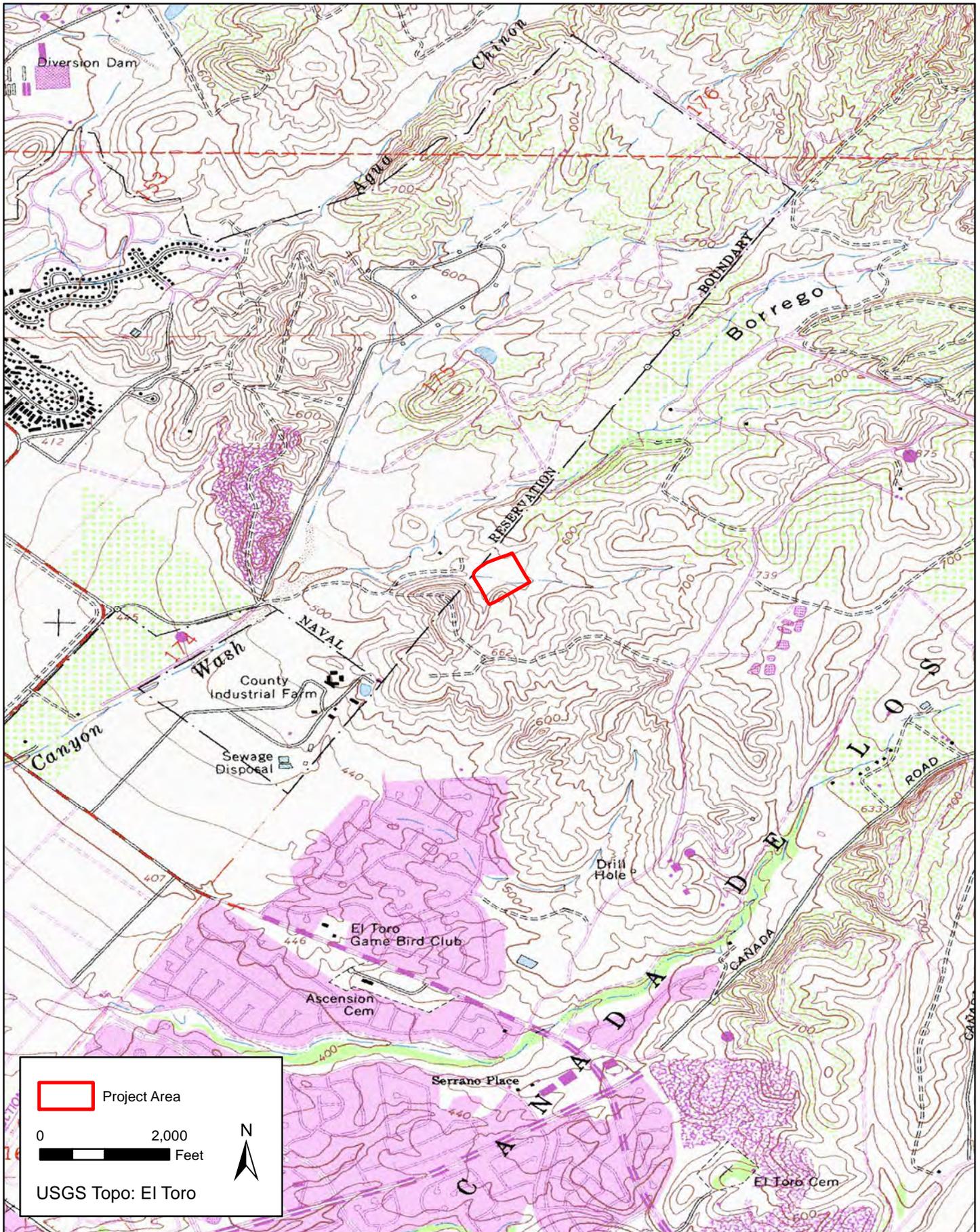


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Project Location
Commercentre Project

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November 6, 2014

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Katy Sanchez
Associate Government Program Analyst

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Orange County
November 5, 2014**

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November 6, 2014

Sandonne Goad, Chairperson
Gabrieleno/Tongva Nation
106 ½ Judge John Also Street
Los Angeles, CA 90012

Re: Commercentre Development Project

Dear Chairperson Goad:

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If you have information or concerns about cultural resources in the proposed Project area, or if you have any questions or comments about the project, please feel free to contact me by telephone at 858-444-3913 or e-mail at Karen.Crawford@icfi.com. Our fax number is 858-578-0573.

Thank you,

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Karen Crawford, Cultural Resources Manager

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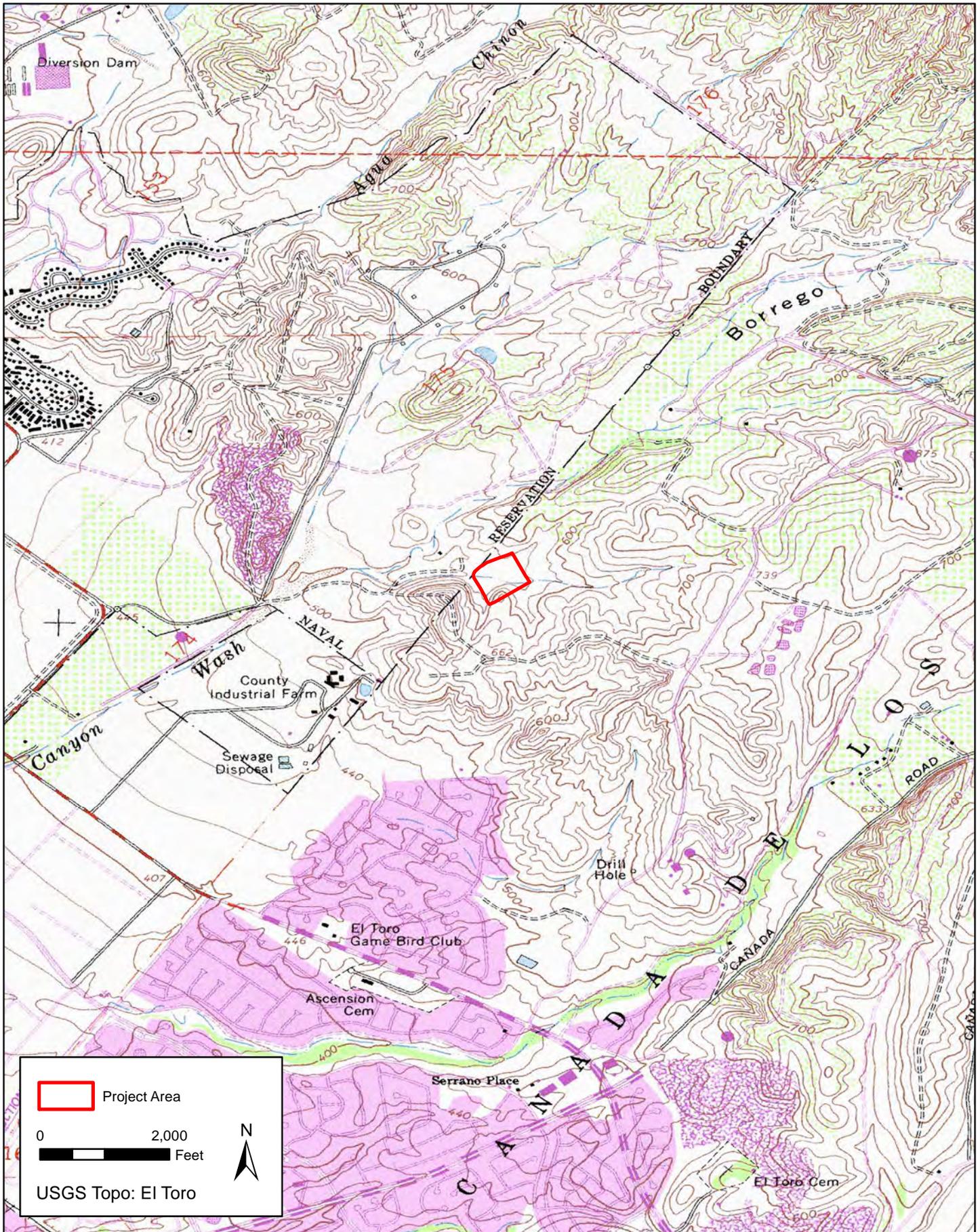


Figure 1
Project Location
Commercentre Project

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-4471



November 6, 2014

Karolina Chmiel
ICF International
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131

Sent by Fax: (858) 578-0573
Number of Pages: 3

Re: Commercentre Project, Lake Forest, Orange County.

Dear Ms. Chmiel,

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Katy Sanchez
Associate Government Program Analyst

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Orange County
November 5, 2014**

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John Tommy Rosas, Tribal Admin.

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Contact information unavailable Gabrielino

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November 6, 2014

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
PO Box 693
San Gabriel, CA 91778

Re: *Commercentre Development Project*

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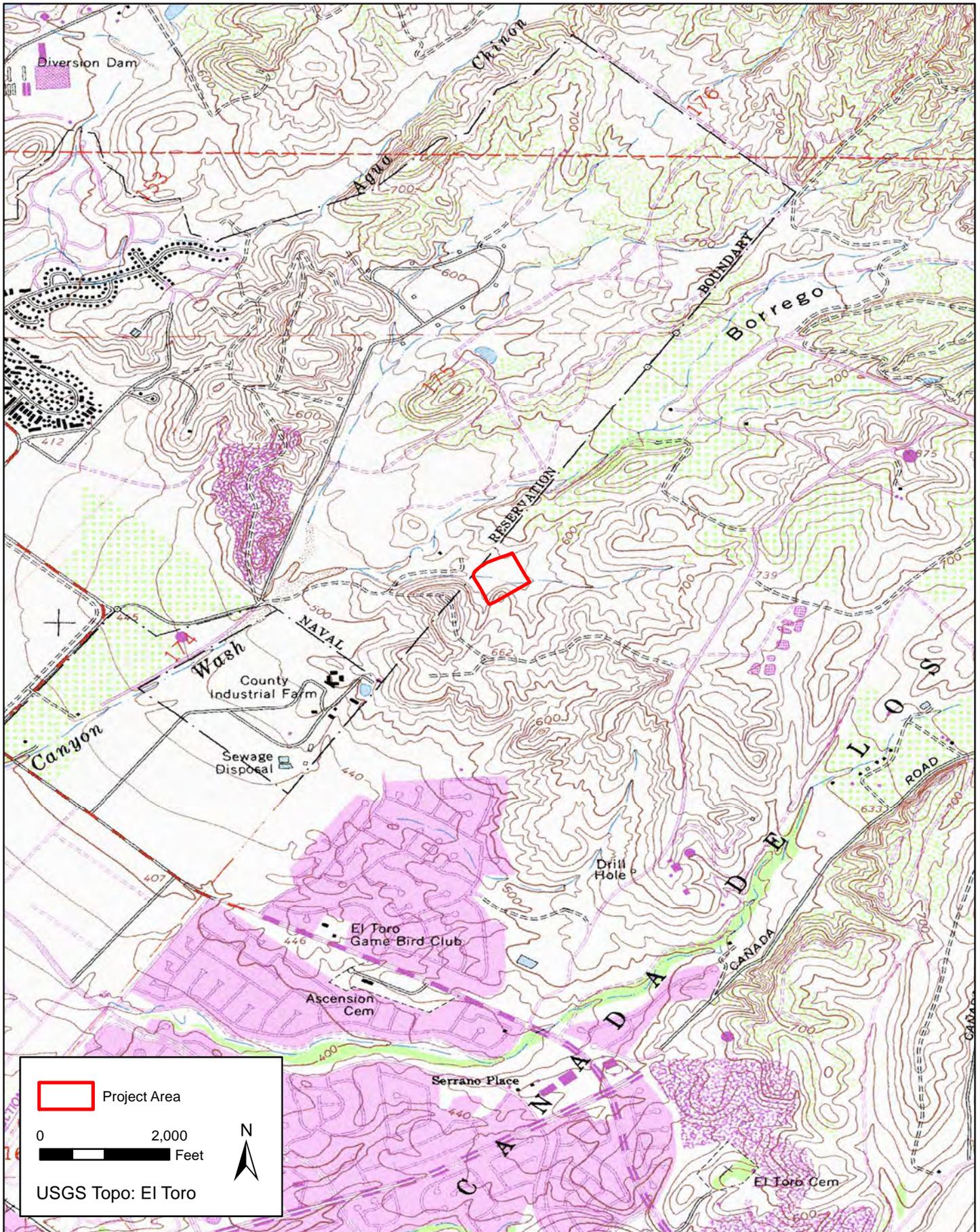


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ICF International
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131

Sent by Fax: (858) 578-0573
Number of Pages: 3

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tattnlaw@gmail.com

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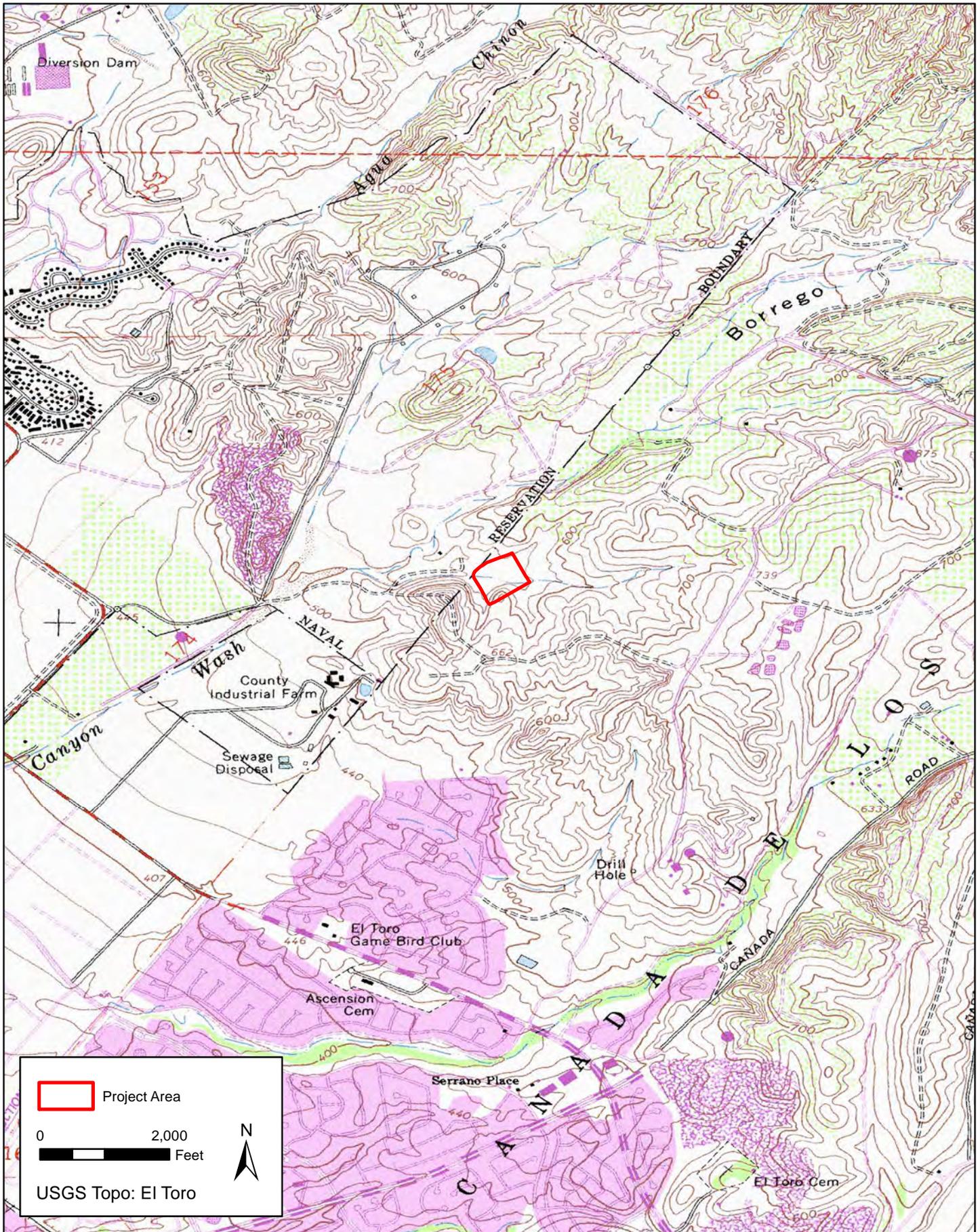


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STATE OF CALIFORNIA

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9775 Businesspark Avenue, Suite 200
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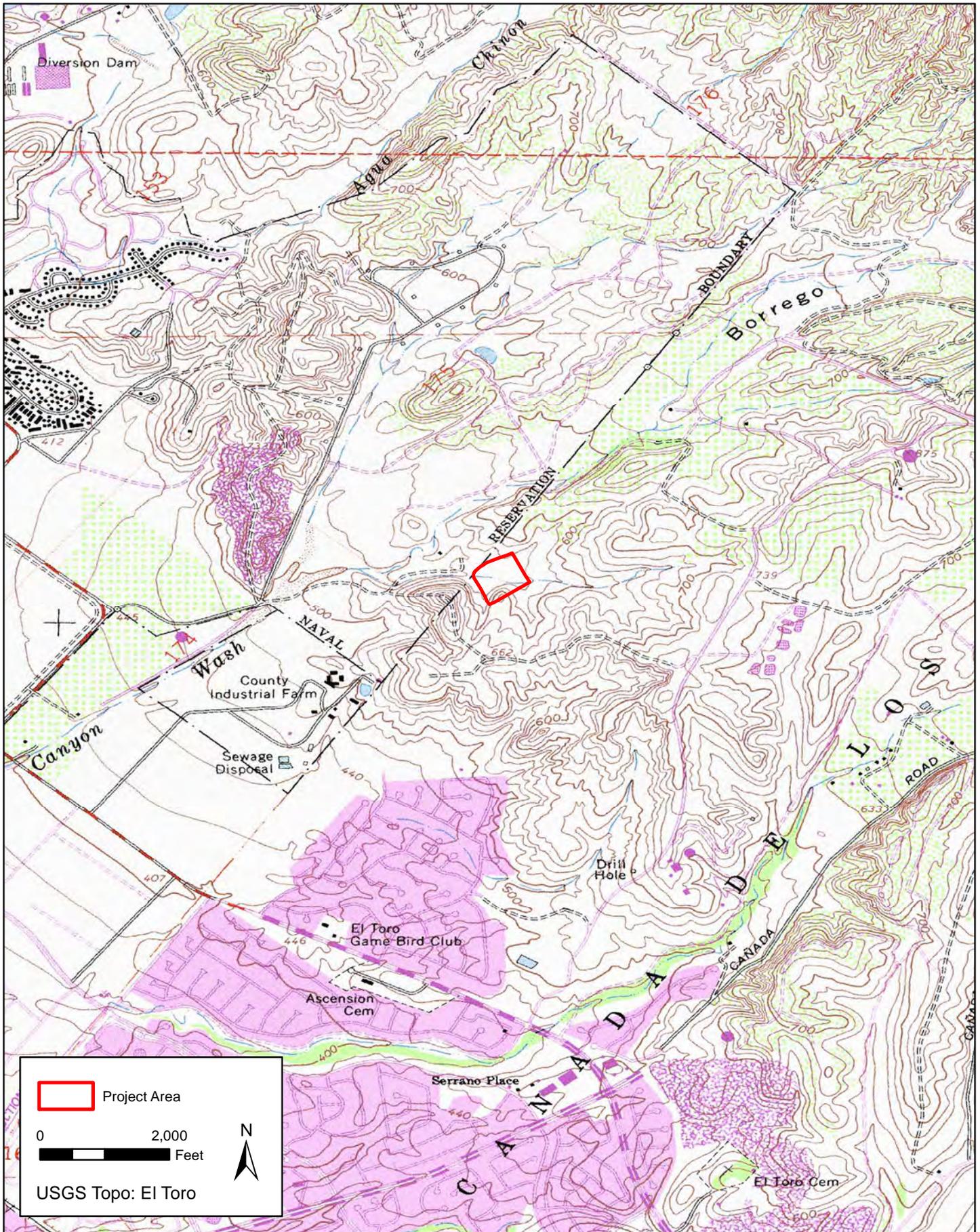


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Appendix D
Geotechnical Memo



GeoTek, Inc.
710 E. Parkridge Avenue, Suite 105, Corona, California, 92879-1097
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

August 8, 2015
Project No. 1162-CR3

Meritage Homes

1250 Corona Pointe Court, Suite 210
Corona, California 92879

Attention: Mr. Kenneth Kim

Subject: Geotechnical Comment to Site History
Southwest Corner Commercecentre Drive and Alton Parkway
Lot 13 of Tract 13343
Lake Forest, Orange County, California

References: See *Appendix A*

Dear Mr. Kim:

GeoTek, Inc. (GeoTek) is providing this comment in regards to the history of fill placed on the site.

The site was initially mass graded from June 1990 to July 1991, as reported by Stoney-Miller (1991). As shown on Figure 1, the entire subject lot (Lot 13) was graded as part of work for “Fill in Canyon 2”, denoted by the thicker long dashes (not the areas shaded in). The building pad area of Lot 13 was initially graded to an elevation of roughly EL590 to EL592 feet mean sea level (msl), with a detention basin located toward the center of the pad, at an approximate elevation of about EL580 msl. Prior to engineered fill placement, previously existing undocumented fill soil, unsaturated alluvium and otherwise loose and unconsolidated soils were removed to expose saturated alluvium or bedrock.

Subsequent to completing the removals described above, engineered fill was placed at a minimum 90 percent relative compaction up to design grades. Depths of fill across the graded pad ranged from roughly two (2) feet near the south corner of the pad to roughly 60 feet toward the north and west sides of the pad. Saturated alluvial thickness below the pad area was estimated to range from 25 to 35 feet (Stoney-Miller, 2006). Figures 2A and 2B show approximate elevation of removal bottoms (indicated by rectangular encompassed numbers), cut-fill transition and a stabilization fill key along the southwest corner of the subject site.

Approximately 2 feet of fill was placed in cut areas and a stabilization fill slope was constructed in the area denoted by the stabilization fill key.

As a result of leaving saturated alluvial soils beneath the subject pad, several episodes of surcharging the site with fill soils were recommended and subsequently performed under the geotechnical observation and monitoring of both Stoney-Miller and Bagahi (see referenced reports). Figure 3 shows a survey of surcharge fills placed under the observation of Stoney-Miller and Bagahi.

As part of placing the surcharge fill, the retention basin along the central portion of the property was removed and replaced with certified engineered fill to a maximum elevation of approximately EL595 msl as shown in Figure 4. Upon review of the most recent referenced report detailing these surcharging and settlement monitoring episodes (Stoney-Miller, 2009), the surcharging efforts for the subject site has been deemed sufficient to mitigate future ground settlements to less than 1-inch for a time period (design life) of 50 years as shown in Figure 5.

The “Conceptual Grading Plan”, as prepared by RBF Consulting, dated June 4, 2015 (Figure 6), shows proposed elevations ranging from EL590.5 to the northeast to EL597.2 to the southwest. The last approved grade ranges from approximately EL590 to EL592, except in the area of the former detention basin, where the engineered fill was placed to approximately EL595. After removal of the surcharge fills, GeoTek recommends scarifying the upper 8 inches of what is anticipated to be engineered fill. Retaining walls that are planned near the vicinity of the property lines are to be founded in engineered fill. Retaining backfill to the north and west will be benched into existing engineered fill and back-cuts for the south and northeastern retaining wall should expose engineered fill.

Based on the above, it is the opinion of GeoTek, that exposing native soils should not be a design consideration for the project. The only possible concern is along the southwest corner within the cut area of the site. Approximately 2 feet of fill was placed in the cut area and the last approved grade ranges from EL590 and EL592. If we assume a last approved grade of EL592, native soils would exist at elevation EL590. Once surcharge fills are removed, we recommend scarifying the upper 8 inches, which should disturb soils up to an elevation of EL591.3. The proposed grades in this area ranges from EL595.0 to EL597.2, which means a total of 5 to 7.2 feet of fill above native soils. Trenches for proposed infrastructure work are planned to a maximum depth of 10 feet. Therefore, only trenching activities in the southwest portion of the site would disturb native soils. The civil engineer should prepare an exhibit of identifying when trenching activities have the potential to disturb native soils.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,
GeoTek, Inc.



Edward H. LaMont
CEG 1892, Exp. 7/31/12
Principal Geologist

Paul Hyun Jin Kim
PE 77214, Exp. 6/30/13
Project Engineer

Distribution: (1) Addressee via email

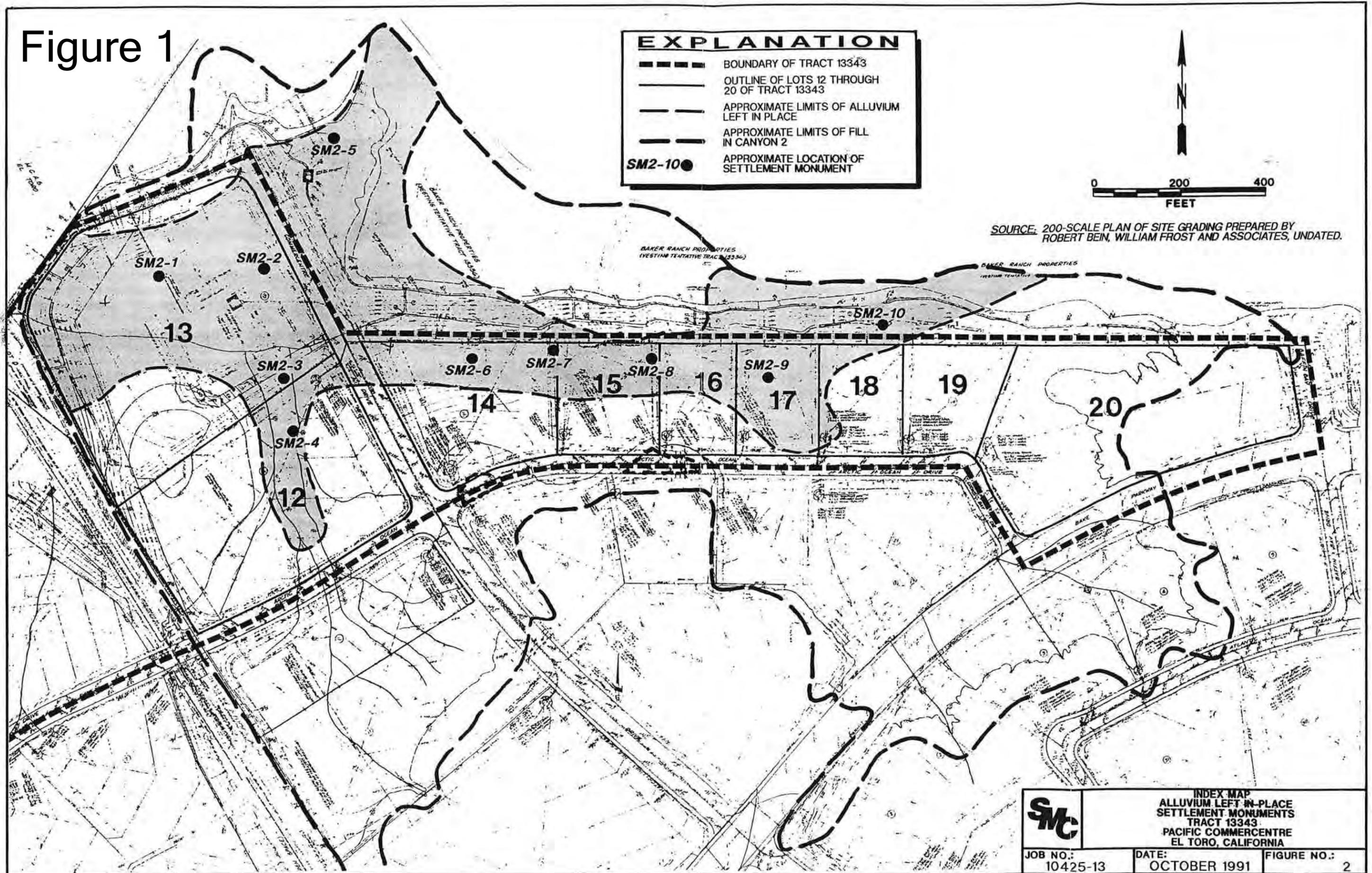
Enclosures: Appendix A References
Figures 1 thru 6.

APPENDIX A

SELECTED REFERENCES

- Bagahi Engineering, 1997, "Geotechnical Investigation of Settlement, Tract 13343, Lot 11 (Lot 13), SWC Commercentre Drive and Alton Parkway, Lake Forest, CA," Job No. 82a-200-00, dated June 16.
- _____, 1998, "Progress Report on Monitoring of Settlement, Tract 13343, Lot 11 (Lot 13), SWC Commercentre Drive and Alton Parkway, Lake Forest, California," Job No. 82a-200-00, dated October 9.
- Stoney-Miller Consultants, Inc., 1993, "Settlement Monitoring, Canyon 2, Lots 12-20, Tract 13343, 20858 Bake Parkway, El Toro, California," Project No: 10425-06, dated December 20.
- _____, 1997, "Settlement Monitoring, Canyon 2, Lots 12 through 20, Tract 13343, 20858 Bake Parkway, Pacific Commercentre, Lake Forest, California," Project No: 10425-07, dated March 7.
- _____, 2005, "Results of Preliminary Geotechnical Investigation, 25192 Commercentre Drive, Lake Forest, California," Project No: 12576-00, dated May 3.
- _____, 2006, "Site History & Future Geotechnical Work, Lot 13 of Tract 13343, 25192 Commercentre Drive, Lake Forest, California," Project No: 12655-02, dated January 24.
- _____, 2007, "Supplemental Geotechnical Investigation, Lot 13 of Tract 13343, 25191 Commercentre Drive, Lake Forest, California," Project No: 12655-03, dated November 12.
- _____, 2008, "Grading Earthwork Observation/Testing Report, Lot 13 of Tract 13343, 25192 Commerce Drive, Lake Forest, California," Project No: 12655-10/30, dated December 24.
- _____, 2009, "Review of Site Settlement, Lot 13 of Tract 13343, 25192 Commerce Drive, Lake Forest, California," Project No: 12655-50, dated November 12.
- _____, 2014, "Seismic Hazard Study, Lot 13 of Tract 13343, 25192 Commerce Drive, Lake Forest, California," Project No: 12655-04, dated June 9, 2014.

Figure 1



EXPLANATION	
	BOUNDARY OF TRACT 13343
	OUTLINE OF LOTS 12 THROUGH 20 OF TRACT 13343
	APPROXIMATE LIMITS OF ALLUVIUM LEFT IN PLACE
	APPROXIMATE LIMITS OF FILL IN CANYON 2
	APPROXIMATE LOCATION OF SETTLEMENT MONUMENT

0 200 400
FEET

▲
N

SOURCE: 200-SCALE PLAN OF SITE GRADING PREPARED BY ROBERT BEIN, WILLIAM FROST AND ASSOCIATES, UNDATED.

	INDEX MAP ALLUVIUM LEFT-IN-PLACE SETTLEMENT MONUMENTS TRACT 13343 PACIFIC COMMERCE EL TORO, CALIFORNIA	
	JOB NO.: 10425-13	DATE: OCTOBER 1991

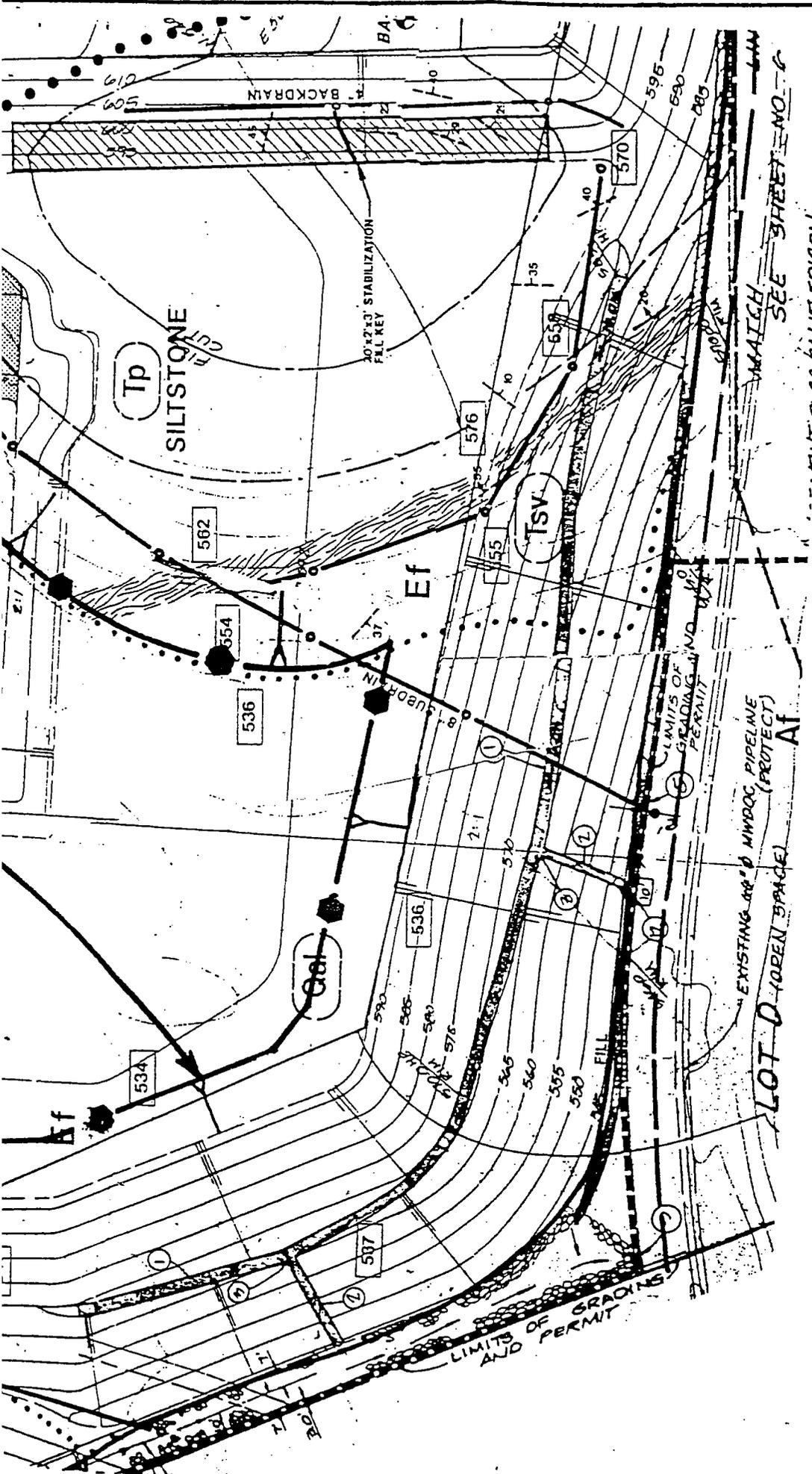


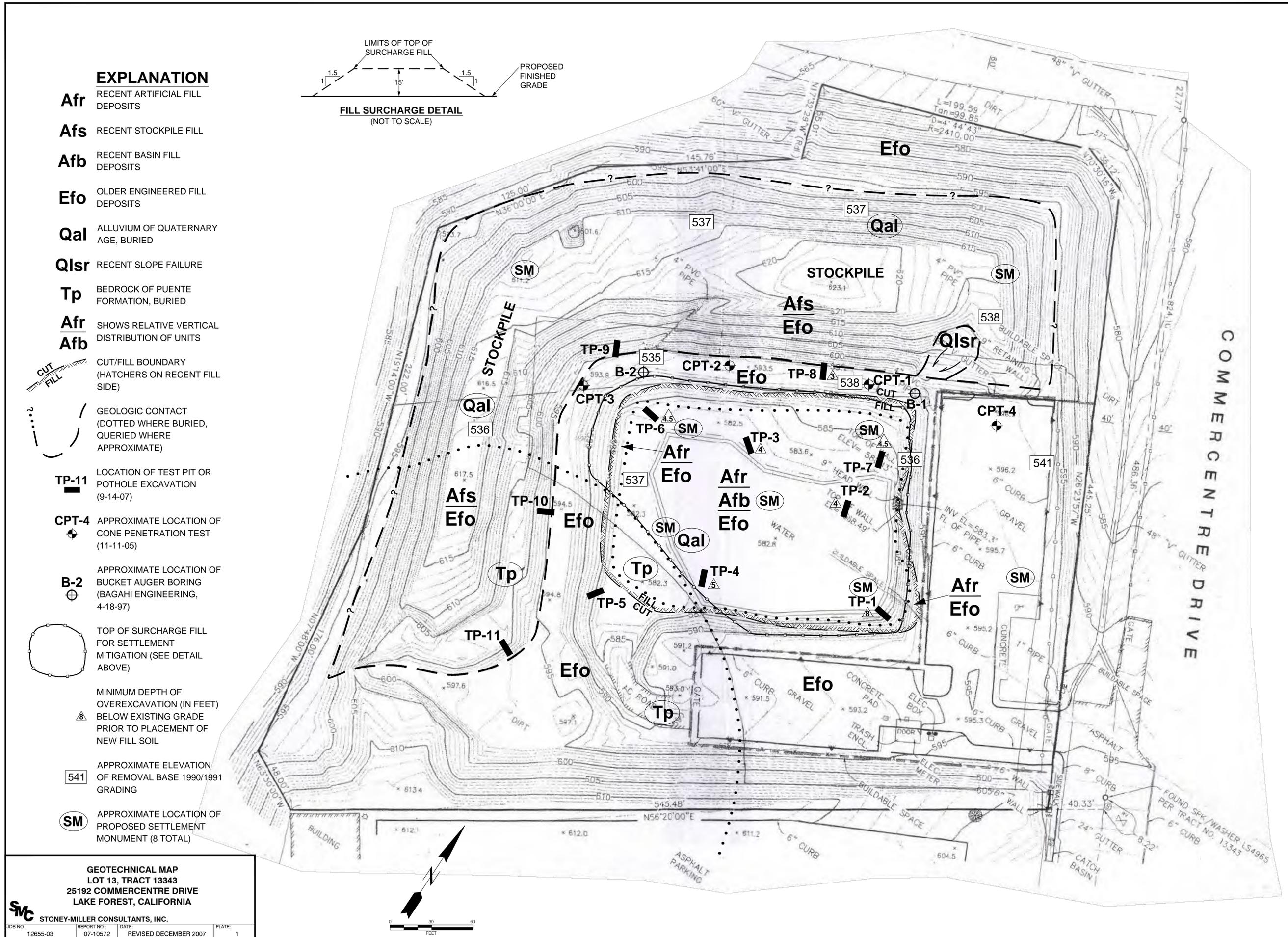
Figure 2A

BAGHI ENGINEERING

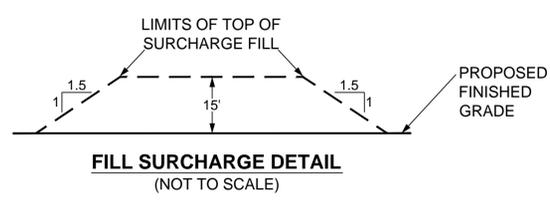
LIMITS OF SURCHARGE FILL

PROJECT

Figure 3



- EXPLANATION**
- Afr** RECENT ARTIFICIAL FILL DEPOSITS
 - Afs** RECENT STOCKPILE FILL
 - Afb** RECENT BASIN FILL DEPOSITS
 - Efo** OLDER ENGINEERED FILL DEPOSITS
 - Qal** ALLUVIUM OF QUATERNARY AGE, BURIED
 - Qlsr** RECENT SLOPE FAILURE
 - Tp** BEDROCK OF PUENTE FORMATION, BURIED
 - Afr** SHOWS RELATIVE VERTICAL DISTRIBUTION OF UNITS
 - Afb** SHOWS RELATIVE VERTICAL DISTRIBUTION OF UNITS
 - CUT/FILL BOUNDARY (HATCHERS ON RECENT FILL SIDE)
 - GEOLOGIC CONTACT (DOTTED WHERE BURIED, QUERIED WHERE APPROXIMATE)
 - TP-11** LOCATION OF TEST PIT OR POT HOLE EXCAVATION (9-14-07)
 - CPT-4** APPROXIMATE LOCATION OF CONE PENETRATION TEST (11-11-05)
 - B-2** APPROXIMATE LOCATION OF BUCKET AUGER BORING (BAGHI ENGINEERING, 4-18-97)
 - TOP OF SURCHARGE FILL FOR SETTLEMENT MITIGATION (SEE DETAIL ABOVE)
 - MINIMUM DEPTH OF OVEREXCAVATION (IN FEET) BELOW EXISTING GRADE PRIOR TO PLACEMENT OF NEW FILL SOIL
 - 541** APPROXIMATE ELEVATION OF REMOVAL BASE 1990/1991 GRADING
 - SM** APPROXIMATE LOCATION OF PROPOSED SETTLEMENT MONUMENT (8 TOTAL)



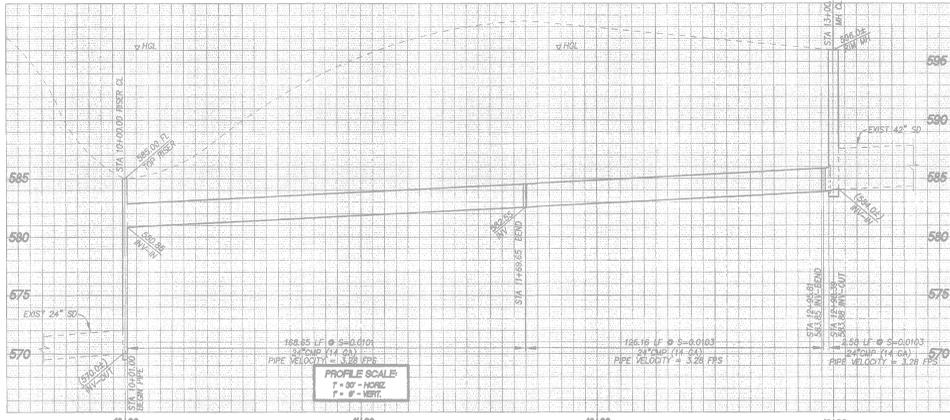
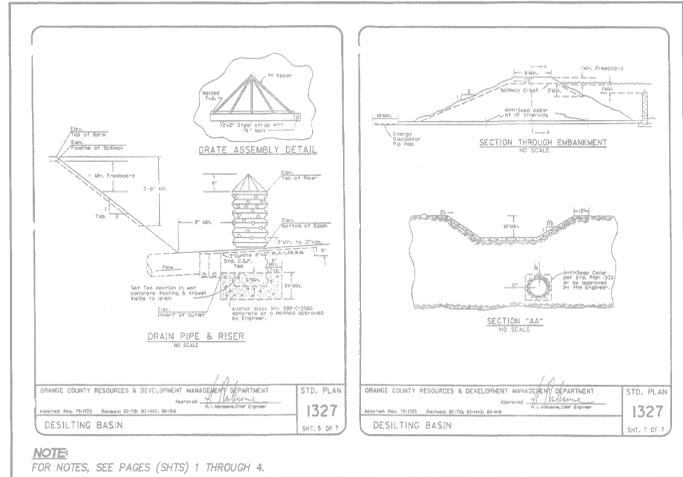
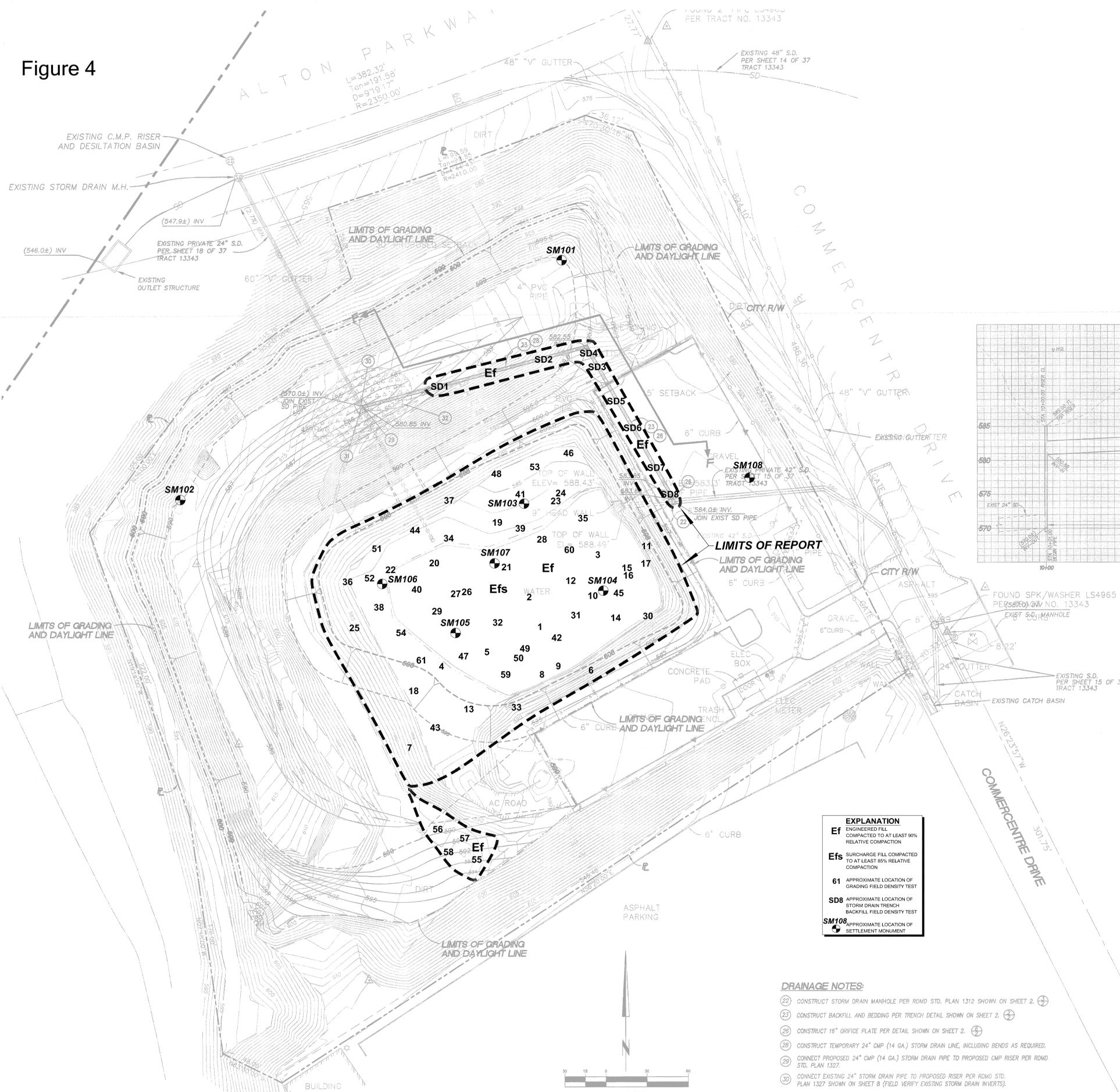
GEOTECHNICAL MAP
LOT 13, TRACT 13343
25192 COMMERCENTRE DRIVE
LAKE FOREST, CALIFORNIA

SMC STONEY-MILLER CONSULTANTS, INC.

JOB NO.: 12655-03	REPORT NO.: 07-10572	DATE: REVISED DECEMBER 2007	PLATE: 1
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Figure 4



STORM DRAIN PROFILE

LEGEND:

- LIGHT
- RETAINING/BLOCK WALL
- STORM DRAIN LINE
- SANITARY SEWER LINE
- PROPERTY LINE / RIGHT OF WAY
- LIMITS OF GRADING
- CHAIN LINK FENCE
- CONTOUR
- WATER VALVE
- SEWER MANHOLE
- WATER METER
- PDC
- FIRE HYDRANT
- GRATE

ABBREVIATIONS:

- | | | | |
|------|----------------------------|---------|--|
| AC | ASPHALT CONCRETE | NDS | "NATIONAL DIVERSIFIED SALES" FOR DRAINAGE & LANDSCAPE PRODUCTS |
| AB | AGGREGATE BASE | OH | OVER HANG |
| AD | AREA DRAIN | PCC | PORTLAND CEMENT CONCRETE |
| CB | CATCH BASIN | PP | POWER POLE |
| CF | CURB FACE | R | RADIUS |
| C&G | CURB & GUTTER | RD | ROOF DRAIN |
| DF | DEEPENED FOOTING | S | SEWER |
| DS | DOWN SPOUT | SCO | SEWER CLEAN OUT |
| EL | ELEVATION | SD | STORM DRAIN |
| FF | FINISHED FLOOR | SDMH | STORM DRAIN MANHOLE |
| FG | FINISH GRADE | SF | SQUARE FOOT |
| FH | FIRE HYDRANT | SMH | SEWER MANHOLE |
| FL | FLOW LINE | TC | TOP OF CURB |
| FS | FINISH SURFACE | TO | TOP OF GRATE |
| FT | FOOT | TH | TOP OF HEADER |
| GB | GRADE BREAK | W | WATER |
| GM | GAS METER | WM | WATER METER |
| HDPE | HIGH DENSITY POLY ETHYLENE | WV | WATER VALVE |
| HP | HIGH POINT | 100.0 | DESIGN ELEVATION |
| INV | INVERT | (100.0) | EXISTING (SURVEYED) ELEVATION |
| IVC | IRRIGATION VALVE CONTROL | [100.0] | EXISTING (RECORD) ELEVATION |
| LP | LOW POINT | | |
| MOC | MIDDLE OF CURB | | |

EXPLANATION

Ef ENGINEERED FILL COMPACTED TO AT LEAST 90% RELATIVE COMPACTION

Efs SURCHARGE FILL COMPACTED TO AT LEAST 85% RELATIVE COMPACTION

61 APPROXIMATE LOCATION OF GRADING FIELD DENSITY TEST

SD8 APPROXIMATE LOCATION OF STORM DRAIN TRENCH BACKFILL FIELD DENSITY TEST

SM108 APPROXIMATE LOCATION OF SETTLEMENT MONUMENT

DRAINAGE NOTES:

- 22) CONSTRUCT STORM DRAIN MANHOLE PER RDM STD. PLAN 1312 SHOWN ON SHEET 2.
- 23) CONSTRUCT BACKFILL AND BEDDING PER TRENCH DETAIL SHOWN ON SHEET 2.
- 26) CONSTRUCT 16" ORIFICE PLATE PER DETAIL SHOWN ON SHEET 2.
- 28) CONSTRUCT TEMPORARY 24" CMP (14 GA.) STORM DRAIN LINE, INCLUDING BENDS AS REQUIRED.
- 29) CONNECT PROPOSED 24" CMP (14 GA.) STORM DRAIN PIPE TO PROPOSED CMP RISER PER RDM STD. PLAN 1327.
- 30) CONNECT EXISTING 24" STORM DRAIN PIPE TO PROPOSED RISER PER RDM STD. PLAN 1327 SHOWN ON SHEET 8 (FIELD VERIFY EXISTING STORM DRAIN INVERTS).
- 31) CONSTRUCT 24" CMP (14 GA.) RISER PER RDM STD. PLAN 1327 SHOWN ON SHEET 8.
- 32) CONSTRUCT RIP-RAP BARRIER AND PCC APRON AROUND PROPOSED CMP RISER AS SHOWN ON PLAN AND SECTION F-F.

GEOTECHNICAL PLOT PLAN
LOT 13 OF TRACT 13343
25192 COMMERCE DRIVE
LAKE FOREST, CALIFORNIA

SMC STONEY-MILLER CONSULTANTS, INC.

JOB NO: 12655-10/30 REPORT NO: 08-10711 DATE: DECEMBER 2008 PLATE: 1

UNDERGROUND SERVICE ALERT

Call : Toll FREE 1-800-422-4133

TWO WORKING DAYS BEFORE YOU DIG

"CAUTION" Remember that the USA Center notifies only those utilities belonging to the center. There could be other utilities present at the work site. The center will inform you of whom they will notify.

APPROVED	REVISIONS
NO. DATE	COMMENTS
1 02-28-2008	AGED SHEET & TEMPORARY SURCHARGE DAMAGE PL. W.
2 02-28-2008	
3 02-28-2008	
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96 02-28-2008	
97 02-28-2008	
98 02-28-2008	
99 02-28-2008	
100 02-28-2008	

OWNER: BDJ LAKE FOREST ASSOC. LP.
 1420 BRISTOL STREET N. SUITE 100
 NEWPORT BEACH, CA 92660
 TEL: 949 752-2066
 FAX: 949 752-8776

PLANS PREPARED BY: DMC ENGINEERING
 CIVIL & SURVEYING • PLANNING • CONSTRUCTION
 TEL: (949) 753-9393 • FAX: (949) 753-9322
 18 Technolgy Drive, Suite 100, Irvine, California 92614
 E-Mail: dmc@dmcengineering.com • www.dmceng.com

PROFESSIONAL ENGINEER - CIVIL
 DEREK J. MCGREGOR
 No. 38463
 Exp. 3-31-09
 CIVIL
 STATE OF CALIFORNIA
 CIVIL ENGINEER

TEMPORARY SURCHARGE DRAINAGE PLAN
 FOR
 LOT 13, TRACT 13343
 25192 COMMERCE DRIVE
 LAKE FOREST, CA

THE CITY OF LAKE FOREST
 PUBLIC WORKS DEPARTMENT

GRADING PERMIT

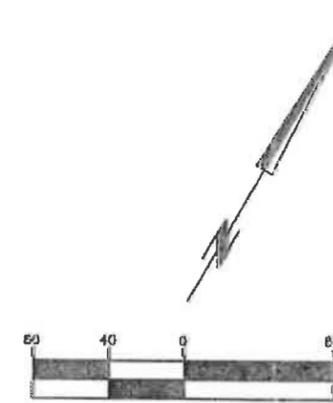
PROJECT NO: 1004

DRAWN BY: JRR
 DESIGNED BY: JRR
 CHECKED BY: DJM
 SHEET NUMBER:
 8 OF 8 SHEETS
 SCALE: AS NOTED

Figure 5



EXHIBIT "A"



SCALE IN FEET
1 inch = 30 ft.

LEGEND

SM-108 RECENT SETTLEMENT MONUMENT

PREPARED BY



DMC ENGINEERING

CIVIL • SURVEYING • PLANNING • CONSTRUCTION
Tel: (949) 753-9393 ♦ Fax: (949) 753-9322
18 Technology Drive, Suite 100, Irvine, California 92618
E-Mail: dmc@dmceng.com ♦ www.dmceng.com

PREPARED FOR

BDJ LAKE FOREST ASSOC. LP.
1420 BRISTOL STREET N. SUITE 100
NEWPORT BEACH, CA 92660

05-13-2008
JN:1004-5



RECENT SETTLEMENT
MONUMENT LOCATION MAP

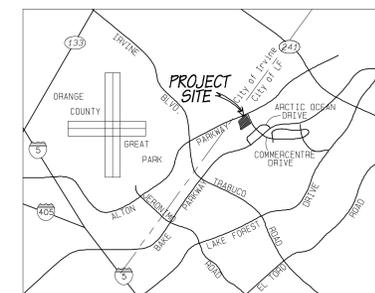
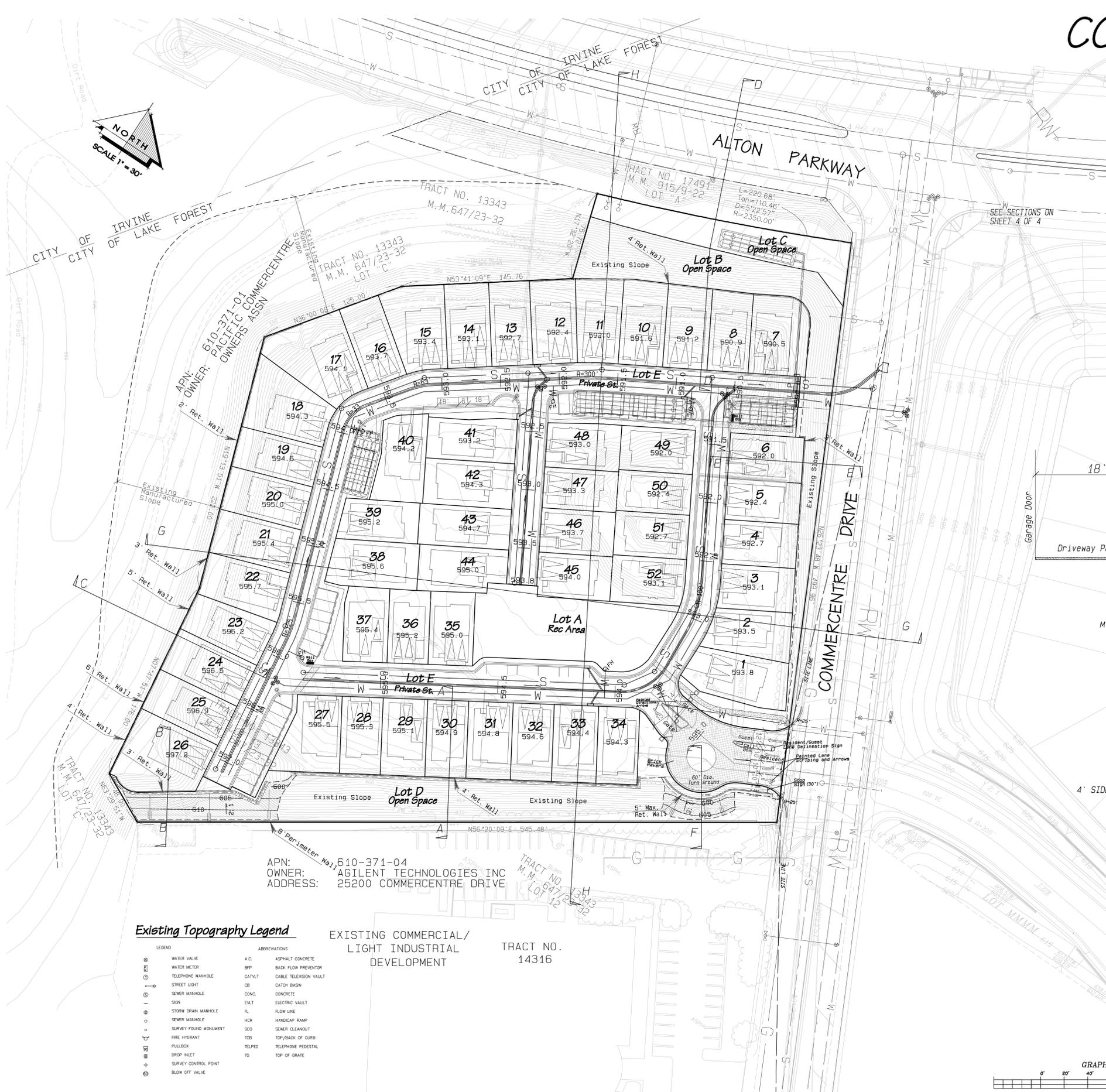
Report No. 09-11123

JOB NO.: 12655-50	DATE: NOVEMBER 2009	FIGURE NO.: B-13
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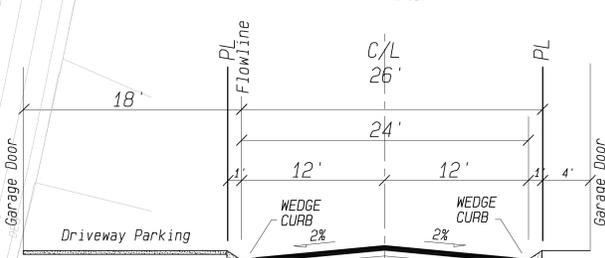
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CONCEPTUAL GRADING PLAN FOR TRACT NO. 17810 ENCANTO

IN THE CITY OF LAKE FOREST, COUNTY OF ORANGE, STATE OF CALIFORNIA

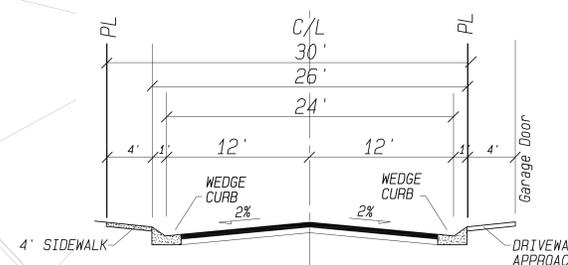


VICINITY MAP
N.T.S.



TYPICAL PRIVATE STREET
WITH DRIVEWAY PARKING

Minimum width shown per City Ordinance
9.168.040.C.1 and 4.
SCALE 1" = 5'



TYPICAL PRIVATE STREET
WITH SIDEWALK

Minimum width shown per City Ordinance
9.168.040.C.1 and 4.
SCALE 1" = 5'

LEGAL DESCRIPTION

LOT 13 OF TRACT NO. 13343 IN THE CITY OF LAKE FOREST, COUNTY OF ORANGE, STATE OF CALIFORNIA AS SHOWN ON A MAP RECORDED IN BOOK 647, PAGES 23 THROUGH 32 INCLUSIVE OF MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, ALONG WITH A VACATED PORTION OF ALTON PARKWAY R.O.W. RECORDED ON TRACT 17491.

SITE DATA

GROSS ACREAGE = 5.75 Ac.
NET ACREAGE = 5.75 Ac.
NUMBER OF UNITS = 52
GROSS DENSITY = 9.0 DU/AC.

PRIVATE LOTS: 3.15 Ac.
STREETS AND PARKING: 1.42 Ac.
OPEN SPACE LOTS: 1.18 Ac.
5.75 Ac.

PARKING DATA

GARAGE 104 Spaces (2 Per DU)
OPEN 63 Spaces (1 Per DU + 0.2 Guest Per DU)
OTHER 6 Spaces in Double Driveways
PARKING SPACES 173 (3.2 SP/UNIT, + 6 Driveway Spaces)

LEGEND

- CATCH BASIN AND STORM DRAIN
- DAYLIGHT LINE
- PROPOSED FINISH CONTOUR
- TENTATIVE TRACT BOD. W/ DIMENSIONS
- DIRECTION OF GRADED SLOPE
- RETAINING WALL
- LOT NUMBER
- PAD ELEVATION
- WATER QUALITY FACILITY
- FIRE HYDRANT
- STREET LIGHT
- STORMTECH OR EQUIVALENT WATER QUALITY CHAMBERS
- DECORATIVE PAVING TREATMENT

PRELIMINARY EARTHWORK QUANTITIES (RAW)
CUT = 9,000 C.Y.
FILL = 9,000 C.Y.

EARTHWORK QUANTITIES ARE RAW CUT AND FILL, AND DO NOT INCLUDE ADJUSTMENTS FOR SHRINKAGE, BULKING OR OVEREXCAVATION. SOILS REPORT INDICATES MINIMAL SHRINKAGE OR OVEREXCAVATION.

ALL MANUFACTURED SLOPES ON BOTH FILL AND CUT SHALL BE A MAXIMUM OF 2 HORIZONTAL TO 1 VERTICAL.

CONCEPTUAL GRADING PLAN FOR TRACT NO. 17810 ENCANTO

RBF J.N. 142216 JUNE 4, 2015

Figure 6

APN: 610-371-04
OWNER: AGILENT TECHNOLOGIES INC
ADDRESS: 25200 COMMERCENTRE DRIVE

Existing Topography Legend

- | LEGEND | ABBREVIATIONS |
|--------|-----------------------------|
| ○ | A.C. ASPHALT CONCRETE |
| ⊗ | BFP BACK FLOW PREVENTER |
| ⊕ | CATV/CABLE TELEVISION VAULT |
| ⊙ | OB CATCH BASIN |
| ⊖ | CONC. CONCRETE |
| ⊗ | E.V.L.T. ELECTRIC VAULT |
| ⊕ | FL. FLOW LINE |
| ⊖ | H.C.R. HANDICAP RAMP |
| ⊗ | S.C.D. SEWER CLEANOUT |
| ⊕ | T.C.B. TOP/BACK OF CURB |
| ⊖ | PULLBOX TELEPHONE PEDESTAL |
| ⊗ | DI. DROP INLET |
| ⊕ | S.C.P. SURVEY CONTROL POINT |
| ⊖ | S.O.V. BLOW OFF VALVE |

EXISTING COMMERCIAL/
LIGHT INDUSTRIAL
DEVELOPMENT
TRACT NO. 14316



ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A. UTILIS ALERT AT 1-800-287-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

ARCHITECT / PLANNER
WILLIAM HEZMAHALCH ARCHITECTS, INC.
2850 REDHILL AVENUE, SUITE 200
SANTA ANA, CA 92705-5543
PHONE: (949) 250-0607
FAX: (949) 250-1529

SOIL ENGINEER



REVISIONS			
NO.	DATE	BY	DESCRIPTION

PLANS PREPARED FOR:
Meritage Homes
1250 CORONA POINTE COURT, SUITE 210
CORONA, CA 92679
PHONE: (951) 547-8339
FAX: (951) 547-8301
ATTN: KENNETH KIM

PROJECT TITLE
25152 COMMERCENTRE DRIVE
LAKE FOREST, CALIFORNIA 92610

TRACT NO. 17810
DRAWING FILE NO.
SCALE: 1" = 30'
SHEET 3 OF 11