September 14, 2017

Jemstreet Properties
1435 Reynolds Court
Thousand Oaks, California 91362

Attn: Mr. Jon Friedman

Subj: **Paleontological Resources Assessment of the Canyon View Estates Residential Development Project, Santa Clarita, California (*Envicom Project #17-796-101)***

Dear Mr. Friedman:

On September 14, 2017, Envicom Corporation (Envicom) completed a Phase I paleontological resource assessment of the Canyon View Estates project, Santa Clarita, California. The Project is fully contained on the Newhall and Oat Mountain USGS quads (**Figure 1**). The general location is as follows:

Section - 5
Township - 3N
Range - 16W
USGS Quads - Newhall and Oat Mountain, CA
Lat - 34°22'30.66"N
Long - 118°34'36.75"W

A paleontological resource assessment includes a paleontological resource record search conducted by the Natural History Museum of Los Angeles (NHM) and a review of Dibblee geological maps. The purpose of the record search is to identify any previous paleontological resources that have been recorded within the proposed project area, to provide paleontological resource context for the project, and to assess the overall paleontological resource sensitivity of the project region. Paleontological resources can be actual fossils, but can also include fossil imprints, micro-fossils, ancient botanical samples (such as pollen or seeds), or other geological information that is important to our understanding of the history of life on earth.

A paleontological resource assessment also often includes a physical inspection of the project area to determine if previously unrecorded paleontological resources or exposed potentially fossil-bearing rock units can be identified from surface observation of the project area landscape. For this project, the location is entirely within the Newhall and Oat Mountain area of Santa Clarita, which has a long history of containing important terrestrial and marine fossil resources.

Often, a pedestrian survey includes the entire project property. Since the proposed project involves only the development of the northern portion of the project property (roughly 20 acres, next to existing residential areas and paved roads), with the remainder being conserved as

undeveloped open space (roughly 75 acres), the field survey concentrated more intensively on the northern area that is planned to be developed **(Figure 2)**.

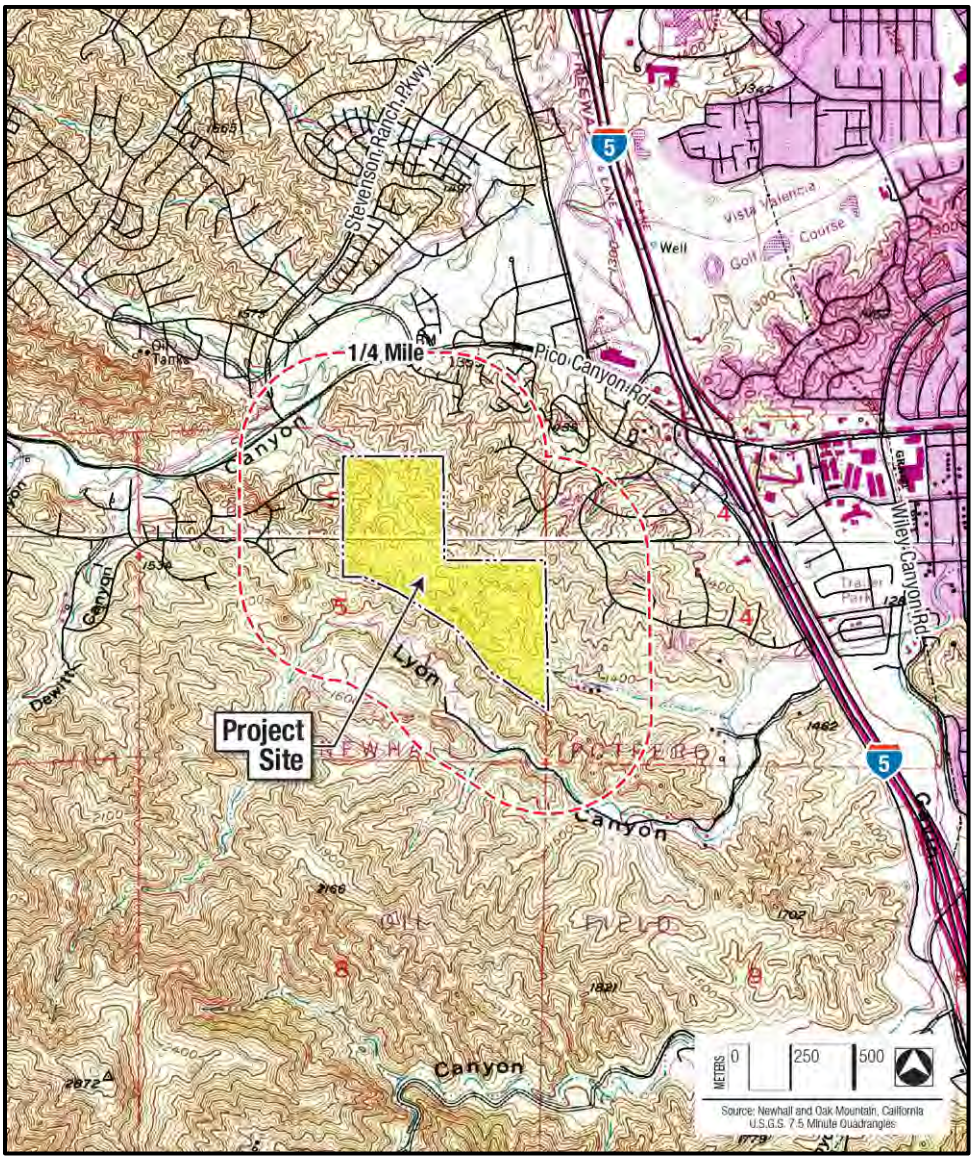


Figure 1: Project property south of Pico Canyon Road, Santa Clarita, California (USGS Map).

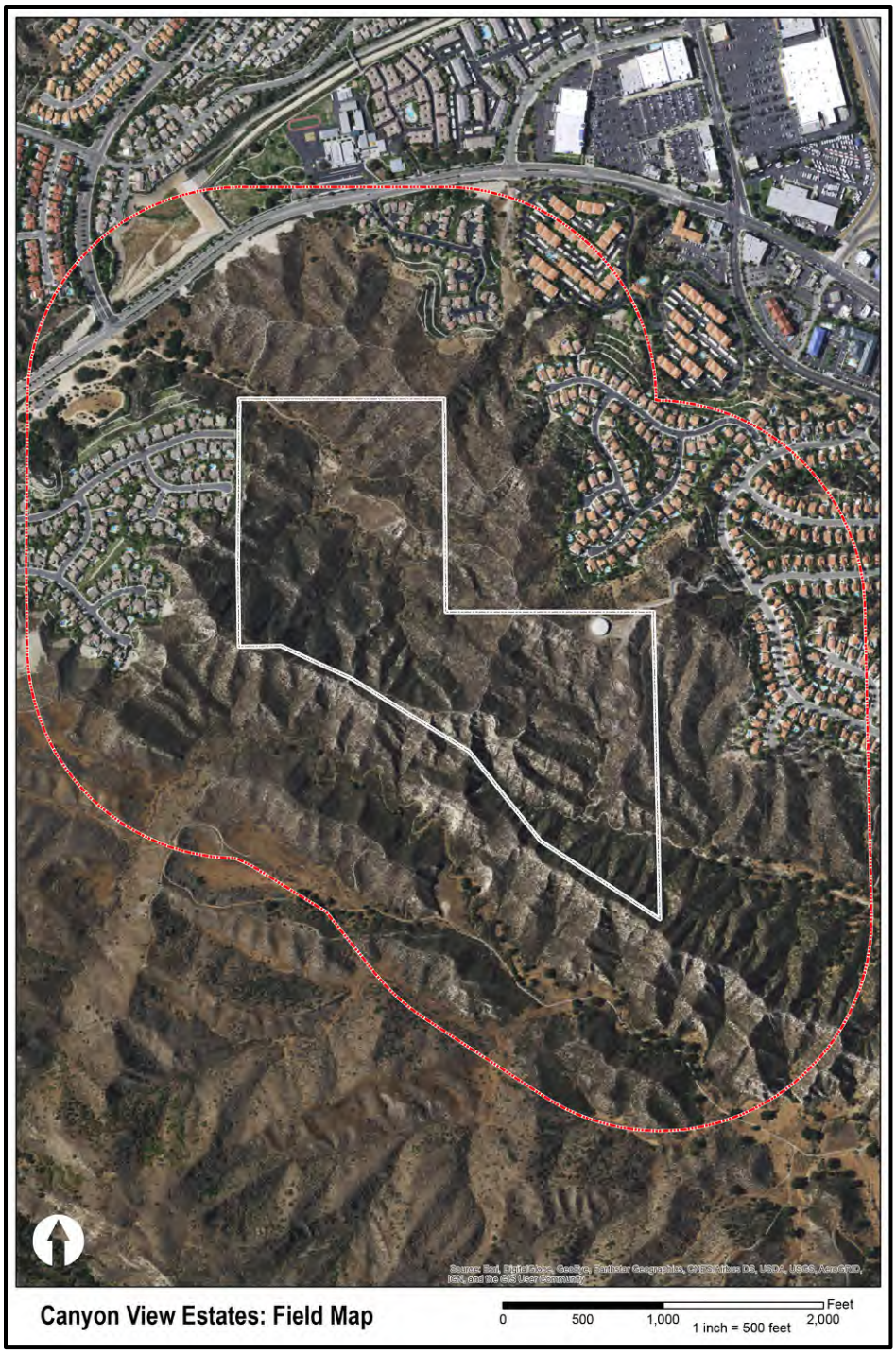


Figure 2: Project property south of Pico Canyon Road, Santa Clarita, California (2017 Google Earth Image).

RECORD SEARCH RESULTS

On August 30, 2017, Envicom contacted the NHM with a request to search their database for paleontological resources within the project property, plus a 0.25-mile study area for regional context (see Figure 1). The record search included a request for all known localities of paleontological resources within the project property, as well as an assessment of the sensitivity of the project area for paleontological resources. The request also included a request for known fossil localities within the 0.25-mile study area to develop paleontological context for the project.

Envicom received a response from the NHM on September 14, 2017, which is provided in **Appendix A** of this report. The response letter indicated that the findings were negative for paleontological resources within the project property, however localities of previously discovered significant fossils were located nearby within the same sedimentary deposits that occur within the project area. The NHM indicated that both the terrestrial-originating Saugus Formation and the marine-originating Pico Formation have yielded significant fossils, and should, therefore, be considered sensitive for paleontological resources.

The NHM identified that fossils previously discovered in the Saugus Formation included species of Pliocene/Pleistocene camel and horse, as well as smaller animal fossils, such as alligator lizard, rabbit, pocket gopher, and pocket mouse. Fossils recovered nearby from the Pico Formation included sea lion, bat ray, guitarfish, requiem shark, basking shark, and sheephead fish.

The NHM recommended monitoring of excavation within either the Saugus or Pico Formations, as well as sediment samples being taken to determine the small fossil potential in the project area (this task normally occurs during monitoring). Finally, they recommended that any recovered fossils be curated in an accredited scientific institution.

Dibblee geological maps were examined for the project area, concentrating on the northern residential development portion of the property. The primary rock units for the project area are the Saugus Formation and the Pico Formation, with possibly the Towsley Formation extending into the southern open space portion of the project property. Both the Pico and Towsley Formations are marine-originating sandstone, siltstones, and claystones, while the Saugus Formation is terrestrial-originating compacted conglomerate stone formation.

The Towsley Formation dates to the Miocene Epoch (23 to 5.3 million years ago), and the Pico Formation dates to the later Pliocene Epoch (5.3 to 2.6 million years ago). The Saugus Formation is a newer, non-marine late Pliocene and Pleistocene (2.6 million to 11,700 years ago) conglomerate sandstone formation, which is made up of weathered, conglomerate pebbles and cobbles in a sandy matrix. This formation is very unstable, due to the poor compactness of the rock, and is subject to rock slides and earth movement. Also in the region are Late Pleistocene older alluvial materials, and Holocene recent alluvial materials, both of which are found on the slope areas of nearby Pico Creek and its tributaries. This material dates from 11,700 years in age to present.

The Pico Formation is the most prominent visible local rock formation that will be encountered in the residential development portion of the project property, and is clearly visible on the north side of Pico Road (**Figure 3**). Since this formation has been moved from the horizontal to vertical and near-vertical positions through fault pressure, many of the visible hills and mountains of the area are actually land forms that have been upended through earth movement, then subject to later weathering. The Pico Formation consists of a harder, light colored variant, a less intact conglomerate variant, and a siltstone variant that is between the two in hardness (see Figure 3).

North of the Pico Formation and located within the northern part of the project property is the Saugus Formation, which will also be encountered by the proposed residential development. The later non-marine Saugus Formation material has been mostly weathered from earlier formations, then compacted into a conglomerate stone. South of the Pico Formation is the Towsley Formation, which is an earlier marine-origin sandstone, and which probably extends into the southern open space part of the project. This formation is very similar in appearance to the Pico Formation, with lighter colored hard sandstone, siltstones, and claystones, but is from an earlier geologic age. The Towsley Formation is also subject to rock falls, landslides, and slope failures due to less compacted rock variants of the formation.

Figure 3: The prominent rock formation visible north of Pico Road is from the Pico Formation (light colored stone is the harder variant; darker colored stone is the less organized variant).

At the base of these primary rock formations are Pleistocene and newer alluvial material, which is the product of more recent water and wind weathering processes (**Figure 4**). This alluvial material consists of volcanic cobbles and pebbles, such as quartz, quartzite, granite, and other volcanic and meta-volcanic (re-fused) material, and sand. All of this material was once embedded in the earlier, older sandstone and conglomerate rock formations of the area, which natural processes have broken down into matrix (usually sand) and aggregate components.

Figure 4: Recent Holocene alluvial material at the base of the Pico Creek tributary in the center of the property.

Since the Pico and Towsley Formations are of marine origin, the representative fossils expected to be encountered are related to a coastal salt-water environment, including crustaceans, marine shells, and other invertebrates. Fish and sharks could also be present, including the prehistoric Megalodon shark that weighed upwards of 50-tons. Since mammals were a dominant animal class during the Miocene and Pliocene Epochs, possible fossil finds include Pinnipeds (early seals and walruses), prehistoric whales, and Eurhinodelphis, which was an early dolphin species, as well as other marine mammals.

The Saugus Formation, which dates to the Pliocene, and the older Pliocene and Pleistocene alluvial deposits, are terrestrial in origin and dominated by land species. Possible fossil species encountered in these rock formations include mastodon, Mammoths, saber-toothed cats, short-faced bears, ground sloths, giant beaver, three-toed horses, and extinct camels. Also present would have been numerous rodents, lizards, snakes, and birds. Modern species would be found within the recent alluvial areas, and would not be considered paleontological resources.

PEDESTRIAN SURVEY RESULTS

Dr. Wayne Bischoff surveyed the property area on September 7, 2017. Large portions of the property has had minor modern impacts from vehicular earth moving, trail construction, and trash fires. Some raised berming, grubbing, and clearing has also taken place along the ravine bottoms, and numerous shallow foot holds have been excavated into trail paths.

Ground visibility was quite good, with large portions of the bedrock soil being exposed due to water erosion, wind deflation, and modern trail building activity. The terrain was moderately sloped, with higher sloping to the west and south. The landscape consisted of numerous uplift hills, surrounded by narrow valleys that concentrated seasonal rain flow into an unnamed southwest-to-northwest tributary of Pico Creek. This tributary valley dominated the center of the northern project area and contained the most alluvial material (see Figure 2). Proposed project access to the property is from Magnolia Lane in the residential subdivision to the west, which was where the survey began.

Modern trail construction provided good visibility of the underlying bedrock from the tributary channel up the surrounding hill sides to the north and south (**Figure 5**). Several of these cut trails existed throughout the property, but none revealed actual fossil-bearing rock units; most exposing less intact small aggregate conglomerate sandstone of either the Saugus or Pico Formations.

North of the tributary valley, the rocks appear to be poorly compacted representatives of the Saugus Formation. Weathering has converted the entire hill area into soil for vegetation, and no outcrops of harder rock could be seen. South of the tributary is the Pico Formation, which is higher in elevation, and has larger sections of exposed rock on steeper slopes due to the harder compactness of the rock unit material. Again, no fossil-bearing rock units were identified.

Bedrock is quite near the surface throughout the area. Modern cuts related to the existing residential subdivision west of the project property show the shallowness of the covering loam and later alluvial material (**Figure 6**). Visible is the vertical uplift of the Pico Formation, as well as the variations in the Formation between harder and less intact materials.

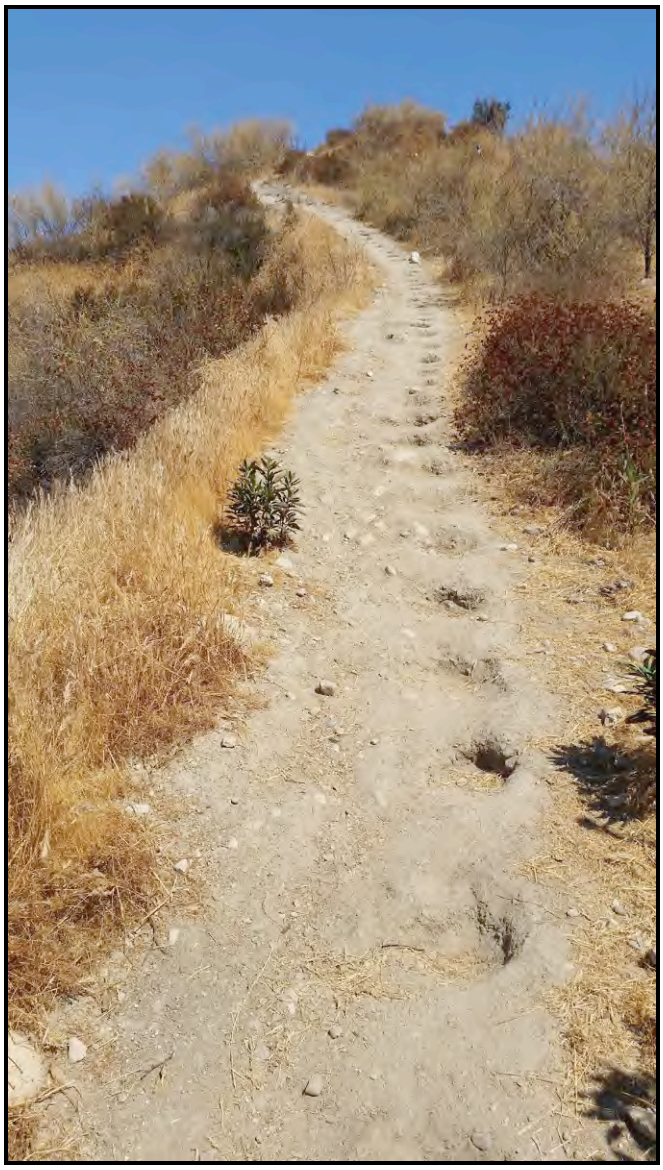


Figure 5: Modern trail construction provided an observable cross section of the underlying bedrock material up the slope sides to the north and south of the main tributary channel.

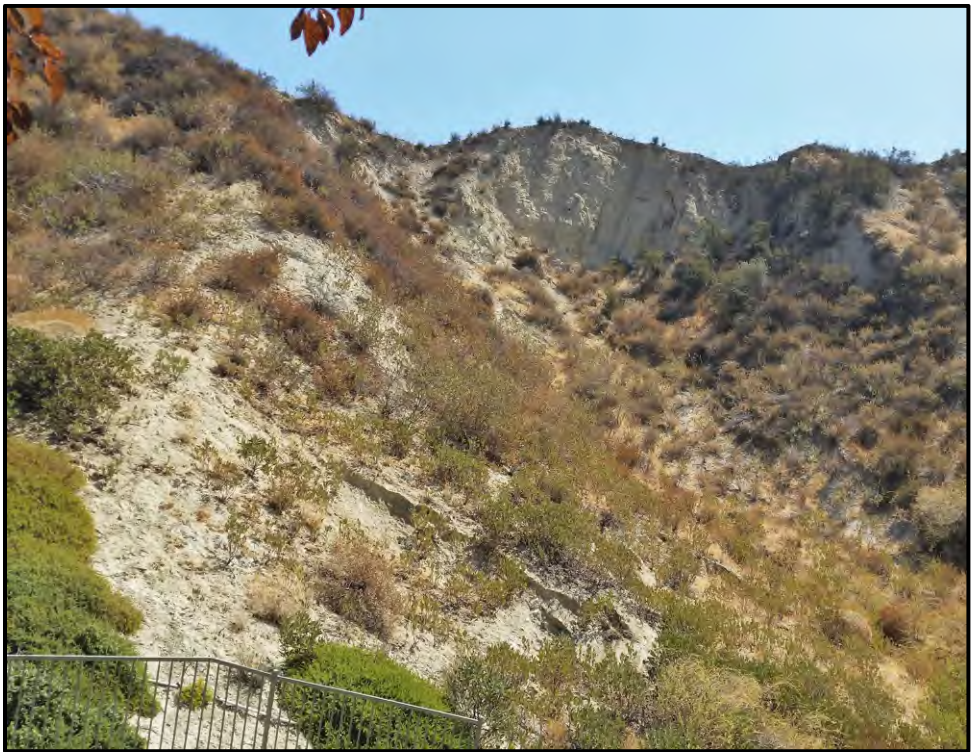


Figure 6: Pico Formation samples revealed by excavations for the residential subdivisions to the west (the near-surface vertical sandstone bedrock is seen near the slope top).

In conclusion, the northern half of the project property was examined in detail, with good coverage of the landscape and examination of exposed areas in trail cuts and erosional locations. No fossil-bearing outcrops were encountered during surface observation of the proposed development portion of the property, though bedrock was confirmed to be near the surface. This determination was based on exposed sections of conglomerate stone within trail cuts and from earth removal immediately outside the project area.

South of the proposed residential development portion of the project property is the project open space area. Here, the Pico Formation gives way to ridges of older harder stone, which also has large amounts of alluvial material that have eroded downward from the area ridges and peaks. This material is visibly quite similar to the Pico Formation, with no true differentiation between the Pico and the Towsley Formations on the landscape, making the transition between the two Formations difficult to identify on the landscape.

The southern open space portion of the project property was examined from available vantage points around the property. The southern landscape was determined to be similar in landscape organization to the northern half (**Figure 7**). No exposed outcrops could be seen on the surface in this area either. Dr. Bischoff concluded that the probability is also low of being able to see exposed fossil resources and sensitive rock units within the open space portion of the property.

Figure 7: Southern open space area, showing similarity of landscape to the northern portion of the project property (Towsley Formation is in the far ground).

RECOMMENDATIONS

The results of the NHM record searches was negative for paleontological resources within the project property, but was positive for paleontological resources within the surrounding region. The NHM identified the region as being "sensitive for paleontological resources." Examination of the Dibblee maps supported the conclusion that the project area was sensitive for paleontological resources, as numerous fossil-bearing sandstone formations of terrestrial and marine origin exist within the project property.

No fossils or fossil-bearing rock units were identified during the pedestrian paleontological survey of the proposed development project area. Surface observation did, however, indicate that local representative segments of the fossil-bearing Saugus and Pico Formations, and possibly the Towsley Formation, are in the project area, and at depths near surface. This field observation supports the conclusion that the proposed residential project is located within an area that is "sensitive for paleontological resources."

Due to the sensitivity for paleontological resources of the project area, based on the record search and the field survey, the chance of encountering significant fossil resources during project grading is moderate to high. Envicom, therefore, recommend the following project compliance measures:

Paleontological Monitoring:

Prior to issuance of grading permits, a qualified Paleontologist shall be retained to develop and implement a paleontological monitoring program (PRMP) approved by the County for project construction excavations that would encounter older Quaternary alluvium or deposits associated with the Saugus Formation, Pico Formation, or Towsley Formation. The Paleontologist shall attend a pre-grading/excavation meeting to discuss a paleontological monitoring program. A qualified paleontologist is defined as a paleontologist meeting the criteria established by the Society for Vertebrate Paleontology. The qualified Paleontologist shall supervise a paleontological monitor who shall be present at such times as required by the Paleontologist during construction excavations into older Quaternary alluvium, or deposits associated with the Saugus Formation, the Pico Formation, or the Towsley Formation.

Initially, due to the shallowness of the rock units in the project area, a paleontological monitor will need to be present for all initial earth moving activity of native soils. After initial grading of the surface, it is the Paleontologist's responsibility to determine monitoring needs, based on the encountered rock units. Monitoring shall consist of visually inspecting fresh exposures of rock for larger fossil remains and, where appropriate, collecting wet or dry screened sediment samples of promising horizons for smaller fossil remains. The frequency of monitoring inspections shall be determined by the Paleontologist and shall be based on the rate of excavation and grading activities, the materials being excavated, and the depth of excavation, and if found, the abundance and type of fossils encountered. It is the Applicant's responsibility to provide the Paleontologist with a daily and/or weekly grading schedule.

Paleontological Discovery Compliance Measure:

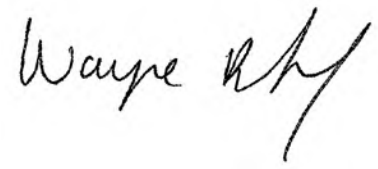
If a potentially-significant fossil is found, the paleontological monitor shall be allowed to temporarily divert or redirect grading and excavation activities in the area of the exposed fossil to facilitate evaluation and, if necessary, salvage. A buffer area of at least 30 feet shall be established around the find where construction activities shall not be allowed to continue. Work shall be allowed to continue outside of the buffer area as long as such work can be appropriately monitored. A communication plan (part of the project PRMP) will then be followed to inform the County, the Lead Agency, and any additional individuals outlined in the PRMP.

After consultation with the County and the Applicant, and if the find is determined to be significant, then the fossil discovery will be recovered following developed scientific excavation practices. All excavation and data recovery efforts will be agreed upon in writing prior to commencement of the activity between all primary parties outlined in the PRMP. At the Paleontologist's discretion, and to reduce any construction delay, the grading and excavation contractor may assist in removing rock samples for initial processing. Any fossils encountered and recovered shall be prepared to the point of identification and catalogued before they are donated to their final repository. Any fossils collected shall be donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository. All costs related to the salvage of significant fossil finds shall be assumed by the Applicant.

Paleontological Compliance Report:

The Paleontologist shall prepare a report summarizing the results of the paleontological monitoring and any salvage efforts that take place in response to discovery. This report will include all daily monitoring logs, the methodology used in any salvage efforts, as well as a description of the fossils collected from the wet and dry screen sampling and their significance. The report shall be submitted by the Paleontologist to the County to signify the satisfactory completion of the Project and required mitigation measures. Any cost associated with processing, analyzing, and describing recovered fossils during monitoring, as well as the cost of the compliance report, will also be assumed by the Applicant.

Sincerely,



Dr. Wayne Bischoff
Director of Cultural and Paleontological Resources

ATTACHMENT:
Appendix A: Letter to NHM and NHM Response Letters

August 30, 2017

Dr. Samuel A. McLeod
Natural History Museum of Los Angeles
900 Exposition Blvd,
Los Angeles, CA 90007

Attn: Dr. McLeod

Subj: **Phase I Paleontological Resources Assessment of the Canyon View Estates Development Project, Santa Clarita, California (*Envicom Project #17-796-101*)**

Dear Dr. McLeod:

Envicom is requesting a record search of the Natural History Museum database for paleontological sensitivity for the project area, and a map/listing of all paleontological resources previously identified within the attached project area, plus a 0.25-mile study area to further assess local sensitivity.

The project is located at:

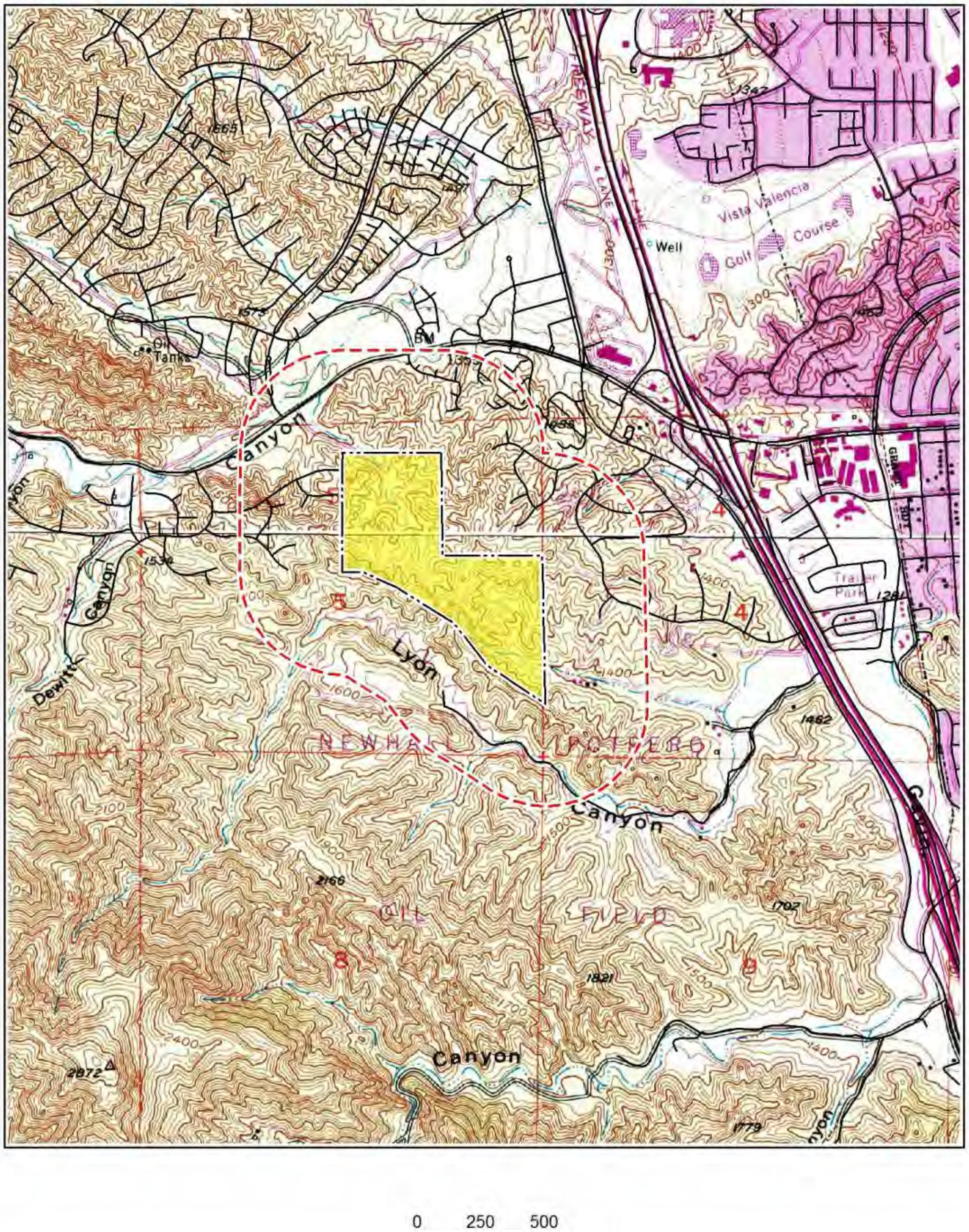
Section - 5
Township - 3N
Range - 16W
USGS Quads - Newhall and Oat Mountain, CA
Lat - 34°22'30.66"N
Long - 118°34'36.75"W

Envicom appreciates the Natural History Museum's help with this request. For correspondence or questions regarding this Project, please contact Wayne Bischoff at 818-879-4700 (wbischoff@envicomcorporation.com).

Sincerely,

Dr. Wayne Bischoff
Director of Cultural Resources

Attachment:
Project vicinity map on 1:24,000 topographic map


Canyon
Lyon
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NEWHALL
POTRERO
OIL
FIELD
Canyon
Dewitt
Canyon
Vista Valencia
Golf
Course
Well
Oil
Tanks
Trailer
Park
2166
1821
1702
1482
2872
1779
1665
0
250
500
Meters

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

tel 213.763.DINO
www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

14 September 2017

Envicom Corporation
4165 East Thousand Oaks Boulevard, Suite 290
Westlake Village, CA 91362

Attn: Wayne Bischoff, Ph.D., Director of Cultural Resources

re: Paleontological resources for the proposed Canyon View Estates Development Project, Envicom Project #17-796-101, near Santa Clarita, Los Angeles County, project area

Dear Wayne:

I have conducted a thorough check of our paleontology collection records for the locality and specimen data for the proposed Canyon View Estates Development Project, Envicom Project #17-796-101, near Santa Clarita, Los Angeles County, project area as outlined on the portions of the Newhall and Oat Mountain USGS topographic quadrangle maps that you sent to me via e-mail on 30 August 2017. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area.

In almost all of the proposed project area there are exposures of the Plio-Pleistocene Saugus Formation, with the slightly older marine Plio-Pleistocene Pico Formation having interfingering exposures in the southwestern portion of the proposed project area.

Our closest vertebrate fossil locality from the Saugus Formation is LACM 1293, northwest of the proposed project area on the north side of Potrero Canyon, that produced a fossil specimen of camel, Camelidae. Northeast of the proposed project area, in Saugus just southeast of the junction of Bouquet Canyon Road and Soledad Canyon Road, our Saugus Formation localities LACM 6803-6804, produced fossil specimens of camel, Camelidae, and horse, *Equus*.

Slightly further northwest of the proposed project area, up the small canyon on the west side of Castaic Creek between Hasley Canyon and the Saugus - Ventura Road (Highway 126), our Saugus Formation locality LACM 6063 produced a fossil specimen of horse, *Equus*. Slightly farther north in Hasley Canyon our Saugus Formation locality LACM 6062 produced fossil specimens of alligator lizard, *Gerrhonotus*, rabbit, Leporidae, pocket mouse, *Perognathus*, and pocket gopher, *Thomomys*.

Our closest vertebrate fossil locality from the Pico Formation is LACM 6365, just west of the northern-most portion of the proposed project area on the north side of Pico Canyon, that produced a skull of an undetermined sea lion, Otariidae. Southeast of the proposed project area, west of The Old Road west of the Golden State Freeway (I-5) and north of Calgrove Boulevard, our localities LACM 6145-6146 occur in an area geologically mapped as having exposures of the Saugus Formation, but they are probably from the underlying Pico Formation. Localities LACM 6145-6146 produced fossil specimens of bat ray, *Myliobatis*, guitarfish, *Rhinobatos*, requiem shark, *Carcharhinus*, basking shark, *Cetorhinus*, and sheephead, *Semicossyphus*.

Any excavations in the Saugus Formation or the Pico Formation exposed throughout the proposed project area may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be closely monitored to quickly and professionally recover any potential vertebrate fossils without impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

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

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice