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March 24, 2017

Rincon Project No. 16-03461

Todd A. Deutscher  
Catalyst Development Partners  
18 Crow Canyon Court  
Suite 190  
San Ramon, California 94593

**Subject: Paleontological Resources Assessment for the Castro Valley Baker Road Townhomes Project, Alameda County, California**

Dear Mr. Deutscher:

Rincon Consultants, Inc. (Rincon) conducted a paleontological resources assessment regarding the proposed Castro Valley Baker Road Townhomes Project (Project). The goal of the assessment is to identify the geologic units that may be impacted by project development, determine the paleontological sensitivity of geologic units within the proposed project area, assess potential for impacts to paleontological resources from project development, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources as necessary.

This paleontological resources assessment consisted of a fossil locality record search at the University of California Museum of Paleontology (UCMP), review of existing geologic maps, and a review of primary literature and online fossil collections databases (specifically the Neogene Mammal Mapping Portal [NEOMAP]) regarding fossiliferous geologic units within the proposed project vicinity. Figures are included in Attachment A and record search results from the UCMP are included in Attachment B.

### **Project Background**

The Project is in Castro Valley, Alameda County, and consists of the development of two adjacent parcels measuring approximately 1.09 acres. The Project involves the demolition of an existing single-family home and constructing a 20-unit townhome project comprising four buildings on one lot. The Project area is depicted on the United States Geological Survey (USGS) *Hayward*, 7.5-minute topographic quadrangle (Figure 1: Geologic Map). This paleontological assessment has been prepared to support environmental review under the California Environmental Quality Act (CEQA).

### **Regulatory Setting**

#### ***State Laws and Regulations***

##### **California Environmental Quality Act**

The California Environmental Quality Act (CEQA) (Chapter 1, §21002) states that:

*It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would*



*substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.*

The CEQA Guidelines (Article 1, §15002(a)(3)) state that CEQA is intended to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible. If paleontological resources are identified during the Preliminary Environmental Analysis Report, or other initial project scoping studies (e.g., Preliminary Environmental Study), as being within the proposed project area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

#### Public Resources Code Section 5097.5

Section 5097.5 of the California Public Resources Code (PRC) states:

*No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.*

As used in this PRC section, “public lands” means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

#### ***Local Regulations***

##### Alameda County General Plan (2012)

The county does not include goals or provisions with respect to paleontological resources in the General Plan.

#### **Paleontological Sensitivity**

Generally, only a paleontologist with specific expertise in a given type of fossil is qualified to determine the exact scientific significance of any given paleontological resources. However, a qualified paleontologist can evaluate the potential significance of fossil specimens and the paleontological sensitivity of given geologic units. The Society for Vertebrate Paleontology (SVP) broadly defines significant paleontological resources as follows (SVP 2010, page 11):

*“Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic<sup>1</sup>, taxonomic<sup>2</sup>, phylogenetic<sup>3</sup>, paleoecologic<sup>4</sup>, stratigraphic<sup>5</sup>, and/or biochronologic<sup>6</sup>*

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<sup>1</sup> Relating to the physical alteration of an organism after death and before burial.

<sup>2</sup> Relating to the classification of organisms.

<sup>3</sup> Relating to the evolution and diversification of organisms.



*information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."*

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important and therefore considered significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. Significant paleontological resources are fossils or assemblages of fossils, which are unique, unusual, rare, uncommon, diagnostically or stratigraphically important, and those which add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (Reynolds 1990). While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines. Rincon has evaluated the paleontological sensitivity of the proposed project site according to the following SVP (2010) categories:

- I. **High Potential (sensitivity)** – Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.*
- II. **Low Potential (sensitivity)** – Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be*

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<sup>4</sup> Relating to the original environment(s) within which fossil organisms lived and interacted.

<sup>5</sup> Relating to the geologic units from which fossils derive.

<sup>6</sup> Relating to the dating (relative) of geologic units based on the fossils they contain.



*poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.*

**III. Undetermined Potential (sensitivity)** – *Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.*

**IV. No Potential** – *Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.*

### **Geologic Setting**

*Regional Setting:* The Project area is located in the Coast Ranges Geomorphic Province, one of 11 major provinces in the state (California Geological Survey [CGS] 2002). The Coast Ranges province is characterized by its northwest trending mountain ranges that are structurally controlled by the San Andreas Fault (CGS 2002). In the Bay Area the Coast Ranges contain Cretaceous to Recent sediments overlying late Cretaceous basement rocks (Graymer et al. 1998, 2005, 2006). During the late Cenozoic (Neogene and Quaternary Periods), numerous areas of the Coast Ranges were variably uplifted and downwarped thousands of feet and transposed along lateral faults (Galehouse 1967). All of this relatively late geotectonic dynamism has created a complex series of fault-bounded blocks and depositional basins that have undergone a series of sedimentation and erosion events since the Miocene, including within the Castro Valley area (Dibblee 1980; Dibblee and Minch 2005; Ponce et al. 2003; Robinson 1956).

*Geology of the Project Site:* The Project area includes one (1) mapped geologic unit at the surface (Figures 1 and 2: Appendix A); Quaternary alluvial deposits (Qa: late Holocene) (Dibblee and Minch 2005). These deposits of gravel, sand, and clay fill valley areas in the region, and incorporate gravel and sand of major stream channels. The Project site lies within a broad alluvial valley (Castro Valley) that acts as a sediment catchment basin of streams to the north and east (Dibblee and Minch 2005).

### **Records Search Results**

The UCMP paleontological collections have no records of previously documented fossil localities within the project boundaries (Attachment B).

The NEOMAP online database records six fossil localities in Alameda County. Of these, three were identified within Pleistocene sediments and three were identified within Miocene sediments. All six localities contain vertebrates including rodents and horses. However, these units are not mapped within the Project area and the maximum depth of Project construction activities are expected to be too shallow (less than 6 feet), and in sediments that have likely been re-worked for agricultural purposes (ENGEO 2017:3), to impact these or similar fossil-bearing units, should they occur in the subsurface.

### **Paleontological Sensitivities of Project Site Geology**

The paleontological sensitivity of all deposits within the proposed Project and vicinity consist of Late Holocene alluvium with low to no paleontological sensitivity. No areas within or adjacent to the project site contain units of high paleontological sensitivity (Figure 2: Paleontological Sensitivity Map) and no



such units are anticipated at the relatively shallow (up to 6 feet) ground disturbances for the Project. In addition, subsurface deposits at those shallow depths have likely been re-worked for agricultural purposes (ENGEO 2017:3).

#### *Quaternary alluvial deposits (Qa)*

Quaternary (late Holocene) alluvial deposits (Qa) underlie the entire project site and vicinity (Figure 1: Geologic Map). These sediments are generally too young (<5,000 years old) to contain significant paleontological resources (Dibblee and Minch 2005). Quaternary alluvial deposits have low to no potential to yield significant fossil resources.

#### **Impacts Analysis and Recommended Mitigation**

Ground disturbance associated with the construction of the Project will not exceed 6 feet in depth. The Panoche Formation (Kpc in Figure 1), which lies near the project, and at considerable depth under it, is a late Cretaceous marine clay shale, sandstone, and conglomerate package that has yielded invertebrates, plants, and a mosasaur (large marine reptile; *Plotosaurus tuckeri*) (Ford 2006; Hilton 2003). However, in this area the Panoche dips steeply, in excess of 70 degrees to the east (Dibblee and Minch 2005), and so will not be impacted by Project construction. As such, all impacted sediments in the project area consist of Quaternary alluvial deposits (Qa; late Holocene), which are not sensitive for paleontological resources. Thus the Project has a low potential to impact significant paleontological resources.

Because construction-related impacts to Project site sediments are anticipated to be shallow (i.e., less than 6 feet in depth) and in sediments that have likely been re-worked for agricultural purposes, late Pleistocene to early Holocene sediments with high paleontological sensitivity have a low potential of occurring on the Project site. As such, unanticipated impacts to paleontological resources are not likely to occur. Thus, no mitigation measures for paleontological resources are recommended for the Project.

If you have any questions regarding this Paleontological Resources Assessment, please contact us. If unanticipated paleontological resources are identified during project implementation, we can provide additional services at your request.

Sincerely,  
**RINCON CONSULTANTS, INC.**

Kyle Brudvik, M.A., RPA  
Associate Paleontologist

David Daitch, Ph.D.  
Senior Paleontologist/Program Manager

Duane Vander Pluym, D.Env.  
Sr. Principal

#### **Attachments**

Attachment A: Geologic and Paleontological Sensitivity Maps  
Attachment B: UCMP Fossil Locality Records Search Results



## References

- California Geological Survey (CGS). 2002. California Geomorphic Provinces, Note 36.
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- Society of Vertebrate Paleontology (SVP). 2010. *Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources*. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee.



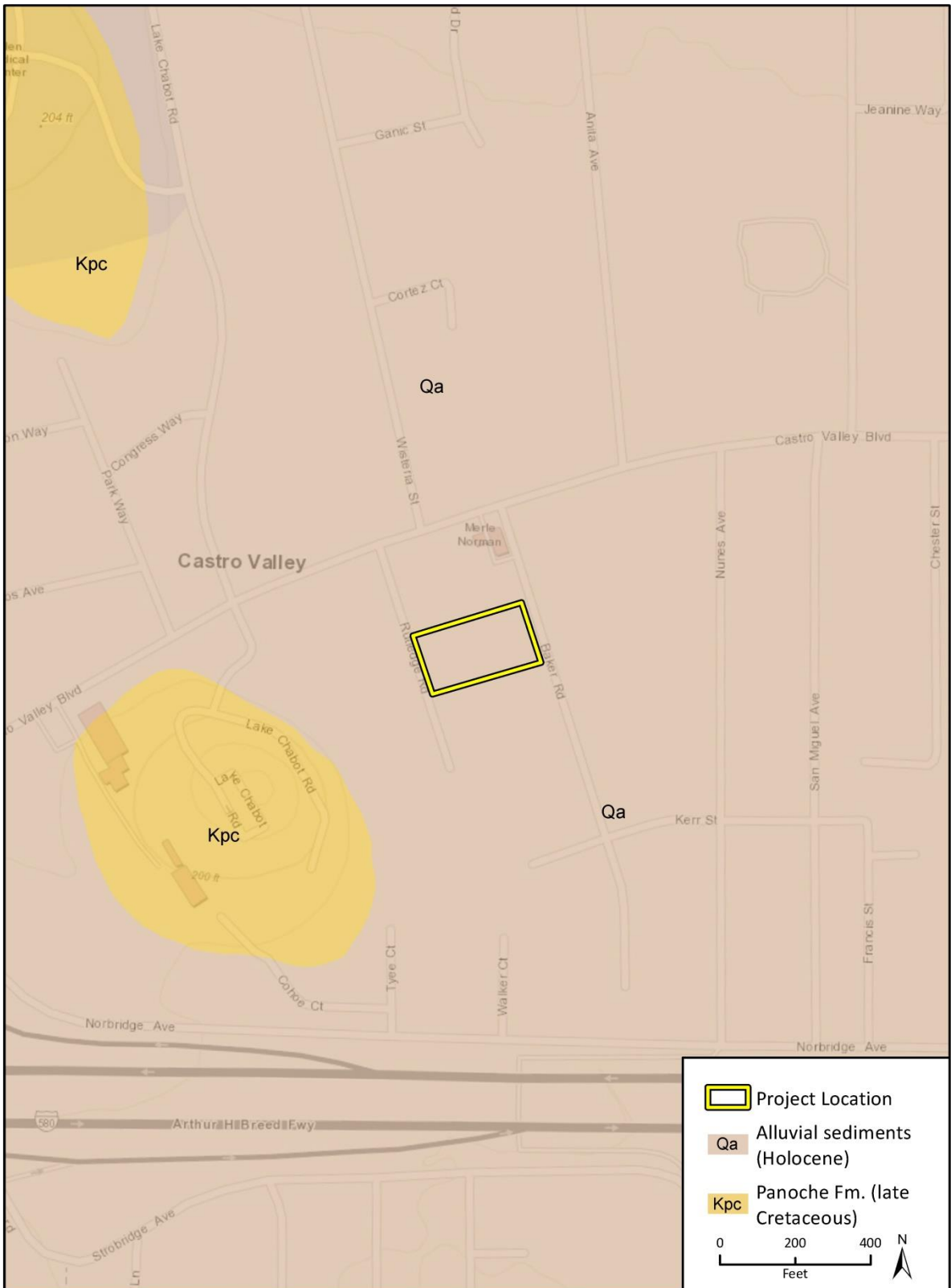
# Attachment A

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*Geologic and Paleontological Sensitivity Maps*



Figure 1 Geologic Map

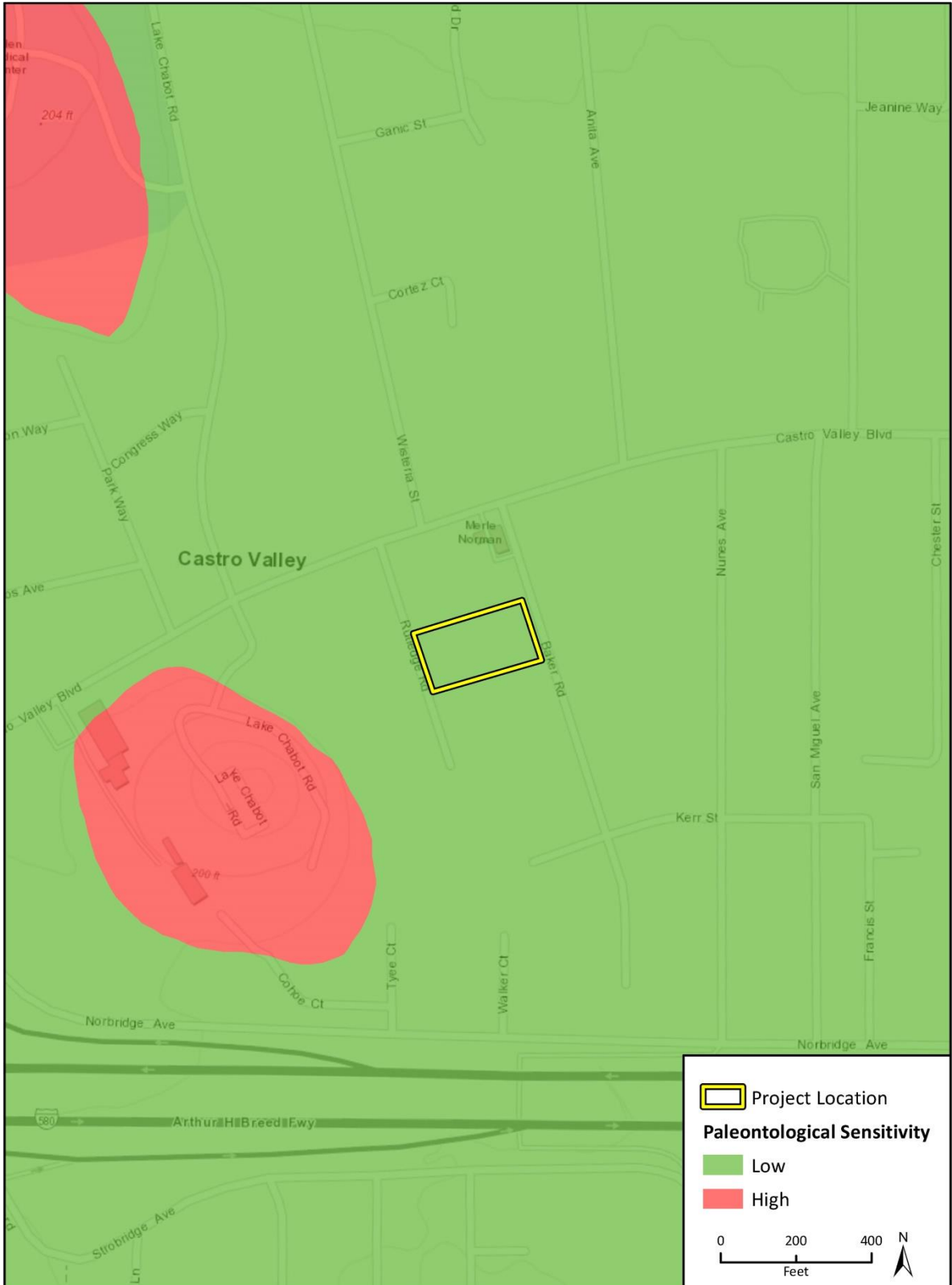


Imagery provided by ESRI and its licensors © 2016.  
Additional data provided by Dibblee and Minch, 2005, Hayward 7.5' quadrangle





Figure 2 Paleontological Sensitivity Map



Imagery provided by ESRI and its licensors © 2016.  
Additional data provided by Dibblee and Minch, 2005, Hayward 7.5' quadrangle

Fig X Paleo Sensitivity Map



## Attachment B

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*UCMP Fossil Locality Records Search Results*



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**To:** Dr. Ken Finger, Museum Scientist  
Museum of Paleontology  
University of California  
1101 Valley Life Sciences Building  
Berkeley, CA 94720-4780  
Phone: (510) 643-2559  
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**From:** Kyle Brudvik, Paleontologist/Geoarchaeologist/ Archaeologist  
Rincon Consultants, Inc.  
449 15th Street, Suite 303  
Oakland, CA 94612  
(510) 671-0176  
kbrudvik@rinconconsultants.com

**Date:** February 16, 2017

**Re:** Paleontology records search request  
Rincon Project #16-03641, Baker Road Residential Project

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I would like to request a paleontological records search of the *Hayward* USGS 7.5-minute topographic map quadrangle within Alameda County.

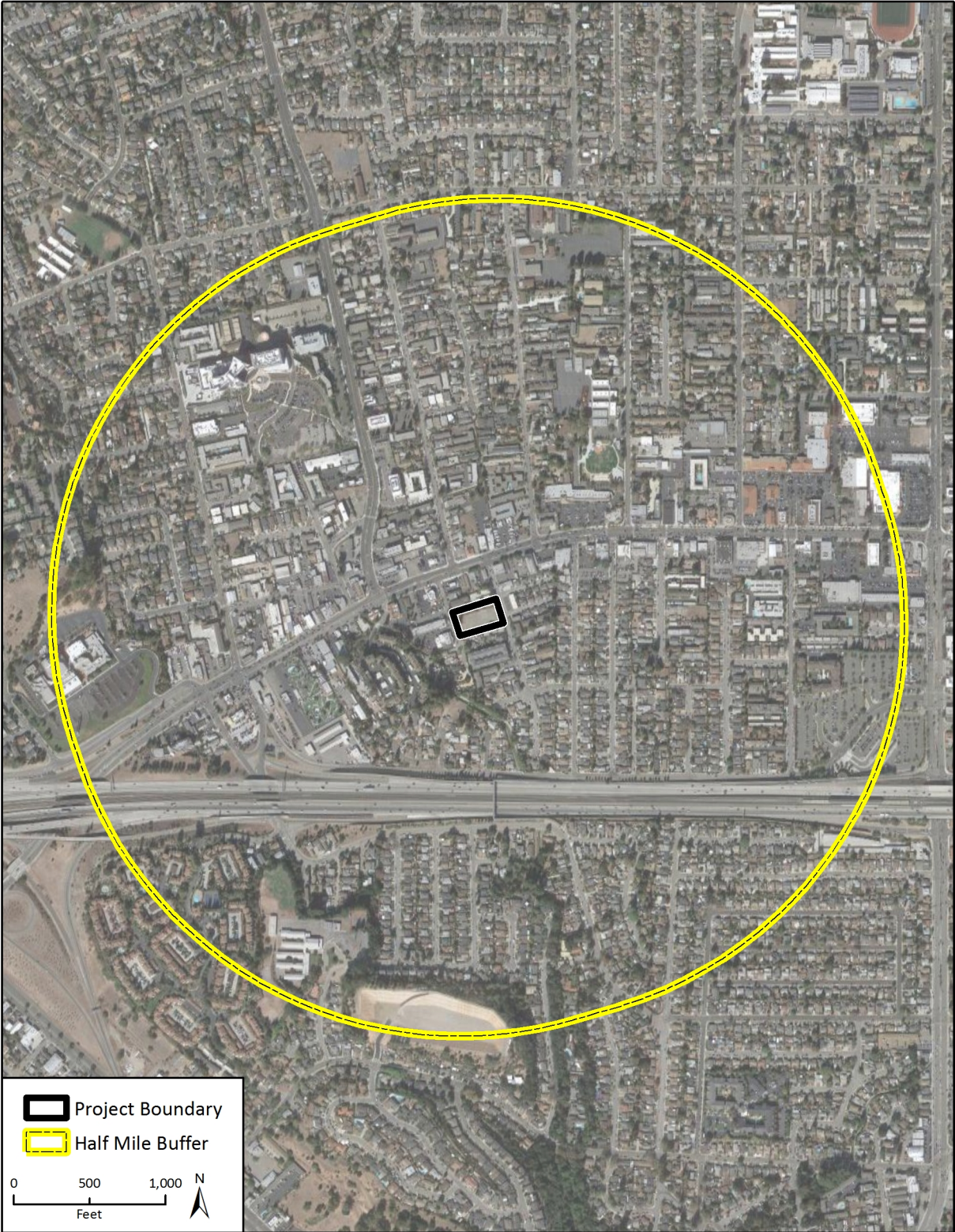
I have enclosed a map showing the project site (in black) and a 0.5-mile buffer (in yellow) where potential disturbance could occur. This map also shows the quadrangle, township, range, and section relative to the project site.



To facilitate our evaluation and analysis of paleontological sensitivity and potential impacts to paleontological resources, please identify all fossil localities that occur within: 1) the quadrangle, and 2) the 0.5-mile buffer. Also, please include as much location detail as you are able in your write up, such as distance from the project site or buffer, or township, range, and section.

Sincerely,

A handwritten signature in blue ink, appearing to read "K. Brudvik", is written over a light blue horizontal line.

Kyle Brudvik  
Rincon Consultants, Inc.



 Project Boundary  
 Half Mile Buffer

0 500 1,000 N  
Feet

Imagery provided by National Geographic Society, Google and its licensors © 2016. Hayward Quadrangle. T03S R02W S03,04,09,10. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.



**From:** [Kenneth Finger](#)  
**To:** [Kyle Brudvik](#)  
**Subject:** Re: UCMP Records Search Request  
**Date:** Thursday, February 16, 2017 4:43:20 PM  
**Attachments:** [image.tiff](#)

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Hi Kyle,

There are no vertebrate paleontological localities listed on the UCMP database within you designated search are for Rincon Project #16-03641 (Baker Road Residential Project).

As usual, you will be invoiced \$250 for this service.

Ken

*Kenneth L. Finger, PhD  
Senior Museum Scientist  
Museum of Paleontology  
University of California, Berkeley*



On Feb 16, 2017, at 2:45 PM, Kyle Brudvik <[kbrudvik@rinconconsultants.com](mailto:kbrudvik@rinconconsultants.com)> wrote:

Hi Ken,

I'd like to request a formal records search of the UCMP collections for the attached project site. Do you know what the turn around time for this search might be? It's a single quad.

Best,

Kyle

**Kyle Brudvik**  
Paleontologist/Geoarchaeologist/Archaeologist  
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