

## Memorandum

**Date:** May 15, 2025

**To:** Parker Chorich, Project Manager  
D.R. Horton, Inc.

**From:** Dr. Joe Stewart, Principal Paleontologist

**Subject:** Paleontological Resources Due Diligence Memorandum for the Tres Cerritos Development Project, City of Hemet, Riverside County, California

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FirstCarbon Solutions (FCS) conducted a Paleontological Resources Due Diligence Study for the Tres Cerritos Development Project (proposed project) in the City of Hemet, in Riverside County, California. This memorandum summarizes the findings of the Paleontological Resources Due Diligence Study on the project site.

## PROJECT LOCATION

The project site is located in the City of Hemet, in Riverside County, California which encompasses nine Assessor's Parcel Numbers (APNs) 448-070-002, 448-070-005, 448-070-007, 448-070-009, 448-070-011, 448-080-001, 448-080-002, 448-080-004, and 448-080-006 on an approximately 121.2 acre project site within the *Lakeview, California* United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 5 South, in parts of the SW  $\frac{1}{4}$  of Section 6 and the NW  $\frac{1}{4}$  of Section 7, Range 1 West, Sections 6 and 7 (Latitude 33.755514 Longitude -117.029271).

The project site is located within the Peninsular Ranges Geomorphic Province having a complex and diverse geomorphology with a series of mountain ranges composed of granitic rocks intruding older metamorphic rocks and northwest trending valleys subparallel to branching faults part of the larger San Andreas Fault zone. The project site was mass graded in 2006 and has remained undeveloped located within a small north trending canyon approximately 1,500 to 1,600 feet in elevation above mean sea level (AMSL) increasing approximately 100 feet in elevation from the canyon's entrance in the south to the north and is surrounded by the Tres Cerritos Hills to the north, east, and west ranging from approximately 1,600 to 2,000 feet in elevation AMSL. The Tres Cerritos Hills are a small, isolated range of rolling hills with low growing vegetation and several exposed rock outcroppings that are bounded by the lower lying areas of the northwest trending San Jacinto Valley to the north, east, and west approximately 1,500 feet in elevation AMSL. The Tres Cerritos Hills surrounding the project site to the north, east, and west are

undeveloped while Rose Road is located directly to the south and would provide access to the project site. A single-family residential subdivision is located to the southwest. The City of Hemet 2030 General Plan delineates the project site with a land use designation of Low Density Residential (LDR) which is defined as traditional, planned, and mobile home subdivisions and parks, as well as low-density senior housing with lot sizes varying between 6,000 square feet to 20,000 square feet.

## METHODOLOGY

This memorandum summarizes the results of the paleontological scientific literature review through geologic mapping, online records searches, an Updated Geotechnical Evaluation prepared by GeoTek, Inc., and the results from a records search conducted by the Western Science Center to determine whether ground-disturbing activities associated with the construction of the proposed project would have the potential to yield significant paleontological resources. Geologic mapping by Dibblee and Minch<sup>1</sup> and Morton and Matti<sup>2</sup> within the *Lakeview, California* 7.5-minute Topographic Quadrangle Map, Riverside County, California, along with the Preliminary Geologic Map of the *Hemet, California* 7.5-minute Topographic Quadrangle Map, Riverside County, California by Morton and Matti<sup>3</sup> and the Geologic Map of the San Jacinto Quadrangle by Dibblee and Minch<sup>4</sup> were utilized to analyze the rock units underlying beneath the project site, and in the surrounding region. An Updated Geotechnical Evaluation provided by GeoTek Inc. was evaluated to confirm the depths and extent of the rock units underlying the project site from those identified by geologic mapping. Rock units evaluated from geologic mapping and the Updated Geotechnical Evaluation were compared to the Society of Vertebrate Paleontology (SVP) Standard Procedures<sup>5</sup> Assessment of the Paleontological Potential of Rock Units to determine whether the rock units from geologic mapping are fossiliferous. The characteristics that define a significant paleontological resource were evaluated using CEQA and Fossil Preservation in California<sup>6</sup> and the SVP Standard Procedures<sup>7</sup> (2010) to indicate which types of paleontological resources are required protection under the California Environmental Quality Act (CEQA). Preliminary record searches were conducted on March 24, 2025, by accessing the University of California Museum of Paleontology (UCMP) Locality Search Online Database and fossil localities curated by the San Diego Natural History Museum (The Nat) and Natural History Museum of Los Angeles County (NHM) through the Digitized Biocollections (iDigBio) Database to analyze fossil localities uncovered in the project region and in rock units underlying or in direct proximity to the project site from geologic mapping and identified in the Updated Geotechnical Evaluation to provide a baseline of the potential extent of subsurface conditions on the project site to yield significant

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<sup>1</sup> Dibblee, T.W., and J.A. Minch. 2003. Geologic map of the Lakeview quadrangle, Riverside County, California. December.

<sup>2</sup> Morton, Douglas M., and Matti, Jonathan C. 2001. Geologic map of the Lakeview 7.5' quadrangle, Riverside County, California. July.

<sup>3</sup> Morton, Douglas M., and Matti, Jonathan C., 2001. Preliminary geologic map of the Hemet 7.5' quadrangle, Riverside County, California. <https://doi.org/10.3133/ofr20041455>.

<sup>4</sup> Dibblee, T.W., and J.A. Minch. 2003. The Geologic Map of the San Jacinto Quadrangle.

<sup>5</sup> Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

<sup>6</sup> Scott, E., and S. Springer. 2003. CEQA and Fossil Preservation in California. *The Environmental Monitor*, 4–10.

<sup>7</sup> Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

paleontological resources. A records search request was submitted to the Western Science Center on March 21, 2025 and received on May 1, 2025, to provide information on any surrounding fossil localities curated within its repository that were uncovered around the project area or in similar rock units that underlay the project site. The purpose of this due diligence-level assessment is to identify the potential for the presence or absence of any potentially significant paleontological resources within the project site, and, if such resources would be impacted during ground-disturbing activities by the proposed project, to provide recommendations for mitigation and/or further study or research.

## RESULTS

### Documentation, Literature, and Paleontological Records Search Review Results

#### Documentation

##### Geologic Mapping

Geologic mapping by Dibblee and Minch<sup>8</sup> indicates the surficial deposits on the project site are mapped as older surficial sediments (Qoa) and surficial sediments (Qa) which are surrounded by plutonic rocks Cretaceous in age part of the Peninsular Range batholith comprised of medium grained holocrystalline granitic rocks at higher elevations. The plutonic rocks are further classified as quartz monzonite (qm) on the eastern side of the canyon and quartz diorite (qdi) on the west side of the canyon. Furthermore, a narrow northeast trending outcrop of migmatite (mig) is located north of the project site. The surficial sediments (Qa) underlie the southern portion of the project site at the entrance of the canyon in proximity to Rose Road and are defined as alluvial sediments of late Holocene age with unconsolidated and undissected alluvial sand and clay covered by gray soils, while the older surficial sediments (Qoa) make up most of the surficial deposits on the project site and are classified as dissected and undeformed older alluvial fan gravel and sand deposits of late Pleistocene age derived from adjacent bedrock areas and grade into the surficial sediments (Qa) south of the project site. The quartz monzonite (qm) within the higher elevations on the east side of the canyon are massive to somewhat gneissic composed of quartz, potassic feldspar, and sodic plagioclase feldspar that are a leucocratic light gray, while the quartz diorite (qdi) exposed on the west side of the canyon are comprised of sodic plagioclase feldspar, quartz, potassic feldspar, biotite, and hornblende with some discoid inclusions and mixtures of migmatite. Furthermore, the migmatite (mig) to the northeast of the project site contains mixtures of metasedimentary rocks consisting of schist and gneiss.<sup>9</sup>

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<sup>8</sup> Dibblee, T.W., and J.A. Minch. 2003. Geologic map of the Lakeview quadrangle, Riverside County, California. December.

<sup>9</sup> Ibid.

Further geologic mapping by Morton and Matti<sup>10</sup> defines the surficial deposits underlying the project site and south of the canyon on Rose Road similar to those deposits defined by Dibblee and Minch above.<sup>11</sup> Morton and Matti classify the older surficial sediments (Qoa) as mapped by Dibblee and Minch (2003) as old alluvial fan deposits from the middle to late Pleistocene comprising reddish-brown sandy alluvial fan deposits slightly to moderately dissected with some deposits including a discontinuous thin surface layer of Holocene alluvial fan material, while the surficial sediments (Qa) south of the project site are characterized by Morton and Matti as gray and unconsolidated silty to sandy alluvium associated with the valley floors.

## **Updated Geotechnical Evaluation**

An Updated Geotechnical Evaluation was prepared by GeoTek Inc. on March 21, 2025, which reviewed geologic and geotechnical data, performed a field reconnaissance on March 13, 2025, and referred to the results from a previous field exploration conducted on January 12, 2021, which drilled five exploratory borings from nine to 51.5 feet in depth and excavated four test pits ranging from 7.5 to 20 feet in depth to analyze surface, subsurface, and overall geologic conditions on the project site. As previously mentioned, the project site was partially graded in 2006 and the majority of building pads have not been brought up to finished grade, planned roads have not been paved, and internal utilities have not been installed. An existing borrow site approximately 10 to 15 feet below the adjacent grades is present within the central portion of the project site that contains boulder-sized materials. The proposed project is anticipated to modify the existing building pads and street alignments, along with installing multiple stormwater detention basins with proposed cuts and fills approximately 20 feet in height excluding remedial grading.

The site reconnaissance encountered existing and undocumented fill across the project site. Existing fill consisted of dense to very dense silty sands ranging between 4.5 and 12 feet below existing grade, while undocumented fill was identified to be concentrated in the central and northern portions of the project site where grading was incomplete or not initiated. Older alluvium was encountered and extended to the maximum depth of 51.5 feet. However, several of the test borings were terminated at shallower depths due to the presence of granitic bedrock beneath the existing fill or ground surface toward the western and eastern edges of the project site.

## **Literature Review**

### **California Environmental Quality Act and Fossil Preservation**

Paleontological resources are the preserved remains of prehistoric organisms known as fossils which include vertebrates, invertebrates, plants, and microscopically small organisms that are dated to be middle Holocene or older in age. Geographic areas that typically contain a higher abundance and distribution of paleontological resources usually have undergone deposition—such as lower lying basins with shallow and immobile water bodies or marine environments along the coastline—and are geologically affiliated with sedimentary and low-grade metamorphic rocks. Paleontological resources are

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<sup>10</sup> Morton, Douglas M., and Matti, Jonathan C. 2001. Geologic map of the Lakeview 7.5' quadrangle, Riverside County, California. July.

<sup>11</sup> Dibblee, T.W., and J.A. Minch. 2003. Geologic map of the Lakeview quadrangle, Riverside County, California. December.

considered nonrenewable resources that present significant scientific and academic information providing the opportunity to reconstruct natural and geological processes to obtain a better understanding of paleoenvironments, paleoclimates, and ecosystems, and the processes that contributed to the evolution and extinction of previous life. As such, CEQA requires the consideration of a construction project to have a significant adverse impact on unique paleontological resources under Appendix G (Part V) of the CEQA Guidelines which states “A project will normally result in a significant impact on the environment if it will. . . disrupt or adversely affect a paleontological resource or unique geologic feature, except as part of a scientific study.” Although CEQA requires the protection of paleontological resources, it does not define what type of paleontological resources require protection. Some paleontological resources such as locally abundant, plentiful, and dense concentrations of invertebrates not at risk of depletion do not require protection. As such, resources that require protection according to many CEQA practitioners are classified as fossil or fossil assemblages that are diagnostic, which contain distinctive and anatomical characteristics that allow the specimen to be identified with a certain extent of precision. These resources are considered to provide significant scientific findings for a variety of scientific disciplines including, but not limited to yielding information on the evolutionary relationship and development trends between living and extinct organisms, in determining the age of rock units and geologic events that occurred in a specific region, the development and interaction between biological communities, demonstrate uncommon events in the history of life, or those resources that are rare to their geographic location and are threatened of depletion. Diagnostic paleontological resources usually include marine and terrestrial vertebrates or the remains of plants not previously represented in certain portions of the stratigraphy. In some cases, based on limited circumstances, nondiagnostic fossils can be considered significant and would require protection under CEQA including those that exhibit indications of taphonomy processes, of fossiliferous sediments potentially yielding microfossils.<sup>12</sup>

### **Society of Vertebrate Paleontology Standard Guidelines**

The SVP Standard Procedures provides standard professional guidelines for assessing the potential adverse impacts that construction projects may have on paleontological resources and measures to mitigate those impacts that can be applied to both private and public lands under local, state, and federal agencies.<sup>13</sup> Procedures include methods for conducting assessments and surveys, paleontological monitoring, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. The SVP Standard Procedures further define significant paleontological resources being fossils and fossiliferous deposits with identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information older than the middle Holocene being over 5,000 radiocarbon years. Furthermore, the SVP Standard Procedures classifies rock units in its Assessment of the Paleontological Potential of Rock Units based on having the potential to contain significant or abundant paleontological resources, which are defined below:

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<sup>12</sup> Scott, E., and S. Springer. 2003. CEQA and Fossil Preservation in California. *The Environmental Monitor*, 4–10.

<sup>13</sup> Society of Vertebrate Paleontology (SVP). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*.

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ashes or tephra), some low-grade metamorphic rocks that contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Rock units that contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens and rock units that may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine whether these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional Paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.
- **Low Potential:** Reports in the paleontological literature or field surveys by a qualified professional Paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or, based on general scientific consensus, only preserve fossils in rare circumstances, and the presence of fossils is the exception not the rule (e.g., basalt flows or recent colluvium). Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- **No Potential:** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.<sup>14</sup>

## Record Searches

### UCMP Locality Database

The UCMP Locality Search Online Database displays a list of vertebrates, invertebrates, microfossils, and plant localities identified and curated within its institution. The data distributes each locality's ID and name, along with the county of discovery, the geologic period and epoch, storage age, and sometimes the

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<sup>14</sup> Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

related rock formation and taxonomy associated with the fossil locality.<sup>15</sup> The UCMP Locality Search does not provide the absolute location of their localities due to current government regulations or when situated on private lands. However, the locality name and formation embedding the locality gives a general relative location of discovery that is used to determine the approximate distance and direction from the project site. A discussion of the localities related to the geography and the rock units in the project area by the UCMP Locality Search are provided below.

The UCMP Locality Search was reviewed for Quaternary-age (Pleistocene-Holocene epochs) fossil localities representing the period of the older surficial sediments (Qoa), and surficial sediments (Qa) as mapped by Dibblee and Minch for Riverside County. No records search was performed for the Cretaceous-age plutonic and high metamorphosed rock formations along the higher elevations of the project site due to being classified as having no potential on containing significant paleontological resources by the SVP Standard Procedures. The search revealed 18 Pleistocene-age vertebrate fossil localities in Riverside County while no Holocene-age fossil localities were identified. Ten of the 18 Pleistocene vertebrate fossil localities were associated with the Bautista Beds Formation as mapped by Morton and Matti approximately 9 miles east of the project site in proximity to the San Jacinto Fault Zone and Valle Vista, California.<sup>16</sup> One vertebrate fossil locality was associated with the San Timoteo Formation, which is mapped by Morton and Matti at the foothills of the San Jacinto Mountains east of the Claremont fault.<sup>17</sup> In addition, the UCMP Locality Search listed nine plant fossil localities of Pleistocene-age and 20 plant localities of Holocene-age that are also listed as microfossils. A plant locality name within the Pleistocene-age plant localities is associated with the town of Lakeview, California, approximately 7 miles northwest of the project site, while all 20 plant localities of Holocene-age are named after Lake Elsinore. No invertebrate fossil localities were found to be within the Holocene.<sup>18</sup> Although the overall search from the UCMP Locality Search revealed vertebrate, plant, and microfossil localities from the Pleistocene and Holocene epochs, the names and rock formations embedding these localities indicate the location to be not directly on or in proximity to the project site.

## **Digitized Biocollections Database**

The iDigBio Database provides data and images of biological specimens and fossil localities for the public that have been recovered and curated by a variety of repository institutions. Fossil localities through the iDigBio Database records search can be analyzed through established filters including taxonomy, date of collection, location of discovery, and paleo context pertaining to rock formation and relative age. For this analysis, fossil localities listed in the iDigBio Database were filtered to evaluate specimens curated by The Nat and NHM for the Holocene and Pleistocene epochs reflecting the age of those rock units mapped by Dibblee and Minch. Fossil localities associated with The Nat within the iDigBio Database revealed a fossil locality with a large concentration of fossils yielding 18 vertebrates and invertebrates dated within the

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<sup>15</sup> University of California Museum of Paleontology (UCMP) n.d. UCMP Locality Search. Website: <https://ucmpdb.berkeley.edu/loc.html>. Accessed March 24, 2025.

<sup>16</sup> Morton, D.M., and J.C. Matti. 2005. Preliminary Geologic Map of the Hemet 7.5' Quadrangle, Riverside County, California.

<sup>17</sup> Morton, D.M., and J.C. Matti. 2001. Geologic Map of the Lakeview 7.5' Quadrangle, Riverside County, California.

<sup>18</sup> University of California Museum of Paleontology (UCMP) n.d. UCMP Locality Search. Website: <https://ucmpdb.berkeley.edu/loc.html>. Accessed March 24, 2025.

Pleistocene epoch approximately 3.3 miles northeast of the project site around the San Jacinto Reservoir that is underlain by surficial sediments (Qa) of late Holocene-age comprised of alluvial sand and clay covered by gray soils based on mapping from Dibblee and Minch.<sup>19,20</sup> No vertebrates and invertebrates within the Holocene epoch were curated by The Nat in the project region. Furthermore, the NHM curated two fossil localities with a marine and terrestrial invertebrate at Castile Canyon east of San Jacinto, California with underlying rock units comprised of surficial sediments (Qg) of alluvial sand and gravel from major stream channels, and older surficial sediments consisting of alluvial gravel and sand of low terrace remnants (Qoa) as mapped by Dibblee and Minch.<sup>21</sup> No vertebrate or invertebrate fossil localities from the Holocene epoch were found to be associated with the NHM in the project region.<sup>22</sup>

### **Western Science Center Records Search**

The Western Science Center is an archaeological and paleontological museum in Hemet, California, and serves as the repository for paleontological collections recovered from natural resource projects in Riverside County. Record searches are provided for mitigation projects which include identifying fossil localities in the project region, information of the specimen(s) uncovered from those fossil localities, and the overall paleontological sensitivity of the project site. The record search was completed on May 1, 2025, and confirmed the project site to be underlain by alluvial deposits from the Holocene and late Pleistocene epochs with the northern portion underlain by quartz monzonite (qm) and quartz diorite (qdi) of Cretaceous age. No fossil localities were determined to be located directly on the project site; however, several fossil localities were determined to be located within a 1-mile radius where vertebrates were uncovered northwest and southwest of the project site. The identified fossil localities were uncovered from excavations associated with the Eastside Pipeline Project that yielded vertebrates, including those from pocket gophers (genus *Thomomys*), kangaroo rats (*Dipodomys*), and black-tailed jackrabbit (*Lepus californicus*). As such, the record search results concluded the Pleistocene alluvial units to have high paleontological potential, and excavation associated with the construction of the proposed project would likely impact these units.

## **PALEONTOLOGICAL RESOURCE CONSTRAINTS**

### **Summary and Recommendations**

As discussed above from geologic mapping and the Updated Geotechnical Evaluation, the project site has been partially graded with existing fill ranging from 4 to 12 feet in depth below existing grade and undocumented fill is situated in the central and northern portions of the project site. Geologic mapping identified most of the main development area to be underlain by older surficial sediments (Qoa) consisting of dissected and undeformed older alluvial fan gravel and sand deposits of late Pleistocene age while the southern portion of the project site toward Rose Road is on surficial sediments (Qa) comprised of

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<sup>19</sup> Digitized Biocollections (iDigBio). 2025. Website: <https://portal.idigbio.org/portal/search>. Accessed March 24, 2025.

<sup>20</sup> Dibblee, T.W., and J.A. Minch. 2003. Geologic map of the Lakeview quadrangle, Riverside County, California. December.

<sup>21</sup> Dibblee T.W., and J.A. Minch. 2003. Geologic Map of the San Jacinto Quadrangle. December.

<sup>22</sup> Digitized Biocollections (iDigBio). 2025. Website: <https://portal.idigbio.org/portal/search>. Accessed March 24, 2025.

unconsolidated and undissected alluvial sediments from the late Holocene with sand and clay covered by gray soil. The older surficial sediments (Qoa) were revealed to be present on the project site from the exploratory excavations conducted by GeoTek which were defined as older alluvium consisting of dense to very dense silty sands and clayey sands extending to the maximum depth of 51.5 feet. Rock units incorporated within the higher elevations surrounding the direct proximity of the project site are plutonic and high metamorphosed rocks and were uncovered beneath the existing fill or at the ground surface along the western and eastern edges of the project site and extended to the maximum depths accessible.

Results from the record searches using the UCMP Locality Search Online Database, the iDigBio Database, and the records search conducted by the Western Science Center identified fossil localities in the project region. Although the UCMP Locality Search identified Pleistocene and Holocene age fossil localities, none of the localities contained a locality name or were associated with the rock units on the project site. However, the iDigBio Database identified a concentration of 18 vertebrates and invertebrates affiliated with The Nat that were dated from deposits within the late Pleistocene but mapped as being located on surficial sediments (Qa) from the late Holocene.<sup>23</sup> Furthermore, the record search conducted by the Western Science Center identified fossil localities that yielded vertebrates northwest and southwest of the project site with surficial deposits mapped as surficial sediments (Qa)<sup>24</sup> and emphasized high paleontological sensitivity within Pleistocene alluvial units. Generally, late Holocene-aged deposits are too young to contain significant paleontological resources. As such, the late Pleistocene localities identified from The Nat, along with those localities from the Western Science Center, were likely uncovered at greater depths within the older surficial sediments (Qoa), which were determined to be present beneath the artificial and undocumented fill on the project site from the Updated Geotechnical Report.

Furthermore, the SVP Standard Procedures classifies rock units based on the potential of uncovering significant paleontological resources within its Assessment of the Paleontological Potential of Rock Units. Rock units that have a high potential of containing significant paleontological resources include sedimentary formations that have provided significant paleontological resources within their geographic extent, and those sedimentary formations that are middle Holocene and older that are lithologically suitable for the preservation of fossils.<sup>25</sup> As such, the older surficial deposits (Qoa) match the SVP Standard Procedures (2010) definition of having high paleontological potential, which may underlie the younger surficial sediments (Qa) on the southern portion of the project site. In addition, the plutonic rocks, high metamorphosed rocks, the existing fill, and undocumented fill have no potential to contain significant paleontological resources.

As previously mentioned, the site had been graded in 2006. The proposed project is expected to modify the existing building pads and street alignments, install internal utility lines, and develop multiple stormwater detention basins with proposed cuts and fills at approximately 20 feet excluding remedial grading. Therefore, any future excavations that exceed the depths of the existing or undocumented fill on the project site may encounter the older surficial sediments (Qoa) that have high paleontological potential.

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<sup>23</sup> Dibblee, T.W., and J.A. Minch. 2003. Geologic map of the Lakeview quadrangle, Riverside County, California. December.

<sup>24</sup> Ibid.

<sup>25</sup> Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

As such, FCS recommends mitigation to reduce the potential impacts on paleontological resources for excavations exceeding depths of the existing and undocumented fill, or where the older surficial sediments (Qoa) are exposed at the surface.

Future mitigation would include (but is not limited to) retaining a qualified professional Paleontologist that meets the SVP Standard Procedures to prepare a Paleontological Resources Impact Mitigation Program (PRIMP) prior to ground-disturbing activities and to conduct a project-wide Worker Environmental Awareness Program (WEAP) training for construction personnel on the first day of ground-disturbing activities which would go over procedures to be followed in the event that significant paleontological resources are uncovered during excavations, along with reviewing significant paleontological resources pertaining to the regions geography and geology and applicable federal, State, and local rules and regulations that mandate the protection and preservation of significant paleontological resources. WEAP training would also be provided for any construction personnel who are phased in throughout construction. The PRIMP prepared by the qualified professional Paleontologist would outline site-appropriate methods for full-time paleontological monitoring for excavations that exceed the depth of the existing or undocumented fill or where the older surficial sediments (Qoa) are exposed at the surface, along with any further protocols for monitoring, sediment sampling, fossil salvaging, identification, analysis, preparation, and curation to an approved repository institution, such as the Western Science Center. Curation agreements must be established prior to salvaging and identification, and the analysis for the specimen must include a set of Global Positioning System (GPS) data, field notes, photographs, locality forms, and stratigraphic sections. Paleontological monitoring would not be performed for excavations that do not exceed the depth of the existing or undocumented fill in specific areas, or in any areas where granitic bedrock is identified at the ground surface. However, unanticipated discovery procedures should be established by the qualified professional Paleontologist within the WEAP training and in the PRIMP in the event of unintentional discoveries of significant paleontological resources when the qualified professional Paleontologist is absent.

We at FCS appreciate the opportunity to assist you with this proposed project. If you have any questions regarding this memorandum, please do not hesitate to call me at 626.710.7817 or send me an email at [jstewart@fcs-intl.com](mailto:jstewart@fcs-intl.com).