5 November 2019

Dr. David Whitley
ASM Affiliates
20424 West Valley Boulevard, Suite A
Tehachapi, California 93561

RE: Paleontological Records Search – Karpe Development

Dear Dr. Whitley:

This letter presents the results of a paleontological records search conducted for the Karpe Development project (Project), located in the south central portion of the City of Bakersfield, Kern County, California. The proposed Project site consists of a roughly rectangular parcel bordered to the west by South H Street, to the south by Taft Highway, and to the east and north by undeveloped land. Available Project plans indicate that the site will be developed for commercial use as a service station, to include a convenience store, fast food restaurant, maintenance building, fueling stations, surface parking, fuel storage facilities, at-grade and subgrade utilities, storm water retention basin, and landscape improvements.

A review of published geological maps covering the Project site and surrounding area was conducted to determine the specific geologic units mapped as underlying the Project site. Each geologic unit was subsequently assigned a paleontological resource potential following guidelines developed by the Society of Vertebrate Paleontology (SVP, 2010). In addition, a search of the paleontological collection records housed at the San Diego Natural History Museum (SDNHM) was conducted in order to determine if any documented fossil collection localities occur at the Project site or within the immediate surrounding area.

Geologic Units Underlying the Project Area

Published geological reports covering the Project area indicate that the proposed Project has the potential to impact late Holocene-age alluvial fan deposits (Haydon and Hayhurst, 2011; Smith, 1964). This geologic unit and its paleontological potential are summarized below.

Holocene alluvial fan deposits – Late Holocene-age (less than approximately 4,200 years old) alluvial fan deposits underlie the entire Project site at the surface. These deposits generally consist of unconsolidated silt, sand, gravel, cobbles, and boulders eroded from the surrounding highlands and deposited by the action of streams or rivers (Haydon and Hayhurst, 2011). The SDNHM does not have any recorded fossil collection localities from these deposits in the vicinity of the Project site. In general, late Holocene-age alluvial deposits are considered unlikely to contain preserved remains of organisms that are not conspecific with modern species living in the southern San Joaquin Valley region. As a result, any such remains encountered in these geologically very young deposits generally would not be considered scientifically significant. However, these sediments commonly grade downward into older, Pleistocene-age alluvial deposits that have the potential to contain fossils. Fossils recovered from Pleistocene alluvial deposits in the southern San Joaquin Valley include remains of freshwater snails, bony fish, insects, frogs, lizards, finches, small mammals (e.g., rabbits and hares, pocket mice, kangaroo

rats, geomyid rodents, shrews) and large mammals (e.g., horse, deer, pronghorn, dog) (Fay and Thiessen, 1993; Jefferson, 1991a,b; Reynolds, 1990). At the Project site, as the specific depth of transition between Holocene-age sediments with low paleontological potential and Pleistocene-age sediments with high paleontological potential is unknown, a conservative estimate of approximately 10 feet below existing surface grade may be applied as a threshold until further subsurface information is available (i.e., in the form of a site-specific geotechnical investigation or observations of subsurface lithology during Project construction).

Summary and Recommendations

The low paleontological potential (SVP, 2010) of Holocene alluvial fan deposits suggests that shallow excavations (i.e., less than approximately 10 feet below existing surface grade) are unlikely to impact paleontological resources. Deeper excavations, however, could reach older Pleistocene-age alluvial fan deposits, which may contain significant paleontological resources that could be impacted by Project construction. In the event that earthwork activities on the Project site do impact previously undisturbed deposits of Pleistocene alluvial fan deposits, paleontological mitigation in the form of monitoring of construction earthwork is recommended. In the absence of specific information about planned earthwork activities or the subsurface geology of the Project site, it would be prudent to take an adaptive approach and conduct paleontological monitoring only in the event that Project earthwork activities involve excavations that extend deeper than approximately 10 feet below original ground surface, where older, potentially fossil-bearing, Pleistocene-age sediments could be present.

If you have any questions concerning these findings please feel free to contact me at 619-255-0321 or kmccomas@sdnhm.org.

Sincerely,

Katie McComas, M.S.
Paleontological Report Writer & GIS Specialist
San Diego Natural History Museum

Enc: Figure 1: Project geologic map

Literature Cited

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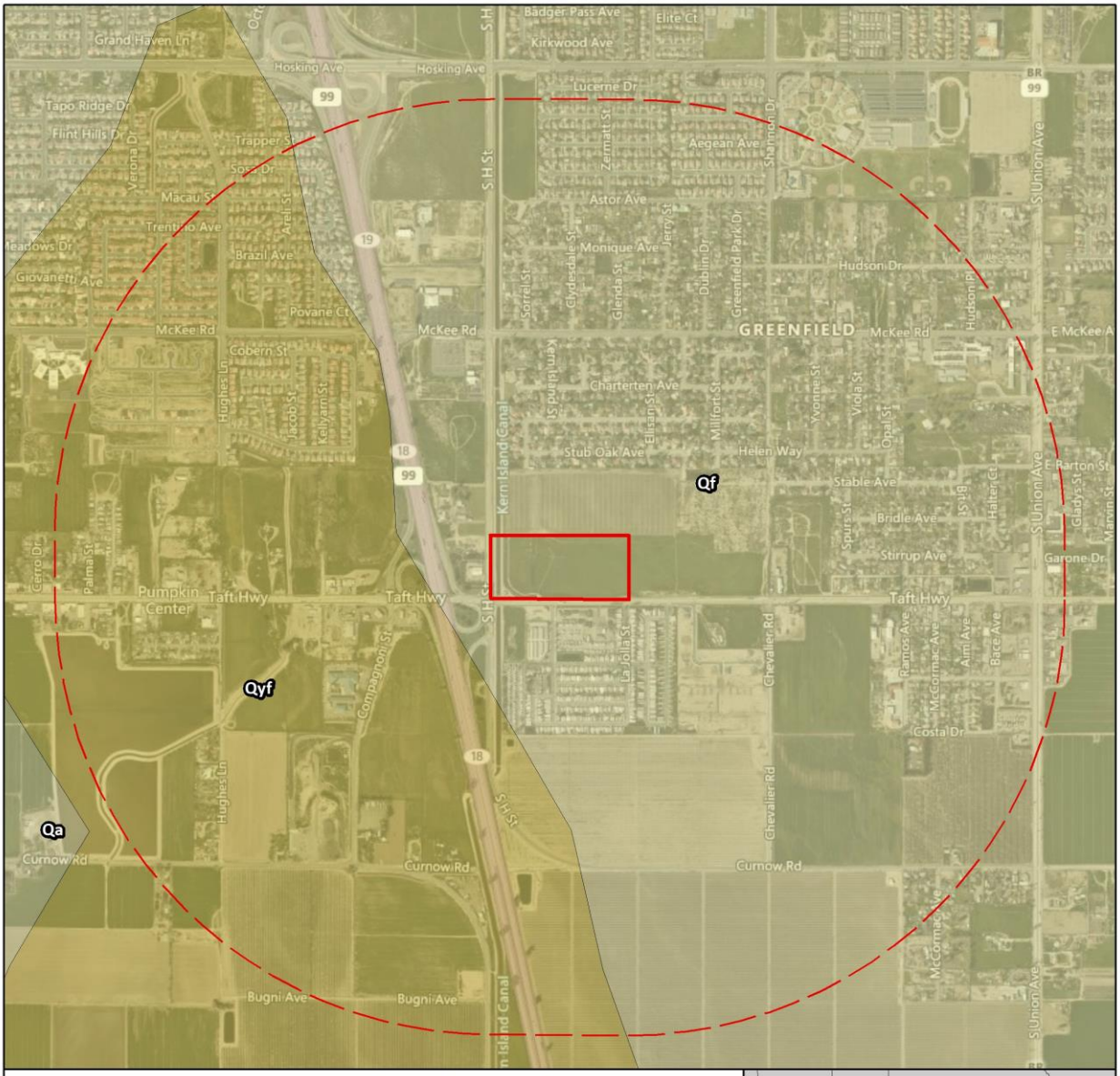
GREENFIELD
Qf
Qyf
Qa
Pumpkin Center
Taft Hwy
McKee Rd
Hosking Ave
Lucerne Dr
Astor Ave
Monique Ave
Hudson Dr
Stable Ave
Bridle Ave
Stirrup Ave
Garone Dr
Helen Way
Stub Oak Ave
Charterten Ave
Curnow Rd
Bugni Ave
Costal Dr
Kern Island Canal
S H St
S Union Ave
Chevalier Rd
Sources: Geology as published by Haydon and Hayhurst, 2011; Bing Maps Hybrid Imagery, Microsoft et al., 2019; Terrain Hillshade, Esri et al., 2019
Geologic Map Units
Qa alluvial fan deposits (late Holocene)
Qya young alluvial fan deposits (late Pleistocene to Holocene)
Project boundary
1 mile radius buffer
Fresno
Kings
Tulare
Inyo
San Luis Obispo
Kern
map extent
Santa Barbara
Ventura
Los Angeles
PALEOSERVICES
SAN DIEGO NATURAL HISTORY MUSEUM
FIGURE 1
Project Geologic Map
Karpe Development
City of Bakersfield, Kern County, California
0
0.4
scale in miles
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