

**Appendix E:
Geology and Soils Supporting Information**

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Dana DePietro
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597

Re: Paleontological Records Search: Blue Wave Car Wash Project (3746.0003), City of Pittsburg, Contra Costa County

Dear Dr. DePietro:

As per the request of Madelyn Dolan, I have performed a records search on the University of California Museum of Paleontology (UCMP) database for the Blue Wave Car Wash project located in Pittsburg on the south side of East Leland Road and west of Loveridge Road. The Public Land Survey (PLS) location of the proposed project site is NW, NW¼, Sec. 21, T2N, R1E, Antioch North quadrangle (USGS 7.5-series topographic map). Google satellite imagery shows this to be an isolated, undeveloped, flat parcel with low vegetation; prior usage or disturbance is not evident. The applicant has proposed construction of a car wash and self-service vacuum facility on an approximately 1.36-acre site. The project would include a 100-foot drive-through vehicle wash tunnel, three 12.5-foot drive-through pay lanes, three drive through payment stations, and 22 vacuum stalls.

Geologic Units

According to the adjoined parts of the geologic maps by Dibblee and Minch (2006) and Sims et al. (1973) shown here, the project site (yellow outline at center) is on Pleistocene alluvium (Qoa). The site is on the older of the two maps where the surficial deposits were identified as Quaternary (Pleistocene-Holocene) alluvium (Qal), but the newer map to the west confirms its Pleistocene age. The surrounding half-mile search area (black dashed outline) also includes Holocene alluvium (Qa). Older Tertiary units occur to the south, just beyond the search perimeter, where the nearest is the Oro Loma Formation (Tol) of Pliocene and possibly early Pleistocene age.



UCMP Paleontological Records Search

The paleontological record search for this project focused on the Pleistocene of Contra Costa County. There are 63 Pleistocene localities in the County; the nearest to the project site is V6030 (Mokelumne Aqueduct No. 3,1) about one mile to the southeast, which yielded multiple skeletal elements of rodents. The composite Pleistocene vertebrate assemblage of 9,931 specimens represents the Rancholabrean NALMS (North American Land Mammal Stage), which spans the interval of 240–11 Kya. Appendix 1 is a systematic listing of this UCMP collection. There are no Pleistocene plant localities recorded for Contra Costa County.

Remarks and Recommendations

The project site is located on Pleistocene alluvium, which has a high paleontological sensitivity and low-to-moderate paleontological potential. The flat, vegetated surface of the project site precludes a preconstruction paleontological survey, but paleontological monitoring is recommended for all construction-related earth-disturbing activities that will impact previously undisturbed sediments. Should any significant paleontological resources (e.g., bones, teeth,) be unearthed, all construction activities should be diverted at least 15 feet from the find until a professional paleontologist has assessed it and, if deemed significant, salvaged the fossil(s) in a timely manner. Collected fossils should be deposited in an appropriate repository, such as the UCMP, where they will be properly curated and made available for future research.

Sincerely,



References Cited

- Dibblee, T.W., and Minch, J.A., 2006a, Geologic map of the Vine Hill & Honker Bay quadrangles, Contra Costa & Solano Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-191, scale 1:24,000.
- Sims, J.D., Fox, K.F., Bartow, J.A., and Helley, E.J., 1973, Preliminary geologic map of Solano County and parts of Napa, Contra Costa, Marin, and Yolo Counties, California: U.S. Geological Survey, Miscellaneous Field Studies Map MF-484, Sheet 5 of 5, scale 1:62,500.

APPENDIX 1

Late Pleistocene (Rancholabrean) Vertebrates from Contra Costa County

- Class Chondrichthyes (cartilaginous fish)
 Order Batoidea
 Family Myliobatidae
Myliobatis (bat ray)
 Order Cypriniformes
 Family Cyprinidae
Orthodon (blackfish)
 Order Gasterosteiformes
 Family Gasterosteidae
Gasterosteus aculeatus (3-spined stickleback)
- Class Amphibia
 Order Anura
 Family Hylidae
 cf. *Pseudacris* (chorus frog)
 Family Ranidae
 cf. *Rana* (bullfrog)
 Order Caudata
 Family Ambystomatidae
 cf. *Ambystoma* (mole salamander)
 Family Plethodontidae
 Aneides cf. *A. lugubris* (aboreal salamander)
 Family Salamandridae
 cf. *Taricha* (western newt)
 Order Urodela
- Class Reptilia
 Order Sauria
 Order Sauria3
 Family Anguillidae
Elgaria coerulea (western alligator lizard)
Gerrhonotus (alligator lizard)
 Family Iguanidae
Uta (sideblotched lizard)
 Family Phrynosomatidae
Sceloporus (spiny lizard)
 Order Serpentes
 Family Viperidae
Crotalus (rattlesnake)
 Order Testudines
 Family Emydidae
Actinemys marmorata (northwestern pond turtle)
Clemmys (pond turtle)
- Class Aves
 Order Anseriformes
 Family Anatidae
Anas acuta? (pintail duck)
 cf. *Melanitta* (scoter)
 Order Ciconiiformes
 Family Ardeidae (herons)
 Order Cuculiformes
 Family Cuculidae
Geococcyx (roadrunner)
 Family Odontophoridae
Callipepla (crested quail)
- Family Phasianidae
 cf. *Centrocercus* (sage grouse)
 Order Passeriformes
 Family Corvidae (crows)
 Family Icteridae
Euphagus (American blackbird)
 Family Turdidae
Turdus (thrush)
 Order Piciformes
 cf. Family Picidae (woodpeckers)
 Order Podicipediformes
 Family Podicipedidae
Aechmophorus occidentalis (western grebe)
 Order Strigiformes
 Family Strigidae
Asio flammeus (short-eared owl)
 Family Tytonidae
Tyto (barn owl)
- Class Mammalia
 Order Artiodactyla
 Family Antilocapridae
Antilocapra pacifica (pacific pronghorn)
Capromeryx minor (diminutive pronghorn)
Sphenophalos (pronghorn)
 Family Bovidae
Bison bison antiquus (ancient bison)
Bison latifrons (long-horned bison)
 Family Camelidae
Camelops cf. *C. hesternus* (yesterday's camel)
 Family Cervidae
Cervus? (elk)
Odocoileus (mule deer)
 Order Carnivora
 Family Canidae
Cynodesmus thoooides (extinct canid)
Urocyon cinereoargenteus (grey fox)
 Family Mustelidae
Enhydra lutris (sea otter)
Taxidea? (badger)
 Family Procyonidae
Procyon lotor (raccoon)
 Family Ursidae
Ursus cf. *U. americanus* (black bear)
 Order Chiroptera
 Family Vespertilionidae
Antrozous cf. *A. pallidus* (pallid bat)
Eptesicus cf. *E. fuscus* (big brown bat)
 cf. *Lasiurus* (hairy tailed bat)
 Order Lagomorpha
 Family Leporidae
Lepus (hare)
Sylvilagus bachmani (cottontail rabbit)

- Order Lipotyphla
 - Family Soricidae
 - Sorex ornatus* (ornate shrew)
 - Family Talpidae
 - Scapanus latimanus* (broad-footed mole)
- Order Perissodactyla
 - Family Equidae
 - Equus caballus* (modern horse)
 - Equus pacificus* (Pacific horse)
 - Family Tapiridae
 - Tapirus merriami* (Merriam's tapir)
- Order Primates
- Order Proboscidea
 - Family Elephantidae
 - Elephas* (elephant)
 - Mammuthus columbi* (Columbian mammoth)
 - Family Mammutidae
 - Mammut americanum* (American mastodon)
 - Mammut pacificus* (Pacific mastodon)
- Order Rodentia
 - Family Cricetidae
 - Microtus californicus* (California vole)
 - Neotoma fuscipes* (wood rat)
 - Family Muridae
 - Peromyscus* cf. *P. truei* (deer mouse)
 - Reithrodontomys raviventris* (salt marsh harvest mouse)
 - Family Geomyidae
 - Thomomys bottae* (Botta's pocket gopher)
 - Family Heteromyidae
 - Perognathus* (pocket mouse)
 - Family Muridae
 - Peromyscus boylii* (brush mouse)
 - Peromyscus truei* (pinyon mouse)
 - Family Procyonidae
 - Procyon lotor* (raccoon)
 - Family Sciuridae
 - Otospermophilus beecheyi* (California ground squirrel)
 - Sciurus* (bushy-tailed squirrel)
 - Tamias* (chipmunk)
- Order Xenarthra
 - Family Megalonychidae
 - Megalonyx* cf. *M. jeffersonii* (Jefferson's ground sloth)
 - Family Mylodontidae
 - Glossotherium harlani* (Harlan's ground sloth)