APPENDIX D2

PALEONTOLOGICAL RESOURCES RECORD REPORT

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13 February 2020

UltraSystems Environmental
16431 Scientific Way
Irvine, CA 92618-7443

Attn: Stephen O'Neil, Cultural Resources Manager

Re: Paleontological Records Search for the proposed Orange County Loop Segments O, P, and Q Project, UltraSystems Environmental Project No. 7034, in the Cities of Cerritos, La Mirada, and Buena Park, Los Angeles and Orange Counties, project area

Dear Stephen:

We have conducted a thorough search of our Vertebrate Paleontology records for the proposed Orange County Loop Segments O, P, and Q Project, UltraSystems Environmental Project No. 7034, in the Cities of Cerritos, La Mirada, and Buena Park, Los Angeles and Orange Counties, project area as outlined on the portions of the Whittier, La Habra, and Los Alamitos USGS topographic quadrangle maps that Megan Black Doukakis sent to me via e-mail on 30 January 2020. We do not have any vertebrate fossil localities that lie directly within the proposed project boundaries, but we do have localities nearby from the same sedimentary deposits that occur within the proposed project area, either at the surface or at depth

Almost all of the proposed project area has surficial deposits of younger Quaternary Alluvium. In the very northern portion of the proposed project area, just south of Stage Road, geologic mapping shows surficial deposits of older Quaternary Alluvium. Both of these are derived as alluvial fan deposits from the Puente Hills to the north via Coyote Creek that currently flows adjacent to almost all of the proposed project area. These deposits typically do not contain significant vertebrate fossils in the very uppermost layers, but they may well contain significant fossil vertebrate remains at shallow depth. Our closest vertebrate fossil locality from the older Quaternary deposits is LACM 3347, north of the northeastern portion of the proposed project

area, north of Leffingwell Road and east of La Mirada Boulevard, that produced a fossil specimen of horse, *Equus*, at a depth of only two feet below the surface.

Nearly adjacent to the northern terminus of the proposed project area there are deposits of the late Pleistocene La Habra Formation exposed in Coyote Creek and those deposits may occur at shallow depth in the proposed project area. We have numerous La Habra Formation localities immediately north of the proposed project area, particularly along Coyote Creek adjacent to Beach Boulevard and along Rosecrans Avenue east of Beach Boulevard. These localities include LACM 4178, 4185-4187, 4195-4201, 6689, 7053-7054, and 7088-7089. Miller (1971) published on the fauna from LACM 6689, the earliest recorded of the Coyote Creek sites, under the name La Mirada (see appendices for list of publications on LACM specimens from the La Habra Formation). In particular, Miller (1971, pg. 50) figured the skull and jaws of a fossil bear, *Ursus americanus*, from locality LACM 6689. In addition, Hutchison (1987) published on a fossil mole, *Scapanus latimanus*, from locality LACM 7053. A composite fossil fauna list from the LACM La Habra Formation localities is provided in an appendix.

Just north of the proposed project area there are exposures of the marine Pleistocene San Pedro Sand that may also occur at depth in the proposed project area. Our closest San Pedro Sand localities are LACM 3536-3537 and 5011-5012, all just north of the proposed project area to both the east and west, that produced fossil specimens of salmon shark, *Lamna*, bony fish, Osteichthyes, and whales, Cetacea. Our San Pedro Sand locality LACM 3861, further northeast of the proposed project area in the West Coyote Hills, produced a specimen of the fossil diving duck, *Chendytes milleri*.

Shallow excavations in the uppermost few feet of the younger Quaternary sediments exposed in the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area that extend down into older sedimentary deposits, however, may well encounter significant fossil vertebrate remains. Any substantial excavations in the proposed project area, therefore, should be closely monitored to quickly and professionally collect any specimens 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

enclosures: appendices; invoice

Publications on specimens in the LACM collections from the La Habra Formation in the West Coyote Hills

Howard, Hildegarde. 1936. A New Record for *Parapavo californicus* (Miller). Condor, 38(6):249-250.

Hutchison, J. Howard. 1987. Moles of the *Scapanus latimanus* group (Talpidae, Insectivora) from the Pliocene and Pleistocene of California. Natural History Museum of Los Angeles County Contributions in Science, 386:1-15.

Miller, Wade E. 1971. Pleistocene Vertebrates of the Los Angeles Basin and Vicinity (Exclusive of Rancho La Brea). Bulletin of the Los Angeles County Museum of Natural History, 10:1-124.

Steadman, David W. 1980. A Review of the Osteology and Paleontology of Turkeys (Aves: Meleagridinae). Natural History Museum of Los Angeles County Contributions in Science, 330:131-207.

Yerkes, R. F. 1972. Geology of the Eastern Los Angeles Basin, Southern California. U.S. Geol. Surv. Prof. Paper, 420C.

Composite La Habra Formation Fossil Fauna
based on specimens in the LACM collections

- Osteichthyes
  - Cypriniformes
    - Cyprinidae
- Amphibia
  - Anura
    - Bufonidae
      - *Bufo*
    - Ranidae
      - *Rana*
  - Urodela
    - Salamandridae
      - *Taricha*
- Reptilia
  - Chelonia
    - Emydidae
      - *Clemmys* *marmorata*
  - Squamata
    - Crotalidae
      - *Crotalus*
- Aves
  - Anseriformes
    - Anatidae
      - *Anas* *acuta*
      - *Chen*
      - *Chendytes*
      - *Oxyura* *jamaicensis*
  - Galliformes
    - Meleagridae
      - *Meleagris*
    - Phasianidae
      - *Lophortyx*
  - Gruiformes
    - Gruidae
      - *Grus*
    - Rallidae
      - *Fulica* *americana*
      - *Gallinula*
  - Passeriformes
  - Podicipediformes
    - Podicipedidae
      - *Podiceps*
- Mammalia
  - Artiodactyla
    - Antilocapridae
      - *Antilocapra*
      - *Capromeryx*
    - Bovidae
      - *Bison*
- Mammalia
  - Artiodactyla
    - Camelidae
      - *Camelops*
      - *Palaeolama*
    - Cervidae
      - *Odocoileus* *hemionus*
  - Carnivora
    - Canidae
      - *Canis* *dirus*
      - *Canis* *latrans*
      - *Urocyon* *cinereoargenteus*
    - Felidae
      - *Lynx* *rufus*
    - Mustelidae
      - *Mephitis* *mephitis*
    - Procyonidae
      - *Bassariscus* *astutus*
    - Ursidae
      - *Ursus* *americanus*
  - Insectivora
    - Talpidae
      - *Scapanus* *latimanus*
  - Lagomorpha
    - Leporidae
      - *Lepus* *californicus*
      - *Sylvilagus* *audubonii*
      - *Sylvilagus* *bachmani*
  - Perissodactyla
    - Equidae
      - *Equus*
  - Proboscidea
    - Elephantidae
      - *Mammuthus*
    - Mammutidae
      - *Mammut*
  - Rodentia
    - Cricetidae
      - *Microtus* *californicus*
      - *Neotoma*
      - *Peromyscus*
    - Geomyidae
      - *Thomomys* *bottae*
    - Heteromyidae
      - *Dipodomys*
    - Sciuridae
      - *Spermophilus*
  - Xenarthra
    - Megalonychidae
      - *Megalonyx*