



August 31, 2016

Mr. Craig Cristina
Richland Communities
3161 Michelson Drive, Suite 425
Irvine, California 92612

Subject: Paleontological Resource and Monitoring Assessment for the proposed Kimball Business Park project in the city of Chino, San Bernardino County, California (APNs 105-523-101, 105-523-102, 105-524-105, 105-554-101, 105-554-102, 105-610-102, 105-611-103, and 105-612-101)

Dear Mr. Cristina:

Site Location: A Paleontological Resource and Monitoring Assessment has been completed for the approximately 74.09-acre site of the proposed Kimball Business Park project (Assessor's Parcel Numbers [APNs] 105-523-101, 105-523-102, 105-524-105, 105-554-101, 105-554-102, 105-610-102, 105-611-103, and 105-612-101) located in the city of Chino, immediately south of the Chino Airport in San Bernardino County, California (Attachments 1 and 2). The proposed development is bounded on the north by Kimball Avenue, on the east by residences along Moonflower Avenue and its projection, on the south by Bickmore Avenue, and on the west by an existing agricultural field. Most of the proposed site has recently been occupied by agricultural land and farming operation infrastructure. On the U. S. Geological Survey 7.5-minute, 1:24,000-scale Prado Dam, California topographic quadrangle map, the project site is located in unsectioned grant lands of the Rancho Santa Ana del Chino addition to Rancho Rincon, in the southeast corner of projected Section 30 and the southwest quarter of projected Section 29 in Township 2 South, Range 7 West, San Bernardino Base and Meridian (Attachment 2).

Geology: Geologically, on the 1:100,000-scale geologic map of the Santa Ana 30' x 60' quadrangle (Attachment 3, after D. M. Morton, 2004), the project site is located on the distal margins of the broad alluvial floodplain of the ancestral Santa Ana River. The project area is mapped as being underlain by Quaternary (early Pleistocene) very old alluvial fan deposits (light brown, Qvof_a, on Attachment 3) that are cut across by late Quaternary (latest Pleistocene and Holocene) sandy axial channel deposits (fluvial channel deposits along canyon floors) (tan, Qya_a, on Attachment 3) in an ephemeral drainage. A geotechnical report with boring logs was not available for examination, but these sorts of reports typically do not differentiate between younger alluvial and alluvial fan sediments and the very old alluvial fan sediments that are, for example, identified by Morton and Gray (2002) and mapped as Qvof_a, on the adjacent Corona North quadrangle.

Records Search: Two museum collections and records searches related to this project site were previously conducted by the Division of Geological Sciences at the San Bernardino County Museum (SBCM) in Redlands (E. G. Scott, 2006; copy attached) and the Section of Vertebrate Paleontology at the Natural History Museum of Los Angeles County (LACM) in Los Angeles (S. A. McLeod, 2006; copy attached). Neither report revealed any previously recorded fossil localities from within the boundaries of the current project site. However, McLeod (2006) reported a single locality to the south-southeast between Norco and Corona, in Riverside County, that yielded a fossil specimen of deer (*Odocoileus*) from LACM loc. 1207. In a third records search report, generated for the adjacent Chino Parcel Delivery project site, McLeod (2016; copy attached) reported a fossil whipsnake (*Masticophis*) from a locality (LACM loc. 7811) approximately 3.5 miles east-northeast of the Kimball Business Park site. This report encompassed the current project site and several miles surrounding it in all directions. However, the closest known fossil localities to the current project area were collected during excavation of the Riverside County Flood Control and Water Conservation District's County Line Channel project that terminated at the Cucamonga Creek Channel approximately two miles from the proposed project site (G. L. Kennedy *et al.*, 2005). Pleistocene terrestrial mammal remains recovered from subsurface exposures interpreted to represent ancestral Santa Ana River fluvial (floodplain) sediments included extinct camel (*Camelops cf. hesternus*) and extant bighorn sheep (*Ovis canadensis*). The proximity of these latter localities to the proposed project demonstrates the High paleontological sensitivity of the Pleistocene older alluvium and alluvial fan sediments at the surface and in the shallow subsurface in this region.

Paleontological Sensitivity: The High paleontological sensitivity ranking encompasses all of the mapped Quaternary sediments within the project. These types of Quaternary sediments often yield important Ice Age fossils such as large terrestrial vertebrates (*e.g.*, bison, mammoth, mastodon, horse, camel, giant ground sloth, short-faced bears, saber-toothed cats, and others [*e.g.*, Jefferson, 1991]). The fossil vertebrates recovered from the adjacent Riverside County Line Channel project (Kennedy *et al.*, 2005) further supports the High paleontological sensitivity ranking for the proposed Kimball Business Park project. The Transportation and Land Management Agency of the County of Riverside has assigned a High paleontological sensitivity (High B) to the Pleistocene very old alluvial fan sediments that are present just east of Chino in adjacent Riverside County.

Recommendations: The existence of Quaternary very old alluvial fan sediments (light brown, Qvof_a, on Attachment 3) across most of the project site, the High paleontological resource sensitivity (High B) assigned to these Quaternary exposures in adjacent Riverside County, the numerous fossil collections made from older alluvial and alluvial fan deposits across the Inland Empire (*e.g.*, Jefferson, 1991; Scott, 2006, attached), and the Quaternary fossil mammal remains recovered from the adjacent Riverside County Line Channel project (Kennedy *et al.*, 2005) support the recommendation that full-time paleontological monitoring be required during all mass grading, excavation (utility trenching, etc.), and drilling activities in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. A paleontological Mitigation Monitoring and Reporting Program (MMRP) consistent with the provisions of the California Environmental Quality Act (CEQA), those of the City of Chino, and the draft guidelines of the Society of Vertebrate Paleontology, should be implemented for any mass grading and excavation-related activities, including utility trenching and boring activities, during site preparations for the construction of the proposed Kimball Business Park project. A proposed paleontological mitigation plan follows.

Proposed Paleontological Mitigation Plan:

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Monitoring will be conducted fulltime in areas of grading or excavation in undisturbed surficial exposures of Pleistocene very old alluvial fan deposits (Qvof_a on Attachment 3), as well as where over-excavation of any younger alluvial channel deposits (Qya_a on Attachment 3) will encounter these older sediments in the subsurface. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediment that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if they are present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources.
2. Preparation of recovered specimens to a point of identification and permanent preservation, including screen-washing sediments to recover small invertebrates and vertebrates if indicated by the results of test sampling. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
3. All fossils must be deposited in an accredited institution (university or museum) that maintains collections of paleontological materials. All costs of the paleontological monitoring and mitigation program, including any one-time charges by the receiving institution, are the responsibility of the developer.
4. Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). A letter documenting receipt and acceptance of all fossil collections by the receiving institution must be included in the final report. The report, when submitted to (and accepted by) the appropriate lead agency (*i.e.*, the City of Chino), will signify satisfactory completion of the project program to mitigate impacts to any nonrenewable paleontological resources.

If you have any questions concerning this evaluation, please feel free to contact us at our Poway office. Thank you for your time and consideration.

Sincerely,



George L. Kennedy, Ph.D.
Senior Paleontologist



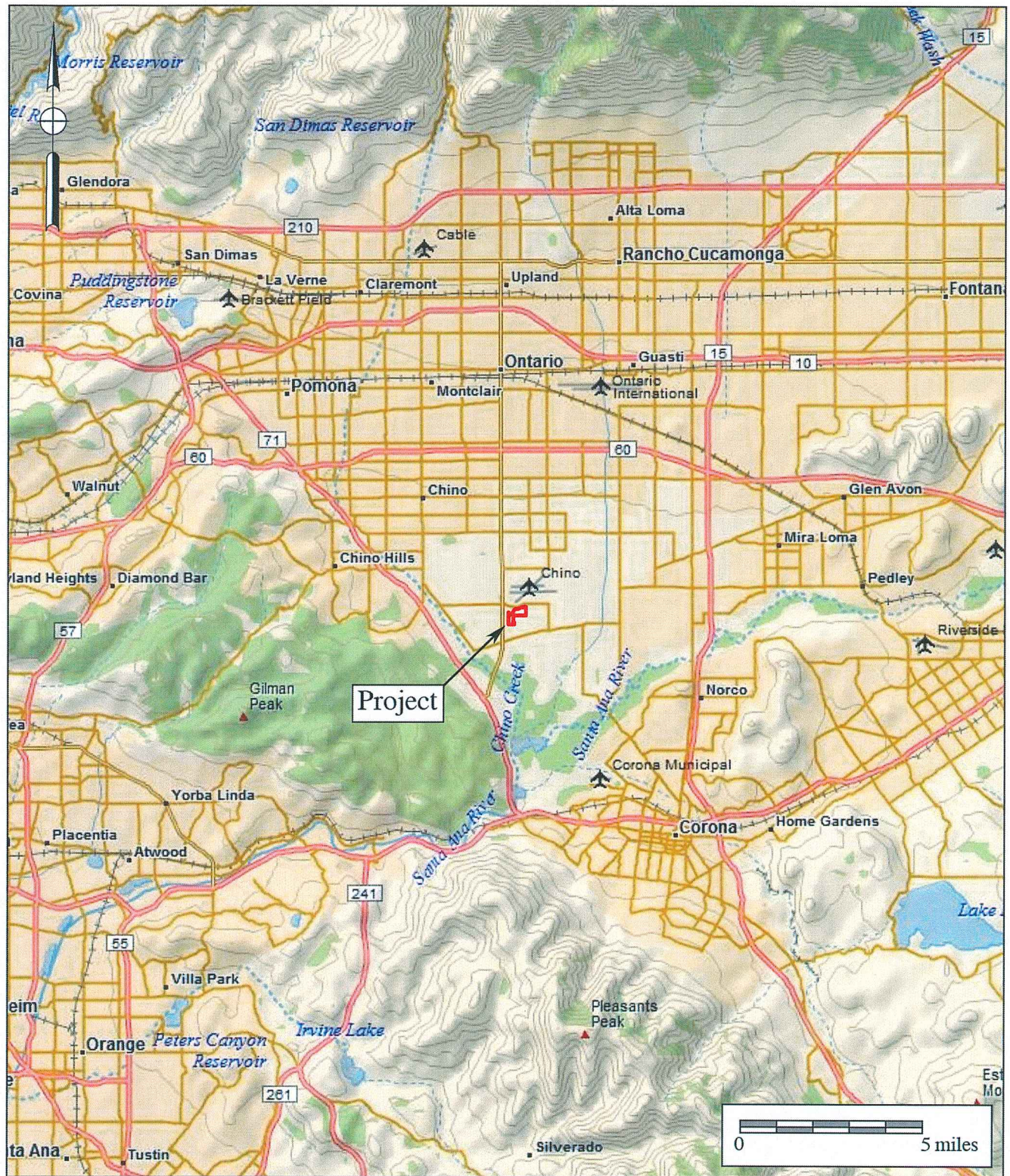
Todd A. Wirths, M.S.
California Professional Geologist No. 7588

Attachments: Index maps, geologic map, LACM and SBCM records search reports

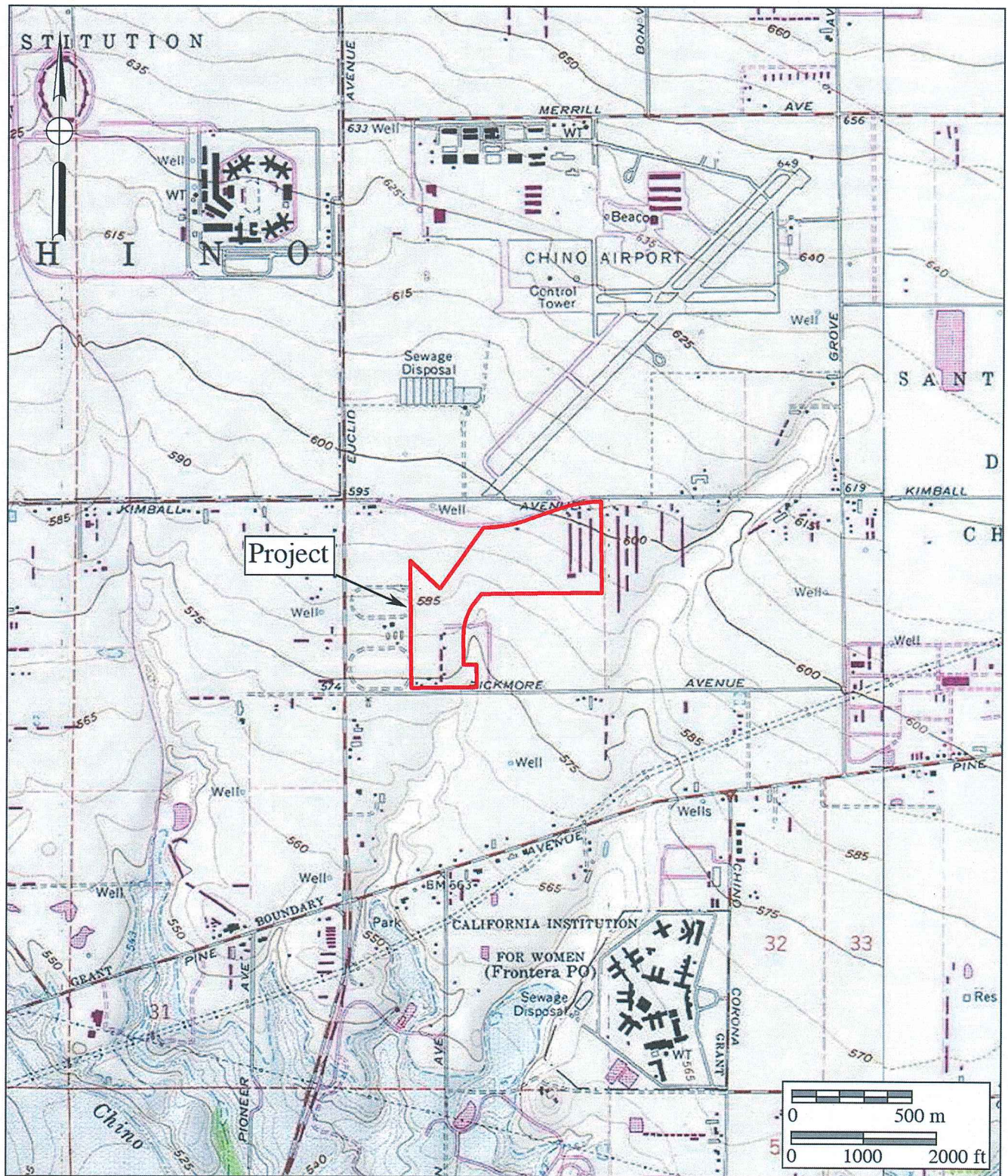


References:

- Jefferson, G. T. 1991. A catalogue of late Quaternary vertebrates from California: Part two, mammals. Natural History Museum of Los Angeles County, Technical Reports, no. 7: i-v + 1-129.
- Kennedy, G. L., Shiller, G. I., and Stewart, J. D. 2005. Paleontological monitoring report, County Line Channel, Riverside County Flood Control and Water Conservation District Project No. 2-0-0300, Riverside and San Bernardino Counties, California. Unpublished paleontological report prepared for Riverside Construction Company, Riverside, by Brian F. Smith & Associates, Poway.
- McLeod, S. A. 2006. Paleontological resources for the proposed The Ranch at Eastvale, CRM Tech # 1884-P, in the City of Eastvale, Riverside County, Paleo, project area. Museum collections and records search report prepared for CRM Tech, Riverside, by the Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles.
- McLeod, S. A. 2016. Paleontological resources records search for the proposed Chino Parcel Delivery project, BFSa project # 16-018, in the City of Chino, San Bernardino County. Museum collections and records search report prepared for Brian F. Smith and Associates, Inc., Poway, by the Vertebrate Paleontology Section, Natural History Museum of Los Angeles County, Los Angeles.
- Morton, D. M. 2004. Preliminary digital geologic map of the Santa Ana 30' x 60' quadrangle, southern California, version 2.0. U. S. Geological Survey, Open-File Report 99-172: 1-50, sheets 1-2 (map scale 1:100,000).
- Morton, D. M., and Matti, J. C. 2003. Geologic map of the Corona North 7.5' quadrangle, Riverside and San Bernardino Counties, California. Version 1.0. U. S. Geological Survey Open-File Report 02-22: 1 map sheet with text (scale 1:24,000).
- Scott, E. G. 2006. Paleontology literature and records review, The Ranch at Eastvale, Riverside County, California. Museum collections and records search report prepared for CRM Tech, Riverside, by the Division of Geological Sciences, San Bernardino County Museum, Redlands. (Includes references and monitoring and mitigation plan.)



Attachment 1
General Location Map
The Kimball Business Park Project
DeLorme (1:250,000 series)



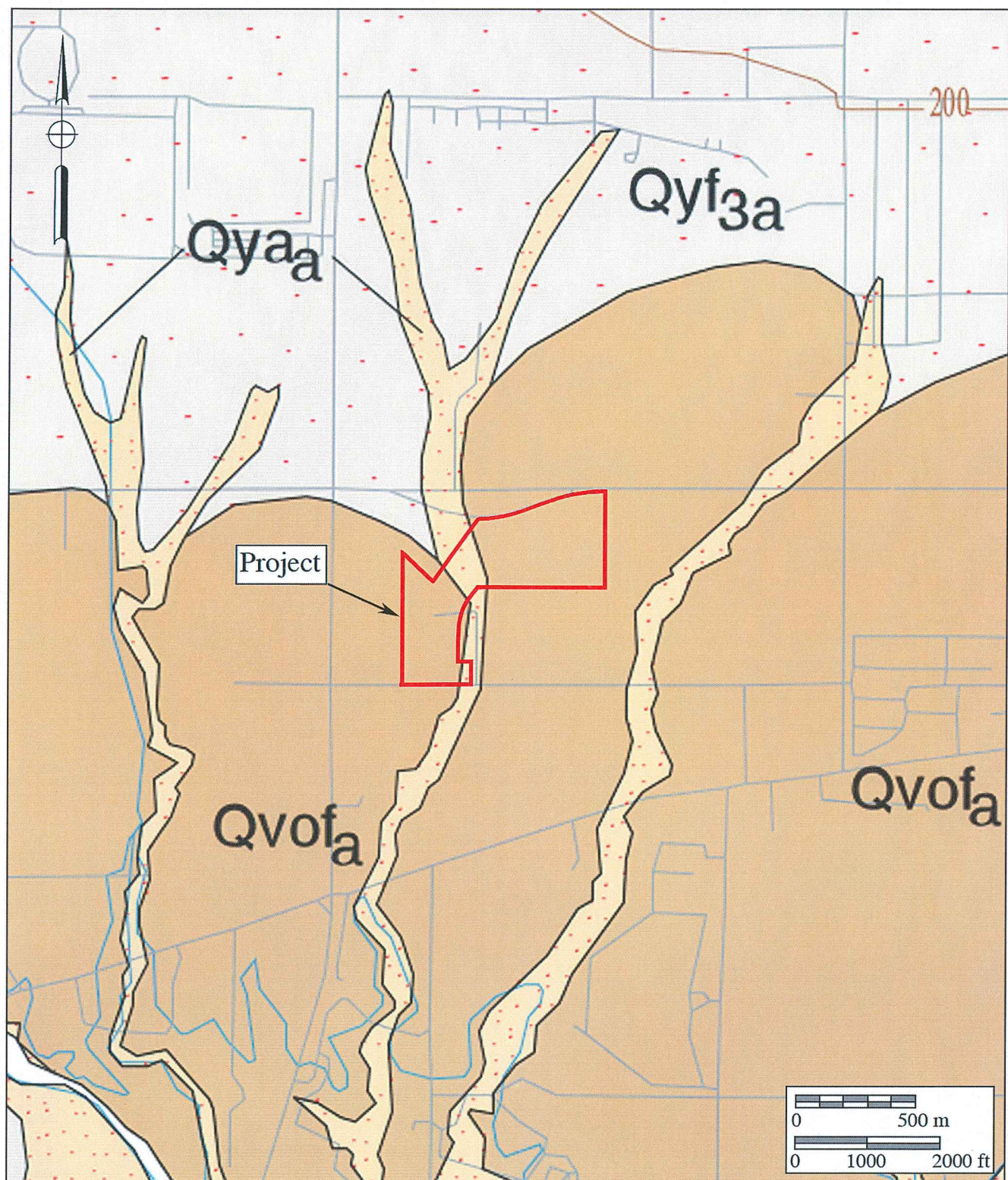
Attachment 2

Project Location Map

The Kimball Business Park Project

USGS Prado Dam and Corona North Quadrangles (7.5-minute series)





Attachment 3

Geologic Map

The Kimball Business Park Project

Geology after Morton (2004)

Natural History
Museum of Los Angeles County
900 Exposition Boulevard • Los Angeles, CA 90007

Vertebrate Paleontology Section
Telephone: (213) 763-3325
FAX: (213) 746-7431
e-mail: smcleod@nhm.org

24 May 2006

CRM Tech
4472 Orange Street
Riverside, CA 92501

Attn: Laura Hensley Shaker

re: Paleontological resources for the proposed The Ranch at Eastvale, CRM Tech # 1884-P, in the City of Eastvale, Riverside County, Paleo, project area

Dear Laura:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed The Ranch at Eastvale, CRM Tech # 1884-P, in the City of Eastvale, Riverside County, Paleo, project area as outlined on the section of the Corona North USGS topographic quadrangle map that you faxed to me on 23 May 2006. We do not have any vertebrate fossil localities that lie directly within the proposed project boundaries, but we do have a fossil vertebrate locality nearby from sedimentary deposits similar to those that probably occur subsurface in the proposed project area.

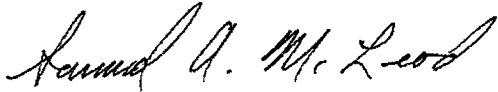
The surficial deposits in approximately the entire eastern one-half of the proposed project area consist of younger Quaternary Alluvium, either as fluvial deposits from Cucamonga Creek that forms the eastern border of the proposed project area or as fan deposits from the mountains to the north and east. These deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, and we do not have any localities nearby from these deposits. In approximately the western one-half of the proposed project area older Quaternary fan deposits derived from the Puente Hills to that west occur at the surface. Our closest fossil vertebrate locality from similar older Quaternary deposits is LACM 1207, south-southeast of the proposed project area between Corona and Norco, that produced a fossil specimen of deer, *Odocoileus*.

Surface grading or shallow excavations in the uppermost layers of soil and younger Quaternary Alluvium in the eastern portion of the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the eastern portion of the proposed project area that extend down into the older Quaternary sediments, however, as well as any

excavations in the western portion with surficial older Quaternary deposits, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains while not impeding development. Additional fossil vertebrate locality information for this area may be contained in the records of the University of California at Riverside Department of Geology (records and collections now at the University of California at Berkeley Museum of Paleontology). Any fossils collected should be placed in an accredited 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,

A handwritten signature in cursive script, reading "Samuel A. McLeod". The signature is written in dark ink and is positioned above the printed name.

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice



SAN BERNARDINO COUNTY MUSEUM

2024 Orange Tree Lane • Redlands, California USA 92374-4560
(909) 307-2669 • Fax (909) 307-0539 • www.sbcountymuseum.org



COUNTY OF SAN BERNARDINO
PUBLIC AND SUPPORT
SERVICES GROUP

ROBERT L. MCKERNAN
Director

6 July 2006

CRM Tech
attn: Laura Shaker
4472 Orange Street
Riverside, CA 92501

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, THE RANCH AT
EASTVALE, RIVERSIDE COUNTY, CALIFORNIA**

Dear Dr. Laura,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature and records search for the above-referenced ~120-acre project in Eastvale, Riverside County, California. The proposed study area is located in the northwestern quadrant of section 27, Township 2 South, Range 7 West, San Bernardino Base and Meridian, as seen on the Corona North, California 7.5' United States Geological Survey topographic quadrangle map (1967 edition, photorevised 1981).

Previous mapping of the Eastvale region (Rogers, 1965; Morton and Gray, 2002) indicates that the proposed project property is situated upon surface exposures of very old alluvial fan deposits of early Pleistocene age (= unit **Qvof**), overlain in the eastern portion of the property by Holocene fan sediments (= **Qyf**). The Holocene alluvium has low potential to contain nonrenewable paleontologic resources, and so is assigned low paleontologic sensitivity. However, the Pleistocene alluvial fan deposits have high potential to contain significant nonrenewable paleontologic resources. Similar Pleistocene alluvial sediments elsewhere throughout Riverside County and the Inland Empire have been reported to yield significant fossils of extinct animals from the Ice Ages (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Pajak and others, 1996; Scott, 1997; Springer and others, 1998, 1999). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, sabre-toothed cats, large and small horses, large and small camels, and bison, as well as plant macro- and microfossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999; Anderson and others, 2002). These Pleistocene sediments are therefore assigned high paleontologic sensitivity.

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously recorded paleontologic resource localities are present within the boundaries of the proposed development property, nor from within at least one mile in any direction.

Robert L. McKernan
Director
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Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation in conjunction with development has high potential to adversely impact significant nonrenewable paleontologic resources present within the boundaries of the proposed Ranch at Eastvale property. A qualified vertebrate paleontologist must be retained to develop a program to mitigate impacts to such resources. This mitigation program should be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations currently implemented by the County of Riverside and the proposed guidelines of the Society of Vertebrate Paleontology. This program should include, but not be limited to:

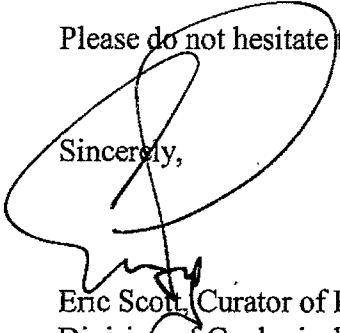
1. Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Areas requiring monitoring include all previously-undisturbed Pleistocene older alluvial sediments present within the boundaries of the property, both at the surface and at depth. Paleontologic monitors should be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. If the potentially-fossiliferous units described herein are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources, monitoring may be reduced or eliminated.
2. Preparation of all recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils are essential in order to fully mitigate adverse impacts to the resources (Scott and others, 2004).
3. Identification and curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage (e.g., SBCM). These procedures are also essential steps in effective paleontologic mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not considered complete until such curation into an established museum repository has been fully completed and documented.
4. Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontologic resources.

References

- Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer and E. Scott, 2002. Paleocology of a Middle Wisconsin deposit from southern California. *Quaternary Research* 58(3): 310-317.
- Jefferson, G.T., 1991. A catalogue of late Quaternary vertebrates from California: Part Two, mammals. Natural History Museum of Los Angeles County Technical Reports, No. 7.
- Morton, D.M. and C.H. Gray, Jr., 2002. Geologic map of the Corona North 7.5' quadrangle, Riverside and San Bernardino Counties, California, version 1.0. United States Geological Survey Open-File Report 02-22. Digital preparation by K.R. Bovard and M. Dawson. 18 p.
- Reynolds, S.F.B. and R.L. Reynolds, 1991. The Pleistocene beneath our feet: near-surface Pleistocene fossils in inland southern California basins, *in* Inland Southern California: the last 70 million years, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler, eds. Redlands, San Bernardino County Museum Special Publication 38(3&4), p. 41-43.
- Rogers, T.H., 1965. Geologic map of California, Santa Ana sheet. California Division of Mines and Geology. Scale 1:250,000.
- Scott, E., 1997. A review of *Equus conversidens* in southern California, with a report on a second, previously-unrecognized species of Pleistocene small horse from the Mojave Desert. *Journal of Vertebrate Paleontology* 17(3): 75-A.
- Scott, E. and K. Springer, 2003. CEQA and fossil preservation in southern California. *The Environmental Monitor*, Fall 2003, p. 4-10, 17.
- Scott, E., K. Springer and J.C. Sagebiel, 2004. Vertebrate paleontology in the Mojave Desert: the continuing importance of "follow-through" in preserving paleontologic resources. In M.W. Allen and J. Reed (eds.) *The human journey and ancient life in California's deserts: Proceedings from the 2001 Millennium Conference*. Ridgecrest: Maturango Museum Publication No. 15, p. 65-70.
- Springer, K.B., E. Scott, L.K. Murray and W.G. Spaulding, 1998. Partial skeleton of a large individual of *Mammot americanum* from the Domenigoni Valley, Riverside County, California. *Journal of Vertebrate Paleontology* 18(3): 78-A.
- Springer, K.B., E. Scott, J.C. Sagebiel and K.M. Scott, 1999. A late Pleistocene lake edge vertebrate assemblage from the Diamond Valley, Riverside County, California. *Journal of Vertebrate Paleontology* 19(3): 77-A.
- Woodburne, M.O., 1991. The Cajon Valley, *in* Inland Southern California: the last 70 million years, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler, eds. Redlands, San Bernardino County Museum Special Publication 38(3&4), p. 41-43.

Please do not hesitate to contact us with any further questions you may have.

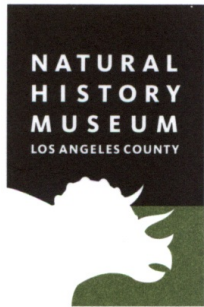
Sincerely,



Eric Scott, Curator of Paleontology
Division of Geological Sciences
San Bernardino County Museum

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
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e-mail: smcleod@nhm.org

8 March 2016

Brian F. Smith & Associates, Inc.
14010 Poway Road, Suite A
Poway, CA 92064

Attn: George L. Kennedy, Ph.D., Senior Paleontologist

re: Paleontological Resources Records Search for the proposed Chino Parcel Delivery Project,
BFSA project # 16-018, in the City of Chino, San Bernardino County

Dear Dr. Kennedy:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Chino Parcel Delivery Project, BFSA project # 16-018, in the City of Chino, San Bernardino County as outlined on the portions of the Prado Dam and Corona North USGS topographic quadrangle maps that you sent to me via e-mail on 24 February 2016. We do not have any vertebrate fossil localities that lie directly within the proposed project boundaries, but we do have fossil vertebrate localities nearby from the same sedimentary deposits that occur in the proposed project area.

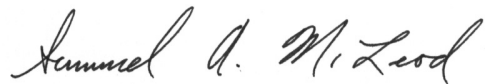
Most of the proposed project area has surface deposits that consist of younger Quaternary Alluvium, derived broadly as alluvial fan deposits from the San Bernardino Mountains to the north. These deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, and we do not have any localities nearby from these deposits. In the southwestern portion of the proposed project area though, on both sides of the drainage, there are surface exposures of older Quaternary Alluvium, likewise derived predominately of alluvial fan deposits from the San Bernardino Mountains to the north, and these deposits underlie the younger Quaternary Alluvium in the drainage and elsewhere in the proposed project area. Our closest fossil vertebrate locality from similar older Quaternary deposits is LACM 7811, due east of the northern portion of the proposed project area west of Mira Loma east of Archibald Avenue

along Sumner Road north of Cloverdale Road, that produced a fossil specimen of whipsnake, *Masticophis*, at a depth of 9 to 11 feet below the surface. Further to the south-southeast of the proposed project area, on the northwestern side of Corona west of Cota Street between Railroad Street and Harrington Street, our vertebrate fossil locality LACM 1207 produced a fossil specimen of deer, *Odocoileus*.

Shallow excavations in the younger Quaternary Alluvium exposed in most of the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations there that extend down into the older Quaternary sediments, however, as well as any excavations in the older Quaternary Alluvium exposed in the southwestern portion of the proposed project area, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains while not impeding development. Sediment samples should also be collected from the finer-grained deposits in the proposed project area and processed to determine their small fossil potential. Any fossils collected should be placed in an accredited 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,

A handwritten signature in cursive script, reading "Samuel A. McLeod".

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice