PALEONTOLOGICAL RESOURCE ASSESSMENT AND IMPACT MITIGATION PROGRAM

FOR

Barker Logistics II Project
Perris, Riverside County, California

Prepared for:

Barker Logistics

and

BCR Consulting

Prepared by:

Environmental Planning Group, LLC

December 2019

Table of Contents

List of Figures

Project Background

Environmental Planning Group, LLC was contracted by BCR Consulting to prepare a Paleontological Resources Assessment and Impact Mitigation Program (PRIMP) for The Barker Logistics II East Scheme Project (Project) in Riverside County, California, as requested by Riverside County.

Project Description

The Project is a mostly undeveloped (approximately 12 acres) parcel of land north of Placentia Avenue, between Sharon Ann Lane on the west, and Harvill Avenue on the

east in Perris, California. (

Figure 1). Several houses are present on the western side of the parcel. This parcel is immediately east of a parcel that had a Paleontological Resource Assessment prepared in March of 2019 for Barker Logistics (Barker Logistics I). Barker Logistics plans to build one large warehouse building with offices and associated perimeter and retaining walls. The grading plan states the plan is to achieve grading balance with little or no import or export of soils. However, some remedial grading is expected up to 5 feet in depth.

Historical aerial photographs show the current houses were present as far back as 1994, but the remaining portion, east of them, has always been undeveloped. The 2002 and 2003 aerial images show a dirt road running through the center of the parcel, and some disturbed areas on the eastern perimeter. As of 2012, it appears all vegetation had been removed from the eastern three-fourths of the parcel.

Purpose of Paleontological Monitoring and Mitigation Plan

The purpose of the PRIMP is to satisfy California Environmental Quality Act (CEQA) and the County's General Plan for preservation of paleontological resources. CEQA's policy for impacts on paleontological resources is found in Appendix G of the CEQA Guidelines. The policy states "A project will normally result in a significant impact on the environment if it will disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study." Section 5097.5 of the Public Resource Code further states that it is unlawful to remove paleontological remains without authorization and can result in a misdemeanor.

The County of Riverside's General Plan recognizes the CEQA Guidelines Section 15064.5 as a threshold for the identification and protection of paleontological resources as well as the determination of significant impacts on those resources. In addition, the County's General Plan includes several open space policies to reduce or minimize the effects of development on paleontological resources. The parcel report from Riverside County (Riverside County Map My County 2018) classifies the geological unit underlying the Project as having a HIGH (B) sensitivity for paleontological resources, indicating that fossils could occur at or below a depth of 4 feet. The parcel report also states that after a comprehensive review of the literature, a record search, and a field survey, it may be determined that the geological unit for this area has a LOW (L) potential for paleontological resources.

Figure 1. Barker Logistics II East Project Location

Geological and Paleontological Setting

The Project lies within the Perris Block (Woodford et al. 1971, Kennedy 1977), between the Santa Ana Mountains to the southwest and the San Jacinto Mountains to the northeast. The Perris Block is a highland bounded by the Elsinore-Chino fault zones to the southwest and the San Jacinto fault zone to the northeast (Woodford et al. 1971).

The State Geological Map of California (Ludington et al. 2007) shows the Project overlies Quaternary alluvium and marine deposits (Q on Figure 2). These deposits are described as alluvium, lake, playa, and terrace deposits that are unconsolidated and semi-consolidated. On the San Bernardino and Santa Ana 30-minute by 60-minute quadrangle (Morton et al. 2004), these deposits are shown as very old alluvial-fan deposits of late to middle Pleistocene age (Qvof). This unit is described as mostly well-dissected, well-indurated, reddish-brown alluvial fan deposits.

The surface consists mostly of a reddish-brown, sandy-silt on the surface that had small amounts of fine gravel composed mostly of granite from the surrounding granite outcrops (Figure 3 and Figure 4). This compares to the description of Q deposits in the area. The depth of this surficial deposit is unknown.

A review of the paleontological literature revealed no reported fossil localities within 1 mile of the Project. The closest reported fossil locality, from the literature, comes from the Clarendonian Land Mammal Age locality near Lake Matthews, approximately 8.5 miles to the west (Landers 2008). This fossil assemblage comes from the Lake Matthews Formation, and this geologic unit is not present in the Project area. Further to the southeast, but within the Elsinore Fault Zone, several localities have been reported from Pleistocene and Pliocene deposits (Pajak et al. 1996). Although fossils from Pleistocene deposits are rare, they can occur in southern California (Reynolds and Reynolds 1991, Springer et al. 2009). A record search from the Western Science Center, requested for the Barker Logistics I Project, that included a 1-mile circumference of that project, revealed no previously recorded fossil localities (Appendix A). However, the Western Science Center did recommend that a mitigation program be in place for the previous project due to the presence of other Quaternary fossil localities in southern California and the potential for older sediments to occur beneath the Project.

Since the geological units underlying the Project could include older Pleistocene deposits, at an unknown depth, and there is the presence of previously recorded fossils from similar deposits in southern California, the following Mitigation Plan has been prepared.

Figure 2. Geologic Units at the Site

Figure 3. View to the North Across the Parcel

Figure 4. View to the Northeast Across the Parcel

Paleontological Monitoring Plan

The parcel is completely covered by a sandy-silt of unknown depth. This sandy-silt is recent but may cover older Pleistocene deposits. The current grading plans are expected to be up to 20 feet in depth, which at this depth could encounter older Pleistocene deposits. At this time, it is recommended that monitoring for paleontological resources should occur in areas where ground disturbance will be greater than 4 feet. If paleontological resources are discovered during development of the Project, the following guidelines should be enforced.

If paleontological resources are found at any time during construction, work will be redirected to another area nearby so that the scientific significance of the discovery may be assessed. Construction monitors will notify the onsite construction-monitoring coordinator or project manager and the County. As part of the monitoring procedure, a qualified professional paleontologist will then assess the significance of the discovery and recommend additional mitigation measures, as needed. The paleontologist will be retained to perform inspection of the excavation and to salvage exposed fossils. Monitoring may also cease when a depth of 4 feet is no longer expected to occur, or it is deemed by the qualified paleontologist as no longer necessary.

Paleontological monitoring will then continue on an as-needed basis for undisturbed sediments where fossils were found. Monitoring can be reduced once the qualified paleontologist has determined the site has been properly assessed and the probability of further encounters with fossils has dropped below an acceptable level. Paleontological monitors will be equipped with appropriate safety materials (hard hats, orange vests with reflective yellow tape, steel-toed boots, etc.). Because the monitors will be performing their duties in proximity to the excavation equipment, they will have been trained to make themselves visible to equipment operators while in the field and will endeavor to make eye contact with the operators prior to entering a potentially hazardous area. The operators must be alert at all times to the presence of paleontological monitors and their equipment.

If the paleontological resource is large (e.g., mammoth tusk), or a concentration of fossils, the fossil(s) will be excavated, but a pedestal will be left underneath to assist with plaster jacketing of the specimen. Small specimens may be collected in plastic vials, or in some cases zip-lock bags, after field preparation and proper packing. The preservation of significant fossils (if found during construction) will occur by removal as described below, unless it is not feasible. Due to the potential for rapid deterioration of some exposed surface fossils, preservation by avoidance generally is not an acceptable mitigation measure (except, in some cases, for exposed fossil-animal trackways). In cases where the fossil cannot be removed immediately, the location of the fossil will be stabilized to prevent further deterioration prior to data collection under the direction of a qualified paleontologist. Stabilization in these cases can (as necessary and safely feasible) include the removal of overburden, exposure of the resource, and application of an appropriate hardening agent (e.g., Vinac or Butvar for vertebrate fossils). Data collection in these cases will include documentation of pertinent data (lithology, stratigraphy, taphonomy, etc.), as well as photo-documentation where possible. This measure will be implemented further by the mobilization of additional paleontological monitors if unusually large discoveries are encountered during excavation. This procedure will optimize data collection and avoid delays.

In addition to excavation and removal of a paleontological resource, a sample of matrix from around the fossil (approximately 600 pounds are recommended by the Society of Vertebrate Paleontology 2010) will be collected and screen-washed to check for microvertebrates (rodents, birds, reptiles etc.). This can be done immediately onsite if needed. If microvertebrates are discovered during the screenwashing, then a larger sample of matrix (6,000 pounds is recommended by the Society of Vertebrate Paleontology 2010) may be needed to assure the site is properly evaluated. Screenwashing of the larger sample may continue onsite, if applicable, or at the paleontologist's laboratory.

For all paleontological resources (vertebrate, invertebrate, plant, trackways) collected during monitoring of construction, a curation program will be undertaken that includes preparation of collected specimens to a point of identification and permanent preservation (including screen washing of fossiliferous sediment samples to collect small to microscopic vertebrate fossils), preparation of large vertebrate fossils collected in plaster jackets, long-term stabilization of all collected significant fossils, and analysis. The paleontological monitoring and salvage team will include an expert in vertebrate paleontology. A final report, including an itemized and accessioned inventory of collected specimens, will be prepared by a professional paleontologist and distributed to the appropriate lead agencies.

The paleontological mitigation program is designed to collect not only exposed paleontological resources, but also significant contextual data associated with these resources. For this reason, paleontological monitors often will be required to stake and flag some areas within the excavation to plot resource localities, measure stratigraphic sections, map fossiliferous horizons, photograph exposures, and so forth. Again, the equipment operators must avoid these staked and flagged areas until the paleontologists have authorized continued construction and/or excavation.

All paleontological monitors will be trained in standardized methods and procedures to ensure data collection is uniform among all identified paleontological resource localities. All data collection and recordation techniques, as well as standard safety equipment and safety procedures, will be reviewed prior to Project start-up.

During the paleontological mitigation program, all observed pertinent data will be recorded onsite at the time the resource has been exposed and collected. All paleontological field notes will be retained at the appropriate paleontological resource repository. The use of global positioning system units will allow monitors to accurately plot paleontological resource localities on project maps that will be provided for them.

All fossils collected during construction will be curated at the expense of Barker Logistics at an approved repository agreed to by the County. A review of the curation procedures for the approved repository will be performed.

A final report of methods and results of the paleontological mitigation plan will be provided at the cessation of the mitigation program. The report will include a detailed discussion of methods used during mitigation, general description of geological units, descriptions of significant discoveries, discussion of the curation of the resources, and results of sampling and analysis, as well as an itemized accession inventory of all specimens collected. A discussion of the significance of each taxon discovered will be

provided, where feasible. All resource locality information will be presented as a confidential appendix and a printout of all locality data, as well as maps with all paleontological resource localities plotted.

References

Kennedy, M.P. 1977. Recency and character of faulting along the Elsinore Fault Zone in southern Riverside County, California. USGS and California Division of Mines and Geology Special Report 131, 12 pages and 1 plate.

Lander, E.B. 2008. Early Clarendonian (late middle Miocene) fossil land mammal assemblages from the Lake Matthews Formation, Riverside Cou8nty, southern California, and a preliminary review of *Merychyus* (Mammalia, Artiodactyla, Oreodontidae). Pp. 181-211 *In* Wang, X. and L.G. Barnes (Eds.) Geology and Vertebrate paleontology of Western and Southern North America, Contributions in Honor of David P. Whistler. Natural History Museum of Los Angeles County Science Series Number 41.

Ludington, S., B.C. Moring, R.J. Miller, P.A. Stone, A.A. Bookstrom, D.R. Bedford, J.G. Evans, G.A. Haxel, C.J. Nutt, K.S. Flyn, and M.J. Hopkins. 2007. Preliminary integrated geologic map databases for the United States. USGS Open-File Report 2005-1305.

Morton, D.M., K.R. Bovard, and R.M. Alvarez. 2004. Preliminary digital geological Map of the 30' x 60' Santa Ana Quadrangle southern California, version 2.0. Open-file Report 99-172.

Pajak, A.F., E. Scott, and C.J. Bell. 1996. A review of the biostratigraphy of Pliocene and Pleistocene sediments in the Elsinore Fault Zone, Riverside County, California. PaleoBios 17(2-4):28-49.

Reynolds, R.E., and R.L. Reynolds. 1991. The Pleistocene beneath our feet: Near-surface Pleistocene fossils in Inland southern California Basins. San Bernardino County Museum Association Quarterly 39(3):41-43.

Riverside County Map My County. 2018. Paleontological Sensitivity Layer. Available at https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public.Society of Vertebrate Paleontology. 2010. Standard Procedures for the assessment and mitigation of adverse impacts to paleontological resources. Available at www.vertpaleo.org/Impact_Mitigation_Guidelines.htm.

Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray. 2009. The Diamond Valley Lake Local Fauna: Late Pleistocene vertebrates from inland southern California. Pp. 217-235 *In* Albright III, L.B. (Ed.) Papers on Geology, Vertebrate Paleontology and Biostratigraphy in honor of Michael O. Woodburne. Museum of Northern Arizona Bulletin 65.

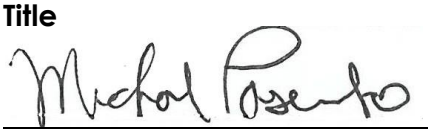
Woodford, A.O., J.S. Shelton, D.O. Doehring, and R.K. Morton. 1971. Pliocene-Pleistocene history of the Perris Block, southern California. Geological Society of America Bulletin 82:3421-3448.

Certification: I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this Paleontological Resources Impact Mitigation Plan, and that the facts, statements, and information presented are true to the best of my knowledge and belief.

Environmental Planning Group, LLC
Company

Michael Pasenko
Name

Paleontologist
Title



Signature

Appendix A: Record Search from Western Science Center

WESTERN SCIENCE CENTER

March 12, 2019

Environmental Planning Group, LLC
Michael Pasenko
2020 West Sunset Road, Suite 100
Henderson, NV 89014

Dear Mr. Pasenko,

This letter presents the results of a record search conducted for the Barker Logistics Project in the city of Perris, Riverside County, California. The project site is located north Placentia Avenue, east of Patterson Avenue, and west of Harville Avenue in Section 13, Township 4 South, Range 4 West on the Steele Peak and Perris USGS 7.5 minute quadrangles.

The geologic units underlying this project are mapped entirely as very old alluvial fan deposits dating from the early Pleistocene period (Morton, 1991, 1995-1996). Very old alluvial fan units are considered to be of high paleontological sensitivity. The Western Science Center does not have localities within the project area or within a 1 mile radius, but does have fossil localities in similarly mapped units associated with numerous projects in Riverside County that resulted in Pleistocene fossil specimens.

Any fossils recovered from the Barker Logistics Project area would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive early Pleistocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about similar Pleistocene alluvial deposit projects, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager

2345 Searl Parkway ♦ Hemet, CA 92543 ♦ phone 951.791.0033 ♦ fax 951.791.0032 ♦ WesternScienceCenter.org

Appendix B: Resume of Mike Pasenko, Paleontologist

Years of Experience: 17

Expertise

Vertebrate Paleontology

Mammalian Biostratigraphy

Comparative Osteology, Morphology, and Systematics

Field Paleontology and Geology Methods

Fossil Mitigation, Curation, and Conservation Methods

Groundwater and Mineral Resources

Geological Hazards

Unified Soil Classification System

Academic Background

BA, Anthropology, Northern Arizona University, 1997

MS, Quaternary Sciences Program, Northern Arizona University, 2000

Professional Registrations and Affiliations

Society of Vertebrate Paleontology

Arizona-Nevada Academy of Science

MIKE PASENKO

Paleontologist/Earth Resources Manager

epg Sustainable Solutions. Thriving Environments.

Mike is a Paleontologist who has conducted more than 20 paleontological resource surveys, NEPA documents, and EISs, and has taken part in paleontological field expeditions in the mid-west, Great Basin, southwest, and Pacific Coast. This work has included field surveys, geologic mapping, stratigraphic analysis (section measurement), specimen collection, fossil preparation and conservation, museum curation, fossil identification, and report preparation. He has prepared numerous reports for the Bureau of Land Management and the United States Forest Service. His current research includes postcranial morphology of gomphotheriids, comparison of extant and extinct proboscidean footprints, pantodonts, and Pleistocene bears.

Mike's project experience includes work performed for the Bureau of Land Management, United States Forest Service, National Park Service, California Environmental Quality Act, Arizona Department of Transportation, State of Arizona, the Yavapai-Apache Nation, as well as other state and local agencies.

Representative Projects

- Paleontological monitoring for solar project in southern Nevada
- Paleontological Resource Assessment of gas exploration project in northwest Colorado on BLM lands.
- Recordation, GPR and mapping of Pleistocene trackways for National Park Service, New Mexico.
- Paleontological Resource Assessment and Earth Resources section for mining exploration project EA on BLM lands in western Arizona.
- Paleontological Identification and Evaluation of the Mojave River Riverwalk, Victorville, California for the City of Victorville, San Bernardino County, and California Department of Transportation.
- Paleontological Monitoring and Mitigation Program, Highway 179 Improvement Project, Yavapai County, Arizona. For the Arizona Department of Transportation and the United States Forest Service.
- Paleontological Resources Assessment, Kutz Canyon Paleontological Area, San Juan County, New Mexico. For gas company and Bureau of Land Management.
- SUNZIA Transmission Line Project in New Mexico and Arizona. For the Bureau of Land Management and the United States Forest Service.
- Boardman to Hemingway Transmission Line Project in Oregon and Idaho.
- Riley Ridge to Natrona pipeline project in Wyoming.
- Wyoming Pipeline Corridor Initiative
- Energy Gateway South Transmission Line Project in Wyoming, Colorado, and Utah. For the Bureau of Land Management and the United States Forest Service.
- Amrad to Artesia Transmission Line project in New Mexico
- Arizona Interconnection Project, Transmission Line project in New Mexico
- Sigurd to Red Butte Transmission Line Project in Utah for the Bureau of Land Management and the United States Forest Service.
- Monitoring and Mitigation Program for Burlington Northern Santa Fe Cajon Main Third Track Summit to Keenbrook Railroad Project, San Bernardino County, California. For the United States Forest Service.
- Preparation of Paleontological Section for EA of transmission line project in San Juan basin, New Mexico for the BLM.
- Paleontological Resources Assessment, Geothermal Project, western Nevada. For the Bureau of Land Management and the United States Forest Service.
- Paleontological and Cultural Resources Survey, Mining drilling exploration project, Arizona Strip

- Mitigation of Pleistocene vertebrates (mammoth and bison) and invertebrates from southeastern Nevada.
- Paleontological and Cultural Resource monitoring for pipeline construction project Angeles National Forest, California.
- Excavation of mammoth and mastodon remains, southern Illinois
- Excavation of Pleistocene fauna, southern Missouri