PALEONTOLOGICAL RESOURCES ASSESSMENT OF THE REDLANDS PROJECT, RIVERSIDE COUNTY, CALIFORNIA

Prepared for:
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Submitted to:
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AECOM Project No. 60481885

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PROJECT BACKGROUND AND UNDERTAKING

First Industrial Realty Trust is proposing to develop an approximately 11-acre parcel of land in the City of Perris, California. The proposed Project consists of a 236,280 square ft. warehouse facility located at the intersection of Redlands Avenue and Perry Road (Figures 1 and 2). The Project is located within the Perris 7.5-Minute Topographic Quadrangle within the southeast quarter of the southwest quarter of Section 5, Township 4 South, Range 3 West, at an approximate elevation of 1,450 feet above sea level. The longitude and latitude coordinates near the center of the study area are 33.847287 and 117.218287. The Project is composed of undeveloped parcels that might have been farmed, but most recently consists of tumbleweeds (Salsola tragus). Land use surrounding the study area includes warehouses and previously disturbed open areas.

SCOPE AND METHODOLOGY

AECOM paleontologist, Dr. Joe D. Stewart, surveyed the property for paleontological resources on December 30, 2015. The survey was conducted by AECOM to ascertain if paleontological resources were present and determine possible effects, in compliance with the California Environmental Quality Act (CEQA) and Riverside County’s guidelines for paleontological resources. The scope of this work included a paleontological resources record search at the Natural History Museum of Los Angeles County (LACM) and a pedestrian survey of the project site, conforming to the Guidelines of the Society of Vertebrate Paleontology (SVP, 2010).

RESULTS AND MITIGATION

PALEONTOLOGICAL RESOURCES

The paleontological resources record search from the LACM stated the project site is almost entirely situated upon surface exposures of Quaternary Alluvium, with underlying older Quaternary deposits (McLeod, 2016) (Figure 3).

The pedestrian survey conducted on 30 December 2015 confirmed the presence of Holocene younger valley alluvium consisting of silt with very little sand. In artificial cuts along an extension of Markham Street, which is being constructed a bit north of the Project, a silt with caliche nodules is exposed (Figure 4). Caliche formation within soils usually takes several thousand years, and this horizon may date close to the Pleistocene/Holocene boundary. While the Holocene younger valley alluvial deposits are generally too young to contain significant paleontological resources, excavations into Pleistocene alluvial fan deposits have the potential to impact buried paleontological resources. Therefore, it is recommended that a paleontological mitigation plan be prepared and implemented in conjunction with development which would include monitoring of excavations with potential to disturb Pleistocene sediments, testing of sediments for microvertebrate fossils, preparation and curation of specimens collected, and preparation of a final report in accordance with the guidelines of the Society of Vertebrate Paleontology.
SECTION 1 INTRODUCTION

1.1 PROJECT UNDERTAKING AND LOCATION

First Industrial Realty Trust is proposing to develop a 10.95 acre parcel of land in Perris, California. The proposed Project consists of an approximate 236,280 square ft. commercial complex located at the intersection of Redlands Avenue and Perry Street in the City of Perris, CA (Figures 1 and 2). The Project is located within the Perris 7.5-Minute Topographic Quadrangle within Section 5, Township 4 South, Range 3 West, at an approximate elevation of 1,450 feet above sea level. The longitude and latitude coordinates near the center of the study area are 33.847287 and -117.218287. The Project is composed of undeveloped parcels that have been cultivated. Land use surrounding the study area includes agriculture and warehouse facilities, disturbed open areas, and public infrastructure.

1.2 SCOPE OF STUDY AND PERSONNEL

A paleontological field survey of the project site was conducted on December 30, 2015 by an AECOM paleontologist to determine possible paleontological resource impacts in compliance with the CEQA and Riverside County’s guidelines for paleontological resources. The scope of work for this paleontological assessment included a paleontological resource records search at the Natural History Museum of Los Angeles County and the aforementioned field survey, in conformance with the guidelines established by the Society of Vertebrate Paleontology (SVP, 2010).

Within this report are the conclusions of comprehensive paleontological resources assessment, with the intention of satisfying the cultural resource requirements of CEQA and Riverside County.

AECOM employees involved in this assessment included Dr. Joe D. Stewart. Qualifications of Dr. Stewart are provided in Appendix A.
SECTION 2  ENVIRONMENTAL SETTING

The proposed Project is located in the city of Perris in Riverside County, CA. The proposed Project is situated in a valley flanked by semi-rugged hills to the east. Land use surrounding the study area includes high density residential and commercial development, disturbed open areas, and public infrastructure. In general the approximate 10-acre property is rectangular-shaped and is not developed. The plowed field consists of sparse weedy vegetation (tumbleweeds).

The property is located within the northern peninsular ranges geomorphic province (Norris and Webb, 1990; Harden, 2004). It is bounded to the north by the San Bernardino Mountains (transverse ranges geomorphic province), to the west by the Elsinore fault zone, to the south by Mexico, and to the east by the San Jacinto fault zone.
SECTION 3 REGULATORY SETTING

CEQA provides regulations concerning significant impacts to paleontological resources. The following is a concise description of the State and local laws and regulations.

3.1 STATE LEVEL

The California Environmental Quality Act (CEQA) provides protection for paleontological resources through environmental legislation. Direction regarding significant impacts on paleontological resources is found under Appendix G (part V) of the CEQA Guidelines. The guidelines state, “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.” Per section 5097.5 of the Public Resource Code, it is unlawful to remove paleontological remains without authorization and can result in a misdemeanor. In addition, Section 622.5 of the California Penal Code sets the penalties for damage or removal of paleontological resources.

3.2 LOCAL LEVEL

3.2.1 County of Riverside

The County of Riverside’s General Plan recognizes the CEQA Guidelines Section 15064.5 as a threshold for the identification and protection of historic resources, archaeological and 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 historic, archaeological and paleontological resources (County of Riverside, 2008).

3.2.2 City of Perris

The Conservation Element of the City of Perris General Plan (City of Perris, 2005) devotes two pages to paleontological resources. It discusses the geology of the City, Federal and State regulations concerning the conservation of paleontological resources, and provides a map of paleontological resource sensitivities within the City. The Project lies in area #4 of that map. The paleontological sensitivity of that area ranges from low to high, as younger alluvium which is considered to have low paleontological sensitivity overlies older valley alluvium which is considered to have paleontological sensitivity.

3.3 PROFESSIONAL STANDARDS

3.3.1 Society of Vertebrate Paleontology

The Society of Vertebrate Paleontology (2010) has provided Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. These guidelines are recognized throughout the paleontological resource management community.
SECTION 4  METHODS

4.1  PALEONTOLOGICAL RESOURCES RECORDS SEARCH

On December 21, 2015, AECOM enlisted a paleontological records search through the LACM. Site records with supporting maps and documents are maintained at this facility. The record search included the examination of current geologic maps and paleontological locality maps. The record search is used to determine if any paleontological resources have been recovered within and around the Project site, and establish a foundation for gauging the sensitivity of the project site for additional and buried paleontological resources.

4.2  PALEONTOLOGICAL RESOURCES LITERATURE SEARCH

AECOM searched published and unpublished literature pertinent to the geology and paleontological resources of this Project.

4.3  PEDESTRIAN SURVEY

On December 30, 2015, a pedestrian survey of the project site was performed by AECOM paleontologist Dr. Stewart. The survey included walking the perimeter of the site and transects across it to determine if any outcrops were evident on the property that might contain paleontological resources. Detailed notes, GPS coordinates, and digital photographs were taken of geological features on and around the Project site. In addition to the pedestrian survey, a windshield survey of the surrounding area was conducted to determine if any potential fossil-bearing outcrops were present.
SECTION 5 RESULTS

5.1 PALEONTOLOGICAL RESOURCES RECORDS SEARCH

The LACM reported the Project has surficial deposits of Quaternary Alluvium, underlain by older Quaternary deposits (McLeod, 2016). The Quaternary Alluvium is too young to produce significant paleontological resources, but older Quaternary deposits have produced them. The LACM collections have no records of nearby localities producing vertebrate fossils. The report recommended a paleontological monitoring program including testing sediment samples for microvertebrate fossils. Such a program should also involve reporting and curation of any fossils recovered.

5.2 LITERATURE SEARCH

The survey of published and unpublished literature revealed no paleontological resources within the Project footprint. The geologic mapping of Morton (1972) at a scale of 1:24,000 mapped the entire Project area as Holocene alluvium (Qal). Morton did note that older alluvium (Qao; Pleistocene) might be within this area, but unrecognizable because of weathering.

Morton et al. (2003) mapped the Perris quadrangle at a scale of 1:24,000. They showed the Project footprint as being situated on young alluvial-valley deposits (Qyv; Holocene and late Pleistocene), with very old alluvial-fan deposits (Qvof; early Pleistocene) within a quarter mile.

Greenwood and Morton (1991, 1999) mapped the area at a 1:100,000 scale. They mapped the area as older alluvium (Qo) of Pleistocene age.

Neither of Jefferson’s compendia of California Pleistocene vertebrate fossil localities (1991a, b) lists any localities near to the Project. However, similar deposits only 13 miles southeast of the Project have yielded numerous, significant paleontological resources, including sabre-tooth cats, mammoths, mastodons, bison, ground sloths, large and small camels, large and small horses (Reynolds and Reynolds, 1991; Anderson et al., 2002; Springer and Scott, 1994; Springer et al., 1998; Springer et al., 1999; and Springer et al., 2009).

5.3 PEDESTRIAN SURVEY

The pedestrian survey revealed no paleontological resources on the proposed construction site. The site surface is largely covered by fallen weeds. Plots to the south and west are undisturbed, and yield no new insights. Across Redlands Avenue to the east is a plot that is being altered by grading. It was not possible to discern which sediments were disturbed and which were in situ. To the north exists a small plot that is also former agricultural land, but north of that is a large area being developed. Markham Street is being extended eastward to Redlands Avenue. That project has produced artificially cut faces of up to two feet on the north and south margins. North of Markham Street and west of Redlands Avenue is a large parcel on which a large building is being constructed. There are cuts there of at least six feet deep, but the AECOM paleontologist was not authorized to enter that property to observe the cuts.
SECTION 6  SUMMARY OF RESULTS AND MITIGATION

6.1  PALEONTOLOGICAL RESOURCES

The paleontological resources records search conducted by the LACM shows the project area to be composed of surficial Quaternary Alluvium (Holocene). The LACM considered the Quaternary Alluvium to be of low paleontological sensitivity as these deposits are generally too young to yield significant paleontological resources. However, some geological mapping suggested that this unit might date back to the Late Pleistocene. Furthermore, Pleistocene deposits are mapped within a quarter mile of the Project and clearly underlie the surficial sediments. Therefore, it is recommended that a paleontological mitigation plan be prepared and implemented in conjunction with development which would include monitoring of excavations with potential to disturb Pleistocene sediments, testing of sediments for microvertebrate fossils, preparation and curation of specimens collected, and preparation of a final report in accordance with the guidelines of Society of Vertebrate Paleontology (SVP, 2010).
SECTION 7 CERTIFICATION

CERTIFICATION: I hereby certify that the information presented above and in the attached exhibits present the data and information requirements for this paleontological report, and that the facts, statements, and information presented herein are true and correct to the best of my knowledge and belief as of the date presented below.

DATE: January 13, 2016

SIGNED: Joe D. Stewart Ph.D., County Certified Paleontologist
SECTION 8 REFERENCES CITED

Greenwood, R.B. and G. M. Morton
1991. California Geology of the Santa Ana 1:100,000 quadrangle, California Division of Mines and Geology, Open-File Report 91-17, scale 1:100,000.

Harden, Deborah R.

Jefferson, G. T.
1991a. A catalogue of Late Quaternary vertebrates from California, Part One, nonmarine lower vertebrate and avian taxa. Natural History Museum of Los Angeles County Technical Reports no. 5, 60 pages.


McLeod, S. A.
2016. Paleontological resources for the proposed First Industrial Redlands Project. Records review letter report prepared by the Natural History Museum of Los Angeles County, Section of Vertebrate Paleontology, Los Angeles, California.

Morton, D. M.


City of Perris.

Reynolds, S.F.B., and R.L. Reynolds
County of Riverside.

Society of Vertebrate Paleontology

Springer, K. B. and E. Scott.


Figure 1
Regional Location

Redlands Project
Silt with caliche exposed along Markham Street.

Figure 4
Site Photograph
Redlands Project
Joe D. Stewart, PhD
Principle Paleontologist

Areas of Expertise
- NEPA and CEQA Compliance
- Project Management
- Principal Investigator
- Paleontological Management and Treatment

Education
- BA/1974/Biology/University of Kansas
- MA/1979/Systematics & Ecology/University of Kansas
- Ph.D./1984/Systematics & Ecology/University of Kansas

Years of Experience
- With AECOM: 8
- With Other Firms: 5

Professional Affiliations
- Society of Vertebrate Paleontology

Certifications
- Hazardous Waste Operations and Emergency Response 40 Hr. General Site Worker
- Certified paleontologist in the counties of Orange and Riverside

Joe Stewart is a vertebrate paleontologist with over 35 years of experience in paleontology and 25 years of experience in the geology and paleontology of California, particularly in Merced, Fresno, Kern, Santa Barbara, Los Angeles, Orange, San Bernardino, Riverside, Imperial, and San Diego counties. Joe has been involved in the permitting or construction of more than ten power plants, and has directed the paleontological monitoring and mitigation program for Path 15, a major transmission line project. He is also a certified paleontologist for the Counties of Orange and Riverside. His publications include 40 peer-reviewed articles in books and journals. His research specialties are fossil fishes and Pleistocene vertebrate Faunas.

Experience
- SR-91 Corridor Improvement Project, 2013-present: Wrote Paleontological Mitigation Plan and supervised paleontological monitoring and mitigation of construction activities.

Devore I-15/I-215 Interchange Improvement Project, 2012-present:
- Supervised paleontological monitoring and mitigation.

BrightSource Sonoran West Solar Project, 2012-2013:
- Supervised paleontological survey on BLM and private lands. Am writing the Paleontological Resources section for the AFC.

BrightSource Rio Mesa Solar Project, 2011-2013:
- Supervised paleontological survey on BLM and private lands. Wrote the Paleontological Resources section for the AFC.

Pio Pico Energy Center, 2010-2011:
- Supervised paleontological survey and wrote the Paleontological Resources section for the AFC.

Mesquite Nevada Replacement General Aviation Airport, 2009:
- Wrote the paleontological Resource Assessment for the Federal Aviation Administration.

Starwood Power-Midway, LLC Peaking Project Construction, 2008-2009:
- Wrote mitigation plan for paleontological resources, oversaw monitoring for paleontological resources, and wrote final report.

I-805 Managed Lanes South Project, 2008-2009:
- Directed paleontological survey of 11.4-mile long project area in San Diego, National City, and Chula Vista and wrote the Paleontological Resource Assessment for SANDAG.
Qualifications of Dr. Joe Stewart

I-805 North Corridor Project, 2008:
Directed paleontological survey of 4.4-mile long project area in San Diego and wrote the Paleontological Resource Assessment for SANDAG.

Calnev Pipeline Project, 2008-present: Directed paleontological survey of 234-mile long project area in San Bernardino County, California and Clark County, Nevada and wrote the paleontological assessment.

Imperial Valley Solar Application for Certification, 2008-present: Directed paleontological pedestrian survey of project area in San Bernardino County and wrote the paleontological resource section of the AFC.

San Joaquin One and Two Application for Certification, 2008: Directed paleontological pedestrian survey of project area in Fresno County and wrote the paleontological resource section of the AFC.

Willow Pass Generating Station Application for Certification, 2008-present: Participated in paleontological pedestrian survey of project area in Contra Costa County and wrote the paleontological resource section of the AFC.

Marsh Landing Generating Station Application for Certification, 2008-present: Participated in paleontological pedestrian survey of project area in Contra Costa County and wrote the paleontological resource section of the AFC. Am serving as Paleontological Resource Specialist for construction.

Calico Solar Application for Certification, 2008-present: Participated in paleontological pedestrian survey of project area, edited the paleontology section of the AFC, and am serving as Paleontological Resource Specialist.

IID Niland Gas Turbine Plant Phase III project construction, 2007-2008: Served as Paleontological Resource Specialist. Oversaw the work of the paleontological resource monitors, made numerous site visits, and will write final report on paleontological resources.

Carrizo Energy Solar Farm (Ausra) Application for Certification, 2007: Participated in paleontological pedestrian survey of project area and edited the paleontology section of the AFC.
Qualifications of Dr. Joe Stewart

Starwood Power-Midway, LLC Peaking Project Application for Certification, 2007:
Participated in the responses to the CEC Provisional Staff Assessments.

BNSF Cajon Main Third Track Summit to Keenbrook permitting, 2007:
Participated in the writing, editing, and production of the Paleontologic Resources Monitoring and Mitigation Plan and the Paleontological Resource Assessment.

Path 15 500-kV Power Transmission Line between Los Banos and Gates substations, 2003-2005:
Supervised paleontological resource monitoring, excavations, specimen preparation, specimen identification, and report writing for 80-mile power line.

Publications


Kelly, T. S., and J. D. Stewart. 2008. New records of Middle and Late Miocene Perissodactyla and Artiodactyla from the western border of the San Joaquin Valley, Diablo Range, Fresno County, California. Los Angeles County Museum of Natural History Contributions in Science 516:1-29.


Stewart, J. D. 2003. Quantifiable change in the Isurus hastalis populations in Middle and Late Miocene rocks of California. Journal of Vertebrate Paleontology 23:101A.


Qualifications of Dr. Joe Stewart


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Stewart, J. D. 1997. Nuevos peces del Miocene Tario de la Formación Almejas de Isla Cedros, Baja California, México. [New late Miocene fishes from the Almejas Formation of Cedros Island, Baja California, Mexico.] Abstract, Memorias de la IV Réunion International sobre Geologia de la Península de Baja California, Ensenada, Baja California, México, 6-9 April, 1997.


Feige, S. F., and J. D. Stewart. 1996. Preliminary findings concerning increase in size through time of the clupeiform teleost, Xyne grex. San Bernardino County Museum Association Quarterly 43:149.


Stewart, J. D., and F. J. Aranda-Manteca. 1993. Nuevos teleosteos del Miembro Los Indios de la Formacion Rosarito Beach, Baja California (new teleosts from the Los Indios member of the Rosarito Beach Formation, Baja California). II Reunion Internacional de Geologia de la Peninsula de Baja California, p. 79.

Barradas, H., and J. D. Stewart. 1993. Posible contenido estomacal de un pinipedo del Mioceno Medio de la Mision, Baja California, México (Possible Middle Miocene pinniped gut contents from La Mision, Baja California, Mexico). II Reunion Internacional de Geologia de la Peninsula de Baja California, p. 24-25.


Qualifications of Dr. Joe Stewart


Stewart, J. D. 1987. Late Wisconsinan biota and artifacts from the Kansas-Nebraska border. Journal of Vertebrate Paleontology 7:27A.


Qualifications of Dr. Joe Stewart


Qualifications of Dr. Joe Stewart


Articles In Press:

Articles Submitted:

Stewart, J. D., and S. B. Hunter.  The supposed Miocene eel, Deprandus lestes Jordan and Gilbert 1921, is a scombroid teleost (Teleostei: Perciformes). Natural History Museum of Los Angeles County Contributions in Science.