1 November 2017

Mr. Daniel P. Walsh, CEG 2413
Riverside County Planning Department
Transportation and Land Management Agency
4080 Lemon Street, 12th Floor
Riverside, California 92501

Subject: **Paleontological Resource Impact Mitigation Program (PRIMP)** for the "Knox Business Park Buildings D and E" Project, unincorporated Riverside County, California (Parcel Maps 36950 and 36962; APNs 314-040-001, 314-040-002, 314-040-003, 314-040-008, 314-020-010, 314-020-017, and 314-020-019-4)

Dear Dan:

Introduction and Location: This letter constitutes the formal Paleontological Resource Impact Mitigation Program (PRIMP) necessary to address potential impacts associated with the planned mass grading and excavation activities for the construction of two proposed warehouse facilities and associated improvements at the site of the Knox Business Park Buildings D and E Project. The project area is situated northwest of Perris and the Interstate 215 (I-215) freeway in unincorporated Riverside County, California (Attachments 1 and 2). The subject properties (Assessor's Parcel Numbers [APNs] 314-040-001, 314-040-002, 314-040-003, 314-040-008, 314-020-010, 314-020-017, and 314-020-019-4) encompass approximately 58.6 acres of previously undeveloped land south of March Air Force Base. On the U. S. Geological Survey, 1:24,000-scale, 7.5-minute Steele Peak, California topographic quadrangle map (Attachment 2), the subject properties are located in the central part of the northern quarter of Section 2, Township 4 South, Range 4 West, San Bernardino Base and Meridian. The property is bounded on the north by Oleander Avenue, on the east and west by undeveloped land, and on the south by both undeveloped land and existing residential properties along Redwood Drive. Ellsworth Street (also called "Decker Road") separates the sites of Buildings D and E. The project development plan calls for construction of two slab on grade warehouse facilities (Buildings D and E) and associated infrastructure surrounded by paved access roads and truck parking areas. For the westernmost of the two buildings (Building E), the western margin slopes down to the main grade of the building pad, and slopes down to the east toward Ellsworth Street. The western margin of the Building D warehouse site will slope down toward the main building pad and the eastern side will have a detention basin for runoff. It is assumed that the entire parcels will be graded as part of the project development; however, the total depth of grading or excavation has not been determined.

Geology: Geomorphically, the subject properties are located on the gentle eastern slope of the unnamed foothills that descend to the alluvial Perris Valley below to the east. The geology of the area (Attachment 3) is shown on the geologic map of the Steele Peak quadrangle by D. M. Morton (2001, Geologic map of the Steele Peak 7.5' quadrangle, Riverside County, California). Geologically, the major part of the project area is underlain by Cretaceous granitic rocks (biotite-hornblende tonalite) of the Val Verde pluton (Val Verde Tonalite, Kvt on Attachment 3), surface outcrops of which are particularly evident in the southeastern quarter of the project (based on Google Earth imagery). The very eastern margin of the property is overlain by a thin, but eastward thickening, section of Quaternary very old alluvial fan sediments ($Qvof_a$ on Attachment 3) derived from the granitic foothills to the west. These rock units are shown on Attachment 3 in light brown and white, respectively.

Paleontology: Paleontologically, the granitic rocks (biotite-hornblende tonalite) that comprise most of the subject property ***do not have any potential*** for the discovery of fossiliferous materials. However, Pleistocene very old alluvial fan deposits in the alluvial valleys of the Inland Empire do have a record of yielding a diverse assemblage of extinct Ice Age terrestrial vertebrate fossils, including mammoth, mastodon, extinct camels, extinct bison, extinct horses, giant ground sloths, and a variety of carnivores such as extinct short-faced bears and saber-toothed cats (G. T. Jefferson, 1991; and collection records of the San Bernardino County Museum in Redlands [SBCM] and the Natural History Museum of Los Angeles County in Los Angeles). However, the closest well documented Pleistocene fossil mammal assemblages are all about 15 miles distant, in the Salt Creek and Diamond Valley Lake areas (*e.g.*, R. E. Raschke, 1994; K. B. Springer *et al*., 1999, 2009; R. S. Anderson *et al*., 2002; Stewart *et al*., 2005), as well as from the Murrieta and Temecula areas of the Elsinore Valley (SBCM collection records) to the southeast and south, respectively. Fossils from these areas were derived from the same types of alluvial and alluvial fan deposits as mapped in the Perris Valley at lower elevations. Thus, a moderate potential does exist for the discovery of additional Ice Age vertebrate fossils in certain depositional settings and attention must be paid to their potential discovery during paleontological monitoring activities. Pedestrian field surveys conducted by personnel of Brian F. Smith and Associates, Inc. (BFSA) in September of 2014 did not reveal the presence of any fossils or fossil-bearing sedimentary units across the subject property.

Paleontological Sensitivity: A "paleontological sensitivity map and report" generated by the Riverside County Land Information System in October of 2017 (Attachment 4) ranks the greatest part of the subject property, that is, the area underlain by granitic rocks, as having a Low potential to yield nonrenewable paleontological resources, and thus a Low paleontological sensitivity. Only the northeastern fringe of the property is shown as having a Moderate Potential/Sensitivity to yield paleontological resources, which is "based on the occurrence of fossils at a specified depth below the surface. The Moderate category indicates that fossils are likely to be encountered at or below four feet of depth, and may be impacted during excavation by construction activities." The granitic rocks of the Val Verde pluton must be regarded as having a paleontological resource potential of low to none. The likelihood of discovering fossils in granitic rocks is nil and paleontological monitoring is not required on the greatest part of the subject property.

The boundary between the area of Moderate Sensitivity (yellow-brown on Attachment 4) and the area assigned a Low potential (light green on Attachment 4) only approximately follows the geologic contacts as shown on Attachment 3, probably as a result of scaling from the original presentation down to that shown on Attachment 4. However, we regard the geologic map as presenting the most accurate reflection of possible paleontological sensitivity and use the geologic contact between the Quaternary sediments ($Qvof_a$) and the Cretaceous granitic rocks (Kvt) as the boundary between areas with Moderate and Low sensitivity levels. The Moderate paleontological sensitivity ranking encompasses only the outcrop areas of the mapped Quaternary very old alluvial fan sediments (Qvof); however, they would be thinnest along the mapped contact. These 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 [G. T. Jefferson, 1991; R. S. Anderson *et al.*, 2002; K. B. Springer *et al.*, 1999, 2009]). Because of the established presence of abundantly fossiliferous localities in the Inland Empire and the documented paleontological sensitivity of the older alluvial fan sediments in this area (Attachment 4), paleontological monitoring of mass grading and excavation activities, including utility trenching, in areas so mapped is required to mitigate impacts to potentially significant nonrenewable paleontological resources (*i.e.*, fossils) if grading will achieve depths of four feet or greater.

Mitigation Program: The Mitigation Monitoring and Reporting Program (MMRP), or PRIMP, is consistent with the aims and provisions of the California Environmental Quality Act (CEQA), those of the County of Riverside, and of the draft guidelines of the Society of Vertebrate Paleontology, and must be implemented for any mass grading and excavation-related activities, including utility trenching, that will exceed four feet in depth during construction activities within the Area of Potential Effect (APE), *i.e.*, areas of exposed Quaternary older alluvial fan sediments (Qof) in the northeast fringe of the property. These items are addressed below:

1. Description of the proposed site and planned grading operations: See the first paragraph in this letter, above.

2. Description of level of monitoring required for all earth-moving activities within the project: All mass grading, excavation, and trenching activities within the areas of Quaternary older alluvial fan sedimentary deposits are to be monitored full-time for paleontological resources.

3. Identifications and qualifications of the qualified paleontological monitor to be employed for grading operations monitoring: The primary paleontological monitors will be Mr. Todd A. Wirths, M.S., P.G. No. 7588, who has approximately 16 years of professional experience practicing geology and paleontological monitoring in the southern California area, and Mr. Clarence L. Hoff, who has approximately 17 years of professional experience conducting paleontological monitoring in the southern California area. Mr. Hoff's qualifications were previously set forward in a letter to the County of Riverside Transportation and Land Management Agency's (TLMA) Chief Engineering Geologist in 2012. Mr. Wirths'

qualifications were also set forward in a letter to TLMA Chief Engineering Geologist prior to the start of monitoring of another project.

4. Identification of personnel with authority and responsibility to temporarily halt or divert grading equipment to allow for the recovery of large specimens: In the field, the primary monitors (Mr. Todd A. Wirths, P.G., or Mr. Clarence L. Hoff) will be the responsible persons onsite with the assigned authority and responsibility to control all grading operations that might adversely affect any salvage efforts. The primary person within the BFSA office will be Dr. George L. Kennedy, Senior Paleontologist and principal investigator for paleontology for this project.

5. Direction for any fossil discoveries to be immediately reported to the property owner who in turn will immediately notify the county geologist of the discovery: All paleontological monitors automatically inform the BFSA office (Dr. Kennedy) regarding discoveries of fossils while monitoring. It is the practice of the office to immediately notify all concerned parties (client, resident engineer, and lead agency [*i.e.*, in Riverside County, the county geologist]) at the time of any discovery.

6. Means and methods to be employed by the paleontological monitor to quickly salvage fossils as they are unearthed to avoid construction delays: Paleontological salvage on trenching activities is typically from the trench spoils and does not delay the trenching activity. Fossils are collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes are taken on the map location (using GPS technology) and stratigraphic setting and position of the site, and the site is photographed before it is vacated and the fossils removed to a safe location. On mass grading projects, any discovered fossil site is protected by red flagging to prevent it from being overrun by earth-movers (scrapers) before salvage begins. Fossils are collected in a like manner, with notes and photographs taken before removing fossils. If the site involves a large terrestrial vertebrate, for example large bone(s) or a mammoth tusk too large to be easily removed by a single monitor, BFSA will send a fossil recovery crew in to excavate around the specimen, encase the find within a plaster jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment is solicited to remove the jacket to a safe location before it is returned to BFSA's laboratory facility.

7. Sampling of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates: Sediments containing small invertebrate and/or vertebrate fossils are considered as important as larger fossils and will always be collected.

8. Procedures and protocol for collecting and processing of samples and specimens: Isolated fossils are collected by hand, wrapped in paper and/or aluminum foil and placed in temporary collecting flats or five-gallon buckets. Notes are taken on the map location and stratigraphy of the site, and the site is photographed before it is vacated and the fossils removed to a safe location. Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained by one to several five-gallon buckets of fossiliferous sediment. If it is possible to

dry-screen the sediment in the field, a concentrated sample may consist of one or two buckets of material. For vertebrate fossils, the test is usually the observed presence of small pieces of bone within the sediments. If present, as many as 20 to 40 five-gallon buckets of sediment can be collected and returned to a separate facility in order to wet-screen the sediment. In the laboratory, individual fossils are cleaned of dirt and/or extraneous matrix, any breaks repaired, and the specimen, if needed, is stabilized by soaking in an archival-approved acrylic hardener (*e.g.*, a solution of acetone and Paraloid B-72).

9. Fossil identification and curation procedures to be employed: Invertebrate fossils are to be identified by the Principal Investigator for Paleontology (Dr. George L. Kennedy), who has more than 50 years of professional experience with the local fossil record of southern California and is thoroughly familiar with all aspects of museum preparation techniques. Vertebrate fossils will be identified by an adjunct vertebrate paleontology specialist, depending on the group of fossils requiring identification (*e.g.*, reptiles, birds, mammals, or fish). Standard museum curation steps will be followed by, or under the direct supervision of, the Principal Investigator, who has been the Senior Paleontologist with BFSA for the last 17 years, and has numerous years of curatorial experience at the Natural History Museum of Los Angeles County, the San Diego Natural History Museum, and the U. S. Geological Survey.

10. Identification of the permanent repository to receive any recovered fossil material: Pursuant to the County of Riverside's "SABER Policy" for recovered fossils, they should, by preference, be directed to (deposited at) the Western Science Center Museum on Searl Parkway in Hemet, Riverside County, California. A written agreement between the developer and the Western Science Center should be completed before grading begins.

11. All pertinent exhibits, maps and references: See text and attachments of this PRIMP report.

12. Procedures for reporting of findings: A final written report will be produced by BFSA, coauthored by the Principal Investigator (Dr. George L. Kennedy) and California Professional Geologist, Mr. Todd A. Wirths, P.G. No. 7588 and submitted to the Riverside County Geologist (Mr. David L. Jones, CEG 2283) at the conclusion of grading activities for the project. The report will include sections regarding general background information, dates of monitoring and salvage collecting, previous studies (both geologic and paleontologic), results of findings and analysis, discussion of laboratory preparation procedures and curation steps, discussion of all recovered fossils, and a fossil list identified to the lowest level possible, references cited, and index and locality maps and graphics to show all fossil localities. If fossils are not recovered during the project, the final report will be in a shortened letter format.

13. Identification and acknowledgement of the developer for the content of the PRIMP as well as acceptance of financial responsibility for monitoring, reporting and curation fees: Brian F. Smith, President of BFSA, acknowledges that Trammell Crow Southern California Development, Inc. will assume financial responsibility for the PRIMP and any associated curation fees for the project.

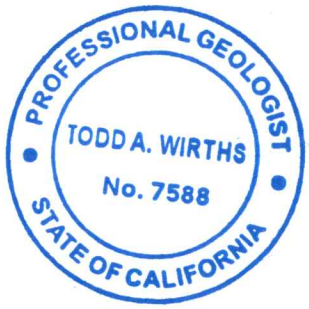
If you have any questions concerning this PRIMP, please feel free to contact our Poway office. Thank you for your time and consideration.

Sincerely,

George L. Kennedy, Ph.D.
Senior Paleontologist

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

Attachments: Index maps, geologic map, paleontological sensitivity map



Paleontological Resource Impact Mitigation Program (PRIMP)
Knox Business Park Buildings D and E Project

A mitigation program (PRIMP) consistent with the provisions of the California Environmental Quality Act (CEQA), regulations currently implemented by the County of Riverside, and proposed guidelines of the Society of Vertebrate Paleontology is to be implemented for all areas mapped as Quaternary very old alluvial fan deposits ($Qvof_a$):

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Full-time paleontological monitoring will be conducted in all areas of grading or excavation in undisturbed very old alluvial fan deposits ($Qvof_a$ on Attachment 3), as well as where over-excavation of surficial alluvial sediments will encounter these formational 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 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 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 (not display), including screen-washing sediments to recover small invertebrates and vertebrates if necessary. Evaluation and museum-level preparation of discovered fossils will be overseen by the project paleontologist (Dr. George L. Kennedy), who has more than 50 years of professional experience with the fossil record of southern California and is familiar with all aspects of museum preparation and specimen curation.

3. Identification, cataloging, and curation of specimens must be completed before their final placement with a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the Western Science Center on Searl Parkway in Hemet, Riverside County, California). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.

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. Costs of all aspects of the PRIMP are to be the responsibility of the client (Trammell Crow Southern California Development, Inc.). The final report, once submitted to, and accepted by, the appropriate lead agency (Attn.: David L. Jones, Riverside County TMLA, Planning Department, 4080 Lemon Street, 12th floor, Riverside, California 92503), will signify satisfactory completion of the project program to mitigate impacts to any potential nonrenewable paleontological resources (*i.e.*, fossils) that might have been lost or otherwise adversely affected without such a program in place.

References Cited:

Anderson, R. S., Power, M. J., Smith, S. J., Springer, K. B., and Scott, E. G. 2002. Paleoecology of a middle Wisconsin deposit from southern California. Quaternary Research, 58(3): 310-317, figs. 1-3.

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Springer, K. B., Scott, E, G., Sagebiel, J. C., and Scott, K. M. 1999. A late Pleistocene lake-edge vertebrate assemblage from the Diamond Valley, Riverside County, California [abstract]. *In* Abstracts of papers, fifty-ninth annual meeting, Society of Vertebrate Paleontology. Journal of Vertebrate Paleontology, 19(3, supplement): 77A.

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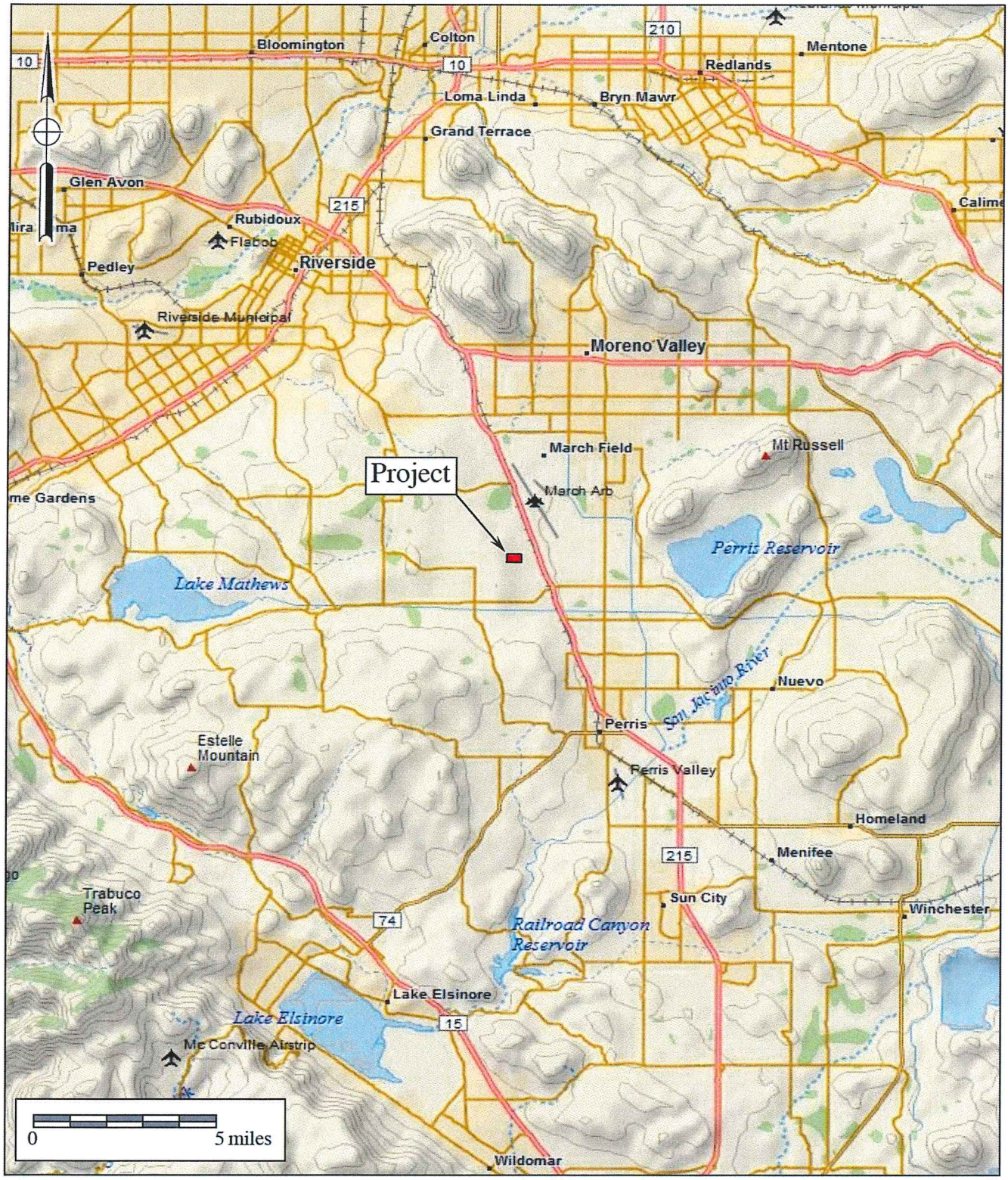
Stewart, J. D., Kennedy, G. L., and Shiller, G. I. 2005. Paleontological monitoring report, construction of Salt Creek Channel, Stage 6, Winchester region, Riverside County, California. Unpublished paleontological report prepared for L. D. Anderson, Incorporated, Bloomington, California, by Brian F. Smith and Associates, Poway, California.

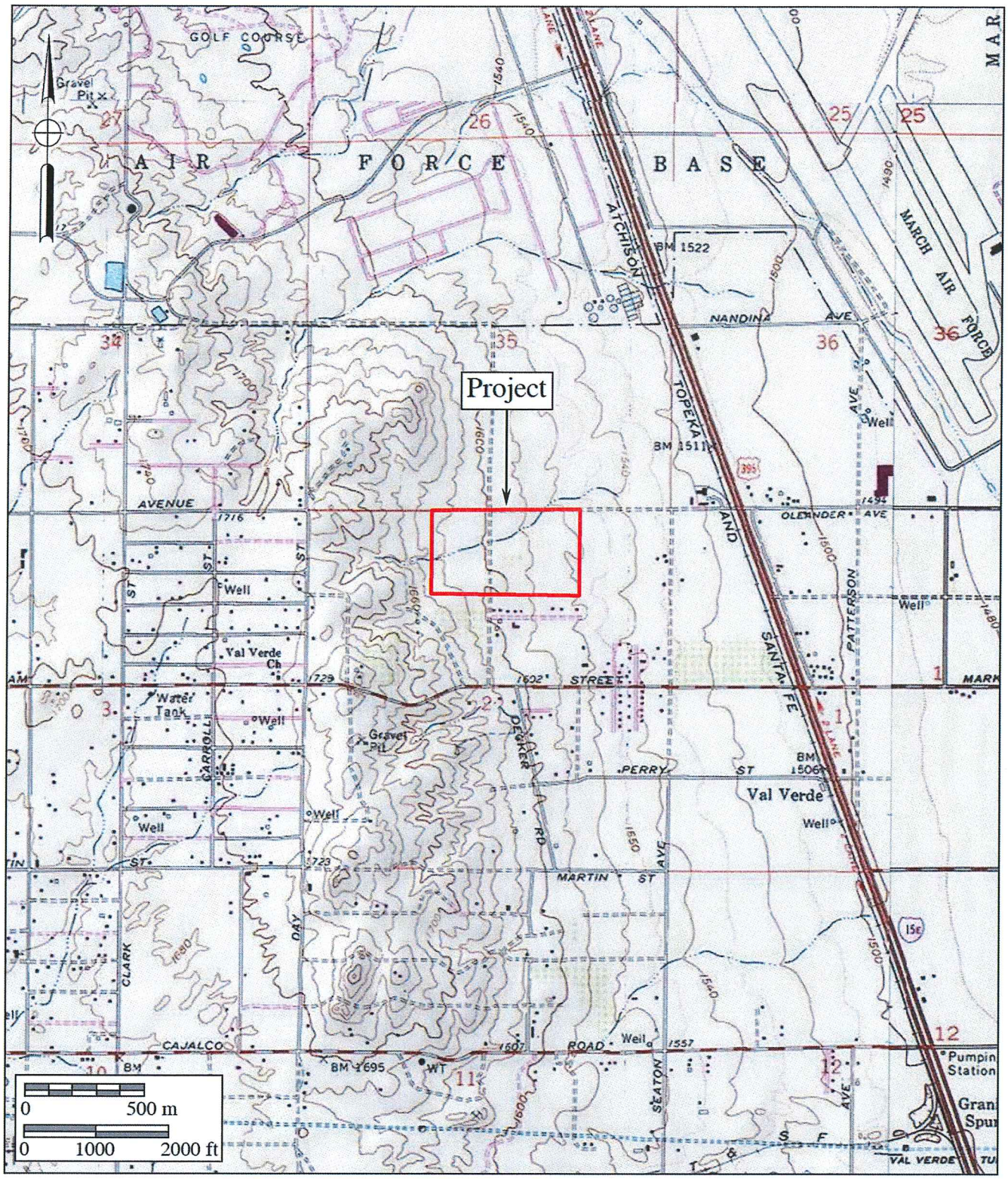


Attachment 1

General Location Map

The Knox Business Park Buildings D and E Project

DeLorme (1:250,000)

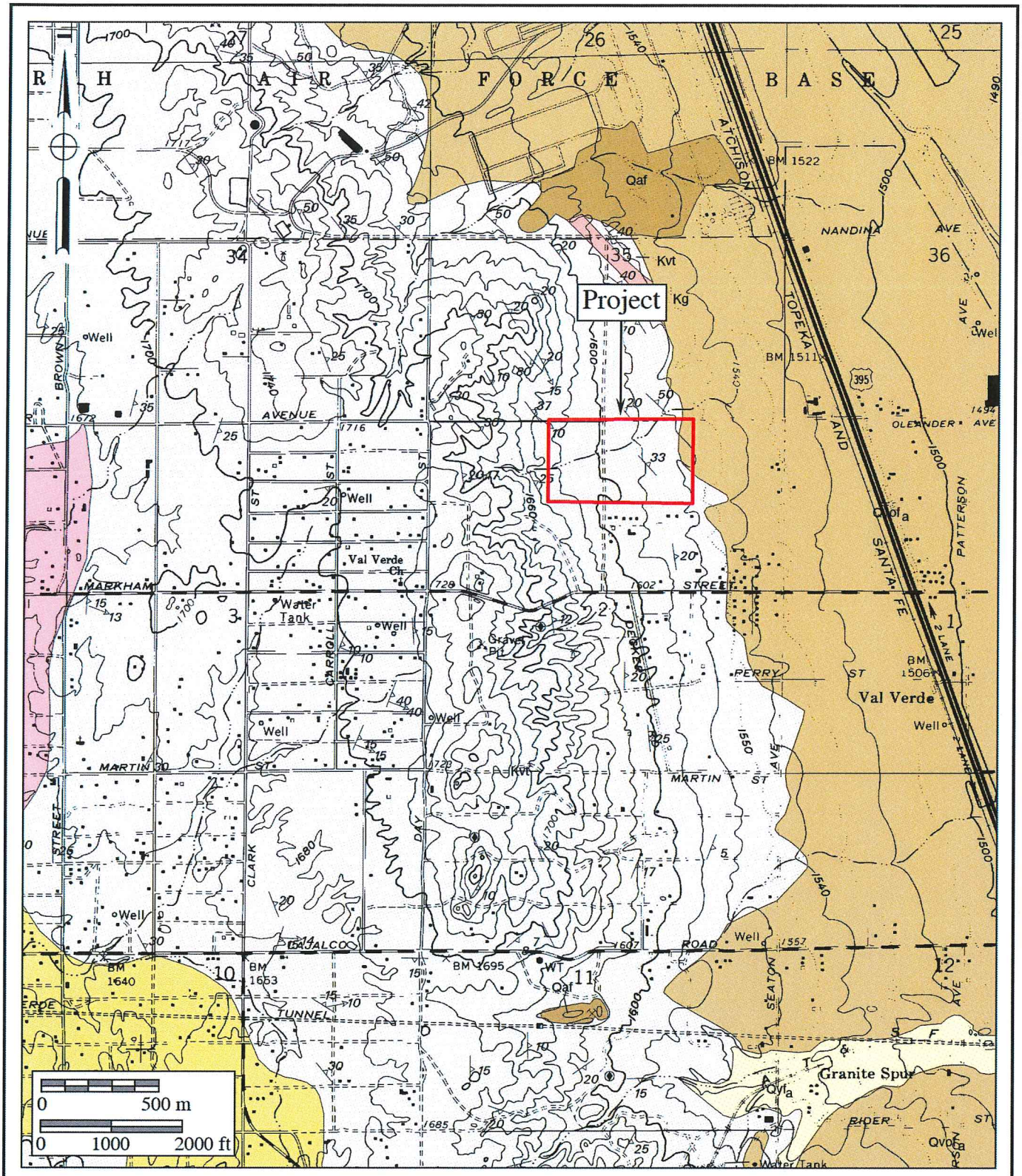


Attachment 2

Project Location Map

The Knox Business Park Buildings D and E Project

USGS *Steele Peak* Quadrangle (7.5-minute series)

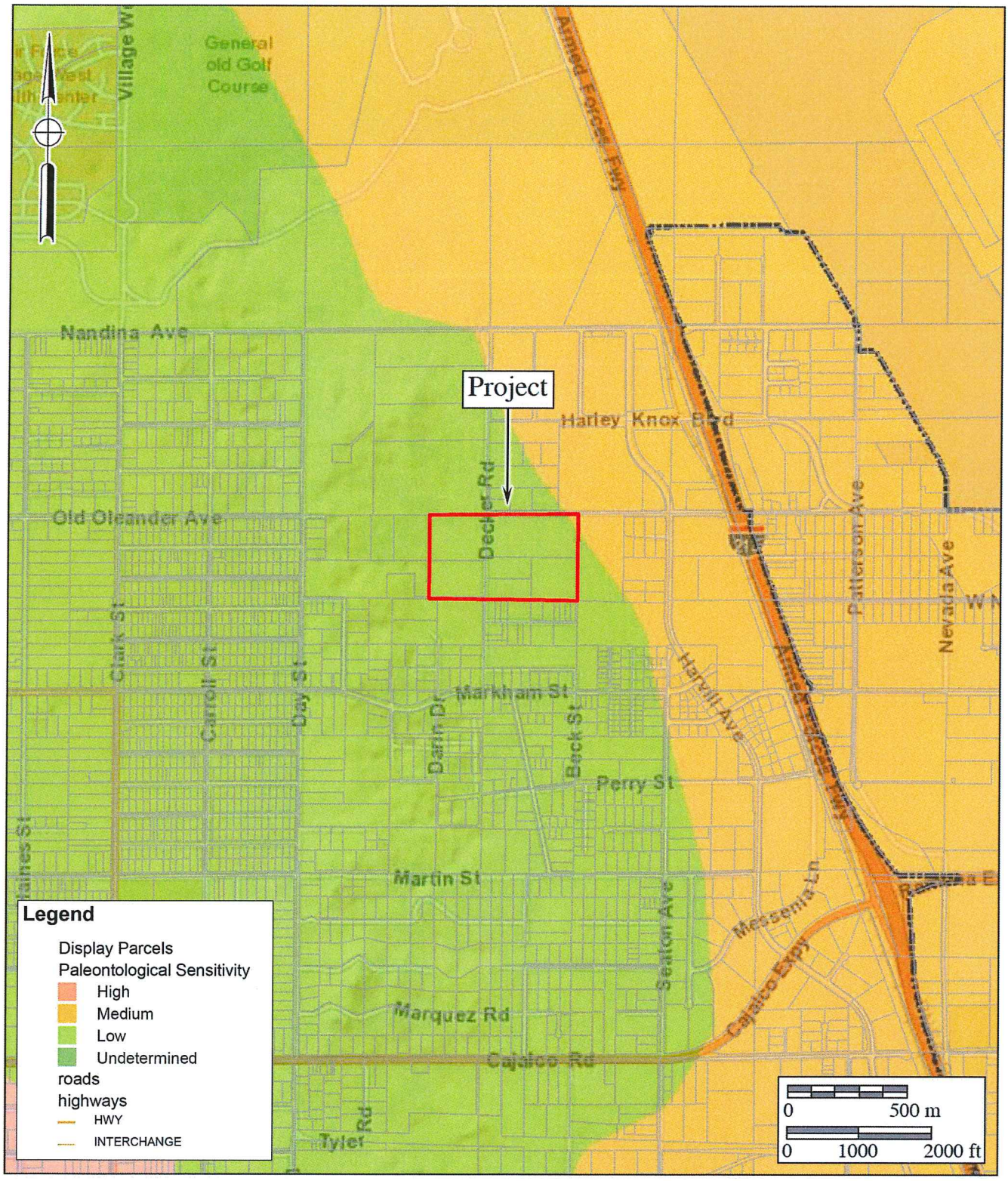


Attachment 3

Geologic Map

The Knox Business Park Buildings D and E Project

Geology after Morton (2001)



Attachment 4

Paleontological Sensitivity Map

The Knox Business Park Buildings D and E Project