5 May 2015

Mr. Todd Pendergrass
Nichols Road Partners, LLC
25555 Maitri Road
Corona, California 92883

Subject: Paleontological Resource and Monitoring Assessment, Nichols Road Quarry Expansion project area, city of Lake Elsinore, Riverside County, California

Dear Mr. Pendergrass:

Location: A paleontological resource and monitoring assessment has been completed for the Nichols Road Quarry Expansion project area, located in the northwestern part of Warm Springs Valley near the mouth of Walker Canyon and adjacent to (north of) Nichols Road and east of the Interstate 15 (I-15) freeway in the city of Lake Elsinore, Riverside County, California (Attachments 1 and 2). On the U. S. Geological Survey 7.5-minute Elsinore, California topographic quadrangle map, the project area comprises most of the northern third of Section 25 in Township 5 South, Range 5 West, San Bernardino Base and Meridian (Attachment 2).

Geology: The geology of the eastern Lake Elsinore area is shown on the geologic map of D. M. Morton and F. H. Weber (2003, Preliminary geologic map of the Elsinore 7.5' quadrangle, Riverside County, California: U. S. Geological Survey Open-File Report 03-281). As mapped, the subject property is dominantly underlain by three major rock types: unnamed heterogeneous granitic rocks (Khg) in the north and northeast, an intermixed suite (Ksv) of Cretaceous Estelle Mountain volcanics and Cretaceous metasedimentary rocks in the northwest, and young Quaternary sandy alluvial fan sediments (Qyf_a) along the southern part of the property (Attachment 3, after Morton and Weber, 2003).

Paleontological Sensitivity: A paleontological sensitivity map and report, generated by the Riverside County Land Information System on March 30, 2015 (Attachment 4), ranks most of the project area as having a Low Potential/Sensitivity to contain significant nonrenewable paleontological resources (*i.e.*, fossils). These areas are underlain by the Cretaceous granitic rocks (Khg) and the young Quaternary alluvial fan sediments (Qyf_a). Areas shown as having an Undetermined Potential to yield significant nonrenewable paleontological resources (*i.e.*, fossils) are shown in dark green on Attachment 4 and represent the areas mapped as the intermixed suite (Ksv) of Cretaceous Estelle Mountain volcanics and Cretaceous metasedimentary rocks on Attachment 3. Based on exposures of this mixed suite of rocks observed during the field survey

on April 1, 2015, the original sediments have been metamorphosed (baked and squeezed) to the degree that any original fossils would no longer be observable. These rocks form resistant outcrops where they are exposed on the hillsides and cut slopes. The Cretaceous metavolcanic rocks within this unit formed similar outcrops. No fossils were observed in any of the examined outcrops of either unit within this suite of rock types.

All three of these geologic units within the bounds of the Nichols Road Quarry property are thus either assigned a Low Potential to yield fossiliferous materials on Attachment 4, or are regarded as unlikely to yield fossiliferous materials on the basis of the geologic field investigation. As such, implementation of a paleontological Mitigation Monitoring and Reporting Program (MMRP) would typically not be required for any earth-disturbing (quarrying) activities in areas that are so mapped.

Paleontological Literature and Records Review: Based on previous paleontological literature and collections and records searches of areas in Temescal Valley north of the subject property conducted by the Geological Sciences Division of the San Bernardino County Museum in Redlands, California, that cover some of the same geologic units exposed in the project area (*i.e.*, the Cretaceous Estelle Mountain volcanics and the unnamed heterogeneous granitic rocks), the presence of previously recorded fossil localities in these units was considered to be remote. Because of the unlikely possibility of finding fossils in the geologic formations exposed across the subject property, a museum collections and records search was not solicited for this project.

Geologic Field Survey: A geologic field survey was conducted by the senior author on April 1, 2015. The survey began with the examination and sampling of exposed outcrops of the intermixed suite (Ksv) of Cretaceous Estelle Mountain volcanics and Cretaceous metasedimentary rocks in the northwest part of the property, followed by examination of the unnamed heterogeneous granitic rocks (Khg) in the north and northeast, and finally examination of the proximal (upslope) exposures of the alluvial fans at the base of the granitic hillsides below the active quarry area. Much of the flat-lying area mapped as young alluvial fan sediments (Qyf_a) represent the rough-graded working surface of the quarry operation, the surface of which is covered by crushed rock, stock piles of rock and topsoil, settling ponds, and infrastructure. No fossils of any sort were observed in any of the examined outcrops within the project area.

Of the exposed formational units within the bounds of the project area, only the intermixed suite (Ksv) of Cretaceous Estelle Mountain volcanics and Cretaceous metasedimentary rocks exposed in the northwest part of the site were ranked (Attachment 4) as having an undetermined paleontological sensitivity, and thus the possibility of yielding fossiliferous remains without further examination of their lithologic makeup. Note that the area of undetermined paleontological sensitivity (dark green on Attachment 4) does not exactly coincide with the mapped exposures (Attachment 3) of this intermixed rock unit, probably due to issues of scaling from the original source map to the scale of the project site map. We regard the geologic map to be a more precise representation of the area of undetermined sensitivity, and used the mapped contacts on Attachment 3 to define the boundary between areas of low and undetermined paleontological sensitivity. Based on outcrops of the metasedimentary rocks within the Ksv unit (Attachment 3) that were observed during the field survey on April 1, 2015, these original sediments have been metamorphosed to the degree that any original fossils, if present, would no

longer be observable. These rocks form resistant outcrops where they are exposed on the hillsides and cut slopes. No fossils were observed in any of the examined outcrops of this unit.

Also examined were proximal (upslope) exposures of the young Quaternary alluvial fans on the basal parts of the granitic hillsides below the active quarry area. The sediments there consisted of coarse angular-clast gravels in a coarse-grained sand matrix that are regarded as too gravelly to represent a depositional environment conducive to the accumulation of fossil remains.

Conclusions: Based on the published geologic map units within the bounds of the Nichols Road Quarry property (Attachment 3), the lack of any known fossiliferous deposits in these units (unpublished San Bernardino County Museum collection records), the assignment of a Low Potential to contain significant nonrenewable paleontological resources (*i.e.*, fossils) in the granitic and young alluvial fan sediments (Attachment 4), and the results of the geologic field examination of the intermixed suite (Ksv) of Cretaceous Estelle Mountain volcanics and Cretaceous metasedimentary rocks, it is the conclusion of this report that the likelihood of finding fossiliferous materials within this property during any further excavation (quarrying) and/or grading activities is very low to nil. ***We therefore recommend that a paleontological mitigation and/or monitoring program (MMRP) not be required for this project area during the course of further development of the property***.

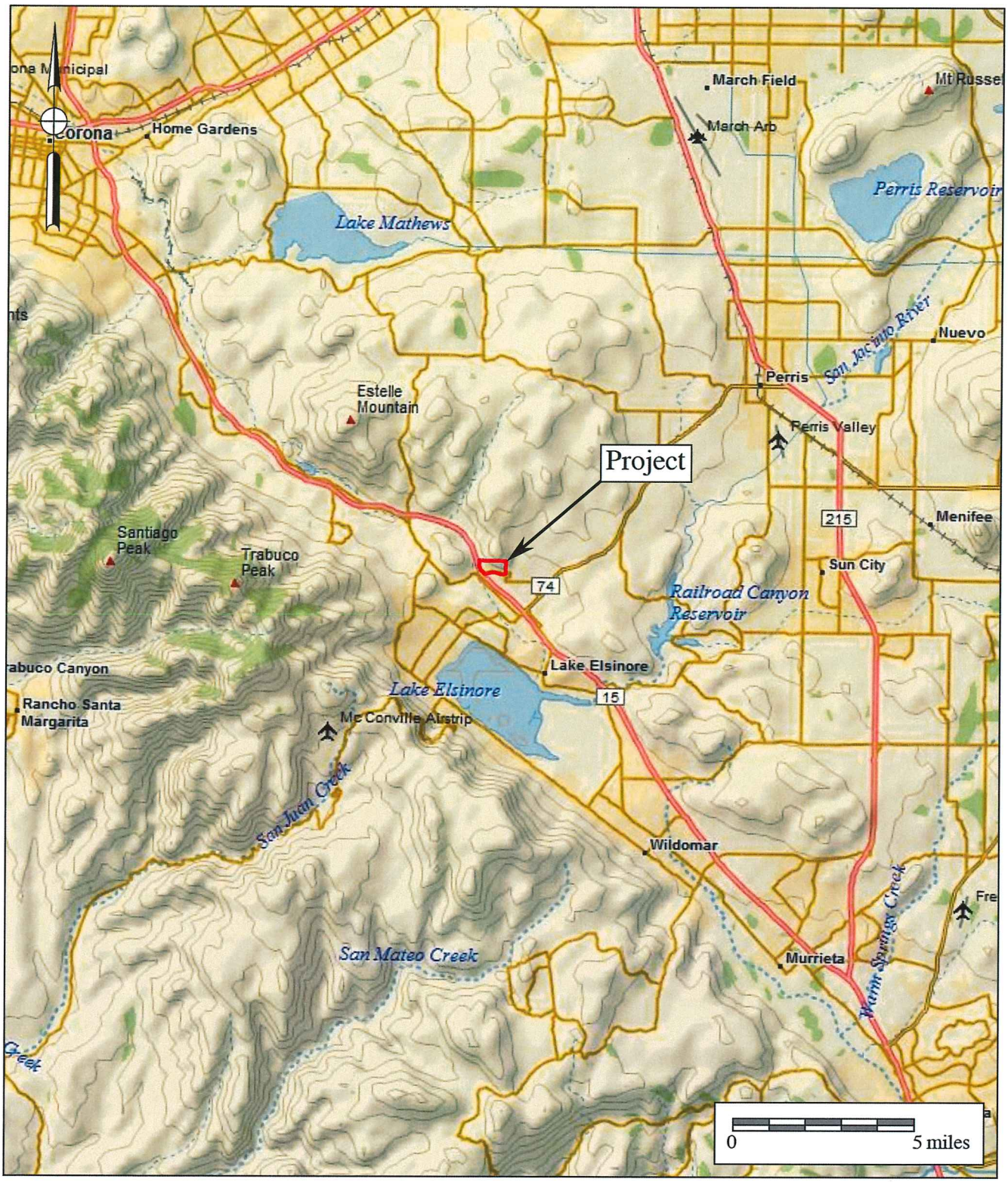
If there are any questions concerning this investigation, please feel free to contact us directly. Thank you for the opportunity to have provided paleontological services on this project.

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

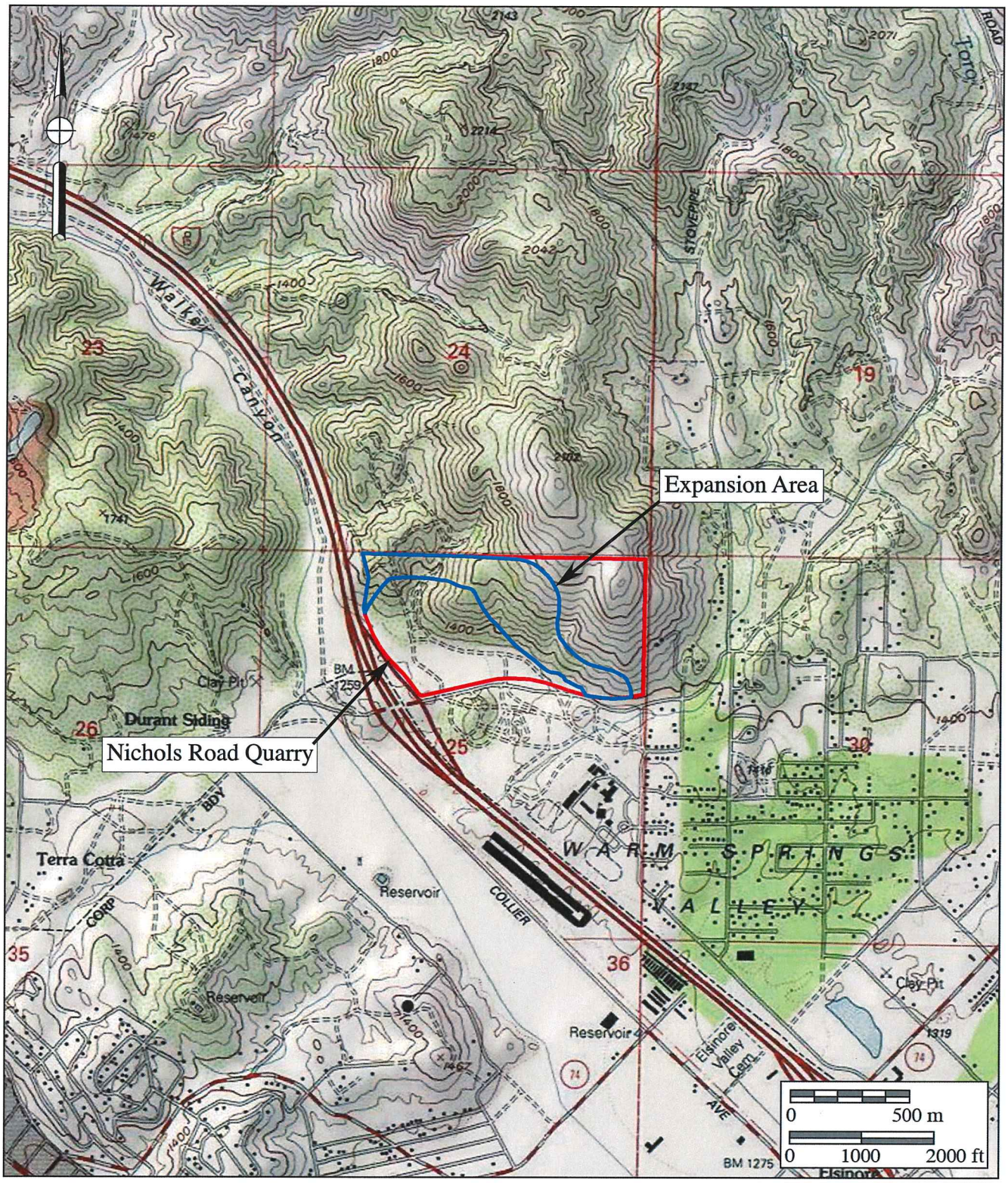


Attachment 1

General Location Map

The Nichols Road Quarry Expansion Project

DeLorme (1:250,000)

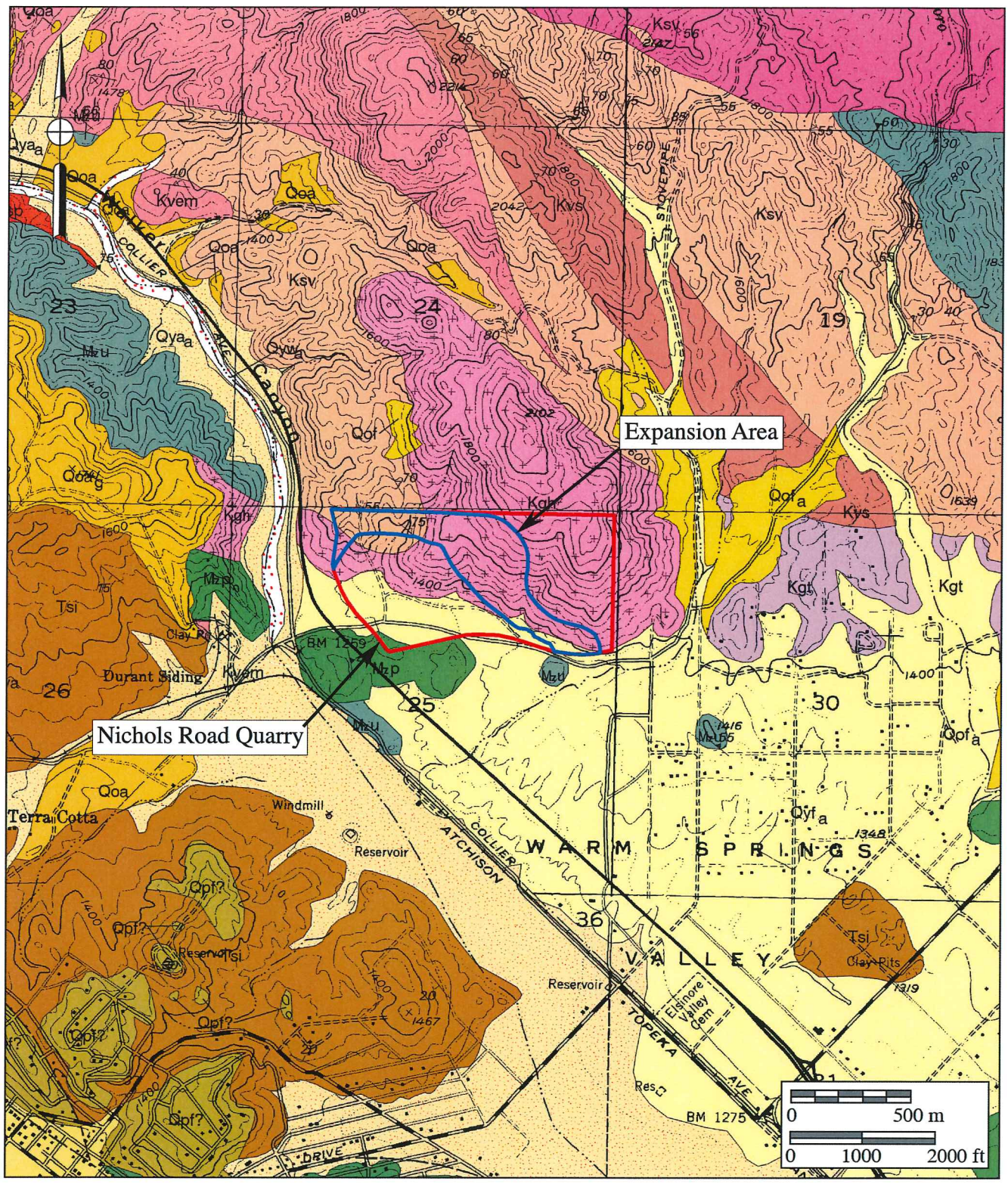


Attachment 2

Project Location Map

The Nichols Road Quarry Expansion Project

USGS *Elsinore* Quadrangle (7.5-minute series)



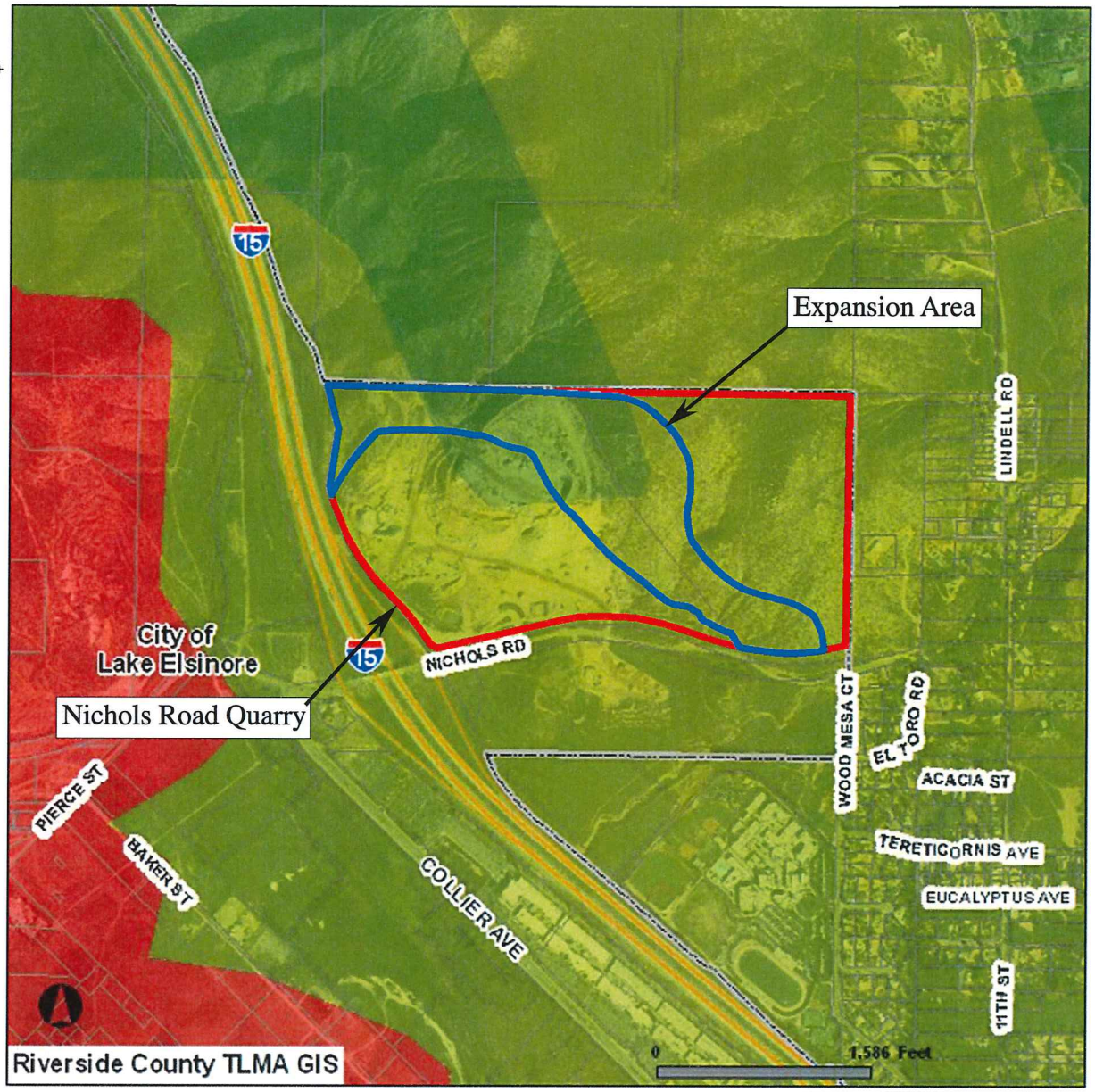
Attachment 3

Geologic Map

The Nichols Road Quarry Expansion Project

Geology after Morton and Weber (2003)

Attachment 4 - Paleontological Sensitivity Map



Selected parcel(s):
APNs 316-210-015, 316-210-024

PALEONOTOLOGICAL SENSITIVITY

INTERSTATES | HIGHWAYS | CITY | PARCELS

HIGH POTENTIAL/SENSITIVITY (HIGH A) | LOW POTENTIAL | UNDETERMINED POTENTIAL

Attachment 4

Paleontological Sensitivity Map

The Nichols Road Quarry Expansion Project