

**SECTION 3.11**  
**PALEONTOLOGICAL RESOURCES**

## 3.11 PALEONTOLOGICAL RESOURCES

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### 3.11.1 INTRODUCTION

This section examines the potential impacts to nonrenewable paleontological resources (*i.e.*, fossils) that may result from development of the proposed project, and is based on the *Paleontological Resource Assessment for San Diego State University 2007 Campus Master Plan Revision, City of San Diego, San Diego County, California*, prepared by Brian F. Smith and Associates (April 12, 2007). As further explained below, the paleontological assessment determined that any potential impacts to paleontological resources that would result with implementation of the SDSU 2007 Campus Master Plan Revision would be mitigated to a level below significant. The paleontological resource assessment is presented in its entirety in **Appendix XX** of this EIR.

### 3.11.2 METHODOLOGY

The analysis of paleontological resources was conducted by surveying the geologic and stratigraphic setting of the SDSU campus and surrounding vicinity, and classifying the area's relative paleontological resource sensitivity in order to determine the likelihood of paleontological resources on the proposed project sites. Potential impacts and recommended mitigation measures are based on the likelihood that paleontological resources may be present in the area of the proposed project development.

The analysis is based, in part, on a review of relevant literature, including a 1993 summary of San Diego County's paleontological resources prepared by T.A. Deméré and S.L. Walsh, which provides relevant information on the paleontology, distribution, and resource sensitivity of all local sedimentary formations ("Deméré and Walsh"). The Deméré and Walsh summary, which is the single most important document used by environmental planners when assessing local paleontological resource potential, was used in conjunction with published geologic maps of the coastal plain areas of San Diego County to determine the location of potential paleontological resources.

Additional information was derived from collections and records searches of the Department of Paleontology at the San Diego Natural History Museum ("SDNHM") that were conducted in late 2004 and February 2007. These searches were designed to retrieve results that document the presence of recorded fossil localities on the SDSU campus and within a one-mile radius of the campus' perimeter. Because searches of public and private institutions holding

paleontological collections only provide information on what has already been found, they provide a minimum indication of what may be present in an area or what may be uncovered in the future. As such, they are guideposts for future investigations, and serve to aid in the process of identifying areas that may require mitigation.

### **3.11.3 EXISTING CONDITIONS**

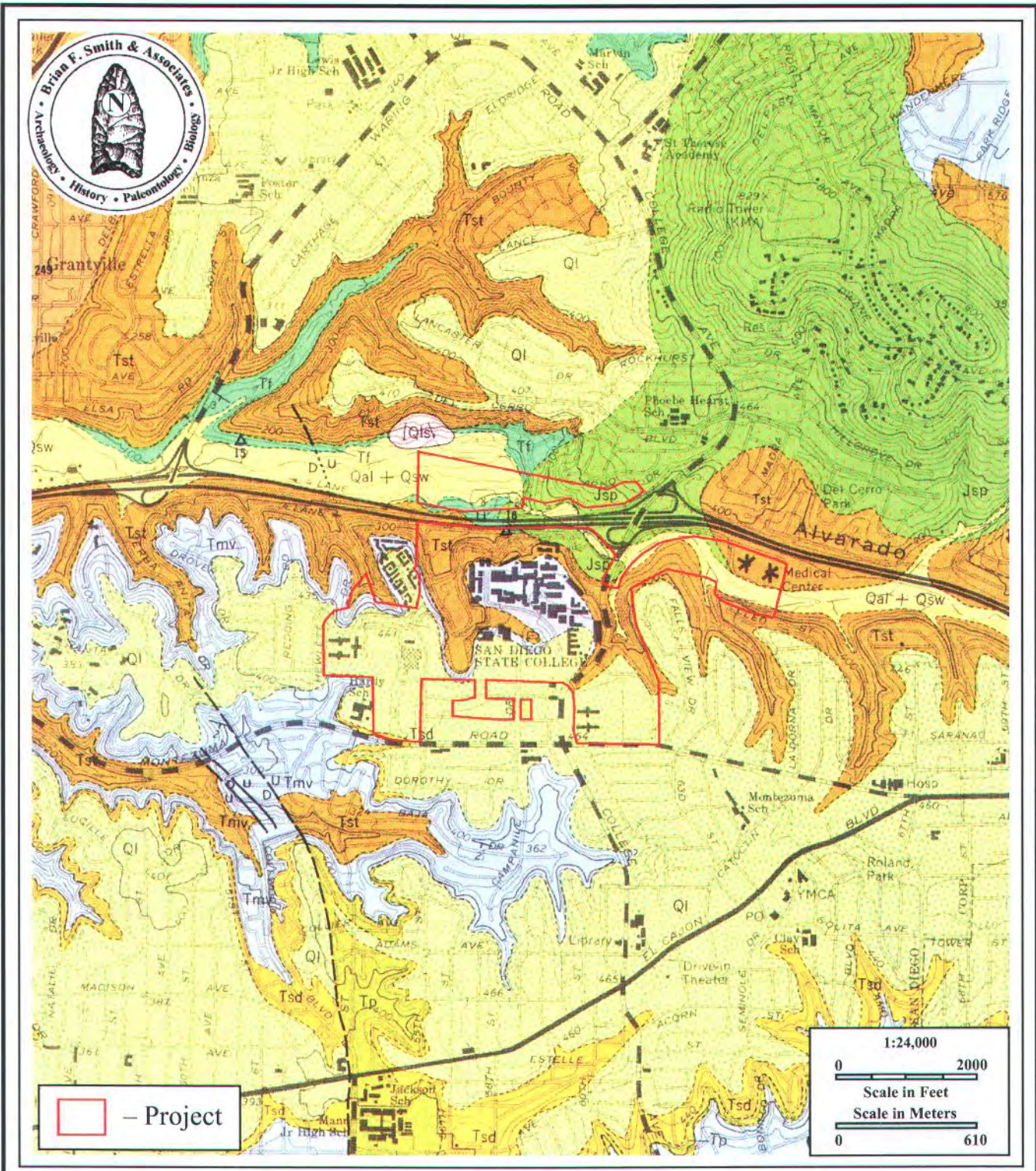
The SDSU campus is located in the City of San Diego approximately 10 miles east of the coastline. Most of the developed parts of the campus are located southwest of the Interstate 8 ("I-8")/College Avenue intersection. Much of the older developed parts of the campus lie along the northern edge of the mesa that overlooks the eastward-trending tributary extension of Mission Valley. Headward erosion and incision into the mesa from the north has divided the campus into several plateau areas separated by several steep-sided canyons. Some of the canyon areas have since been infilled, whereas others remain open. The canyon walls and artificial cuts along them have exposed several geologic formations.

The geology of the area, based on the U. S. Geological Survey 7.5-minute, 1:24,000-scale, La Mesa, California quadrangle map, is shown in **Figure 3.11-1, Geologic Map [Figure 2.0-1]**, with an explanatory key following in **Figure 3.11-2, Geologic Map Explanation [Figure 2.0-2]**. Based on the map, seven geologic units or formations are identified within the footprint of the SDSU campus and ancillary properties. These geologic map units and their abbreviations are, from youngest to oldest: Holocene (<10,000 years old) and uppermost Pleistocene alluvium and slope wash (designated on **Figure 3.11-1** as "Qal+Qsw"); the lower Pleistocene (~ 1 million years old) Lindavista Formation ("Ql"); the middle to upper Pliocene (~ 2 to ~ 4 million years old) San Diego Formation ("Tsd"); the middle Eocene (~ 42 to ~ 46 million years old) Mission Valley Formation ("Tmv"); Stadium Conglomerate ("Tst"), and the Friars Formation ("Tf"); and, the Lower Cretaceous (~ 116 to ~ 128 million years old) Santiago Peak Volcanics ("Jsp"). Each of these formations and their potential for yielding fossils is discussed below.

#### **3.11.3.1 Alluvium and Slope Wash**

The term "alluvium" is a general one used for geologically young, unconsolidated, fine-grained to coarse-grained materials (e.g., clay, silt, sand, and gravel) that have been deposited by streams or running water, and usually accumulate in topographic depressions or in the bottoms of canyons or stream beds.

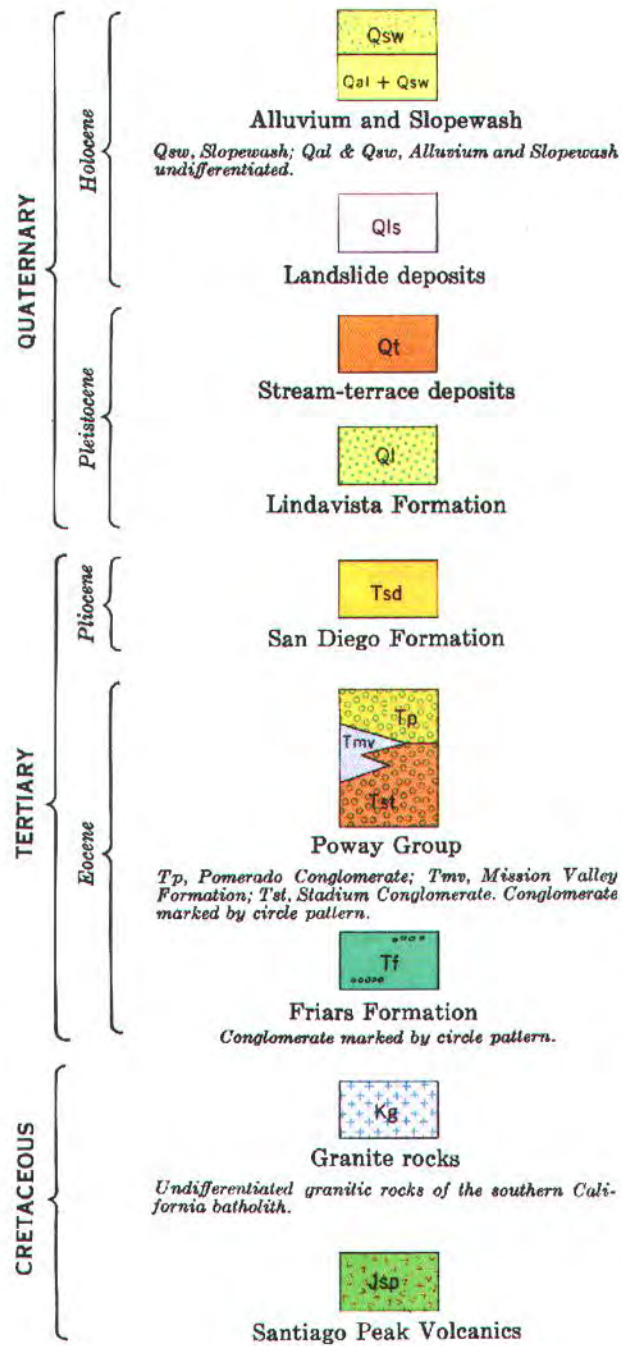




**Figure 2.0-1**  
**Geologic Map**  
 SDSU 2007 Campus Master Plan Revision  
 Geology of La Mesa Quadrangle after Kennedy and Peterson (1975)



## EXPLANATION



**Figure 2.0–2**  
**Geologic Map Explanation**  
 SDSU 2007 Campus Master Plan Revision  
 Modified from Kennedy and Peterson (1975)

As shown on **Figure 3.11-1 [Figure 2.0-1]**, mapped areas of alluvium and slope wash ("Qal+Qsw") are present in Alvarado Canyon, east of the SDSU main campus in the area of the Alvarado medical complex, and possibly including areas marginal to the proposed Alvarado Hotel and the Villa Alvarado Residence Hall expansion, and north of I-8 in the western half of the area identified as the proposed Adobe Falls Faculty/Staff Housing site.

It is unlikely that these areas mapped as alluvium or slope wash contain any unique paleontological resources for three reasons: (i) geologically young alluvial materials rarely yield any fossils; (ii) the formation is considered to have "low paleontological resource sensitivity" by Deméré and Walsh; and (iii) there are no known or recorded fossil localities from alluvial deposits within a one-mile radius of the SDSU campus.

### **3.11.3.2 Lindavista Formation**

The Lindavista Formation includes a number of different lithologies, including rust-colored, very well sorted dune sands (on local "beach ridges"), coarse-grained, often poorly sorted sands and sandstones, pebbly sandstones, and pebble-cobble conglomerates, all of which overlie older Tertiary formational units from San Onofre, in northern San Diego County, to northern Baja California.

As shown on **Figure 3.11-1 [Figure 2.0-1]**, the Lindavista Formation ("Ql") is mapped across much of the San Diego mesa, including the southern half of the SDSU campus above the canyon areas. Remnants of Lindavista Formation sediments may still be present on the top of the mesa near the proposed U Lot Residence Hall, in the area of the proposed Campus Conference Center east of the Cox Arena and old Aztec Bowl, in the area of the present Student Union, and in the area of the proposed Student Housing project site northeast of the College Avenue/Montezuma Road intersection (Parking Lots G and H, and the Olmeca and Maya areas).

It is unlikely that those areas of the SDSU campus where the Lindavista Formation is the *only* formation that is exposed or will be potentially affected by construction related activities contains any unique paleontological resources. This conclusion is supported by the following factors: (i) there is a general paucity of fossils in the Lindavista Formation - the only published marine invertebrate fauna lies in the Tierrasanta community, which is several miles to the north-northwest of the SDSU campus area; and (ii) even though the formation has been assigned "moderate paleontological resource sensitivity" by Deméré and Walsh, there are no known or recorded fossil localities from the Lindavista Formation within a one-mile radius of

the SDSU campus area, such that the exposures of the formation at issue have "low paleontological resource potential."

### **3.11.3.3 San Diego Formation**

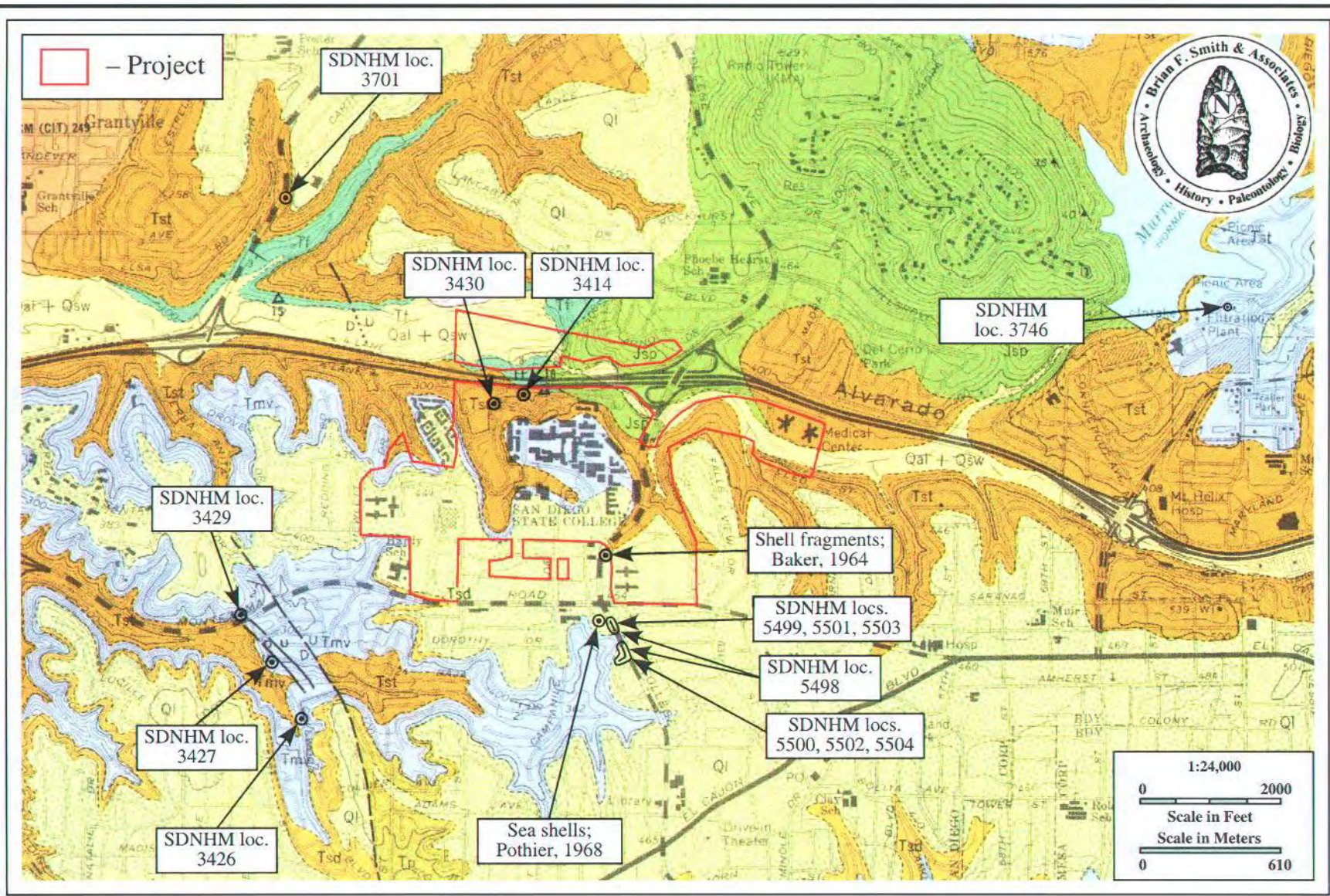
The San Diego Formation is a marine sedimentary unit that is thought to represent deposition in a large, open embayment similar in size and configuration to that of the Monterey Bay in central California. Typical exposures consist of yellowish-gray siltstones, and fine-grained, friable sandstones. However, local pebble gravels are present on Mount Soledad, and coarser-grained sands are more common in shallower sediments in the southern part of San Diego County.

As shown on **Figure 3.11-1 [Figure 2.0-1]**, the San Diego Formation ("Tsd") is limited to the southwestern edge of the campus above Montezuma Road. However, the formation may also be present in the shallow subsurface below the Lindavista Formation in the southeast parts of the campus as documented along College Avenue and southward beyond Montezuma Road.

The San Diego Formation is often abundantly fossiliferous, and has yielded a wide variety of fossils, from microscopic forms to large marine mammals (*e.g.*, whales). Fossil types that can be said to typify the formation include marine invertebrates and larger invertebrates, such as corals, sea urchins, bivalve and gastropod mollusks, crabs and crustaceans, and barnacles. Included amongst the fossil vertebrates discovered within the San Diego Formation are cartilaginous fish (*e.g.*, sharks and rays), bony fish, sea birds, and a variety of marine mammals, including dolphins, walrus, sea cow, and several species of whales. A variety of terrestrial mammals (*e.g.*, rodents, rabbit, horse, camel, sloth, and mammoth) also are known from both the lower and upper parts of the formation in more southerly parts of San Diego County. The San Diego Formation also yields occasional fossil plant material, although the only reported flora is from the Chula Vista area, many miles south of the SDSU campus area.

Prior to 2005, there were no known or previously recorded fossil localities from the San Diego Formation within a one-mile radius of the campus area. However, when excavation activities were undertaken on the 5000 block of College Avenue for the construction of a new sewer line for the proposed SDSU Sorority Row housing project, abundant marine vertebrate and invertebrate fossils were exposed. These fossils were recorded as SDNHM localities 5498-5504. (See **Figure 3.11-3, Fossil Locality Map [Figure 3.0-2]**.)





**Figure 3.0-2**  
**Fossil Locality Map**  
SDSU 2007 Campus Master Plan Revision  
Geology after Kennedy and Peterson (1975)



In those proposed project areas where the San Diego Formation is exposed at the surface, or where it is present (or probably present) in the shallow subsurface below the Lindavista Formation in the southern and southeastern parts of the SDSU campus there is a potential for unique paleontological resources because: (i) the San Diego Formation is typically fossiliferous; (ii) Deméré and Walsh have assigned a "high paleontological resource sensitivity" rating to the formation; and (iii) fossil localities within a one-mile radius of the SDSU campus have been recorded.

#### **3.11.3.4 Mission Valley Formation**

The Mission Valley Formation consists of light gray-colored siltstones and fine-grained marine sandstones. In the eastern areas of outcrop, the formation consists largely of medium-grained, fluvial sandstones, and green and brown non-marine mudstones.

As shown on **Figure 3.11-1 [Figure 2.0-1]**, in the vicinity of the SDSU campus, the Mission Valley Formation ("Tmv") has been mapped above the Stadium Conglomerate in the main (older) part of campus, and around the edges of the mesa areas near the tops of the canyons that incise the mesa from the north. The Mission Valley Formation should also be present in the shallow subsurface below the overlying Lindavista Formation across much of the campus, except where it is overlain by the San Diego Formation along the south side of the campus.

The marine parts of the Mission Valley Formation have produced a variety of abundant and generally well preserved fossils, including microfossils, bivalve and gastropod mollusks, decapod crustaceans, sea urchins, and other trace fossils. Vertebrate fossils from the Mission Valley Formation include a variety of cartilaginous fish (*e.g.*, sharks and rays), as well as the teeth, bones, and otoliths of bony fish. Fluvial sediments of the Mission Valley Formation often yield pieces of petrified wood, as well as a diverse assemblage of terrestrial mammals (*e.g.*, opossums, insectivores, bats, primates, rodents and larger grazing animals).

The SDNHM's records indicate that four fossil localities in the Mission Valley Formation have been identified in the vicinity of the SDSU campus, though not directly within its footprint - three localities (specifically, SDNHM localities 3426, 3427, and 3429) near the southwest part of the campus have yielded a variety of isolated small-mammal, shark, and bony-fish fossils, and one locality (specifically, SDNHM locality 3746) near the northeast part of campus yielded bivalve mollusks and gastropods. (See **Figure 3.11-3, Fossil Locality Map [Figure 3.0-2].**)

In those areas where the Mission Valley Formation is mapped or exposed or may be present in the subsurface below the San Diego Formation and/or Lindavista Formation there is the

potential for unique paleontological resources due to: (i) the abundance of fossils previously yielded from the Mission Valley Formation; (ii) the assignation of a "high paleontological resource sensitivity" rating by Deméré and Walsh; and (iii) the four recorded fossil localities within a one-mile radius of the SDSU campus.

#### **3.11.3.5 Stadium Conglomerate**

The Stadium Conglomerate in its type area in Mission Valley near Qualcomm Stadium consists of two cobble conglomerate units that may be up to 200 feet thick. Sandstone lenses are common throughout the unit.

In the vicinity of the SDSU campus, as shown on **Figure 3.11-1 [Figure 2.0-1]**, the Stadium Conglomerate ("Tst") is overlain by the Mission Valley Formation and exposed only in the canyon areas below the tops of the mesa areas. Mapped exposures are present along the northern mesa edge in the vicinity of Parking Lot U, in the canyon of old Aztec Bowl and eastward below the proposed Campus Conference Center site, along College Avenue and probably extending below the areas of Aztec Center (Student Union) and in the proposed Student Housing sites (specifically, Parking Lots C and G, and in the Olmeca and Maya Residence Hall areas), and in the areas of the proposed Alvarado Hotel and Alvarado Campus projects.

The upper unit of the Stadium Conglomerate west of the SDSU campus has yielded microfossils and marine mollusks. In the eastern part of the outcrop area, the formation is largely non-marine, and has yielded a diverse assemblage of terrestrial mammals (*e.g.*, opossums, insectivores, primates, rodents, carnivores, rhinoceros, and artiodactyls).

A museum collections and records search identified a single fossil locality - SDNHM locality 3701 - northwest of the SDSU campus along Waring Road. (See **Figure 3.11-3, Fossil Locality Map [Figure 3.0-2].**)

In those areas where the Stadium Conglomerate is mapped or exposed or may be present in the subsurface below the Lindavista Formation, the San Diego Formation, or the Mission Valley Formation, there is the potential for unique paleontological resources due to: (i) the well-documented fossil record throughout the Stadium Conglomerate formation; (ii) the "high paleontological resource sensitivity" rating assigned to the formation by Deméré and Walsh; and (iii) the recordation of a single fossil locality within a one-mile radius of the SDSU campus.

### 3.11.3.6 Friars Formation

The Friars Formation is almost entirely fluvial in origin and consists mainly of light-gray, medium-grained sandstones and greenish, reddish, and brown siltstones and mudstones. Occasional marine facies also are present in the western areas of outcrop, but are too far west to be present in the vicinity of the SDSU campus. The Friars Formation is the oldest, and stratigraphically lowest of the middle Eocene formations in the area.

As shown on **Figure 3.11-1 [Figure 2.0-1]**, mapped exposures of the Friars Formation ("Tf") are limited to the north side of I-8, in the area of the proposed Adobe Falls Faculty/Staff Housing site. However, fossils assigned to the Friars Formation also have been discovered in artificial cuts above Parking Lot X on the north side of the main campus. These findings, which yielded a variety of isolated small-mammal teeth and lizard teeth, jaw fragments, and scutes, have been assigned SDNHM localities 3414 and 3430. (See **Figure 3.11-3, Fossil Locality Map [Figure 3.0-2]**.)

The eastern, non-marine exposures of the Friars Formation have produced rich and diverse assemblages of terrestrial vertebrate fossils, such as opossums, insectivores, primates, and rodents. The Friars Formation also has yielded important fossil leaf floras.

In those areas where the Friars Formation is mapped or exposed or may be present in the subsurface below the Stadium Conglomerate there is the potential for unique paleontological resources because: (i) the Friars Formation is fossiliferous; (ii) it has been designated by Deméré and Walsh as having "high paleontological resource sensitivity;" and (iii) two fossil localities have been identified as lying within the boundaries of the SDSU campus.

### 3.11.3.7 Santiago Peak Volcanics

The name Santiago Peak Volcanics is based on exposures of slightly to moderately metamorphosed volcanic rocks in the Santa Ana Mountains of Orange County. Similar rocks are present in a discontinuous belt that extends from Orange and Riverside Counties southward to northwestern Baja California. Lithologically, the formation is composed mainly of volcanic breccias, and lesser amounts of volcanic tuffs and flow rocks.

As shown on **Figure 3.11-1 [Figure 2.0-1]**, local exposures of the Santiago Peak Volcanics ("Jsp") are present on the northeast side of the SDSU campus, and northeastward, comprising most of Cowles Mountain. The metavolcanic rocks on the SDSU campus and in the vicinity of Del Cerro are mainly tuff breccias that overlie the intrusive rocks that make up the core of Cowles



Mountain. The metavolcanics are present in the eastern half of the Adobe Falls Faculty/Staff Housing area, and possibly along the margin of Alvarado Creek in the areas of the proposed Student Housing expansion and Alvarado Hotel in Parking Lot C, and the Alvarado Campus area.

The well known reports of Late Jurassic fossils, marine bivalves and belemnites from metasedimentary rocks in northern San Diego County previously assigned to the Santiago Peak Volcanics are now best assigned to a distinctly older, unnamed formational unit. However, a single marine clam found as float below SDSU Parking Lot A on the northeast side of campus is of a type unknown from the San Diego area, and if derived from weathered tuff breccias in this area would represent a very important discovery. Until a pending study is completed, this likelihood is too slight to require monitoring of exposures of the Santiago Peak Volcanics during future construction activity.

Therefore, at this time, in those areas where the Santiago Peak Volcanics are mapped or exposed there is little potential for unique paleontological resources due to: (i) the unlikely presence of fossils in the volcanic breccias; (ii) Deméré and Walsh's assignation of a "marginal paleontological resource sensitivity" rating; and (iii) the absence of fossil localities within a one mile radius of the SDSU campus.

#### **3.11.4 THRESHOLDS OF SIGNIFICANCE**

According to CEQA Guidelines Appendix G, a proposed project may have a significant impact on paleontological resources if the project would "[d]irectly or indirectly destroy a unique paleontological resource or site or unique geological feature."

The City and County of San Diego typically require paleontological monitoring during construction related activities such as utility trenching, building excavation, and roadway and mass grading operations in those areas assigned a "moderate" or "high" paleontological resource sensitivity designation by Deméré and Walsh.

#### **3.11.5 PROJECT IMPACTS**

Under the proposed project, physical improvements are proposed at six distinct locations on the SDSU campus: (1) the Adobe Falls Faculty/Staff Housing area on the north side of the I-8 freeway; (2) the Alvarado Campus, which includes a portion of Parking Lot D and the Alvarado Core Site; (3) a new Campus Conference Center in the area of the tennis courts east of Cox Arena; (4) the renovation and expansion of the current Student Union/Aztec Center; (5)

proposed Student Housing expansion in three areas (specifically, Parking Lots C, G, and U, and in the current areas of the Olmeca and Maya Residence Halls); and (6) the Alvarado Hotel in Parking Lot C.

Although the geologic settings at each of these sites differ slightly, as discussed below, each of the project areas contain exposures of formations that have a proven fossil record. Therefore, monitoring for unique paleontological resources must be implemented before initiating construction-related activities to reduce potential impacts to these resources to a level below significant.

#### **3.11.5.1 Adobe Falls Faculty/Staff Housing**

The Adobe Falls Faculty/Staff Housing development area is divided into a western (Lower Village) and eastern (Upper Village) part:

**Western.** The western part is mainly in areas mapped as Quaternary alluvium and slope wash, which overlies the Friars Formation. The Friars Formation has yielded important invertebrate and vertebrate faunas, as well as floral assemblages, and has been assigned a "high paleontological resource sensitivity." Therefore, paleontological monitoring is required during construction-related activities to reduce potential impacts to unique paleontological resources to a level below significant. The need for a monitor is supported by the discovery of terrestrial vertebrate fossils from the Friars Formation on the south side of I-8. (See **Figure 3.11-3 [Figure 3.0-2]** (SDNHM localities 3414 and 3430).)

**Eastern.** The eastern area is mainly mapped as Santiago Peak Volcanics. Although the sediment is not known to be fossiliferous and is only assigned a "marginal paleontological resource sensitivity," as previously discussed a fossil marine clam of a type not otherwise known from San Diego County was found as float below Parking Lot A, with a possible source being the weathered outcrops of the tuff breccias exposed on campus. Although the possibility that this single fossil came from local exposures of the Santiago Peak Volcanics is tenuous at best, it does suggest that further study might be warranted. If there is a chance local exposures did yield identifiable fossils, monitoring of nearby exposures of the formation would be justified.

#### **3.11.5.2 Alvarado Campus**

The Alvarado Campus project area, encompassing the present Alvarado Core Site and part of Parking Lot D, is located on mapped exposures of Stadium Conglomerate. A small exposure of

Santiago Peak Volcanics is present on the west side of the project area, and the creek bed of Alvarado Creek is mapped as alluvium. (See **Figure 3.11-1 [Figure 2.0-1]**.) Exposures here of Santiago Peak Volcanics and streambed alluvium along the present creek need not be monitored. The Stadium Conglomerate, however, is assigned a "high paleontological resource sensitivity" by Deméré and Walsh, and will require paleontological monitoring of construction projects that might adversely affect any fossil resources. The Stadium Conglomerate has yielded microvertebrate fossils in exposures to the northwest of campus (see **Figure 3.11-3 [Figure 3.0-2]**, [SDNHM locality 3701]), further supporting the need for paleontological monitoring for this component site.

### **3.11.5.3 Campus Conference Center**

The proposed Campus Conference Center will be constructed in the present location of the tennis courts east of Cox Arena and the old Aztec Bowl. The major part of the sidewalls of the Aztec Bowl are mapped as Stadium Conglomerate. The Mission Valley Formation is also mapped around the perimeter of the Aztec Bowl, and the adjoining mesa top is mapped as Lindavista Formation. The presence or absence of Mission Valley Formation sediments, as well as possible San Diego Formation sediments, should be confirmed by a geotechnical study before construction related activities begin. Regardless of the results of the geotechnical study, a paleontological monitor is required in light of the known presence of Stadium Conglomerate Formation sediment, which has "high paleontological resource sensitivity." The need for the monitor would be intensified if, in fact, Mission Valley and San Diego Formation sediments are present, because both formations also have been assigned "high paleontological resource sensitivity" ratings.

### **3.11.5.4 Student Union/Aztec Center Expansion and Renovation**

Proposed additions to the current Student Union lie within areas mapped as being underlain with Lindavista Formation, which itself unconformably overlies the Mission Valley Formation and Stadium Conglomerate. Furthermore, the recorded presence of fossils along College Avenue and across from the Aztec Center, also supports the probable subsurface distribution of San Diego Formation sediments. The Stadium Conglomerate, Mission Valley Formation, and San Diego Formation are all assigned a "high paleontological resource sensitivity" rating, and thus would require a paleontological monitor to mitigate against the possible loss of fossils during construction related activities. The Lindavista Formation is regarded as having a low paleontological resource potential and does not independently require monitoring.



### **3.11.5.5 Student Housing**

The proposed Student Housing expansion will entail new construction projects in three areas on the SDSU campus. Because the geology in each area is different, the three component areas are independently assessed below:

#### **3.11.5.5.1 Parking Lot G and Olmeca and Maya Areas**

The area is mapped as Stadium Conglomerate overlain, at least in part, by Lindavista Formation. Furthermore, the San Diego Formation is probably also present in the shallow subsurface, below the Lindavista Formation and above the Mission Valley Formation and Stadium Conglomerate. The San Diego and Mission Valley Formations and the Stadium Conglomerate have "high paleontological resource sensitivity" and require the implementation of a paleontological monitor to mitigate any potential loss of fossils. The need for paleontological monitoring is reinforced by the recorded San Diego Formation fossil localities lying along College Avenue, and adjacent to the present Olmeca and Maya Residence Halls. The Mission Valley Formation and Stadium Conglomerate also have yielded recorded fossils in exposures to the southwest and northwest of the campus.

#### **3.11.5.5.2 Parking Lot C, Villa Alvarado Residence Hall Complex**

The proposed site is mapped as Stadium Conglomerate, but its thickness above the underlying Santiago Peak Volcanics has not been determined. Stadium Conglomerate has been assigned "high paleontological resource sensitivity" and has yielded fossils in exposures to the northwest of the campus. This supports the need for a paleontological monitor to protect against the loss of unique paleontological resources during construction related activities.

#### **3.11.5.5.3 Parking Lot U along Remington Road**

The proposed 10-story residence hall atop a previously planned parking structure is mapped as Lindavista Formation, which overlies Mission Valley Formation and Stadium Conglomerate. The San Diego Formation is also exposed below the Lindavista Formation on the southwest part of the SDSU campus, but it is unknown to what extent the formation may also be present in the shallow subsurface of this proposed project component's site. Before construction related activities begin, a geotechnical study should be undertaken to confirm the presence or absence of Mission Valley and San Diego Formation sediments. But for the Lindavista Formation sediments, the area has "high paleontological resource sensitivity" and thereby requires the presence of a paleontological monitor. This conclusion is supported by the discovery of fossils in sediment associated with these Formations in areas to the southwest and northwest of the SDSU campus.

### **3.11.5.6 Alvarado Hotel**

The proposed site of the new Alvarado Hotel in the present area of Parking Lot C is located between the proposed Alvarado Campus and the main SDSU campus. The area of the new hotel is mapped as Stadium Conglomerate, which is assigned "high paleontological resource sensitivity." Thus, a paleontological monitor is necessary to mitigate against the possible loss of unique paleontological resources during construction-related activities. The Stadium Conglomerate has yielded microvertebrate fossils in exposures to the northwest of campus, supporting the necessity for paleontological monitoring for this project component.

### **3.11.6 MITIGATION MEASURES**

Based on the presence of one or more geologic formations with proven paleontological resources (*i.e.*, proven fossil records), construction of all six components of the proposed project could potentially impact the fossiliferous formations. Therefore, it is recommended, based on the Deméré and Walsh designations, that paleontological monitoring be implemented during proposed project grading activities in order to mitigate against the potential loss of unique paleontological resources during the course of trenching, excavation and/or roadway and mass grading activities. However, because much of the SDSU campus area has already been subjected to surficial modifications as a result of building construction, grading, landscaping, and canyon infilling, the presence of any particular formation should be confirmed by geotechnical investigations prior to the initiation of construction activities.

Based on the above, the following mitigation measure is proposed to reduce any potential impacts of the proposed project to unique paleontological resources to a level below significant:

- PAL-1** Prior to the commencement of any construction-related activities associated with each of the proposed project components, SDSU, or its designee, will undertake a geotechnical investigation to determine the presence of any one of the following geologic formations: San Diego Formation; Mission Valley Formation; Stadium Conglomerate; Friars Formation; and/or Santiago Peak Volcanics. If the investigation confirms the presence of one of these geologic formations, then SDSU, or its designee, shall provide for the presence of a paleontological monitor on the site to monitor the potential discovery of paleontological resources during grading activities. In the event that the monitoring results in the discovery of paleontological resources, the monitor will have the authority to halt excavation at that location and direct that the

discovery be evaluated immediately by a qualified paleontologist before depositing any potential fossils into an appropriate scientific or educational institution. Following evaluation, if the resource is determined to be "unique" within the meaning of CEQA Guidelines Appendix G, appropriate mitigation shall be developed at that time prior to resuming grading activities at that location. In the event the resource is determined to be a unique paleontological resource, grading activities may continue on other parts of the building site while appropriate mitigation is implemented. The results of the paleontological monitoring shall be documented in a final report, which should include, at a minimum, appropriate background information regarding the geographic and geologic setting, lists of any fossils collected and their significance, and illustrative graphics that document the geography, stratigraphy, and distribution of any discovery.

### **3.11.7 CUMULATIVE IMPACTS**

Impacts to paleontological resources generally are confined to the particular project site; the effects of two or more projects that occur at different locations are not affected by, and would not impact, the same piece of land. Furthermore, as discussed above, mitigation is proposed to reduce any potential direct impacts to paleontological resources attributable to the proposed project to a level below significant. Therefore, the proposed project would not result in significant cumulative impacts to paleontological resources.

### **3.11.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Implementation of a paleontological monitoring plan in connection with initial grading and excavation activities will mitigate any potential impacts to unique paleontological resources that may be discovered on the site to a level below significant. Therefore, implementation of the proposed project would not result in any significant and unavoidable impacts to paleontological resources.