APPENDIX D
BIOLOGICAL RESOURCES TECHNICAL REPORT

BIOLOGICAL RESOURCES REPORT

for the

2007 SDSU CAMPUS MASTER PLAN REVISION

San Diego, California

Prepared for:

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TABLE OF CONTENTS

Section **Page No.**

Appendices

List of Figures

List of Tables

SUMMARY OF FINDINGS

The proposed project occurs on the San Diego State University (SDSU) campus and adjacent lands at the eastern edge of Mission Valley in San Diego, California. The project includes the adoption and subsequent implementation of the 2007 SDSU Campus Master Plan Revision. The project includes improvements to be conducted at eight campus locations. These locations include the Adobe Falls Faculty/Staff Housing site, the Alvarado Campus site, the Alvarado Hotel site, the Villa Alvarado Residence Hall Expansion site, the Student Union expansion site, the Student Housing site, the Campus Conference Center site, and the U-Lot Residence Hall site. The Adobe Falls Faculty/Staff Housing site is the only site that is undeveloped, not located on lands currently utilized for campus uses, and not contiguous with the existing SDSU campus. All sites occur outside of the City of San Diego's Multi-Habitat Preservation Area (MHPA).

Fifteen sensitive habitat types, four sensitive plant species, and one sensitive wildlife species were observed on the Adobe Falls Faculty/Staff Housing site. No sensitive plants, wildlife, or habitat types were observed on any of the remaining seven sites. Sensitive wetland habitat types on the Adobe Falls Faculty/Staff Housing site include disturbed sycamore/cottonwood riparian woodland, disturbed wetland, southern willow scrub, mulefat scrub, valley freshwater marsh, cismontane alkali marsh, and intermittent and ephemeral unvegetated stream channel. Upland habitat types include baccharis scrub, coastal sage scrub, southern mixed chaparral, valley needlegrass grassland, non-native annual grassland, and eucalyptus woodland. Sensitive plants present on the Adobe Falls Faculty/Staff Housing site include California adolphia (*Adolphia californica*) (California Native Plant Society [CNPS] List 2.1), San Diego marsh elder (*Iva hayesiana*) (CNPS List 2.2), San Diego County viguiera (*Viguiera laciniata*) (CNPS List 4.2), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) (CNPS List 4.2). One nesting pair of the federally-listed threatened coastal California gnatcatcher was documented on the site within coastal sage scrub and southern mixed chaparral habitats during 2007.

A total of 19.66 acres of habitat and 40.28 acres of developed land and associated ornamental landscaping would be affected by the proposed project. Direct impacts to wetlands would total 0.48 acre and consist of 0.03 acre of sycamore/cottonwood riparian woodland, 0.08 acre of intermittent and ephemeral unvegetated stream channel, 0.08 acre of southern willow scrub, 0.06 acre of mule fat scrub, and 0.23 acre of disturbed wetland. Direct upland habitat impacts would total 19.18 acres and consist of 8.77 acres of coastal sage scrub, 0.69 acre of disturbed coastal sage scrub, 3.75 acres of baccharis scrub, 3.87 acres of southern mixed chaparral, 0.01 acre of valley needlegrass grassland, 1.53 acres of non-native annual grassland, and 0.56 acre of disturbed habitat. In addition, 9.03 acres of ornamental vegetation and 31.26 acres of developed land would be directly impacted by the proposed project.

The proposed mitigation for the impacts to significant biological resources includes: (1) the preservation of native upland habitat on site (outside the MHPA) totaling 9.51 acres including coastal sage scrub, disturbed coastal sage scrub, baccharis scrub, southern mixed chaparral, valley needlegrass grassland and non-native annual grassland; (2) creation of 0.20 acre of wetlands habitat on site and enhancement of an additional 0.56 acre of disturbed wetlands on site; (3) purchase of 0.26 acre of wetlands created off site within an agency-approved wetlands mitigation bank, preferably within the San Diego River watershed; (4) purchase and preservation of 22.31 acres of coastal California gnatcatcher-occupied coastal sage scrub habitat off site (within the MHPA) on Cowles Mountain adjacent to the Mission Trails Regional Park; (5) conducting breeding bird surveys on the Adobe Falls Faculty/Staff Housing site prior to construction; (6) conducting focused gnatcatcher surveys on the slopes north of the proposed U Lot Residence Hall site prior to construction; (7) conducting a nesting raptor survey on the Adobe Falls Faculty/Staff Housing site and adjacent riparian woodlands prior to construction; and (8) incorporation of selected design features to mitigate for potentially significant indirect effects on sensitive plants, wildlife, and habitats.

1.0 INTRODUCTION

The proposed project occurs on the San Diego State University (SDSU) campus and adjacent lands at the eastern edge of Mission Valley in San Diego, California (*Figure 1*). The project includes the adoption and subsequent implementation of the 2007 SDSU Campus Master Plan Revision, which will provide a framework for implementing SDSU's academic, housing, and transportation goals and objectives for the SDSU campus by identifying the needed buildings, facilities, improvements, and services to: (1) further enhance SDSU's standing in the academic community; and (2) support campus growth and development from SDSU's current enrollment of 25,000 FTEs to a new campus master plan enrollment of 35,000 FTEs by the 2024/25 academic year. The project includes improvements to be conducted at eight distinct campus locations. These locations include the Adobe Falls Faculty/Staff Housing site and seven other sites on the existing campus, including the Alvarado Campus site, the Alvarado Hotel site, the Villa Alvarado Residence Hall Expansion site, the Student Union expansion site, the Student Housing site, the Campus Conference Center site, and the U-Lot Residence Hall site (*Figure 2*). All sites occur outside of the City of San Diego's Multi-Habitat Preservation Area (MHPA) (*Figure 3*). Each of the proposed project components is described in more detail in *Section 3.0, Project Setting*.

The purpose of this technical report is to describe the biological character of eight distinct sites planned for various types of development within the 2007 SDSU Campus Master Plan Revision. This report includes: (1) analysis of vegetation, flora, wetlands, wildlife, and wildlife habitats for each site; (2) an initial analysis of potential project impacts based on the work envisioned within each site; and (3) an analysis of the significance of impacts to the resources present on each site in view of federal, state, and local laws and policies.

Dudek conducted biological resources surveys on the project sites between July and October 2004 and March and May 2007. The surveys included general plant and wildlife surveys and vegetation mapping on all sites in 2004 and 2007, as well as formal wetlands delineations on the Adobe Falls Faculty/Staff Housing and Alvarado Campus sites, focused rare plant surveys, and focused surveys for the coastal California gnatcatcher on the Adobe Falls Faculty/Staff Housing site.

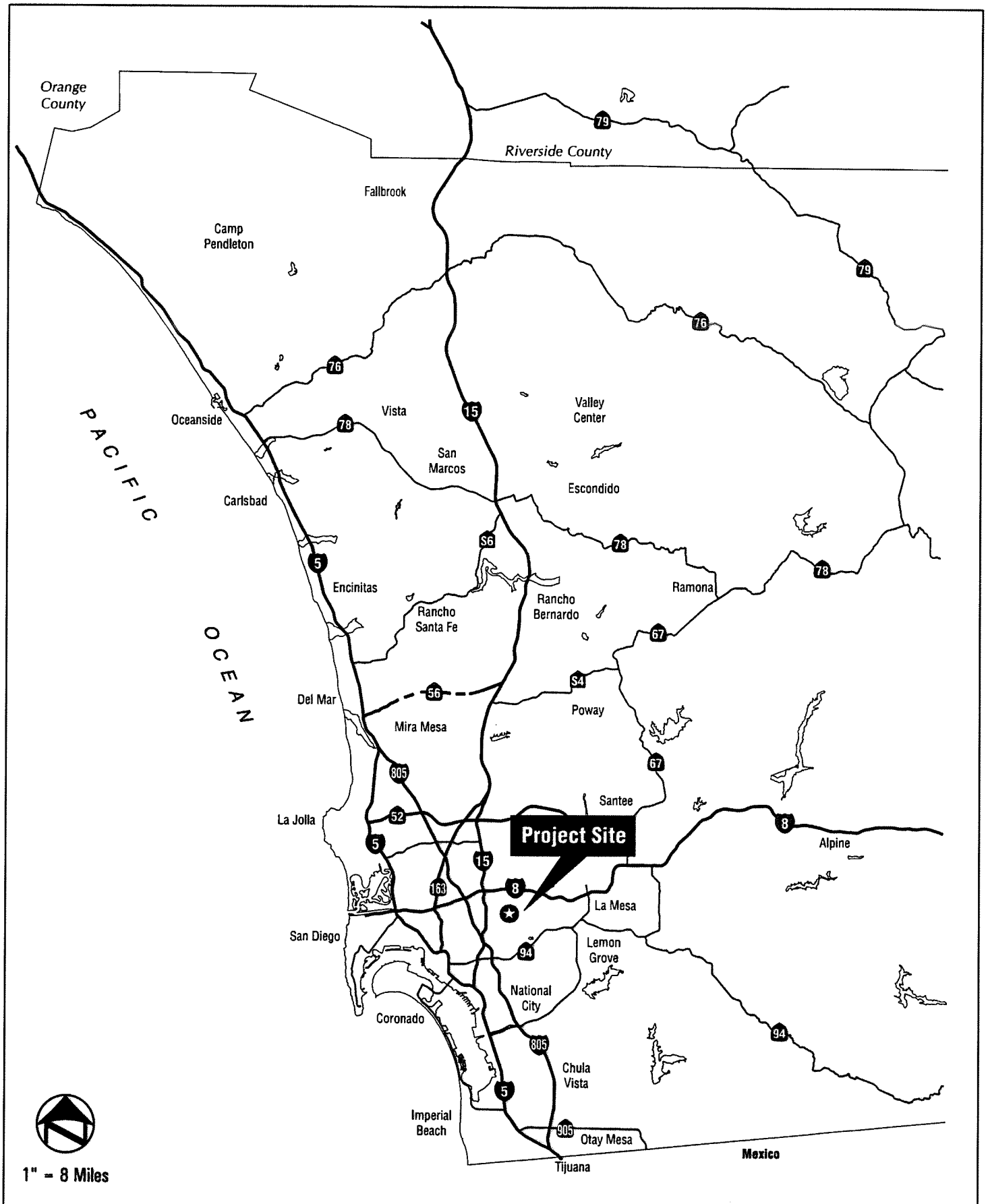

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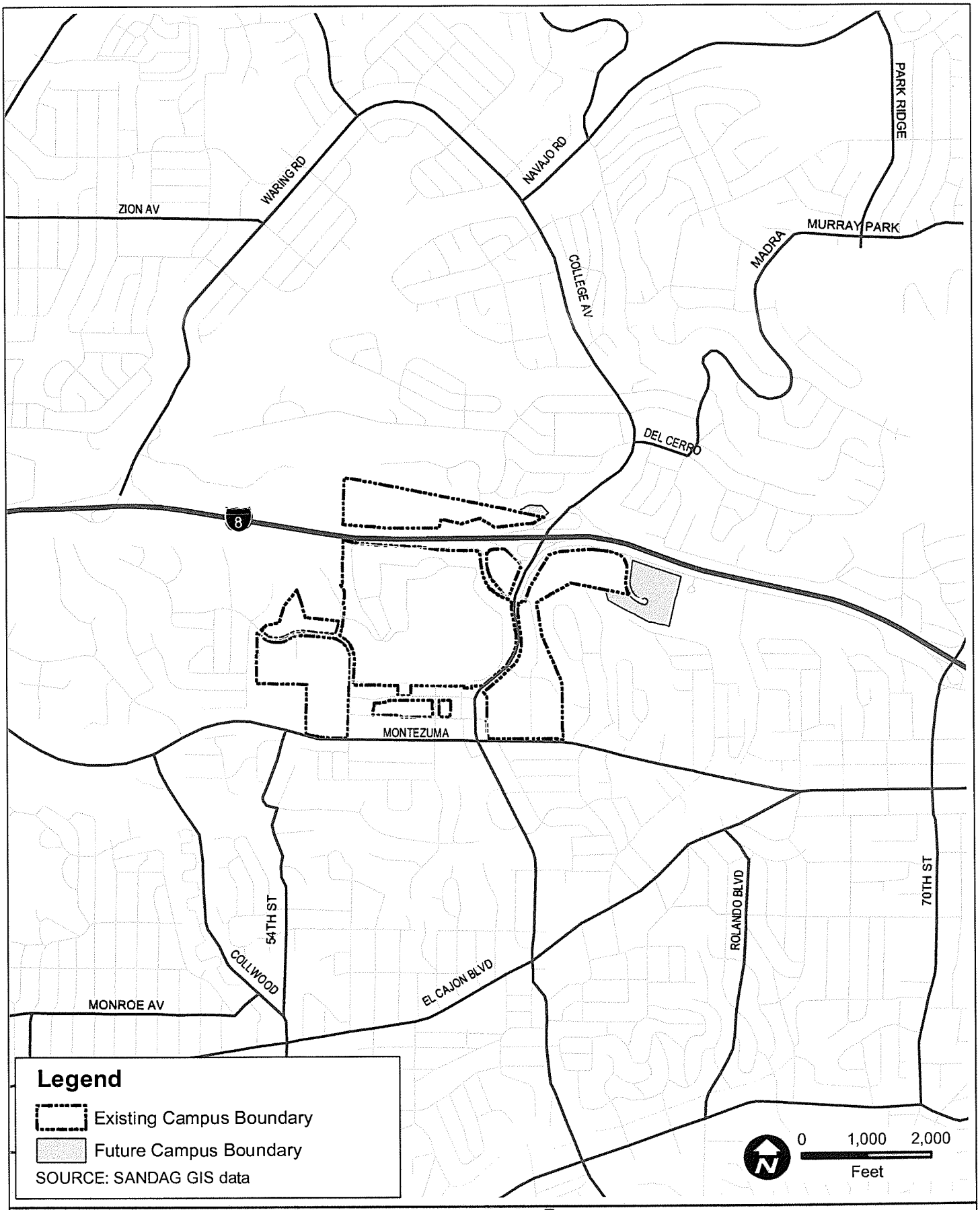
Figure 1

Regional Map



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Biological Resources Technical Report

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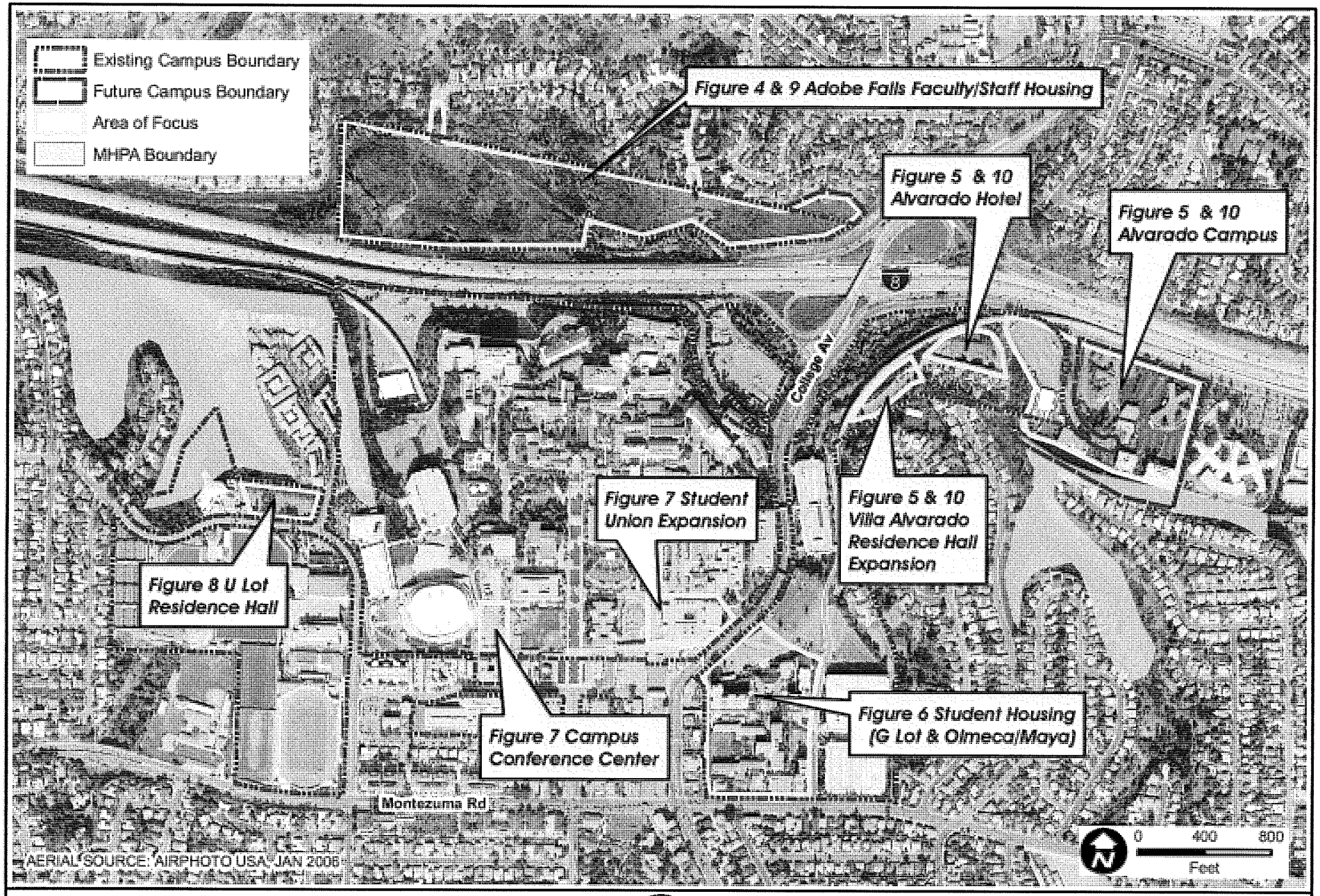
Figure 2
Vicinity Map



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Biological Resources Technical Report

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Figure 3
Biological Resources Index & MHPA Context Map

2.0 METHODS

Data regarding biological resources present on the project sites were obtained through a review of the pertinent literature and through field reconnaissance, both of which are described in detail below.

2.1 Literature Review

Sensitive biological resources present or potentially present on each of the proposed project sites were identified through a literature search using the following sources: the California Natural Diversity Database (CNDDB), U.S. Fish and Wildlife Service (2007), California Department of Fish and Game (2007), California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants (CNPS 2007), and the scientific literature. General information regarding wildlife species present in the region was obtained from Unitt (1984) for birds, Bond (1977) for mammals, Stebbins (1985) for reptiles and amphibians, and Emmel and Emmel (1973) for butterflies.

2.2 Field Reconnaissance

Dudek conducted field investigations of eight sites included within the proposed project area initially during the summer and fall of 2004 and again during the spring of 2007. The Adobe Falls Faculty/Staff Housing site was visited four times between July 26 and October 25, 2004, including three site visits for completing vegetation mapping and general biological resources surveys and one visit for conducting a formal wetlands delineation of the site. During 2007, the site was visited seven times between February 20 and May 1 for conducting focused rare plant surveys, updating vegetation mapping and wetlands delineation boundaries, and completing focused coastal California gnatcatcher surveys. The remaining seven sites, including the Alvarado Campus site, the Alvarado Hotel site, the Villa Alvarado Residence Hall Expansion site, the Student Union expansion site, the Student Housing site, the Campus Conference Center site, and the U-Lot Residence Hall site, were visited between February 20 and May 1 to conduct general biological resources surveys of each site. All surveys were conducted by Dudek biologists Scott Boczkiewicz (SB), Cathleen Weigand (CW), Tricia Wotipka (TW), and Paul Lemons (PL).

2.2.1 Resource Mapping and Wetlands Delineation

All plant communities within the potential project disturbance areas were mapped in the field directly onto 200-scale (1" = 200') color aerial photographs (Aerial Access LLC; flown April, 2004, with mapping revised and updated as necessary on May 2006 imagery) by Scott

Boczkiewicz of Dudek. The vegetation boundaries were then transferred to same-scale topographic maps and digitized using AutoCAD. A geographic information system (GIS) coverage was created using ArcCAD to calculate acreages of each vegetation type and impacts of the proposed project. Existing 2004 vegetation mapping was verified and updated in the field (as required) during March 2007 field visits. New project component areas were mapped during April and May 2007 field visits. Community classification used in this report follows Holland (1986).

A delineation of "waters of the United States," (WOUS) including wetlands, under jurisdiction of the U.S. Army Corps of Engineers (ACOE) was conducted by Tricia Wotipka, Cathleen Weigand, and Scott Boczkiewicz of Dudek on October 25, 2004, within the Adobe Falls Faculty/Staff Housing site. An update to the 2004 Adobe Falls delineation as well as a delineation of WOUS including wetlands within or adjacent to the Alvarado Campus, Alvarado Hotel and Viall Alvarado Residence Hall Expansion sites was conducted by Scott Boczkiewicz on March 29, 2007. All previously defined jurisdictional boundaries were field checked and verified on site. The ACOE jurisdictional wetlands delineations were conducted in accordance with the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual (TRY-87-1)*; hydrology, vegetation, and soils were examined at all of the potential wetland sites. Munsell Soil Color Charts were used to determine soil chroma and value, and the indicator status of the plant species was determined by using the *National List of Plant Species that Occur in Wetlands: California (Region 0)* (USFWS 1988). For this project, areas under the jurisdiction of the California Regional Water Quality Control Board (RWQCB) matched those delineated as ACOE-jurisdictional. Areas containing hydrophytic vegetation in association with a stream channel were described as California Department of Fish and Game (CDFG)-jurisdictional. Soil pits were dug at six different locations within the sites to verify presence of wetland indicators, and results of the soil investigations were recorded on wetland data station forms.

2.2.2 Flora

General botanical surveys of the Adobe Falls Faculty/Staff Housing site were conducted concurrent with vegetation mapping on July 26, 2004, as well as on August 2 and September 7, 2004. The surveys were updated during the focused rare plant surveys conducted on February 20 and April 17, 2007. Botanical surveys of the remaining seven project sites were conducted between February 20 and May 1, 2007. All surveys were conducted by Scott Boczkiewicz of Dudek. All upland and wetland areas within each proposed project site were surveyed. A cumulative list of plant species observed in the project areas during the surveys is presented in *Appendix A*. Those plant species that could not be identified immediately in the field were brought into the office for identification. Latin and common names of plants follow *The Jepson Manual: Higher Plants of California* (Hickman 1993). When not listed by Hickman (1993), common names follow Beauchamp (1986) or Abrams (1923).

2.2.3 Fauna

General wildlife surveys were conducted on August 2 and September 7, 2004, for the Adobe Falls Faculty/Staff Housing site, and again on March 15 and April 17, 2007. Informal wildlife surveys were conducted for the remaining seven sites between February 20 and May 1, 2007. All surveys were conducted by Scott Boczkiewicz and Paul Lemons of Dudek. Binoculars were utilized to observe wildlife species (8×42 power); all signs of wildlife presence, including tracks, scat, and burrows were noted; and a cumulative wildlife list resulting from these informal surveys is presented in *Appendix B*. Latin and common names of animals follow Stebbins (1985) for reptiles and amphibians, American Ornithologists' Union (2002) for birds, Jones et al. (1997) for mammals, and Emmel and Emmel (1973) for butterflies.

2.3 Survey Limitations

Limitations of the 2004 plant surveys include a summer and fall seasonal bias. Herbaceous annual or perennial plant species that flower in spring or early summer and become senescent prior to the onset of autumn would be difficult to observe during late summer and fall surveys. Limitations of the 2007 surveys include a winter and spring seasonal bias. Annual species that flower in summer may have been difficult to identify or detect.

Limitations on the wildlife surveys include a diurnal bias. Wildlife species that are secretive in their habitats, nocturnally active, or may require trapping efforts to determine presence/absence would not have been observed or detected during the general wildlife surveys. Birds represent the largest component of the vertebrate fauna, and because most birds are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. However, daytime surveys usually result in few observations of mammals, many of which may only be active at night and many species of reptiles and amphibians that are secretive in their habits and are difficult to observe in the daytime or using standard meandering transects. With the exception of some nocturnal mammals, reptiles, and amphibians, the surveys were adequate to characterize the biota of the project sites.

3.0 PROJECT SETTING

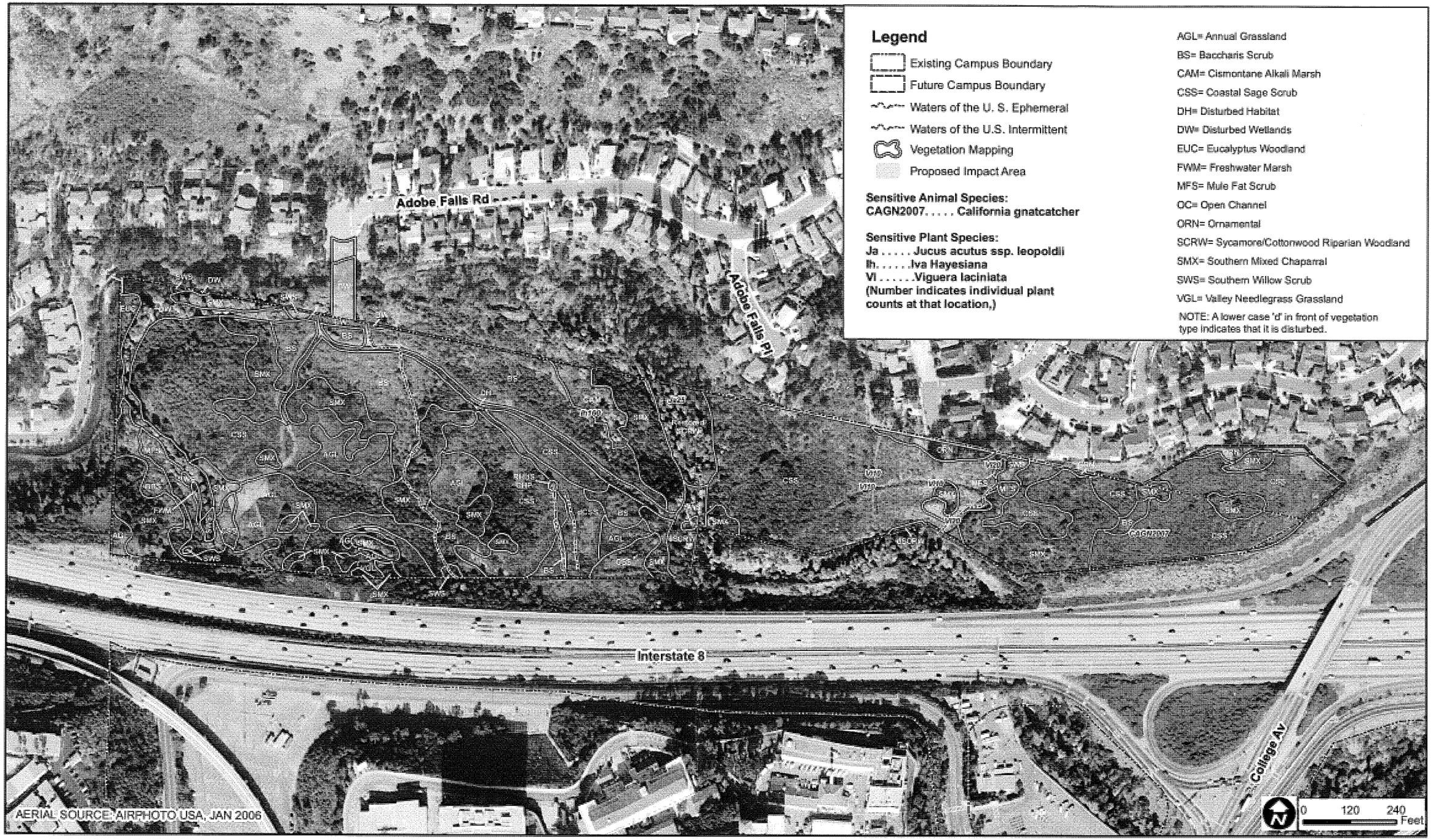
3.1 Adobe Falls Faculty/Staff Housing Site

The Adobe Falls Faculty/Staff Housing site is the only site that is undeveloped, not located on lands currently utilized for campus uses, and not contiguous with the existing SDSU campus. The Adobe Falls Faculty/Staff Housing site is located north of Interstate 8 and includes approximately 32 acres of undeveloped land containing a mixture of riparian vegetation, coastal

sage scrub, and chaparral. Alvarado Creek enters the Adobe Falls Faculty/Staff Housing site from a culvert under Interstate 8, and flows through the central part of the site before turning sharply to the west and flowing along the northern border of the site. The site is bordered by Adobe Falls Drive to the north, Interstate 8 to the south, College Boulevard to the east, and residential communities to the west (*Figure 4*).

The Adobe Falls Faculty/Staff Housing site will serve as the location for a mixture of housing uses for faculty and staff. Due to the deep canyon formed by the passage of Alvarado Creek over the Adobe Falls (a series of falls and plunge pools), the site will be developed in two separate areas to avoid the stream channel, adjacent steep slopes, and riparian habitat areas. The western portion would include townhomes and condominiums, while the eastern portion would include townhomes. Both segments would contain ancillary facilities, including vehicle parking, outdoor parks, and open space. The two developed areas of the site would be surrounded by open space. Extensions of Adobe Falls Road and Mill Peak Road would provide ingress and egress to the site. Approximately 13 acres of the 32-acre site would remain in open space and be designated as an SDSU Field Station site.

The planned design includes approximately 370 townhome and condominium units and accessory uses such as trails through the adjacent open space. This project component would include the upper village (on the east half of the site) to be assessed at the project level and the lower village (on the west half of the site) to be assessed at the program level. It is likely that the upper village would be constructed first, with the lower village being constructed at an undetermined time in the future.



Legend

- Existing Campus Boundary
- Future Campus Boundary
- Waters of the U. S. Ephemeral
- Waters of the U.S. Intermittent
- Vegetation Mapping
- Proposed Impact Area

Sensitive Animal Species:
CAGN2007. . . . . California gnatcatcher

Sensitive Plant Species:
Ja . . . . . Jucus acutus ssp. leopoldii
Ih. . . . . Iva Hayesiana
Vi . . . . . Viguera laciniata
(Number indicates individual plant counts at that location,)

AGL= Annual Grassland
BS= Baccharis Scrub
CAM= Cismontane Alkali Marsh
CSS= Coastal Sage Scrub
DH= Disturbed Habitat
DW= Disturbed Wetlands
EUC= Eucalyptus Woodland
FWM= Freshwater Marsh
MFS= Mule Fat Scrub
OC= Open Channel
ORN= Ornamental
SCRW= Sycamore/Cottonwood Riparian Woodland
SMX= Southern Mixed Chaparral
SWS= Southern Willow Scrub
VGL= Valley Needlegrass Grassland

NOTE: A lower case 'd' in front of vegetation type indicates that it is disturbed.

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Biological Resources Technical Report

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Figure 4
Adobe Falls Faculty/Staff Housing
Vegetation Map with Proposed Impact Areas

3.2 Alvarado Campus Site

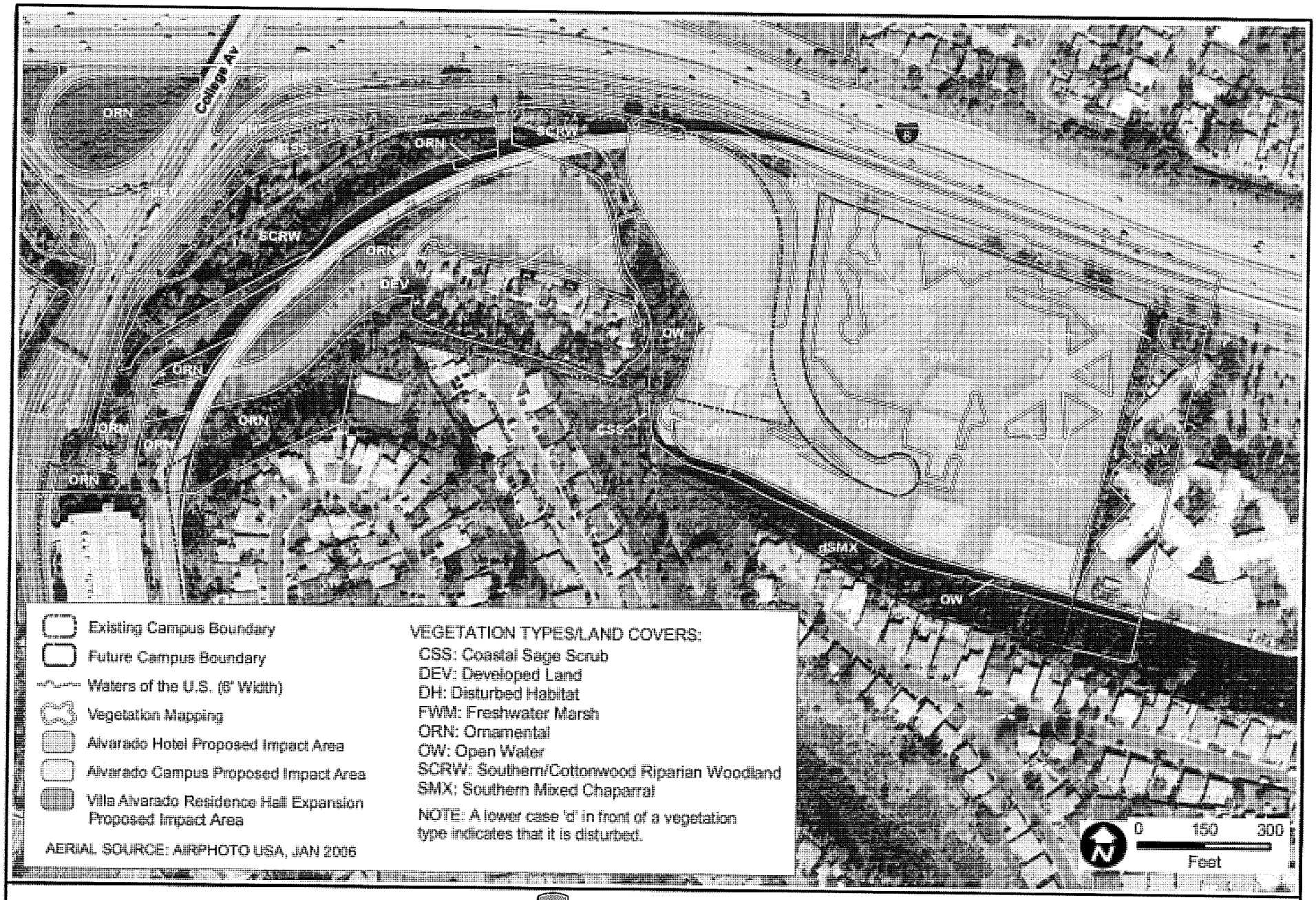
The Alvarado Campus component of the proposed project is located in the northeast portion of the SDSU campus, extending eastward onto property owned by the SDSU Foundation (*Figure 5*). The Alvarado Campus is the proposed location of additional classroom, academic research, and medical facilities, as well as a parking structure to serve that portion of campus. The Alvarado Campus site consists of two distinct areas: the existing campus D parking lot, which contains 432 spaces, and the Core Site, which contains a complex of medical offices and research facilities and is located immediately east of D Lot. Under the proposed project, the two areas that make up the Alvarado Campus component would function as one contiguous campus region. This center will ultimately include a total of approximately 612,000 square feet of instructional and research space. An 1,840-car, multi-story parking structure is also planned for this project component. The construction would occur in phases and ultimately include removal of all surface parking spaces within the D Lot and the medical research center and construction of seven buildings in their place. The three buildings within the D Lot area would potentially house university instruction facilities. The Core Site portion of the Alvarado Campus site is being analyzed at the program level, and the D Lot portion is being analyzed at the project level.

3.3 Alvarado Hotel Site

The Alvarado Hotel site component of the proposed project is located immediately west of the Alvarado Campus site, within approximately 2 acres of the existing C parking lot (C Lot) on the northeast portion of campus (*Figure 5*). The site abuts a protected wetland (Alvarado Creek) to the north and east and other campus parking lots to the west. The Alvarado Hotel component of the project would entail construction of a new 60,000-square-foot, six-story building containing up to 120 rooms and/or studio suites. On-site amenities would include a small meeting room, an exercise room, a board room, business center, and hospitality suite. The planned owner/operator for the Alvarado Hotel would be the SDSU School of Hotel and Tourism Management. This project component is being analyzed at the project level.

3.4 Villa Alvarado Residence Hall Expansion Site

The Villa Alvarado Residence Hall Expansion site component of the proposed project is located immediately west of the Alvarado Hotel site, adjacent to the existing residence hall and parking area (*Figure 5*). This project component is proposed to be located on the remainder of C Lot adjacent to the existing Villa Alvarado Hall, a coeducational apartment-style residence hall south of Alvarado Road. The Villa Alvarado Residence Hall Expansion site component of the project would entail construction of additional residence hall space. This project component is being analyzed at the program level.



2007 Campus Master Plan Revision
Biological Resources Technical Report

SAN DIEGO STATE UNIVERSITY

Figure 5
Alvarado Hotel, Alvarado Campus, Villa Alvarado Residence Hall Expansion Vegetation Map with Proposed Impact Areas

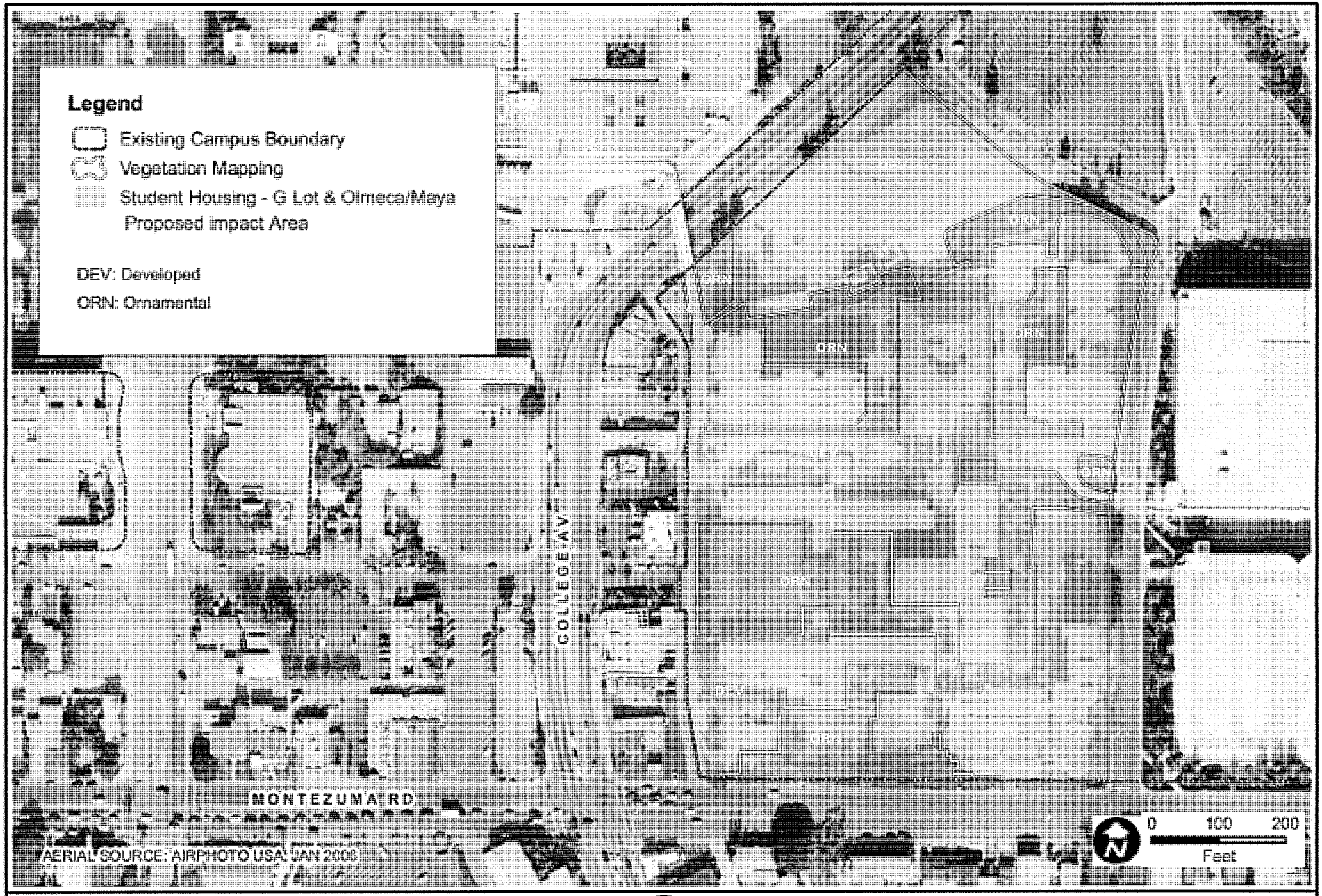
3.5 Student Housing Site

The Student Housing site is proposed for development in the central portion of campus (*Figure 6*). The project component would occupy the existing G Lot, which is bordered on the northwest by College Avenue, on the northeast by Zura Way (an internal campus street), and on the south by the East Campus Residential Hall complex, including Tepeyac, Cuicacalli, and Tacuba Halls. The project component would also include the existing Olmeca/Maya Residence Halls, the Student Residence Life Administration Building, and a lawn area north of H Lot.

The project component would include a net increase of 1,400 new units, through the demolition of the existing Olmeca/Maya Residence Halls and Residence Life Building and construction of three new residence halls and a new Residence Life Building on the same sites. The new buildings would be built in phases, consisting of the construction of the new G Lot Residence Hall with approximately 800 beds, construction of the new Residence Life Building, subsequent demolition of the Olmeca and Maya Residence Halls and former Residential Life Building, and subsequent construction of the new Olmeca and Maya Residence Halls. This project component is being analyzed at the project level.

3.6 Student Union Expansion Site

The Student Union Expansion site component of the proposed project is located in the existing L parking lot (L Lot), on the northwest side of campus (*Figure 7*). The L Lot area is bounded on the north by Aztec Circle Drive, on the south by Cox Arena, and on the west and east by the steps of the former Aztec Bowl. The Student Union component of the project would include renovation of the existing Aztec Center on the east portion of the site and construction of a new building on the west portion of the site. The new building would include a conference space, social space, food services, retails services, recreational facilities, and student organization offices. Due to the steep slopes that surround the location of this project component, additional surface connection points would need to be developed. Cox Arena and the Aztec Recreation Center are both elevated approximately 100 feet above L Lot, requiring additional stairways and/or walkways to better integrate these facilities. This project component would not include construction of any additional parking facilities, but landscaping treatments would ultimately be incorporated into the design. This project component is being analyzed at the project level.



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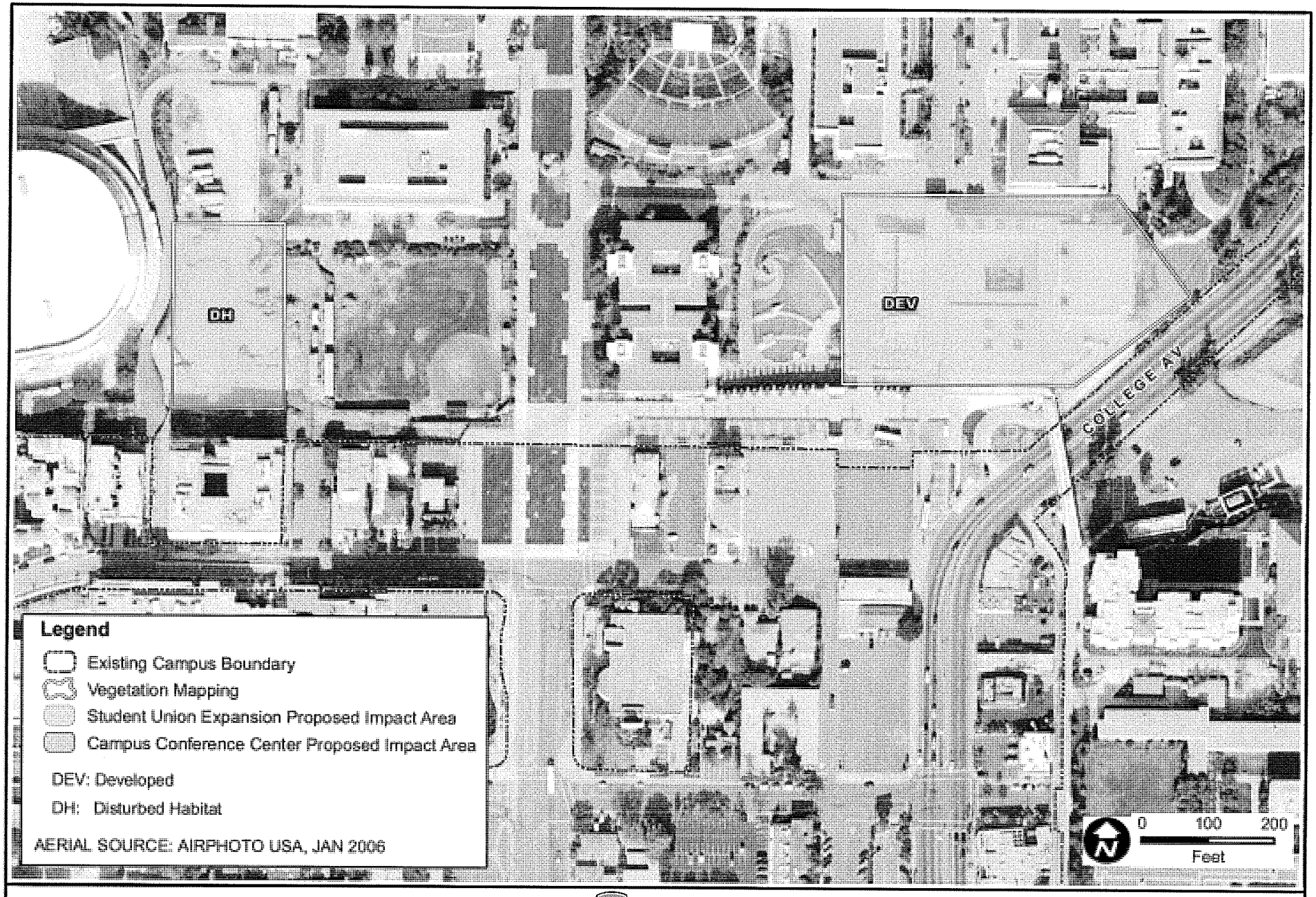
Biological Resources Technical Report

SAN DIEGO STATE UNIVERSITY

Figure 6
Student Housing - G Lot & Olmeca/Maya
Vegetation Map with Proposed Impact Area



2007 Campus Master Plan Revision
Biological Resources Technical Report

SAN DIEGO STATE UNIVERSITY

Figure 7
Campus Conference Center & Student Union Expansion
Vegetation Map with Proposed Impact Area

3.7 Campus Conference Center Site

The Campus Conference Center site component of the proposed project is located in the area occupied by former tennis courts, located immediately east of Cox Arena near the southwest corner of campus (*Figure 7*). The planned conference center would include a new 70,000-gross-square-foot three-story building on approximately 0.5 acre. This facility would house space for meetings, conferences, and general student/faculty/staff gatherings.

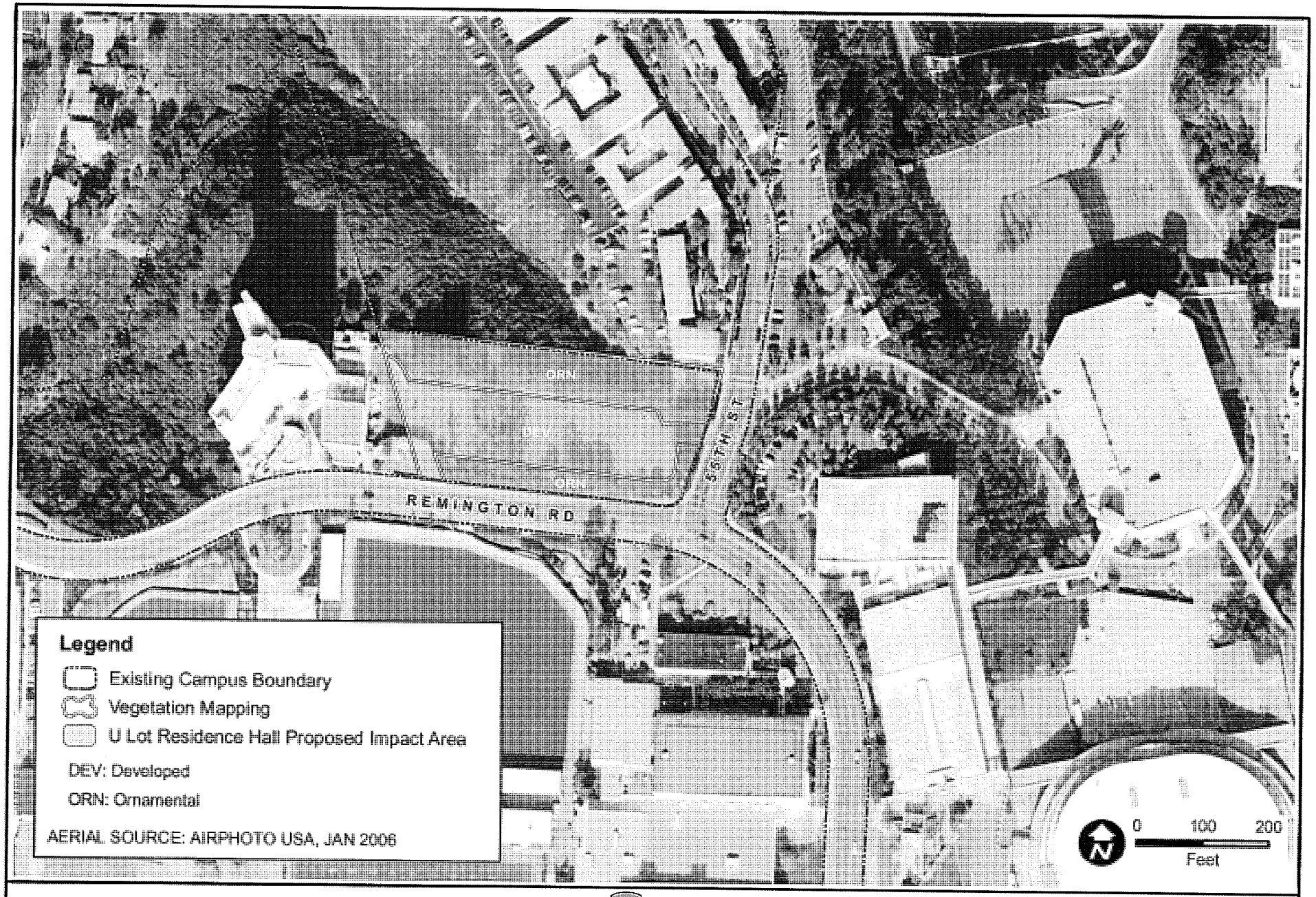
3.8 U Lot Residence Hall Site

The U Lot Residence Hall site component of the proposed project is located within the existing U Lot, on the far west side of campus (*Figure 8*). The U Lot area is located north of Remington Road and west of 55th Street. The planned Residence Hall would include construction of a 10-story 350,000-gross-square-foot, Type 1 structure to house 800 student beds. This component would be constructed atop the future Parking Structure 7, which was previously master planned for the U Lot location. This parking structure would house up to 750 vehicles. The north side of the lot abuts a portion of vegetated open space, which is included in the City of San Diego HPA.

4.0 EXISTING CONDITIONS – SURVEY RESULTS

4.1 Adobe Falls Faculty/Staff Housing Site

The Adobe Falls Faculty/Staff Housing site is located near the south end of Alvarado Canyon in the northwestern portion of the City of San Diego, California. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, Section 15, NW 1/4 (*Figure 4*). The approximate center of the site is located at Latitude 32° 46' 86" N and Longitude 117° 04' 40" W. The site occurs approximately 1 mile upstream from the confluence of Alvarado Creek and the San Diego River. The site is located within a portion of the Alvarado Creek floodplain and is bounded by Interstate 8 and the Caltrans easement to the south, the City of San Diego–owned Adobe Falls Supplemental Environmental Project (SEP) open space parcel and residential developments associated with Genoa Drive and Adobe Falls Place to the north and west, and College Avenue to the east.



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Biological Resources Technical Report

SAN DIEGO STATE UNIVERSITY

Figure 8
U Lot Residence Hall
Vegetation Map with Proposed Impact Area

The Adobe Falls Faculty/Staff Housing site contains approximately 32.40 acres of primarily undeveloped land that are currently utilized by local residents as open space. Utilities, including telephone and sewer lines, are present on portions of the property, and some modifications have been made to the flow channel of Alvarado Creek through the site, as well as portions of the landscape adjacent to a City of San Diego Metropolitan Wastewater Department (MWWD) sewer easement. A majority of the site contains native vegetation in a relatively undisturbed state. The site includes a broad, north-facing slope on the west half of the site that descends to the Alvarado Creek floodplain north of Interstate 8; a steep, rocky canyon in the central portion of the site surrounding Alvarado Creek as it flows north and west through the site; and a south-facing slope that descends to Interstate 8, immediately west of College Avenue. Elevations on site range from approximately 440 feet above mean sea level (AMSL) at the east end of the site down to approximately 120 feet AMSL at the west end of the site. The stream channel of Alvarado Creek originates approximately 10 feet north of Interstate 8 in the center of the site from a box culvert directing stream flows under the freeway from the SDSU campus. Alvarado Creek then flows west and south through the "Adobe Falls" proper, a series of shallow bedrock-lined waterfalls, tail pools, and riffle and plunge pool complexes, before descending to the floodplain, turning sharply to the west, and flowing along the north property boundary throughout the west end of the site.

The Adobe Falls Faculty/Staff Housing site contains both upland and wetland vegetation (*Figure 4*). Upland areas are dominated by coastal sage scrub, broom baccharis scrub, southern mixed chaparral, and forms of chaparral dominated by lemonadeberry (*Rhus integrifolia*) or California adolphia (*Adolphia californica*). Disturbed portions of the site contain non-native annual grassland or bare soil. Approximately 4 acres of the site containing mature chaparral and some coastal sage scrub were burned in a fire in October 2003. The fire destroyed many mature chaparral shrubs within the 4-acre area, but extensive crown-sprouting of native shrubs and seedlings of many native herbs and shrubs was observed within the burned areas in October 2004. Wetlands on the site include Alvarado Creek and its associated riparian areas, a small cismontane marsh adjacent to Alvarado Creek, and several small drainages that convey runoff from Interstate 8 and Mill Peak Road into various portions of Alvarado Creek. Disturbed riparian habitat along Alvarado Creek is being restored on the Adobe Falls SEP parcel (owned and maintained by the City of San Diego), which is adjacent to the north property line of the Adobe Falls Faculty/Staff Housing parcel. However, the majority of riparian areas on the Adobe Falls Faculty/Staff Housing site are dominated by non-native wetlands plants and are considered disturbed riparian habitat. The Adobe Falls Faculty/Staff Housing site is not included in the City of San Diego MHPA but was mapped for the Multiple Species Conservation Program (MSCP) as containing grassland, coastal sage scrub, and riparian scrub.

4.1.1 Soils

The Adobe Falls Faculty/Staff Housing parcel contains three soil types (Bowman 1973), including the Friant rocky fine sandy loam on 9 to 30 percent slopes (FxE), the Olivenhain cobbly loam on 9 to 30 percent slopes, and riverwash (Rm). The Friant rocky fine sandy loam is the dominant soil on the east portion of the Adobe Falls Faculty/Staff Housing site and is characterized as a very shallow, well-drained fine sandy loam that has formed from weathered metasedimentary rock (rocks derived from sedimentary rocks that have been changed chemically, mineralogically, or structurally as a result of pressure, temperature, or shearing stress). Runoff is rapid and erosion potential moderate to high in this shallow soil type. As much as 10 percent of the area mapped as Friant rocky fine sandy loam type may be dominated by large, erratic rock outcrops. The Olivenhain cobbly loam is the dominant soil in the western portion of the Adobe Falls Faculty/Staff Housing site and is characterized as a well-drained, deep cobbly loam common on dissected marine terraces that have formed in old gravelly and cobbly alluvium. The soil has developed a very cobbly, clay subsoil and is a moderate to high erosion hazard. The Olivenhain cobbly loam is classified as an Alfisol clay soil type capable of supporting sensitive plant taxa in San Diego County. Riverwash is a soil type that occurs in intermittent and some perennial stream channels. This soil type dominates the drainage of Alvarado Creek throughout and adjacent to the Adobe Falls Faculty/Staff Housing site and is characterized as an excessively drained and rapidly permeable material typically composed of sandy, gravelly, or cobbly alluvium.

4.1.2 Botany—Plant Communities and Floral Diversity

Based on plant species composition and general physiognomy, there are 17 vegetation communities or land covers present on site. Wetland communities include disturbed and restored sycamore/cottonwood riparian woodland, disturbed wetland, southern willow scrub, mulefat scrub, valley freshwater marsh, cismontane alkali marsh, and imtermiitent/ephemeral unvegetated stream channel. Upland communities and land covers include baccharis scrub, coastal sage scrub, disturbed coastal sage scrub, southern mixed chaparral, valley needlegrass grassland, non-native annual grassland, eucalyptus woodland, ornamental vegetation, and disturbed habitat. These vegetation communities and land covers are described in detail below, their acreages are presented in *Table 1*, and their spatial distributions are presented on the Biological Resources Map (*Figure 4*).

TABLE 1
Vegetation Community Types Present on the Adobe Falls Faculty/Staff Housing Site

Habitat Type/Vegetation Community	Acres on the Adobe Falls Faculty/Staff Housing Site		
	Upper Village Site[1]	Lower Village Site[2]	Total Site Acres
Wetlands			
Disturbed Sycamore/Cottonwood Riparian Woodland (dSCRW)	0.08	0.28	**0.36**
Restored Sycamore/Cottonwood Riparian Woodland (rSCRW)	0.20	0.52	**0.72**
Disturbed Wetland (DW)	0.00	0.91	**0.91**
Southern Willow Scrub (SWS)	0.08	0.18	**0.26**
Mulefat Scrub (MFS)	0.06	0.35	**0.41**
Valley Freshwater Marsh (FWM)	0.00	0.03	**0.03**
Cismontane Alkali Marsh (CAM)	0.00	0.39	**0.39**
Intermittent/Ephemeral Unvegetated Stream Channel (WOUS)	0.02	0.06	**0.08**
Wetlands Subtotal	**0.44**	**2.72**	3.16
Uplands			
Baccharis Scrub (BS)	0.09	5.05	**5.14**
Coastal Sage Scrub (CSS)	7.62	6.36	**13.98**
Disturbed Coastal Sage Scrub (dCSS)	0.01	0.72	**0.73**
Southern Mixed Chaparral (SMX)	1.96	4.34	**6.30**
Valley Needlegrass Grassland (VGL)	0.00	0.04	**0.04**
Non-Native Annual Grassland (AGL)	0.06	1.91	**1.97**
Eucalyptus Woodland (EUC)	0.00	0.17	**0.17**
Ornamental Vegetation (ORN)	0.38	0.00	**0.38**
Disturbed Habitat (DH)	0..00	0.52	**0.52**
Uplands Subtotal	**10.12**	**19.11**	**29.23**
Adobe Falls Faculty/Staff Housing Site Total	**10.56**	**21.83**	**32.39 Acres**

1 – The Upper Village site is being analyzed at the project level for CEQA. This site will likely be developed prior to the Lower Village site. For purposes of this project, the Upper and Lower Village sites are seperated by the centerline of Alvarado Creek between the two sites.

2 – The Lower Village site is being analyzed at the program level for CEQA. This site will likely be developed after completion of the Upper Village site.

Wetlands

Disturbed Sycamore/Cottonwood Riparian Woodland

The majority of the vegetation along Alvarado Creek within the Adobe Falls Faculty/Staff Housing site is disturbed sycamore/cottonwood riparian woodland. This vegetation type would be classified under Holland (1986) within the riparian woodland community group (element code 62000), including an open canopy (less than 50 percent cover) dominated by well-spaced western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), and Goodding's black willow (*Salix gooddingii*). The community is a dense, broad-leaved, winter-deciduous riparian woodland with some areas of well-developed shrub and emergent herbaceous understories excepting those areas heavily dominated by palms or within perennial scour zones of the stream channel. This vegetation type is generally found in association with fine gravelly alluvium deposited near stream channels during flood flows.

The disturbed sycamore/cottonwood riparian woodland on the site is dominated by Mexican fan palm (*Washingtonia robusta*), Brazilian pepper (*Schinus terebinthifolius*), western sycamore, Fremont's cottonwood, and occasional arroyo willow and Goodding's black willow. Additional plant species present within the community type include mulefat (*Baccharis salicifolia*), weeping bottlebrush (*Callistemon viminalis*), tree tobacco (*Nicotiana glauca*), and giant reed (*Arundo donax*). The overall cover of non-native, exotic, and invasive species within the wetland is approximately 60 percent of total cover, indicating the degraded nature of the existing riparian woodland community present on the site.

Restored Sycamore/Cottonwood Riparian Woodland

Restored sycamore/cottonwood riparian woodland on the site includes areas below the Adobe Falls within and adjacent to Alvarado Creek. These areas are currently being restored as part of the Alvarado Canyon SEP through non-native plant removal including removal of Brazilian pepper, giant reed, and weeping bottlebrush. Mexican fan palm trees over 15 feet in height are not being removed from this area due to the steepness of the surrounding terrain and difficulty in removing the trees from the channel area. The restoration is occurring as part of a MWWD SEP on lands owned by the City of San Diego, SDSU, and Caltrans. The portion of restored riparian woodland on the Adobe Falls Faculty/Staff Housing site includes large areas dominated by bedrock and rock outcrops, with sparse individual willows growing along the bedrock-lined channel. Non-native plants will be removed annually through May 2007 or upon satisfactory completion of mitigation and regulatory sign off of the MWWD SEP site, whichever occurs last.

Disturbed Wetland

Areas mapped as disturbed wetland on site occur along the perennial drainage along the western boundary of the site and within the floodplain adjacent to Alvarado Creek, along the northwestern boundary of the site. These areas receive wetland hydrology and contain wetland soils but are dominated by non-native wetland and some upland plant species, including sweet fennel (*Foeniculum vulgare*), giant reed, Mexican fan palm, weeping bottlebrush, tree tobacco, Brazilian pepper, and umbrella sedge (*Cyperus involucratus*). Most of these areas support very small occurrences of southern willow scrub or mulefat scrub.

Southern Willow Scrub

Holland (1986) describes southern willow scrub as a dense, broad-leaved, winter-deciduous riparian thicket dominated by several willow species (*Salix* spp.), with scattered emergent Fremont cottonwood and western sycamores. Willow density typically inhibits the development of a diverse herbaceous understory.

Within the site, southern willow scrub consists of generally small, mixed stands of arroyo willow and black willow located directly within the stream channel of Alvarado Creek or on the lower floodplain terrace adjacent to the stream channel. The southern willow scrub on site is composed of trees of varying age and cover, with very few mature trees (25+ years) present. These stands are entirely surrounded by areas heavily invaded with Mexican fan palm and giant reed. Southern willow scrub also occurs in small, isolated patches near the outlets of all drainage culverts on or near the boundaries of the site.

Mulefat Scrub

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub dominated by a single species, mulefat. This is an early seral community type maintained by disturbance associated with frequent flooding regimes. This type would likely succeed to sycamore-dominated riparian woodland or forest if the flooding regime were removed (Holland 1986).

On site, mulefat scrub occurs in small, pure stands along the edges of the stream channel below the ordinary high water mark, usually isolated by large rock outcrops, exposed bedrock, or disturbed riparian woodland. All mulefat scrub on site is under the joint jurisdiction of ACOE, CDFG, and RWQCB.

Valley Freshwater Marsh

Valley freshwater marsh occurs in drainages, seepages, and other perennially moist low places. This community is characterized by perennial, emergent monocots (e.g., grasses and lilies), 2 to -

3 meters (6 to 10 feet) tall, such as cattails and bulrushes (*Scirpus* spp.). Understory species typically include curly dock (*Rumex crispus*), marsh fleabane (*Pluchea odorata*), and a variety of hydrophytic grasses and herbs (Holland 1986).

Several small areas containing obligate wetland plants characteristic of freshwater marsh communities occur along portions of the Alvarado Creek stream channel on site, as well as downstream of the stormwater outlet at the far southwest corner of the site. Typical plants include narrow-leaved cattail (*Typha angustifolia*), winged three-square (*Scirpus americanus*), and yerba santa (*Anemopsis californica*).

Cismontane Alkali Marsh

According to Holland (1986), cismontane alkali marsh is dominated by perennial, emergent, herbaceous monocots on sites with standing water or saturated soil conditions for the majority of the year. High evaporation and low input of fresh water render these marshes salty and alkaline. Characteristic species include yerba santa, saltgrass (*Distichlis spicata*), several species of bullrush (*Scirpus* spp.), as well as cattails (*Typha* spp.).

There is one distinct patch of cismontane alkali marsh in the central portion of the MWWD Adobe Falls SEP mitigation site associated with a locally high groundwater table and heavy deposits of poorly-drained sandy-clay soils. The floristic diversity of the alkali marsh was being limited by a pampas grass (*Cortaderia selloana*) invasion. However, the area has been restored as mitigation for a previous MWWD sewer spill within the canyon. The cismontane alkali marsh is dominated by salt grass, slender cattail, southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), pale spike rush (*Eleocharis macrostachya*), California bulrush (*Scirpus californicus*), bristly ox-tongue (*Picris echioides*), curly dock, and Fremont's cottonwood.

Unvegetated Stream Channel

Unvegetated stream channel occurs in ephemeral and intermittent drainages that lack surface water for the majority of the growing season. Unvegetated stream channels generally contain riverwash (composed of unconsolidated cobbles, rocks, and sand), or exposed silt, sand, and clay substrates. Plant growth in unvegetated stream channels is generally restricted by lack of water availability during much of the year, seasonal scouring effects during high flow conditions, or deposition of heavy rocks and sediments low in organic matter (Holland 1986).

Unvegetated ephemeral stream channel occurs along portions of Alvarado Creek, as well as between all of the stormwater outlets on the perimeter of the site and Alvarado Creek. The drainages vary in width from approximately 1 foot wide to approximately 4 feet wide. Unvegetated channel occurs along portions of Alvarado Creek due to severe seasonal scour and a shifting bedload of sand, gravel, rocks, and some boulders that prevents vegetation growth.

Unvegetated channel occurs downstream of all stormwater outlets due to the ephemeral or intermittent nature of the flow and/or the disturbance associated with high stormwater flows that prevents plants from establishing.

Jurisdictional Wetlands

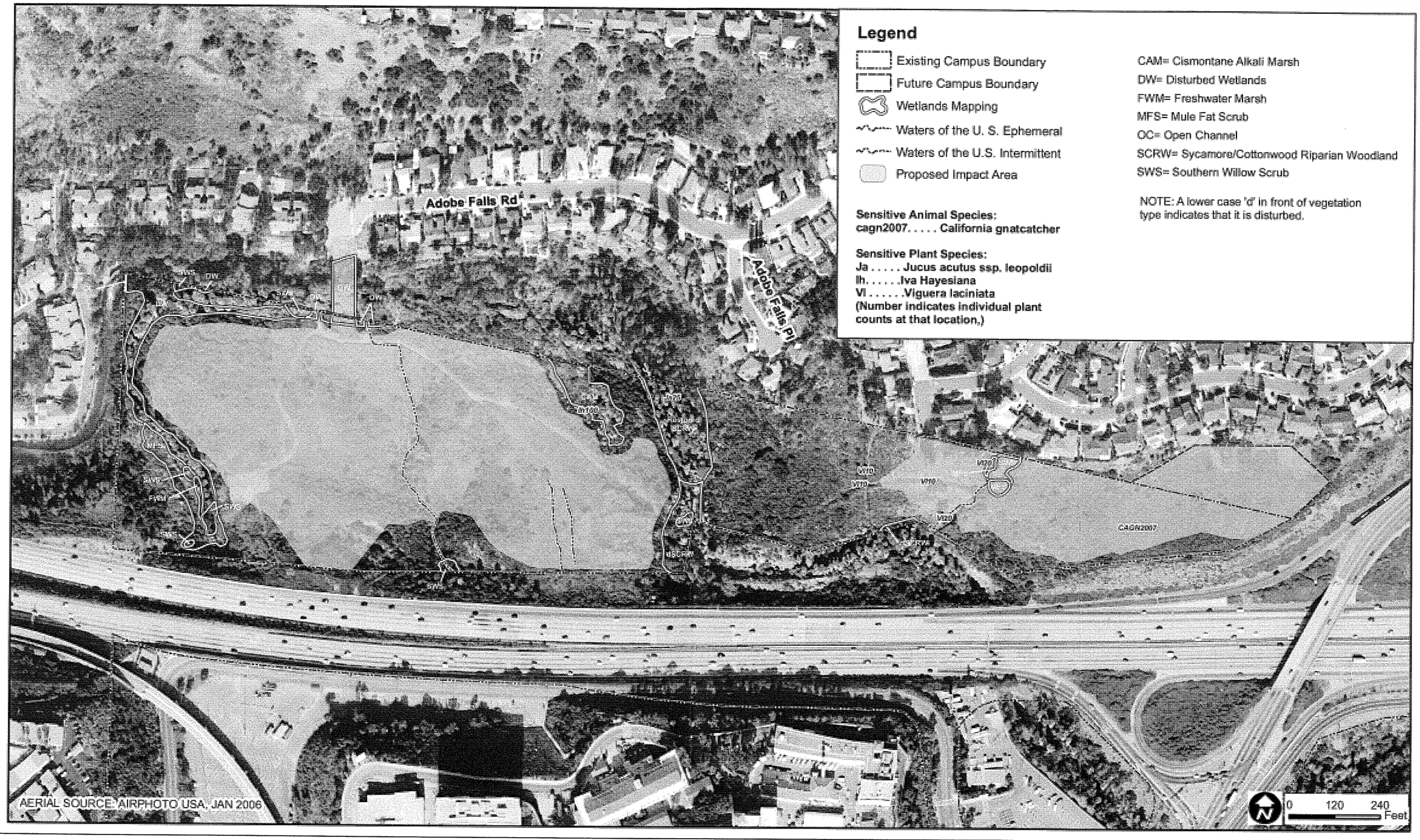
A total of 3.16 acres of jurisdiction wetlands and waters of the U.S. (WOUS) were delineated by Dudek on the site in October 2004 and this total was verified in 2007 (*Figure 9*). Of this total, 3.08 acres are wetlands and 0.08 acre are non-wetland WOUS under the joint jurisdiction of ACOE, CDFG, and RWQCB. These joint jurisdictional wetlands and WOUS include disturbed sycamore/cottonwood riparian woodland (and restored sycamore/cottonwood riparian woodland), disturbed wetland, southern willow scrub, mulefat scrub, valley freshwater marsh, cismontane alkali marsh, and intermittent and ephemeral unvegetated stream channel. Only 0.01 acre of ephemeral unvegetated stream channel was determined to be under the joint jurisdiction of CDFG and RWQCB only. These two isolated stream channels contain a well-defined bed and bank but no surface connection to other WOUS or wetlands. All areas were originally delineated 2 days after record rainfalls in San Diego County for the month of October 2004, when surface connections between these channels and Alvarado Creek would have been easily been observed.

Uplands

Baccharis Scrub

Holland (1986) does not specifically treat baccharis scrub, but broom baccharis (*Baccharis sarothroides*) and coyote brush (*Baccharis piluaris*) are typical co-dominant species in baccharis scrub. Broom baccharis is an early pioneer species that colonizes disturbed chaparral and/or coastal sage scrub areas, returning minerals and bacteria to the soil. In coastal Southern California, baccharis scrub is an early seral community type often intermediate between riparian scrub and disturbed upland scrub types and is strongly associated with frequently disturbed washes and arroyos containing loose, well-drained sand and clay soils.

Baccharis scrub occurs primarily on the western half of the site, where it intergrades with coastal sage scrub, southern mixed chaparral, riparian scrub, and annual grassland habitat types. Baccharis scrub on site is co-dominated by coyote brush and broom baccharis. Occasional Mexican elderberry (*Sambucus mexicana*) trees are included within this habitat type. The understory of this habitat type commonly contains teasel (*Dipsacus sativus*), western ragweed (*Ambrosia psilostachya*), and non-native grasses, including slender oat (*Avena barbata*) and foxtail chess (*Bromus madritensis* ssp. *rubens*).



2007 Campus Master Plan Revision
Biological Resources Technical Report

SAN DIEGO STATE UNIVERSITY

Figure 9
Adobe Falls Faculty/Staff Housing
Wetlands Delineation with Proposed Impact Areas

Coastal Sage Scrub

Coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species, such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric situations. Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal resource agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75 to 80 percent of its historical coverage throughout Southern California.

Coastal sage scrub is distributed throughout the east and west halves of the Adobe Falls Faculty/Staff Housing site. The habitat type is dominated by California sagebrush, flat-top buckwheat, black sage (*Salvia mellifera*), broom baccharis, and purple needlegrass (*Nassella pulchra*). Approximately 2 acres of coastal sage scrub on the west half of the mitigation site were burned in October 2003. These burned areas appear to be recovering well from the fire, with some crown-sprouting and many native coastal sage scrub plants germinating and establishing on site.

A form of coastal sage scrub dominated by California adolphia occurs on the east half of the mitigation site, near the intersection of Mill Peak Road with the site boundary. This form of coastal sage scrub contains approximately 60 to 70 percent cover of California adolphia, mixed with California sagebrush, flat-top buckwheat, and black sage.

Southern Mixed Chaparral

Southern mixed chaparral is a moderately dense chaparral, 1.5 to 3 meters tall, which is co-dominated by several species of broad-leaved sclerophyll shrubs, including wild lilac (*Ceanothus* spp.), manzanita (*Arctostaphylos* spp.), mission manzanita (*Xylococcus bicolor*), and Nuttall's scrub oak (*Quercus dumosa*), and contains many other common chaparral shrubs, including toyon (*Heteromeles arbutifolia*) and laurel sumac (*Malosma laurina*). The community often occurs adjacent to coastal sage scrub and is located on the more mesic north and east aspects of canyon slopes. This chaparral community is adapted to repeated fires, and many species respond to the disturbance by stump sprouting. A dense cover of annual herbs may appear the first spring after a fire, followed in subsequent years by a gradual return to domination by woody shrub species (Holland 1986).

The southern mixed chaparral occurs within the west half of the Adobe Falls Faculty/Staff Housing site and is dominated by a relatively dense, well-developed canopy dominated by toyon,

holly-leaved cherry (*Prunus ilicifolia*), laurel-sumac, and lemonadeberry. Occasional understory species include redberry (*Rhamnus crocea*), fuscia-flowered gooseberry (*Ribes speciosum*), many-flowered mallow (*Malacothamnus densiflorus*), and southern honeysuckle (*Lonicera subspicata* ssp. *denudata*). Approximately 1 acre of southern mixed chaparral was burned in a fire in October 2003. Total cover was greatly reduced by the fire, but extensive crown-sprouting of all native shrubs has been observed within the burned areas. Some areas of chaparral, present on both halves of the mitigation site, consist of pure stands of lemonadeberry that intergrade with baccharis scrub, coastal sage scrub, and riparian scrub. Lemonadeberry is an extremely good colonizer of dry slopes and is tolerant of many different soil conditions.

Valley Needlegrass Grassland

Valley needlegrass grassland is a mid-height (to 2 feet tall) grassland dominated by perennial, tussock-forming purple needlegrass. Native and introduced annuals occur between the perennials, often exceeding the bunchgrass in cover. Valley needlegrass grassland usually occurs on fine-textured soils that are moist or even waterlogged during the winter but very dry in summer.

A very small area of native valley needlegrass grassland occurs on the west half of the mitigation site, near the south property boundary. The grassland occurs among a group of rock outcrops and is dominated by purple needlegrass. Occasional broad-lobed filaree (*Erodium botrys*) and melic grass (*Melica* sp.) also occur in this habitat type.

Non-Native Annual Grassland

Non-native annual grassland is a widespread habitat type dominated by non-native annual grasses, including oat grass (*Avena* sp.), brome grass, (*Bromus* sp.), rye grass (*Lolium* sp.), and fescue grass (*Festuca* sp., *Vulpia* sp.). Holland (1986) indicates that the habitat type is often associated with numerous species of showy-flowered, native annual wildflowers, especially in years of favorable rainfall. This habitat type often occurs on fine-textured usually clay soils, and plants germinate in late autumn with growth, flowering, and seed set occurring from winter through spring.

Non-native annual grassland occurs in the west half of the site and is dominated by wild oat (*Avena fatua*), foxtail chess, ripgut grass (*Bromus diandrus*), black mustard (*Brassica nigra*), wild radish (*Raphanus sativa*), common sow thistle (*Sonchus oleraceus*), and occasional fennel. Non-native annual grassland is considered a sensitive habitat type by CDFG because it often supports small mammals, including mice, gophers, and other rodents. Extensive small mammal activity was evident within annual grassland on the Adobe Falls Faculty/Staff Housing site.

Eucalyptus Woodland

Eucalyptus woodland is a form of non-native vegetation, added to the original Holland (1986) vegetation classification by T. Oberbauer (1996) for San Diego County. The vegetation community is dominated by non-native gum trees (*Eucalyptus* spp.), and, due to the fecundity of plantings of gum tree in Southern California, it generally intergrades with non-native grassland, riparian forest, and a variety of other native and non-native upland and wetland habitats.

Eucalyptus woodland occurs in the far northwest corner of the site and is dominated by pure, even-aged stands of blue gum (*Eucalyptus globulus*). The understory is dominated by the grass and herbaceous species described under non-native grassland above. All trees are established on the slopes of the constructed flood channel downstream of the site, above the ordinary high water mark that commonly defines ACOE jurisdictional limits.

Ornamental Vegetation

Ornamental vegetation is not a native vegetation community type as described by Holland (1986) but instead consists of non-native plants used for ornamental purposes. Areas on the Adobe Falls Faculty/Staff Housing site mapped as ornamental vegetation include landscaping associated with residential properties along Mill Peak Road and Arno Drive on the east half of the site, including species such as Peruvian pepper (*Schinus molle*), ice plant (*Mesembryanthemum crystallinum*), hottentot fig (*Carpobrotus edulis*), and bottlebrush (*Callistemon viminalis*).

Disturbed Habitat

Disturbed habitat consists of areas devoid of vegetation that are not developed or paved. Areas mapped as disturbed habitat on the Adobe Falls Faculty/Staff Housing site include an approximately 8-foot-wide trail that extends from the floodplain on the west half of the site up to the Adobe Falls area in the center of the site. This trail is covered with wood mulch, which precludes most plant establishment within the area.

4.1.3 Floral Diversity

A total of 119 species of vascular plants were observed during the vegetation mapping and botany surveys conducted in September and October 2004 and March and May 2007. This species list is not meant to be a comprehensive inventory of all vascular plants present within the proposed project site but rather an inventory of all plants present within or adjacent to the project area during the surveys. Of the 119species observed, 57 (47 percent) were non-native, introduced, weedy, or invasive plant species, and 62 (52 percent) were plant species native to California. Sensitive plant species with some potential to occur on the site are discussed in *Section 4.1.6.*

4.1.4 Wildlife Diversity

A total of 59 wildlife species were observed on site during the general wildlife surveys in fall 2005 and spring 2007, including 1 amphibian species, 4 reptile species, 47 species of birds, and 7 species of mammals. Sensitive wildlife species with some potential to occur on the site are discussed in *Section 4.1.7*. Wildlife species observed/detected on site are listed in *Appendix B*.

Birds

A total of 47 bird species were observed on the Adobe Falls Faculty/Staff Housing site, primarily dominated by resident species. Notable bird species observed on site included coastal California gnatcatcher, great blue heron (*Ardea herodius*), green-backed heron (*Butorides striatus*), and belted kingfisher (*Ceryle alcyon*). A variety of raptors was also sighted, including Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), northern harrier (*Circus cyaneus*), turkey vulture (*Cathartes aura*), and American kestrel (*Falco sparverius*).

Reptiles and Amphibians

The one amphibian detected on the site was the Pacific treefrog (*Hyla regilla*), and the reptiles observed included the western fence lizard (*Sceloporus occidentalis*), sagebrush lizard (*S. graciosus*), two-striped garter snake (*Thamnophis hammondii*), and western diamondback rattlesnake (*Crotalus atrox*). Other common amphibians and reptiles expected to occur on site include the western toad (*Bufo boreas*), California treefrog (*Hyla cadaverina*), side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis melanoleucus*), western rattlesnake (*Crotalus viridis*), and southern alligator lizard (*Gerrhonotus multicarinatus*).

Mammals

Seven species of mammals were observed or detected on the site: brush rabbit (*Sylvilagus bachmani*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), woodrat (*Neotoma* sp.), coyote (*Canis latrans*), bobcat (*Lynx rufus*) and domestic dog (Canis familiaris). Other mammals likely to occur on the site include common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*) and Virginia opossum (*Didelphis virginiana*). Anecdotal observations of bobcat are known from the area, and sign of this species was observed on site during the 2007 surveys.

4.1.5 Sensitive Biological Resources

Sensitive biological resources are those defined as follows: (1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to

limited, declining, or threatened population sizes; (2) species and vegetation communities recognized by local and regional resource agencies as sensitive; (3) habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; and (4) wildlife corridors and habitat linkages. Field notes concerning biotic components observed within or adjacent to the Adobe Falls Faculty/Staff Housing site were compared with lists of sensitive plants and animals from the CDFG, USFWS, and California Native Plant Society (CNPS). *Appendix C* contains a summary of the various degrees of sensitivity recognized by each of these organizations. Sources for determining sensitive biological resources include USFWS (2000), CDFG (2000), California Native Plant Society (CNPS 2007) for plants and U.S. Fish and Wildlife Service (USFWS 2007), California Department of Fish and Game (CDFG 2007), and Remsen (1978) for wildlife species.

4.1.6 Sensitive Plant Species

A list of potentially occurring sensitive plant species was created for the Adobe Falls Faculty/Staff Housing site based on a literature search, a species review of the California Natural Diversity Data Base (CNDDB) (March 2007), and a review of information in the San Diego MSCP. *Table 2* summarizes the listed and other sensitive plants, including MSCP narrow endemics, known from the general region and indicates their potential to occur on the Adobe Falls Faculty/Staff Housing site.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
San Diego thornmint[1] *Acanthomintha ilicifolia*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Vertisol clay soils of several series; mesas and slopes in grassland and coastal sage scrub; typically flowers April-June	Low potential to occur on site. CNDDB historical records exist for SDSU/Mission Valley area. Not observed on site during focused surveys in April 2007; would have been detectable if present.
San Diego County needlegrass *Achnatherum diegoense*	FWS: None DFG: None CNPS List: 4.2	Chaparral and coastal sage scrub; typically flowers May-June.	Low potential to occur on site. Not observed on site during late summer/fall surveys; would have been detectable if present.
California adolphia *Adolphia californica*	FWS: None DFG: None CNPS List: 2.1	Coastal sage scrub and grassland on heavy clay soils; typically flowers December-April.	Occurs in coastal sage scrub. Approximately 45 plants observed on site.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Shaw's agave[1,2] *Agave shawii*	FWS: None DFG: None CNPS List: 2.1	Maritime succulent scrub; known only from Point Loma (origin questionable); typically flowers May-July.	No potential to occur on site. No suitable habitat present.
San Diego bur-bush *Ambrosia chenopodiifolia*	FWS: None DFG: None CNPS List: 2.1	Coastal sage and maritime succulent scrubs; typically flowers April-June.	Low potential to occur on site. No CNDDB records for surrounding general area. Not observed on site during mid-summer/fall surveys; would have been detectable if present.
San Diego ambrosia[1,2] *Ambrosia pumila*	FWS: Proposed DFG: None CNPS List: 1B.1	Flood plains of San Luis Rey, San Diego, and Sweetwater Rivers in San Diego County; grassland and coastal sage scrub; typically flowers June-September.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during spring surveys; would have been detectable if present.
Aphanisma *Aphanisma blitoides*	FWS: None DFG: None CNPS List: 1B.2	Coastal bluff scrub on sandstone and sandy soils; typically flowers April-May.	No potential to occur on site. No suitable habitat present.
Del Mar manzanita[2] *Arctostaphylos glandulosa* var. *crassifolia*	FWS: Endangered DFG: None CNPS List: 1B.1	Southern maritime chaparral on marine sandstone substrate; typically flowers December-April.	No potential to occur on site. No suitable habitat present.
Otay manzanita[2] *Arctostaphylos otayensis*	FWS: None DFG: None CNPS List: 1B.2	Southern mixed chaparral on moderately steep metavolcanic and gabbro soils over 1,000 feet AMSL; typically flowers January-March.	No potential to occur on site. No suitable habitat present.
San Diego sagewort *Artemisia palmeri*	FWS: None DFG: None CNPS List: 4.2	Coastal sage scrub/riparian ecotones; typically flowers July-September	High potential to occur on site. Not observed during late summer/fall surveys; would have been detectable if present. Occurs on adjacent Adobe Falls SEP parcel to north.
Dean's milk-vetch *Astragalus deanei*	FWS: None DFG: None CNPS List: 1B.1	Chaparral, coastal sage scrub, and riparian; typically flowers April-May.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would have been detectable if present.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Coastal dunes milk vetch *Astragalus tener* var. *titi*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Coastal dunes on sandy soils; typically flowers March-May.	No potential to occur on site. No suitable habitat present.
South coast saltscale *Atriplex pacifica*	FWS: None DFG: None CNPS List: 1B.2	Coastal bluff scrub and dunes, playas; typically flowers March-October.	No potential to occur on site. No suitable habitat present.
Encinitas baccharis[1] *Baccharis vanessae*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Southern maritime, southern mixed, and chamise chaparrals on metavolcanic and marine sandstone soils; typically flowers August-November.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would have been detectable if present.
Golden-spined cereus *Bergerocactus emoryi*	FWS: None DFG: None CNPS List: 2.2	Coastal sage and maritime succulent scrubs; typically flowers May-June.	No potential to occur on site. No suitable habitat present.
Nevin's barberry[1,2] *Berberis nevinii*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Southern mixed and chamise chaparrals on moderate slopes over 1,000 feet AMSL; typically flowers March-April.	No potential to occur on site. No suitable habitat present.
Thread-leaved brodiaea[1] *Brodiaea filifolia*	FWS: Threatened DFG: Endangered CNPS List: 1B.1	Clay soils in grasslands; typically flowers April-June.	Low potential to occur on site. No CNDDB historical records for surrounding general area, and minimal clay habitat exists. Not observed on site during late summer/fall surveys; would not have been detectable if present.
Orcutt's brodiaea *Brodiaea orcuttii*	FWS: None DFG: None CNPS List: 1B.1	Clay soils in grasslands, often associated with vernal pools; typically flowers April-June.	Low potential to occur on site. No CNDDB historical records for surrounding general area, and minimal clay habitat exists. Not observed on site during late summer/fall surveys; would not have been detectable if present.
Seaside calandrinia *Calandrinia maritime*	FWS: None DFG: None CNPS List: 4.2	Coastal bluff and maritime succulent scrubs; typically flowers March-May.	No potential to occur on site. No suitable habitat present.

TABLE 2
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Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Dunn's mariposa lily[1] *Calochortus dunnii*	FWS: None DFG: Rare CNPS List: 1B.2	Southern mixed and chamise chaparrals on metavolcanic and gabbro soils.	No potential to occur on site. No suitable habitat present.
Payson's jewel flower *Caulanthus simulans*	FWS: None DFG: Rare CNPS List: 4.2	Chaparral and coastal sage scrub; sandy/granitic soils; typically flowers March-June.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would not have been detectable if present.
Lakeside ceanothus[2] *Ceanothus cyaneus*	FWS: None DFG: None CNPS List: 1B.2	Southern mixed chaparral; typically flowers April-June.	Low potential to occur on site. Outside general distribution area for species. Not observed on site during late summer/fall surveys; would have been detectable if present.
Wart-stemmed ceanothus[2] *Ceanothus verrucosus*	FWS: None DFG: None CNPS List: 2.2	Sandstone and metavolcanic soils in mixed and maritime chaparrals; typically flowers January-April.	Low potential to occur on site. Not observed on site during late summer/fall surveys; would have been detectable if present.
Southern mountain misery[1,2] *Chamaebatia australis*	FWS: None DFG: None CNPS List: 4.2	Southern mixed and chamise chaparrals and coastal sage scrub on metavolcanic soils; typically flowers November-May.	No potential to occur on site. No suitable habitat present.
Summer-holly[1,2] *Comarostaphylis diversifolia* spp. *diversifolia*	FWS: None DFG: None CNPS List: 1B.2	Southern mixed chaparral on mesic slopes; typically flowers April-June.	Low potential to occur on site. Not observed on site during late summer/fall surveys; would have been detectable if present.
Small-flowered morning-glory *Convolvulus simulans*	FWS: None DFG: None CNPS List: 4.2	On clay soils in coastal sage scrub, chaparral, and grassland; typically flowers March-June.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would not have been detectable if present.
Salt marsh bird's-beak *Cordylanthus maritimus* ssp. *maritimus*	FWS: Endangered DFG: Endangered CNPS List: 1B.2	Upper elevations in coastal saltmarsh; typically flowers May-September.	No potential to occur on site. No suitable habitat present.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Orcutt's bird-beak *Cordylanthus orcuttianus*	FWS: None DFG: None CNPS List: 2.1	Coastal sage scrub and riparian habitats.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would not have been detectable if present.
Sea dahlia *Coreopsis maritima*	FWS: None DFG: None CNPS List: 2.2	Coastal bluff scrub, coastal sage scrub, and southern maritime chaparral; typically blooms March-May.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would not have been detectable if present.
San Diego sand aster *Corethrogyne filaginifolia* var. *incana* (= *Lessingia filaginifolia)*	FWS: None DFG: None CNPS List: 1B.1	Coastal sage scrub; typically flowers June-August.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would have been detectable if present.
Del Mar sand aster *Corethrogyne filaginifolia* var. *linifolia* (= *Lessingia filaginifolia* var. *linifolia*)	FWS: None DFG: None CNPS List: 1B.1	Coastal sage scrub and chaparral on marine sandstone soils; typically flowers July-September.	No potential to occur on site. No suitable habitat present.
Tecate cypress[2] *Cupressus forbesii*	FWS: None DFG: None CNPS List: 1B.1	Mixed chaparral on moderate to steep slopes on metavolcanic or gabbro soils.	No potential to occur on site. No suitable habitat present.
Otay tarplant[1] *Deinandra* (*Hemizonia*) *conjugens*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Clay soils in coastal sage scrub, maritime succulent scrub, and grasslands; typically flowers May-July.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would have been detectable if present.
Western dichondra *Dichondra occidentalis*	FWS: None DFG: None CNPS List: 4.2	Understory in chaparral and coastal sage scrub; typically flowers March-May.	Low potential to occur on site. No CNDDB historical records for surrounding general area. Not observed on site during late summer/fall surveys; would have been detectable if present.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Short-leaved live-forever[1] *Dudleya blochmaniae* ssp. *brevifolia*	FWS: None DFG: Endangered CNPS List: 1B.1	Southern maritime chaparral on Lindavista Formation (marine sandstone) soils; typically flowers April-May.	No potential to occur on site. No suitable habitat present.
Variegated dudleya[1] *Dudleya variegata*	FWS: None DFG: None CNPS List: 1B.2	Clay soils in coastal sage scrub and chaparral, often associated with vernal pool habitat; typically flowers April-June.	Low potential to occur on site. Some CNDDB records for surrounding areas. Not observed on site during focused surveys in February and April 2007; would have been detectable if present.
Sticky dudleya *Dudleya viscida*	FWS: None DFG: None CNPS List: 1B.2	Steep slopes and cliff faces in coastal sage scrub and chaparral; typically flowers May-June.	No potential to occur on site. No suitable habitat present.
Palmer's ericameria[2] *Ericameria palmeri* ssp. *palmeri*	FWS: None DFG: None CNPS List: 2.2	Open areas in coastal sage scrub; typically flowers August-September.	Low potential to occur on site. No CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would have been detectable if present.
San Diego button-celery *Eryngium aristulatum* ssp. *parishii*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Vernal pools; typically flowers April-June.	No potential to occur on site. No suitable habitat present.
Cliff spurge *Euphorbia misera*	FWS: None DFG: None CNPS List: 2.2	Maritime succulent scrub and coastal bluff scrub; typically flowers January-August.	No potential to occur on site. No suitable habitat present.
San Diego barrel cactus[2] *Ferocactus viridescens*	FWS: None DFG: None CNPS List: 2.1	Coastal sage scrub, chaparral, and grassland; typically flowers May-June.	Moderate potential to occur on site. Some CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would have been detectable if present.
Palmer's grapplinghook *Harpagonella palmeri*	FWS: None DFG: None CNPS List: 4.2	Clay soils in coastal sage scrub and chaparral; typically flowers March-April.	Low potential to occur on site. No CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would not have been detectable if present.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Graceful tarplant *Holocarpha virgata* spp. *elongate*	FWS: None DFG: None CNPS List: 4.2	Coastal sage scrub and grassland; typically flowers August-November.	Low potential to occur on site. No CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would have been detectable if present.
San Diego marsh elder[1,2] *Iva hayesiana*	FWS: None DFG: None CNPS List: 2.2	Riparian and flood plain-coastal sage scrub ecotone: typically flowers April-September.	Occurs in cismontane alkali marsh and freshwater marsh on site. Approximately 100 plants observed on site.
Spiny rush[1,2] *Juncus acutus* var. *leopoldii*	FWS: None DFG: None CNPS List: 4.2	Drainages, alkali, and brackish marshes.	Occurs in cismontane alkali marsh on site. Approximately 25 plants observed.
Heart-leaved pitcher-sage *Lepechinia cardiophylla*	FWS: None DFG: None CNPS List: 1B.2	Southern mixed chaparral on metavolcanic and gabbro soils over 1,000 feet AMSL; predominantly an Orange County species, known only from Iron Mountain in San Diego County. Typically flowers April-July.	No potential to occur on site. No suitable habitat present.
Gander's pitcher sage[1] *Lepechinia ganderi*	FWS: None DFG: None CNPS List: 1B.3	Southern mixed chaparral on metavolcanic and gabbro soils at elevations greater than 1,000 feet AMSL; typically flowers June-July.	No potential to occur on site. No suitable habitat present.
Felt-leaved monardella[1,2] *Monardella hypoleuca* ssp. *lanata*	FWS: None DFG: None CNPS List: 1B.2	Southern mixed and chamise chaparrals; metavolcanic and gabbro substrates over 1,000 feet AMSL. Typically flowers May-July.	No potential to occur on site. No suitable habitat present.
Willowy monardella *Monardella linoides* ssp. *viminea*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Cobbly, intermittent streams in riparian habitat and coastal sage scrub; typically flowers June-August.	Low potential to occur on site. No CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would have been detectable if present.
San Diego goldenstar *Muilla clevelandii*	FWS: None DFG: None CNPS List: 1B.1	Clay soils in grassland and coastal sage scrub; typically flowers May-June.	Low potential to occur on site. Some CNDDB records for surrounding areas. Not observed on site during focused surveys in April 2007; would have been detectable if present.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Spreading navarretia *Navarretia fossalis*	FWS: Threatened DFG: None CNPS List: 1B.1	Vernal pools and depressions; typically flowers April-June.	No potential to occur on site. No suitable habitat present.
Dehesa bear-grass[1,2] *Nolina interrata*	FWS: None DFG: Endangered CNPS List: 1B.1	Gabbro soils in southern mixed and chamise chaparral; at elevations greater than 500 feet AMSL; typically flowers June-July.	No potential to occur on site. No suitable habitat present.
Snake cholla[1] *Opuntia californica* var. *californica* (= *Opuntia parryi* var. *serpentina*)	FWS: None DFG: None CNPS List: 1B.1	Coastal and maritime succulent scrubs; typically flowers April-May.	No potential to occur on site. No suitable habitat present.
California Orcutt grass *Orcuttia californica*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Vernal pools with long ponding durations; typically flowers April-June.	No potential to occur on site. No suitable habitat present.
Short-lobed broom rape *Orobanche parishii* var. *brachyloba*	FWS: None DFG: None CNPS List: 4.2	Coastal bluff scrub, coastal dunes, and coastal sage scrub with *Isocoma menziesii*; typically flowers May-August.	No potential to occur on site. No suitable habitat present.
Torrey pine[2] *Pinus torreyana* ssp. *torreyana*	FWS: None DFG: None CNPS List: 1B.2	Southern maritime chaparral on marine sandstone soils.	No potential to occur on site. No suitable habitat present.
San Diego Mesa mint *Pogogyne abramsii*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Vernal pools; typically flowers April-June.	No potential to occur on site. No suitable habitat present.
Otay Mesa mint *Pogogyne nudiuscula*	FWS: Endangered DFG: Endangered CNPS List: 1B.1	Restricted to vernal pools on Otay Mesa; typically flowers May-June.	No potential to occur on site. No suitable habitat present.
Nuttall's scrub oak[2] *Quercus dumosa*	FWS: None DFG: None CNPS List: 1B.1	Southern maritime and mixed chaparrals/coastal sage scrub; typically flowers February-March.	Low potential to occur on site. No CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would have been detectable if present.

TABLE 2
Sensitive Plant Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Species/Habitat	Conservation Status	Habitat/Location	Status On Site
Munz's sage *Salvia munzii*	FWS: None DFG: None CNPS List: 2.2	Coastal and maritime succulent scrub; typically flowers February-April.	No potential to occur on site. No suitable habitat present.
San Miguel savory[1] *Satureja chandleri*	FWS: None DFG: None CNPS List: 1B.2	Metavolcanic and gabbro soils in mixed and chamise chaparrals at elevations over 1,000 feet AMSL; typically flowers March-May.	No potential to occur on site. No suitable habitat present.
Ashy spike-moss[2] *Selaginella cinerascens*	FWS: None DFG: None CNPS: None	Prostrate species found as "bald areas" or understory in coastal sage scrub and chaparral.	Low potential to occur on site. No CNDDB records for surrounding areas. Not observed on site during late summer/fall surveys; would have been detectable if present.
Gander's butterweed *Senecio ganderi*	FWS: None DFG: Rare CNPS List: 1B.2	On gabbro soils in understory of mixed and chamise chaparrals at elevations greater than 1,000 feet AMSL; typically flowers April-May.	No potential to occur on site. No suitable habitat present.
Parry's tetracoccus[2] *Tetracoccus dioicus*	FWS: None DFG: None CNPS List: 1B.2	Gabbro soils in southern mixed and chamise chaparrals occurring at over 500 feet AMSL; typically flowers April-May.	No potential to occur on site. No suitable habitat present.
San Diego County viguiera[2] *Viguiera laciniata*	FWS: None DFG: None CNPS List: 4.2	Coastal sage and maritime succulent scrubs; typically flowers February-June.	Occurs on site in coastal sage scrub. Approximately 75 plants observed.

[1] MSCP Narrow Endemic Species

[2] Large perennial plants that would have been observed if present.

Note: CNPS updated the R-E-D code in 2006. See *Appendix C* for an explanation of the new threat-extension codes.

California adolphia, San Diego marsh elder (*Iva hayesiana*), San Diego County viguiera (*Viguiera laciniata*), and southwestern spiny rush are all present on site. California adolphia was observed primarily on the east half of the Adobe Falls Faculty/Staff Housing site in areas of coastal sage scrub dominated by the species but also was observed as individual plants mixed within coastal sage scrub on the west half of the site. San Diego marsh elder and southwestern spiny rush were observed entirely within the cismontane alkali marsh along the north boundary

of the west half of the site; both of these species naturally occur within the marsh and have been planted within restored portions of the marsh following removal of pampas grass (*Cortaderia selloana*). San Diego County viguiera was observed within coastal sage scrub on both halves of the site, with the majority occurring on the east half of the site.

Based on the vegetation mapping and general plant survey results, as well as soils distribution mapping (Bowman 1973) for the Adobe Falls Faculty/Staff Housing site, three additional sensitive plants were determined to have the potential to occur on site. Focused rare plant surveys were conducted on the site in February and April 2007, with an emphasis on observing listed species identified in 2004 as having a moderate potential to occur onsite including San Diego thornmint (*Acanthomintha ilicifolia*), variegated dudleya (*Dudleya variegata*) and San Diego goldenstar (*Muilla clevlandii*). None of the species were observed on site during the focused surveys. Known occurrences of each of these target species are within 5 miles of the site. San Diego thornmint is an annual species that blooms in early spring, and variegated dudleya and San Diego goldenstar are perennial herbs that bloom in spring and can be cryptic during later seasons. The focused survey in February 2007 was conducted to observe any potential dudleya on site during low vegetation cover conditions, and the focused survey during April 2007 was conducted to observe any potential San Diego thornmint and goldenstar on site during their respective blooming periods. Reference populations of these species within the City of San Diego MHPA were utilized in determining timing of the 2007 focused surveys for each species.

4.1.7 Sensitive Wildlife Species

A list of potentially occurring sensitive wildlife was created for the Adobe Falls Faculty/Staff Housing site based on a literature search, a species review of the CNDDB (March 2007), and the San Diego MSCP. *Table 3* summarizes the listed and other sensitive wildlife species known from the general region and indicates their potential to occur on the Adobe Falls Faculty/Staff Housing site.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
AMPHIBIANS				
Bufo californicus	Arroyo toad	FE, CNF/ CSC, P	Stream channels for breeding (typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	Low potential to occur on site. Not observed during general wildlife surveys.
Spea [Scaphiopus] hammondi	Western spadefoot toad	None/CSC, P	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitats	Low potential to occur on site. Not observed during general wildlife surveys.
REPTILES				
Anniella pulchra pulchra	Silvery legless lizard	FS, CNF/ CSC	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats	Low potential to occur on site. Not observed during general wildlife surveys.
Arizona elegans occidentalis	Coastal (California) glossy snake	None/ None	Grassland, chaparral, coastal sage scrub, woodlands in sandy and rocky substrates	Low potential to occur on site. Not observed during general wildlife surveys.
Charina [Lichanura] trivirgata roseofusca	Coastal rosy boa	FS, CNF/ None	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Low potential to occur on site. Not observed during general wildlife surveys.
Emys [Clemmys] marmorata pallida	Southwestern pond turtle	FS, CNF/ CSC, P	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	Low potential to occur on site. Not observed during general wildlife surveys.
Aspidocolis [Cnemidophorus] tigris multiscutatus	Coastal western whiptail	None/None	Coastal sage scrub, chaparral	Moderate potential to occur on site. Not observed during general wildlife surveys.
Aspidocolis [Cnemidophorus] hyperythrus beldingi	Orange-throated whiptail	None/CSC, P	Coastal sage scrub, chaparral, grassland, juniper and oak woodland	Moderate potential to occur on site. Not observed during general wildlife surveys.
Coleonyx variegatus abbotti	San Diego banded gecko	None/None	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops	Low potential to occur on site. Not observed during general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Crotalus ruber ruber	Northern red-diamond rattlesnake	None/CSC	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Low potential to occur on site. Not observed during general wildlife surveys.
Phrynosoma coronatum blainvillei	San Diego horned lizard	FS, CNF/CSC, P	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest	Low potential to occur on site. Not observed during general wildlife surveys.
Salvadora hexalepis virgultea	Coast patch-nosed snake	None/CSC	Chaparral, washes, sandy flats, rocky areas	Low potential to occur on site. Not observed during general wildlife surveys.
Sceloporus graciosus vanderburgianus	Southern sagebrush lizard	None/None	Montane chaparral, hardwood and conifer forest, juniper, coastal sage scrub	One individual observed during 2007 general wildlife surveys.
Thamnophis sirtalis infernalis	California red-sided garter snake	None/CSC	Marshes, meadows, sloughs, ponds, slow-moving water courses	Low potential to occur on site. Not observed during general wildlife surveys.
Thamnophis hammondii	Two-striped garter snake	FS, BLM, CNF/CSC, P	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	One individual observed adjacent to site during 2004 general wildlife surveys.
BIRDS				
Accipiter cooperii	Cooper's hawk	PIF, SBNF/ CSC	Riparian and oak woodlands, montane canyons	Moderate potential to occur on site. May forage and roost on site. Moderate potential to nest in adjacent woodland. One individual observed foraging on site during 2007 general wildlife surveys.
Accipiter striatus	Sharp-shinned hawk	PIF, SBNF/CSC	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	Moderate potential to forage on site. Low potential to nest in adjacent woodland during winter. Not observed during general wildlife surveys.
Agelaius tricolor	Tricolored blackbird	PIF, MNBMC/CSC	Nests near freshwater, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	Low potential to occur on site; limited habitat available. Not observed during general wildlife surveys.
Aimophila ruficeps canescens	So. Cal. rufous-crowned sparrow	None/CSC	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	Moderate potential to occur on site. May occur in coastal sage scrub. Not observed during general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Ammodramus savannrum	Grasshopper sparrow	PIF, SMC/None	Open grassland and prairie, especially native grassland with a mix of grasses and forbs	Low potential to occur on site; suitable habitat very limited in size. Not observed during general wildlife surveys.
Amphispiza belli belli	Bell's sage sparrow	PIF, SMC/CSC	Coastal sage scrub and dry chaparral along coastal lowlands and inland valleys	Moderate potential to occur on site. May occur in coastal sage scrub. Not observed during general wildlife surveys.
Aquila chrysaetos	Golden eagle	PIF, SBNF/CSC, P	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest	Low potential to forage over site. No nesting habitat. Not observed during general wildlife surveys.
Ardea herodias	Great blue heron	None/None	Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats	One individual observed on site in riparian scrub during general wildlife surveys.
Asio flammeus	Short-eared owl	PIF, MNBMC/CSC	Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands	Low potential to occur on site. Not observed during general wildlife surveys.
Asio otus	Long-eared owl	PIF, SBNF/CSC	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest	Low potential to occur on site. Not observed during general wildlife surveys.
Athene cunicularia	Western burrowing owl	BLM, MNBMC/CSC	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	Low potential to occur on site. Not observed during general wildlife surveys.
Botarus lentiginosus	American bittern	PIF, SMC/None	Emergent habitat of freshwater marsh and vegetation borders of ponds and lakes	Low potential to forage on site. Not observed during general wildlife surveys.
Buteo swainsoni	Swainson's hawk	PIF/ST	Open grassland, shrublands, croplands	Low potential to forage on site. Not observed during general wildlife surveys.
Buteo regalis	Ferruginous hawk	PIF, SMC/CSC, P	Open, dry country, grasslands, open fields, agriculture	Low potential to forage on site. Not observed during general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Buteo lineatus	Red-shouldered hawk	None/None	Riparian and woodland habitats, eucalyptus	Moderate potential to forage or roost adjacent to site; nesting habitat limited to adjacent woodlands. Observed flying over site during 2007 general wildlife surveys.
Campylorhynchus brunneicapillus cousei	Coastal cactus wren	FS, CNF/CSC	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	Low potential to occur on site. May occur in coastal sage scrub. Not observed during general wildlife surveys.
Cathartes aura	Turkey vulture	SBNF/None	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting	One individual observed foraging over site and adjacent Adobe Falls SEP property during 2004 general wildlife surveys.
Charadrius alexandrinus nivosus	Western snowy plover	FT, MNBMC/CSC (only coastal nesting population is listed)	Nesting habitat along coast includes sandy or gravelly beaches; inland nesting habitat is barren or sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds, riverine sand bars, and sewage, salt-evaporation and agriculture wastewater ponds	No potential to occur; no suitable habitat on site.
Charadrius montanus	Mountain plover	PFT, SMC, PIF/CSC	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts	No potential to occur; no suitable habitat on site.
Circus cyaneus	Northern harrier	PIF/CSC	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	One individual observed flying over the site during 2007 general wildlife surveys.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	PIF, SMC, FS, SBNF, CNF/ST	Dense, wide riparian woodlands and forest with well-developed understories	Low potential to occur on site; low cover in riparian scrub. Not observed during general wildlife surveys.
Dendroica petechia	Yellow warbler	PIF, SBNF/CSC	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders, and willows; winters in a variety of habitats	Moderate potential to occur in adjacent riparian scrub. One individual observed foraging on site during 2007 general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Elanus leucurus	White-tailed kite	PIF, MNBMC, SBNF/R, P	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Low potential to occur on site in riparian scrub. Not observed during general wildlife surveys.
Empidonax traillii extimus	Southwestern willow flycatcher	FE, PIF, CNF/SE	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	Low potential to occur on site in riparian scrub. Low cover in disturbed wetlands and few mature trees. Not observed during general wildlife surveys.
Eremophila alpestris actia	California horned lark	None/CSC	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Low potential to occur on site; no suitable habitat present. Not observed during general wildlife surveys.
Falco columbarius	Merlin	None/CSC	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries, and sea coasts	Low potential to occur on site; no suitable habitat present. Not observed during general wildlife surveys.
Falco mexicanus	Prairie falcon	PIF, SBNF/CSC	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Low potential to occur on site; no suitable habitat present. Not observed during general wildlife surveys.
Falco peregrinus	Peregrine falcon	FE, FS, PIF, CNF, MNBMC/SE, P, CDF	Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Low potential to occur on site; limited suitable foraging habitat present. Not observed during general wildlife surveys.
Icteria virens	Yellow-breasted chat	PIF, SBNF/CSC	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Low potential to occur on site in riparian scrub. Low cover in disturbed wetlands and few mature trees. Not observed during general wildlife surveys.
Lanius ludovicianus	Loggerhead shrike	MNBMC/CSC	Open ground, including grassland, coastal sage scrub, broken chaparral, agriculture, riparian, open woodland	Low potential to occur on site in coastal sage scrub or riparian woodland. Not observed during general wildlife surveys.
Nycticorax nycticorax	Black-crowned night heron	None/None	Marshes, ponds, reservoirs, estuaries; nests in dense-foliaged trees and dense fresh or brackish emergent wetlands	Low potential to occur in marsh on site; vegetation not dense. Not observed during general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Polioptila californica californica	California gnatcatcher	FT, CNF/CSC	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	One nesting pair observed on the east half of the site during focused surveys in March/April 2007.
Vireo bellii pusillus	Least Bell's vireo	FE, CNF/SE	Nests in southern willow scrub with dense cover within 1-2 meters of the ground; habitat includes willows, cottonwoods, baccharis, wild blackberry, or mesquite on desert areas	Low potential to occur on site in riparian scrub. Low cover in disturbed wetlands and little shrub cover. Not observed during general wildlife surveys.
MAMMALS				
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	None/CSC	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse chaparral; rocky substrates, loams, and sandy loams	Low potential to occur in coastal sage scrub on site. Not observed during general wildlife surveys.
Chaetodipus californicus femoralis	Dulzura California pocket mouse	None/CSC	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	Low potential to occur in coastal sage scrub on site. Not observed during general wildlife surveys.
Dipodomys simulans	Dulzura kangaroo rat	None/None	Coastal sage scrub, chaparral, grassland at elevation <4,500 ft.	Low potential to occur in coastal sage scrub on site. Not observed during general wildlife surveys.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/CSC	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed areas, rangelands	Low potential to occur on site in coastal sage scrub. Not observed during general wildlife surveys.
Neotoma lepida intermedia	San Diego desert woodrat	None/CSC	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	Low potential to occur in coastal sage scrub. Not observed during general wildlife surveys.
Odocoileus hemionus	Mule deer	None/ Regulated	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open areas adjacent to cover	Low potential to occur on site due to lack of migration corridors. No sign observed during general wildlife surveys.
Onychomys torridus Ramona	Southern grasshopper mouse	None/CSC	Grassland, sparse coastal sage scrub	Low potential to occur in coastal sage scrub. Not observed during general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Perognathus longimembris pacificus	Pacific pocket mouse	FE/CSC	Grassland, coastal sage scrub with sandy soils; along immediate coast	Very low potential to occur on site; outside historical range, and absence of sandy soils on site.
Puma concolor	Mountain lion	SBNF/ Regulated	Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky areas, and on cliffs and ledges that provide cover	Low potential to occur on site due to lack of migration corridors. No sign observed during general wildlife surveys.
Taxidea taxus	American badger	SBNF/R	Dry, open, treeless areas, grasslands, coastal sage scrub	Low potential to occur on site. Not observed during general wildlife surveys.
Urocyon cinereoargenteus	Gray fox	None/None	Coastal sage scrub, chaparral, riparian, woodlands, forest	Low potential to occur on site. Not observed during general wildlife surveys.
INVERTEBRATES				
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None	Vernal pools; cool-water pools with low to moderate dissolved solids	No potential to occur on site; suitable habitat not present. Not observed during general wildlife surveys.
Branchinecta sandiogonensis	San Diego fairy shrimp	FE/None	Small, shallow vernal pools, occasionally ditches and road ruts	No potential to occur on site; suitable habitat not present. Not observed during general wildlife surveys.
Euphydryas editha quino	Quino checkerspot butterfly	FE, CNF/None	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant *Plantago erecta* and nectar plants must be present	Low potential to occur on site; host plant not present. Not observed during general wildlife surveys.
Euphyes vestris harbisoni	Harbison's dun skipper	None/None	Restricted to wetland, riparian, oak woodlands, and chaparral habitats supporting host plant *Carex spissa*	Low potential to occur on site; host plant not present. Not observed during general wildlife surveys.
Lycaena hermes	Hermes copper	None/None	Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant *Rhamnus crocea*	Low potential to occur on site; host plant present in limited numbers. Not observed during general wildlife surveys.
Streptocephalus woottonii	Riverside fairy shrimp	FE/None	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm-water pools that have low to moderate dissolved solids	No potential to occur on site; suitable habitat not present. Not observed during general wildlife surveys.

TABLE 3
Sensitive Wildlife Species Present or Potentially Present on the Adobe Falls Faculty/Staff Housing Site

Scientific Name	Common Name	Status Federal/ State[1]	Primary Habitat Associations	Status On Site or Potential to Occur
Federal Designations:				
BLM	Bureau of Land Management Sensitive Species			
CNF	Cleveland National Forest Sensitive Species			
FE	Federally-listed Endangered			
FS	Forest Service Region 5 Sensitive Species			
FT	Federally-listed as Threatened			
MNBMC	Fish and Wildlife Service Migratory Nongame Birds of Management Concern			
PE	Presumed Extinct			
PFT	Proposed for listing as Federally Threatened			
PIF	Partners in Flight Watch List			
SBNF	San Bernardino National Forest Sensitive			
SMC	Fish and Wildlife Service Region 1 Species of Management Concern			
State Designations:				
CDF	California Department of Forestry and Fire Protection Sensitive Species			
CSC	California Special Concern Species			
P	California Department of Fish and Game Protected and Fully Protected Species			
R	California Rare Species			
SE	State-listed as Endangered			
ST	State-listed as Threatened			

Focused surveys for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*) were conducted on site in March and April 2007. A nesting pair of the species was observed on the east half of the Adobe Falls Faculty/Staff Housing site within coastal sage scrub habitat on the slopes overlooking the west-bound lane of Interstate 8. No other gnatcatchers were observed on site during the surveys.

Eleven sensitive wildlife species, including several CDFG species of special concern either occur on site, were observed adjacent to the site in riparian woodland, or have moderate potential to occur on site. Turkey vulture (*Cathartes aura*) was observed flying over the site during the 2004 surveys. This species is likely limited to foraging over the site occasionally, and no nesting opportunities are available. A great blue heron was also observed foraging adjacent to the site in Alvarado Creek during the 2004 and 2007 surveys. There is limited habitat available on the Adobe Falls Faculty/Staff Housing site for this species to forage or roost, but extensive habitat

occurs immediately north of the site on the Adobe Falls SEP parcel. Red-shouldered hawk (*Buteo lineatus*) was observed during the 2007 general wildlife surveys foraging in the adjacent riparian woodlands. Coastal western whiptail (*Aspidocolis tigris multicustatus*) has moderate potential to occur on the site but was not observed during the surveys. None of these species has any listing or sensitivity status in San Diego County.

CDFG species of concern with moderate potential to occur in riparian woodlands adjacent to the site include northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), and yellow warbler (*Dendroica petechia*). Single individuals of northern harrier and Cooper's hawk were observed foraging on site during the 2007 general wildlife surveys and focused gnatcatcher surveys. In addition, one yellow warbler was sighted adjacent to the site on the Adobe Falls SEP site during the 2007 surveys. A single two-striped garter snake (*Thamnophis hammondii*) was observed adjacent to the site on the Adobe Falls SEP parcel during the 2004 general wildlife surveys, but limited habitat for this species occurs on site. Each of these species would be expected to be utilizing the riparian woodlands adjacent to the site for habitat.

CDFG species of concern with moderate potential to occur on site include orange-throated whiptail (*Aspidocolis hyperythrus beldingi*), Bell's sage sparrow (*Amphispiza belli belli*), and southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). Each of these species has moderate potential to occur in coastal sage scrub habitat on site but was not observed during the 2004 or 2007 surveys. Bell's sage sparrow and southern California rufous-crowned sparrow are resident species that would have been observed if present during the surveys.

No other wildlife species recognized as rare, threatened, endangered, or otherwise sensitive (i.e., narrow endemic) by CDFG, USFWS, or MSCP were observed or detected within the site during the general wildlife surveys conducted by Dudek.

4.1.8 Sensitive Habitats

Sensitive habitats include those that are considered rare or declining in the region or that support sensitive plant and/or wildlife species. Within the Adobe Falls Faculty/Staff Housing site, seven types of native wetland habitat considered sensitive occur, including disturbed (and restored) sycamore/cottonwood riparian woodland, disturbed wetland, southern willow scrub, mulefat scrub, cismontane alkali marsh, valley freshwater marsh, and intermittent/ephemeral unvegetated stream channel (*Figure 4*). In addition, a total of five upland habitat types considered sensitive occur on site, including baccharis scrub, coastal sage scrub (and disturbed coastal sage scrub), southern mixed chaparral, valley needlegrass grassland, and non-native annual grassland.

4.1.9 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for dispersal or migration of animals, as well as dispersal of plants (e.g., via wildlife vectors). Wildlife corridors contribute to population viability in several ways: **(1)** they ensure continual exchange of genes between populations, which helps maintain genetic diversity; **(2)** they provide access to adjacent habitat areas representing additional territory for foraging and mating; **(3)** they allow for a greater carrying capacity; and **(4)** they provide routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes. Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage is a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as stepping stones for dispersal and movement (especially for birds and flying insects). The Adobe Falls Faculty/Staff Housing site does not function as a wildlife corridor or habitat linkage. It is bounded on the south by Interstate 8, on the east by College Avenue, on the west by residential developments and a constructed flood channel, and on the north by Adobe Falls Road and residential developments. The nearest open spaces to the site occur on the undeveloped slopes immediately north of Adobe Falls Road, in Chaparral Canyon approximately 1,500 feet to the north, and on steep slopes south of Interstate 8 and west of the SDSU campus. The site is physically separated from all of these open space areas by roads. The only potential wildlife corridor identified in the City of San Diego MSCP Subarea Plan is within Mission Trails Regional Park (including the San Diego River), approximately 2 miles to the north.

4.1.10 Regional Resource Planning Context

The Adobe Falls Faculty/Staff Housing site is located outside the MHPA (*Figure 3*). The site is located on undeveloped land that was identified in the MSCP as potential Urban Habitat Land but ultimately was not included in the MHPA. Urban Habitat Lands are scattered throughout the City in a system of canyons that provide habitat for native species remaining in urban areas, "stepping stones" for migrating birds and those establishing new territories, and environmental educational opportunities for urban populations.

The portions of the MHPA in closest proximity to the site include Chaparral Canyon approximately 1,500 feet to the north of the site and the undeveloped slopes south of Interstate 8 and west of SDSU, approximately 1,500 feet to the southwest of the site. There are also several open space parcels near the site, including the largely undeveloped slopes immediately north of

Adobe Falls Road, as well as an undeveloped slope immediately east of College Avenue and north of Interstate 8. Development of the Adobe Falls Faculty/Staff Housing site will not affect the assemblage of the MSCP preserve system.

4.2 Alvarado Campus Site

The Alvarado Campus site is located in the northeast portion of the SDSU campus, bordered by Alvarado Road to the north and an undeveloped slope and Alvarado Creek to the south. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 5*). The approximate center of the site is located at Latitude 32° 46' 63" N and Longitude 117° 03' 65" W. Elevations on the Alvarado Campus site range from approximately 340 to 380 feet AMSL. The Alvarado Campus site consists of two distinct areas: the existing campus D parking lot (D Lot) west of Alvarado Road and the existing Alvarado Medical Center immediately east of Alvarado Road (*Figure 5*).

4.2.1 Flora and Fauna

The boundaries for this project component are entirely within existing developed areas (e.g., roads, parking areas, buildings) and adjacent areas planted with ornamental vegetation. The Alvarado Campus site contains 13.91 acres of developed land, 0.01 acre disturbed habitat and 2.79 acres of ornamental landscaping within the proposed project area. No native vegetation communities are present within the site. The ornamental vegetation includes a group of blue gum trees along the east side of Alvarado Court, groupings of western sycamore and Mexican fan palm along the east side of Alvarado Court and the parking areas associated with the Alvarado Medical Center, and a variety of non-native ornamental trees, shrubs, and groundcover plants surrounding the buildings, parking areas, and walkways. Additional ornamental species include European olive (*Olea purpurea*), oleander (*Nerium oleander*), pine (*Pinus* sp.), weeping bottlebrush, Peruvian pepper (*Schinus molle*), arborvitae (*Thuja occidentalis*), Queen palm (*Syagrus romanzoffiana*), maple (*Acer* sp.), small-flower ice plant (*Mesembryanthemum nodiflorum*), and fountain grass (*Pennisetum setaceum*). The slope immediately south of the Alvarado Medical Center is located in the MHPA and contains coastal sage scrub vegetation. This MHPA area extends to the west and includes the outlet of Alvarado Creek up to the south boundary of the site. However, no portion of the proposed Alvarado Campus site is included within the MHPA. There are groupings of ornamental vegetation between the south edge of the buildings and the undeveloped coastal sage scrub slope, as shown in *Figure 5*. Wildlife species observed during the site survey were limited to four common resident bird species, including mourning dove, Anna's hummingbird, scrub jay, and European starling. A variety of common, urban-adapted migratory and resident bird species are expected to use the site for foraging and roosting within ornamental trees and shrubs, Alvarado Creek to the west, and the undeveloped slopes within the MHPA to the south. However, the site does not provide suitable habitat for

most amphibians, reptiles, birds, mammals, or invertebrates due to the presence of large paved parking areas, roads (Interstate 8 and Alvarado Road), and minimal vegetation.

4.2.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred throughout the site. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. There are no CNDDB records of the federally-listed threatened coastal California gnatcatcher within the MHPA area to the immediate south of the site or within Alvarado Creek as it flows north and west through the site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas.

4.2.3 Regional Resource Planning Context

The Alvarado Campus site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes the slope adjacent to the south boundary of the site, including Alvarado Creek before it enters the constructed channel adjacent to D Lot. Other areas of the MHPA in proximity to the project site include undeveloped slopes south of Alvarado Road and east of Reservoir Drive, approximately 1,500 feet east of the site, and the Lake Murray reservoir, approximately 2,000 feet northeast of the site. Development of the site will not directly affect assemblage of the MSCP preserve system or any component piece of the MHPA. The proposed development on the site will not introduce a more intensive land use adjacent to the MHPA than currently exists.

4.3 Alvarado Hotel Site

The Alvarado Hotel site occurs within a developed area of campus within the existing C Lot. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 5*). The approximate center of the site is located at Latitude 32° 46' 69" N and Longitude 117° 03' 83" W. Elevation of the majority of the site varies from approximately 340 to 350 feet AMSL.

4.3.1 Flora and Fauna

The boundaries for this project component are entirely within existing developed areas (C Lot) and adjacent areas planted with ornamental vegetation. The Alvarado Hotel site contains 1.71 acres of developed land and 0.17 acre of ornamental landscaping within the proposed project area (*Figure 5*). No native vegetation communities are present within the site. The ornamental vegetation includes a group of blue gum trees in the center of the parking lot, several Mexican

fan palms and Brazilian pepper trees along the edges of the lot, and groupings of a variety of non-native ornamental shrubs and groundcover plants surrounding the parking areas, including acacia (*Acacia* sp.), oleander, ice plant, and fountain grass (*Pennisetum setaceum*). Alvarado Creek flows along the east side of the parking lot and is contained within a constructed channel that is surrounded by chain-link fencing. Some ornamental landscaping is located between the parking area and the stream channel. Wildlife species observed during the site survey were limited to two common resident bird species, including Anna's hummingbird (*Calypte anna*) and scrub jay. A variety of common, urban-adapted migratory and resident bird species are expected to use the site's ornamental vegetation for roosting due to the proximity of the site to Alvarado Creek, a permanent source of water. However, the site does not provide suitable habitat to most amphibians, reptiles, birds, mammals, or invertebrates due to the large paved parking area and minimal vegetation on site.

4.3.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas but is located adjacent to Alvarado Creek, which is expected to attract some common avian species, as mentioned above.

4.3.3 Regional Resource Planning Context

The Alvarado Campus site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes the slope adjacent to the south boundary of the Alvarado Campus site, approximately 500 feet to the southeast. Other areas of the MHPA in proximity to the project site include undeveloped slopes south of Alvarado Road and east of Reservoir Drive, approximately 2,000 feet east of the site, and the Lake Murray reservoir, approximately 2,500 feet northeast of the site. Development of the site will not directly affect assemblage of the MSCP preserve system.

4.4 Villa Alvarado Residence Hall Expansion Site

The Villa Alvarado Residence Hall Expansion site is located in the northeast portion of the SDSU campus. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 5*). The approximate center of the site is located at Latitude 32° 46' 40" N and Longitude 117° 03' 59" W.

Elevations on the Villa Alvarado Residential Hall Expansion site range from approximately 340 to 350 feet AMSL.

4.4.1 Flora and Fauna

The boundaries for this project component are entirely within existing developed areas (existing parking lots and buildings), and adjacent areas are planted with ornamental vegetation (*Figure 5*). The Alvarado Residence Hall Expansion site contains 0.87 acre of developed land and 0.49 acre of existing ornamental landscaping within the proposed project area. No native vegetation communities are present within the site. The ornamental vegetation includes a variety of non-native ornamental trees, shrubs, and groundcover plants surrounding the existing building and adjacent parking areas. Ornamental species include oleander (*Nerium oleander*), pine (*Pinus* sp.), arborvitae (*Thuja occidentalis*), and small-flower ice plant (*Mesembryanthemum nodiflorum*). No wildlife species were observed during the site survey. A variety of common, urban-adapted migratory and resident bird species are expected to use the vegetation adjacent to the existing building for foraging and roosting. The site does not provide suitable habitat for most amphibians, reptiles, birds, mammals, or invertebrates due to the presence of large paved parking areas and nearby roads (Interstate 8 and Alvarado Road).

4.4.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred throughout the site. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas.

4.4.3 Regional Resource Planning Context

The Villa Alvarado Residence Hall Expansion site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes vegetated slopes to the southeast of the site near Alvarado Creek before it enters the constructed channel adjacent to D Lot. Other areas of the MHPA in proximity to the project site include undeveloped slopes south of Alvarado Road and east of Reservoir Drive, approximately 2,000 feet east of the site, and the Lake Murray reservoir, approximately 2,500 feet northeast of the site. Development of the site will not directly affect assemblage of the MSCP preserve system or any component piece of the MHPA. The proposed development on the site will not introduce a more intensive land use adjacent to the MHPA than currently exists.

4.5 Student Housing Site

The Student Housing site occurs within a developed area of campus within the existing G Lot, Olmeca and Maya Residence Halls, Student Residence Life Administration Building, and a lawn area north of H Lot. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 6*). The approximate center of the site is located at Latitude 32° 46' 40" N and Longitude 117° 04' 11" W. The site is located at approximately 420 feet AMSL.

4.5.1 Flora and Fauna

The boundaries for this project component include existing developed building sites and adjacent campus areas planted with ornamental vegetation. The Student Housing site contains 9.64 acres of developed land and 4.04 acres of ornamental landscaping within the proposed project area. No native vegetation communities are present within the site. The ornamental vegetation includes a planted lawn, groupings of ornamental pines along the College Avenue street frontage, and a small grouping of trees located throughout the building complex. No wildlife species were observed during the site surveys. However, some urban-adapted resident bird species are expected to use the ornamental plantings for occasional foraging. The site does not provide suitable habitat to most amphibians, reptiles, birds, mammals, or invertebrates due to the presence of large paved areas with minimal vegetation and existing building uses.

4.5.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred throughout the site. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas.

4.5.3 Regional Resource Planning Context

The Student Housing site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes the slope adjacent to the south boundary of the Alvarado Campus site, approximately 1,000 feet to the east. Other areas of the MHPA in proximity to the project site include undeveloped slopes south of Alvarado Road and east of Reservoir Drive, approximately 2,000 feet east of the site, and the Lake Murray reservoir, approximately 2,500 feet northeast of the site. Development of the site will not directly affect assemblage of the MSCP preserve system.

4.6 Student Union Expansion Site

The Student Union Expansion site occurs within a developed area of campus within the existing L Lot. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 7*). The approximate center of the site is located at Latitude 32° 46' 46" N and Longitude 117° 04' 49" W. The L Lot is located at approximately 420 feet AMSL and descends steeply to the Aztec Recreation Center to the west and tennis courts to the east.

4.6.1 Flora and Fauna

The boundaries for this project component are entirely within an existing developed area (L Lot), which contains limited ornamental vegetation. The Student Union Expansion site contains 2.99 acres of developed land within the proposed project area. No native vegetation communities are present within the site. No wildlife species were observed during the site survey. The site does not provide suitable habitat to most amphibians, reptiles, birds, mammals, or invertebrates due to the lack of vegetation on site.

4.6.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred throughout the site. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas.

4.6.3 Regional Resource Planning Context

The Student Union Expansion site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes the steep, undeveloped slopes immediately south of Interstate 8 in Mission Valley, approximately 1,500 feet to the west of the site. Other areas of the MHPA in proximity to the project site include the undeveloped slopes south of the Alvarado Campus site, approximately 3,000 feet to the east, and Chaparral Canyon, approximately 3,500 feet north of the site. Development of the site will not directly affect assemblage of the MSCP preserve system.

4.7 Campus Conference Center Site

The Campus Conference Center site occurs within a developed area of campus adjacent and to the east of Cox Arena. This component of the project is located on the U.S. Geological Survey

7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 7*). The approximate center of the site is located at Latitude 32° 46' 17" N and Longitude 117° 04' 24" W. The K Lot is located immediately south of the site, which is at approximately 410 feet AMSL. The site occurs west of an existing softball field and north of the West Plaza Mall.

4.7.1 Flora and Fauna

The boundaries for this project component are entirely within an existing developed area. The Campus Conference Center site contains 1.07 acres of developed land/disturbed habitat (graded bare soil areas). No vegetation communities are present within the site. No wildlife species were observed during the site survey. The site does not provide suitable habitat to most amphibians, reptiles, birds, mammals, or invertebrates due to the lack of vegetation.

4.7.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred throughout the site. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas.

4.7.3 Regional Resource Planning Context

The Campus Conference Center site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes the steep, undeveloped slopes immediately north of the U Lot, south of Interstate 8 in Mission Valley, approximately 1,500 feet to the northwest of the site. Other areas of the MHPA in proximity to the project site include the undeveloped slopes south of the Alvarado Campus site, approximately 3,500 feet to the east, and Chaparral Canyon, approximately 4,000 feet north of the site. Development of the site will not directly affect assemblage of the MSCP preserve system.

4.8 U Lot Residence Hall Site

The U Lot Residence Hall site occurs within a developed area of campus within the existing U Lot. This component of the project is located on the U.S. Geological Survey 7.5-minute La Mesa quadrangle; Township 16 South, Range 2 West, no Section (*Figure 8*). The approximate center of the site is located at Latitude 32° 46' 32" N and Longitude 117° 04' 40" W. The U Lot is located at approximately 410 feet AMSL, and adjacent slopes to the north of the lot descend steeply to the canyon bottom below.

4.8.1 Flora and Fauna

The boundaries for this project component are entirely within an existing developed area (U Lot) and adjacent building areas planted with ornamental vegetation. The U Lot Residence Hall site contains 1.07 acres of developed land and 1.22 acres of ornamental vegetation within the proposed project area. No native vegetation communities are present within the site. Adjacent ornamental vegetation includes several non-native ornamental shrubs and groundcover plants. No wildlife species were observed during the site survey. However, some resident bird species are expected to use the ornamental plantings and adjacent canyon slopes to the north. The site does not provide suitable habitat to most amphibians, reptiles, birds, mammals, or invertebrates due to the presence of large paved areas (U-Lot) and minimal vegetation. The slopes adjacent to the north of the U-Lot contain sensitive coastal sage scrub vegetation dominated by flat-top buckwheat (*Eriogonum fasciculatum*), California sage (*Artemisia californica*), and lemonadeberry (*Rhus integrifolia*). These slope areas adjacent to the site may provide suitable habitat for sensitive wildlife species, including the coastal California gnatcatcher.

4.8.2 Sensitive Biological Resources

No sensitive biological resources (i.e., plants, wildlife, habitat types) are present or are expected to be present within the site due to the extensive development that has occurred throughout the site. No rare, threatened, endangered, narrow endemic, or otherwise sensitive plants or wildlife species were observed during the surveys, and no sensitive habitat types are present on site. The site does not function as a wildlife corridor due to extensive development on site and in surrounding areas.

4.8.3 Regional Resource Planning Context

The U Lot Residence Hall site is located outside the MHPA (*Figure 3*). The portion of the MHPA in closest proximity to the site includes the steep, undeveloped slopes immediately north of the U Lot and south of Interstate 8 in Mission Valley. The MHPA boundary is approximately 150 feet north of the U Lot and includes coastal sage scrub and southern mixed chaparral within the canyon below. Development of the site will not directly affect assemblage of the MSCP preserve system.

5.0 ANTICIPATED PROJECT IMPACTS

This section addresses the direct, indirect, and cumulative impacts to biological resources that would result from implementation of the proposed project.

5.1 Direct Impacts

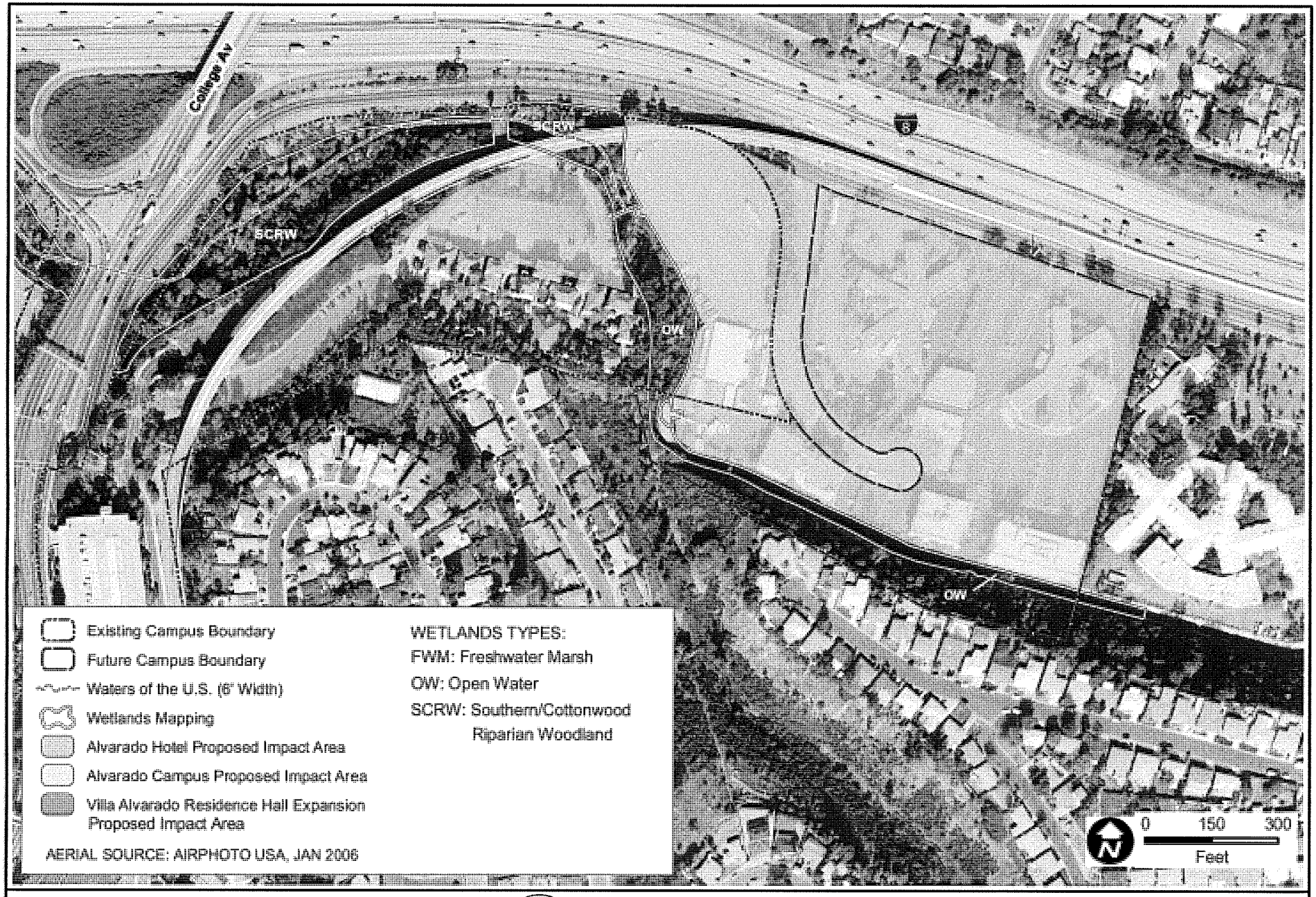
Direct impacts were quantified by overlaying the proposed limits of grading on the biological resources map of each site (see *Figures 4* through *10*). For purposes of this assessment, all biological resources within the limits of grading for each project component were considered 100% lost.

5.1.1 Vegetation Communities

Implementation of all eight components of the proposed project would result in the direct and complete loss of 59.95 acres of habitat or land cover, as shown in *Table 4* and depicted in *Figures 4* through *10*. A total of 19.66 acres of habitat and 40.28 acres of developed land and associated ornamental landscaping would be affected by the proposed project. Loss of habitat would include 0.03 acre sycamore/cottonwood riparian woodland, 0.08 acre of unvegetated stream channel, 0.08 acre southern willow scrub, 0.06 acre mulefat scrub, 0.23 acre disturbed wetlands, 8.77 acres coastal sage scrub, 0.69 acre disturbed coastal sage scrub, 3.75 acres baccharis scrub, 3.87 acres southern mixed chaparral, 0.01 acre valley needlegrass grassland, 1.53 acres non-native annual grassland, and 0.55 acre disturbed habitat. In addition, 9.03 acres ornamental vegetation and 31.26 acres developed land would be directly impacted.

5.1.2 Sensitive Plants

Implementation of the proposed project would result in direct impacts to all California adolphia plants observed on the Adobe Falls Faculty/Staff Housing site (approximately 45 plants in coastal sage scrub), as well as all San Diego County viguiera plants on site (approximately 75 plants in coastal sage scrub). All San Diego marsh elder and southwestern spiny rush plants observed on site would be preserved on site in their native wetlands habitats. No direct impacts to any other state- or federally listed, rare, regionally sensitive, or endemic plant species would occur as a result of project implementation.



2007 Campus Master Plan Revision
Biological Resources Technical Report

SAN DIEGO STATE UNIVERSITY

Figure 10
Alvarado Hotel, Alvarado Campus, Villa Alvarado Residence Hall Expansion Wetland Delineation with Proposed Impact Areas

TABLE 4
Direct Impacts Resulting from Implementation of the Proposed Project - All Sites

Direct Impacts (In Acres) By Project Site[1]										
Vegetation Community/Habitat Type	Adobe Falls Faculty/Staff Housing	Alvarado Campus	Alvarado Hotel	Villa Alvarado Residence Hall Expansion (C Lot)	Student Housing (G Lot)	Student Union Expansion	Campus Conference Center Center	Residence Hall (U Lot)	Total Impacts	Potential Preserved On Site in Open Space[2]
Wetlands										
Intermittent/Ephemeral Unvegetated Stream Channel (WOUS)	0.08								0.08	0.00
Sycamore/Cottonwood Riparian Woodland (SCRW)	0.03								0.03	0.69
Disturbed SCRW (dSCRW)										0.36
Cismontane Alkali Marsh (CAM)										0.39
Southern Willow Scrub (SWS)	0.08								0.08	0.18
Mulefat Scrub (MFS)	0.06								0.06	0.35
Freshwater Marsh (FWM)										0.03
Disturbed Wetland (DW)	0.23[3]								0.23	0.88
Total Wetlands Impacts	**0.48**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.48**	**NA**
Total Wetlands Preservation[2]										**2.88**
Uplands										
Coastal Sage Scrub (CSS)	8.77								8.77	5.21
Disturbed CSS (dCSS)	0.69								0.69	0.04
Baccharis Scrub (BS)	3.75								3.75	1.39
Southern Mixed Chaparral (SMX)	3.87								3.87	2.43
Valley Needlegrass Grassland (VGL)	0.01								0.01	0.03
Eucalyptus Woodland (EUC)									0.00	0.17
Non-Native Annual Grassland (AGL)	1.53								1.53	0.44
Ornamental Vegetation (ORN)	0.31	2.79	0.17	0.49	4.04			1.22	9.03	0.07
Disturbed Habitat (DH)	0.55[3]	0.01							0.56	0.04
Developed Land (DEV)		13.91	1.71	0.87	9.64	2.99	1.07	1.07	31.26	0.00

TABLE 4
Direct Impacts Resulting from Implementation of the Proposed Project - All Sites

Direct Impacts (In Acres) By Project Site[1]										
Vegetation Community/Habitat Type	Adobe Falls Faculty/Staff Housing	Alvarado Campus	Alvarado Hotel	Villa Alvarado Residence Hall Expansion (C Lot)	Student Housing (G Lot)	Student Union Expansion	Campus Conference Center Center	Residence Hall (U Lot)	Total Impacts	Potential Preserved On Site in Open Space[2]
Total Uplands Impacts	19.48	16.71	1.88	1.36	13.68	2.99	1.07	2.29	59.46	NA
Total Uplands Preservation[2]										9.82
TOTAL DISTURBANCE AREA	19.96	16.71	1.88	1.36	13.68	2.99	1.07	2.29	59.94	NA
TOTAL PRESERVATION AREA[2]										12.73

1 All impact acreages are based upon the latest project design as of May 11, 2007. Impacts and acreages are subject to change with subsequent design revisions. Note that some project sites are being analyzed at the project level under CEQA, and others are being analyzed at the program level under CEQA. All impact totals are rounded up to the nearest 100th of an acre.

2 Applies to the Adobe Falls Faculty/Staff Housing site only.

3 A portion of this total impact occurs off site. Approximately 0.20 acre Disturbed Wetland and 0.03 acre Disturbed Habitat will be impacted off site by the Lower Village portion of the Adobe Falls Faculty/Staff Housing site.

5.1.3 Sensitive Wildlife

Implementation of the proposed project would result in direct impacts to one nesting pair of the federally-listed threatened coastal California gnatcatcher and approximately 17.08 acres of potential habitat for the species. The pair was observed on the east half of the Adobe Falls Faculty/Staff Housing site during focused surveys conducted on site during the spring of 2007. Direct impacts will also occur on the Adobe Falls Faculty/Staff Housing site to approximately 18.61 acres of foraging habitat for red-tailed hawk, red-shouldered hawk, turkey vulture, Cooper's hawk, and sharp-shinned hawk and potential nesting habitat for southern California rufous-crowned sparrow, Bell's sage sparrow, and orange-throated whiptail. No direct impacts to any other state- or federally listed, rare, or wildlife species of special concern would occur as a result of project implementation.

5.1.4 Sensitive Habitats

All sensitive habitats that may be directly impacted by the project are located on the Adobe Falls Faculty/Staff Housing site. Directly impacted sensitive wetland habitats total 0.48 acre and

include 0.03 acre sycamore/cottonwood riparian woodland, 0.08 acre ephemeral stream channel, 0.08 acre southern willow scrub, 0.06 acre mulefat scrub, and 0.23 acre disturbed wetlands. Directly impacted sensitive upland habitat communities total 18.62 acres and include 8.77 acres coastal sage scrub, 0.69 acre disturbed coastal sage scrub, 3.87 acres southern mixed chaparral, 3.75 acres baccharis scrub, 0.01 acre valley needlegrass grassland, and 1.53 acres non-native annual grassland.

5.1.5 Wildlife Corridors and Habitat Linkages

As stated previously, none of the component project sites function as a regional habitat linkage or movement corridor for terrestrial species (e.g., birds, mammals, reptiles and amphibians), and no direct impacts to existing wildlife corridors or habitat linkages are anticipated as a result of project implementation.

5.2 Indirect Impacts (Short-Term and Long-Term)

Indirect impacts are difficult to identify and quantify but are presumed to occur. They primarily result from adverse "edge effects" and may be short-term indirect effects related to construction or long-term indirect effects associated with development in proximity to biological resources within natural open space. For the proposed project, it is assumed that the potential indirect impacts resulting from construction activities include dust, noise, and general human presence that may temporarily disrupt species and habitat vitality and construction-related soil erosion and runoff. With respect to these latter factors, however, all project grading will be subject to the typical restrictions and requirements that address erosion and runoff, including the federal Clean Water Act, National Pollution Discharge Elimination System (NPDES), and preparation of a Stormwater Pollution Prevention Plan (SWPPP).

5.2.1 Sensitive Plants

Potential short-term indirect impacts to sensitive plants on the Adobe Falls Faculty/Staff Housing site may include increased erosion, dust, and/or noise from construction. Excessive dust could disrupt plant vitality in the short term, as well as construction-related soil erosion and water runoff. It is assumed, however, that standard construction practices to control dust, erosion, and runoff will be implemented and will substantially reduce these effects. Long-term indirect impacts on vegetation mostly may occur as a result of trampling of vegetation by humans and domestic pets, invasions by exotic species, and exposure to urban pollutants (e.g., pesticides, urban runoff). It is anticipated that the open space areas preserved as part of the project will be fenced, and access to surrounding open space will be largely limited to foot trails established as part of the overall development plan. Access to the cismontane alkali marsh on the Adobe Falls Faculty/Staff Housing site must be limited by fencing or some other measure to protect both San

Diego marsh elder and southwestern spiny rush plants from excessive foot traffic. The introduction of domesticated pets (e.g., cats, dogs) to the area is not expected to create significant indirect impacts on sensitive plants, but invasion by exotic species from surrounding landscaping could potentially impact adjacent wetland areas not maintained by SDSU or its designee by lowering native plant cover through the process of competitive exclusion. The cismontane alkali marsh was recently restored through removal of an extensive pampas grass invasion, and due to the presence of perennial water within the area, pampas grass or others exotic species that commonly invade wetlands could establish.

A final additional long-term indirect impact could be associated with a change in site hydrology upstream of the cismontane alkali marsh on the Adobe Falls Faculty/Staff Housing site. The marsh is supplied by overland flow during the rainy season and a steady flow of perched groundwater during the summer months. The present site design preserves areas south of the cismontane alkali marsh as open space, greatly reducing any potential for significant indirect effects on the sensitive plant species on site.

5.2.2 Sensitive Wildlife

Potential short-term indirect effects on sensitive wildlife may include increased noise from construction. There is a low to moderate potential for sensitive raptors or wading birds to nest within riparian scrub adjacent to the proposed project and be indirectly affected by construction noise. This noise could discourage foraging, roosting, breeding, or nesting behavior. Construction noise could also affect sensitive passerine species with a moderate potential to occur on site, including the southern California rufous-crowned sparrow.

Potential long-term indirect effects on sensitive wildlife may include a decreased prey base (e.g., insects for gnatcatcher) due to reduced habitat area, introduction of night lighting that may adversely affect the activity of nocturnal animals, and increased presence of mesopredators (e.g., domesticated cats and dogs) within preserved open space areas around the proposed development on the Adobe Falls Faculty/Staff Housing site. The coastal California gnatcatcher is the only sensitive wildlife species observed on the site.

In addition, the native coastal sage scrub habitat located north of the proposed U Lot Residence Hall site may potentially provide suitable habitat for the coastal California gnatcatcher. Indirect impacts may occur to the species, if present, through prolonged construction noise on the project site. This indirect impact may be considered significant and would require mitigation.

5.2.3 Sensitive Habitats

Potential short-term indirect effects on sensitive habitats may include increased dust from construction. As discussed above, it is anticipated that standard construction practices to reduce

dust will be employed for the project. Potential long-term indirect effects on sensitive habitats may include introduction of non-native or invasive plant species, increased foot traffic in wetland and upland preserve areas, drainage changes that result in substantially altered hydrology in wetland or upland areas, reduction in fire frequencies for fire-dependent community types, or loss of pollinators/seed dispersal mechanisms for plants within sensitive habitat types.

5.2.4 Wildlife Corridors and Habitat Linkages

None of the proposed project component sites function as a regional habitat linkage or movement corridor for terrestrial species (e.g., birds, mammals, reptiles and amphibians), and therefore no indirect impacts to wildlife corridors or habitat linkages are anticipated.

5.2.5 Regional Planning

None of the proposed project sites are located within the MHPA and therefore will not indirectly affect assemblage of the MSCP preserve system. The Alvarado Campus development plan will not be introducing a more intensive land use adjacent to the MHPA; a series of buildings currently exists along this boundary, similar in size and height to the proposed plan.

5.3 Cumulative Impacts

Cumulative impacts refer to incremental environmental effects of two or more projects when considered together. These impacts taken individually may be minor but collectively can be significant as they occur over a period of time.

The 2007 SDSU Campus Master Plan Revision includes the proposed development of eight individual component sites including seven developed areas (Alvarado Campus, Alvarado Hotel, Villa Alvarado Residence Hall Expansion, Student Housing, Student Union Expansion, Campus Conference Center, and U Lot Residence Hall sites) and one undeveloped site (Adobe Falls Faculty/Staff Housing site). Re-development of previously developed areas on or adjacent to the SDSU campus are not expected to result in cumulative impacts to vegetation communities, sensitive plants, sensitive wildlife, sensitive habitats, or the MHPA in conjunction with other projects occurring adjacent to the campus area. None of these areas contain sensitive biological resources that might be cumulatively impacted. Development of the largely undeveloped Adobe Falls Faculty/Staff Housing site also is not expected to result in cumulative impacts to vegetation communities, sensitive plants, sensitive wildlife, sensitive habitats, or the MHPA. No other development projects are currently known to be in planning or implementation stages adjacent to the Adobe Falls Faculty/Staff Housing site. However, two wetland habitat restoration projects are currently being implemented (the Adobe Falls SEP and Alvarado SEP) on lands located directly adjacent to the Adobe Falls Faculty/Staff Housing site, and these projects in conjunction

with the 2007 SDSU Campus Master Plan Revision will not result in cumulative impacts to sensitive biological resources.

6.0 ANALYSIS OF SIGNIFICANCE

6.1 Explanation of Findings of Significance

Impacts to native habitats, sensitive plants, and sensitive wildlife species must be quantified and analyzed to determine whether such impacts are significant under the California Environmental Quality Act (CEQA). CEQA Guidelines Section 15064(b) states that an ironclad definition of a "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (Guidelines Section 15064(3)). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. Guidelines Section 15065(a) also is helpful in defining whether a project may have a significant effect on the environment. Under this section, a proposed project may have a significant effect on the environment if the project has the potential to:

(1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.

(2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.

(3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.

(4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites.

(5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

(6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

6.2 Vegetation Communities

For the purpose of analyzing the significance of impacts to vegetation communities, all impacts resulting from implementation of the project were considered as direct impacts. Each direct impact is briefly analyzed below.

6.2.1 Unvegetated Ephemeral Stream Channel (Wetlands)

Implementation of the project would result in direct impacts to 0.08 acre of unvegetated ephemeral stream channel. Ephemeral stream channel is typically regulated by ACOE, CDFG, and RWQCB, generally with a "no net loss" of wetlands policy. Direct impacts to ephemeral stream channel are considered significant and will require mitigation.

6.2.2 Sycamore/Cottonwood Riparian Woodland (Wetlands)

Implementation of the project would result in direct impacts to 0.03 acre of sycamore/cottonwood riparian woodland. Sycamore/cottonwood riparian woodland is typically regulated by ACOE, CDFG, and RWQCB, generally with a "no net loss" of wetlands policy. Direct impacts to sycamore/cottonwood riparian woodland are considered significant and will require mitigation.

6.2.3 Southern Willow Scrub (Wetlands)

Implementation of the project would result in direct impacts to 0.08 acre of southern willow scrub. Southern willow scrub is typically regulated by ACOE, CDFG, and RWQCB, generally with a "no net loss" of wetlands policy. Direct impacts to southern willow scrub are considered significant and will require mitigation.

6.2.4 Mulefat Scrub (Wetlands)

Implementation of the project would result in direct impacts to 0.06 acre of mulefat scrub. Mulefat scrub is generally regulated as a wetland by ACOE, CDFG, and RWQCB with a "no net

loss" of wetlands policy. Direct impacts to mulefat scrub are considered significant and will require mitigation.

6.2.5 Disturbed Wetlands

Implementation of the project would result in direct impacts to 0.23 acre of disturbed wetlands. Disturbed wetlands are typically regulated by ACOE, CDFG, and RWQCB, generally with a "no net loss" of wetlands policy. Direct impacts to disturbed wetlands are considered significant and will require mitigation.

6.2.6 Coastal Sage Scrub/Disturbed Coastal Sage Scrub

Implementation of the project would result in direct impacts to 8.77 acres of coastal sage scrub and 0.69 acre disturbed coastal sage scrub. Coastal sage scrub is considered a sensitive habitat type that supports several sensitive wildlife species. The coastal sage scrub on the Adobe Falls Faculty/Staff Housing site is occupied by the coastal California gnatcatcher. Direct impacts to coastal sage scrub are considered significant and will require mitigation.

6.2.7 Baccharis Scrub

Implementation of the project would result in direct impacts to 3.75 acres of baccharis scrub. Baccharis scrub is considered a form of coastal sage scrub. Direct impacts to baccharis scrub are considered significant and will require mitigation.

6.2.8 Southern Mixed Chaparral

Implementation of the project would result in direct impacts to 3.87 acres of southern mixed chaparral. Chaparral is a sensitive habitat type that supports some sensitive wildlife species. Direct impacts to southern mixed chaparral are considered significant and will require mitigation.

6.2.9 Valley Needlegrass Grassland

Implementation of the project would result in direct impacts to 0.01 acre of valley needlegrass grassland. Direct impacts to valley needlegrass grassland are considered significant because of the limited distribution of this habitat on site and within the region and will require mitigation.

6.2.10 Non-Native Annual Grassland

Implementation of the project would result in direct impacts to 1.53 acres of non-native annual grassland. Direct impacts to non-native annual grassland are considered significant because the habitat supports extensive small mammal activity on site and will require mitigation.

6.2.11 Ornamental Vegetation

Implementation of the project would result in direct impacts to 9.03 acres of ornamental vegetation. Direct impacts to ornamental vegetation are not considered significant and will not require mitigation.

6.2.12 Disturbed Habitat

Implementation of the project would result in direct impacts to 0.56 acre of disturbed habitat. Direct impacts to disturbed habitat are not considered significant and will not require mitigation.

6.2.13 Developed Land

Implementation of the project would result in direct impacts to 31.26 acres of developed land. Direct impacts to developed land are not considered significant and will not require mitigation.

6.3 Sensitive Plants

Implementation of the project would result in the loss of 45 California adolphia plants and 75 San Diego County viguiera plants. California adolphia is a CNPS List 2.1 plant species, indicating that the species is rare or endangered in California, but more common elsewhere and that occurrences within California are seriously endangered. The plants occur on the Adobe Falls Faculty/Staff Housing site, within approximately 0.21 acre of coastal sage scrub habitat. This is a relatively small occurrence of the species, and the only occurrence on site. All plants are expected to be directly lost due to development. San Diego County Viguiera is a CNPS List 4.2 species, indicating that it occurs with a limited distribution and that occurrences within California are fairly endangered. The plants all occur on the Adobe Falls Faculty/Staff Housing site within approximately 0.28 acre of coastal sagec scrub habitat. This too is a relatively small occurrence of the species, and is the only occurrence of the species onsite. All plants are expected to be directly lost due to development.

The loss of 45 California adolphia plants and 75 San Diego County viguiera plants within approximately 0.49 acre of coastal sage scrub on the Adobe Falls Faculty/Staff Housing site is not considered significant. The loss would be taking most or all plants present on the Adobe Falls Faculty/Staff Housing site, but this amount of habitat is relatively small and would not contribute to the permanent loss of these species in California. These species are both regionally sensitive and considered rare but found in sufficient numbers regionally, especially in protected areas including the City of San Diego MHPA, that the potential for extinction due to the project impacts is low.

6.4 Sensitive Wildlife

In determining significance, the significance threshold applied is whether the project would have a substantial adverse effect on the sensitive species and contribute substantially to the loss of this species regionally. Some direct potential impacts are not considered significant for the following reasons: **(1)** the suitable habitat to be impacted is relatively small and/or **(2)** the species is widely distributed and common in its range. Direct potential impacts, which are considered significant, are such because of the high sensitivity of the species (i.e., California gnatcatcher or nesting raptors).

The project would result in significant direct impacts to one sensitive wildlife species: the federally-listed threatened coastal California gnatcatcher. A focused survey for coastal California gnatcatcher was conducted on site in March and April 2007, and one nesting pair of the species was located on site. Direct impacts to California gnatcatcher and 17.08 acres of potential habitat for this species are considered significant because this species is federally-listed threatened and impacts may contribute to, or result in, permanent loss of this species in San Diego County. It is expected that project implementation would result in direct loss (take) of one pair of California gnatcatcher. Take would include direct loss of habitat for the species on the Adobe Falls Faculty/Staff Housing site, but measures would be taken prior to project construction to prevent the direct take of the species through physical harm or death of the birds on the site.

The project may also result in significant indirect impacts to sensitive wildlife species, including Cooper's hawk and northern harrier (among others), which have been observed foraging on site and have moderate potential to nest adjacent to the site. Each species may be affected by construction-related noise while attempting to nest within riparian scrub adjacent to the proposed project.

In addition, there could be temporary disruption to sensitive nesting passerine birds, such as southern California rufous-crowned sparrow and Bell's sage sparrow, due to construction-related noise. However, this potential indirect impact on sensitive nesting passerine birds would have a minor, temporary effect on these species. This potential temporary disruption to nesting birds would not have a substantial adverse effect on these species; therefore, this indirect impact is not considered significant. Direct impacts to approximately 18.61 acres of potential habitat for southern California rufous-crowned sparrow, Bell's sage sparrow, and orange-throated whiptail are not considered significant. Although there is a moderate potential for these species to occur, they have not been observed during general and focused wildlife surveys eperated by three years time, the potential habitat is fairly small, and these species are widely distributed and common within their range.

Direct impacts to approximately 18.61 acres of foraging habitat on the Adobe Falls Faculty/Staff Housing site for red-tailed hawk, red-shouldered hawk, turkey vulture, Cooper's hawk, and northern harrier are not considered significant because the total amount of foraging habitat that would be impacted is relatively small and would not contribute significantly to the loss of foraging habitat or the sensitive species that utilize this habitat within the region.

6.5 Wildlife Corridors and Habitat Linkages

None of the proposed component project sites function as an important habitat linkage or wildlife corridor. The project would not have a significant adverse effect on habitat linkages or wildlife corridors.

6.6 Cumulative Analysis

As discussed above, although the site of the proposed Alvarado Campus and U-Lot Residence Hall sites are located adjacent to the MHPA, each of the eight project component sites are located wholly outside of the MHPA. Therefore, the proposed project would not have a significant direct or indirect effect on the MHPA.

In summary, all of the potentially significant impacts would occur with implementation of the Adobe Falls Faculty/Staff Housing component of the proposed project. Twelve sensitive habitat types, four sensitive plant species, one listed wildlife species and four regionally sensitive wildlife species were observed on the Adobe Falls Faculty/Staff Housing site. No sensitive plants, wildlife, or habitat types were observed on any of the remaining sites.

The redevelopment of previously developed areas on or adjacent to the SDSU campus is not expected to result in cumulative impacts to vegetation communities, sensitive plants, sensitive wildlife, sensitive habitats, or the MHPA in conjunction with other projects occurring adjacent to the campus area. None of these areas contain sensitive biological resources that might be impacted.

Development of the largely undeveloped Adobe Falls Faculty/Staff Housing site also is not expected to result in cumulative impacts to vegetation communities, sensitive plants, sensitive wildlife, sensitive habitats, or the MHPA beyond the direct and indirect impacts identified in the project EIR. The proposed project would be consistent with the City of San Diego Multiple Species Conservation Program (MSCP) that was developed in an attempt to eliminate cumulative impacts resulting from development throughout the region. Development of the Adobe Falls Faculty/Staff Housing site would not occur in areas designated for the MHPA, which is the overall intent of the MSCP: focus development in non-MHPA land and mitigate for any impacts to natural habitat within MHPA land where wildlife movement and plant population survival is more appropriate and probable. No other development projects currently are known to be in

planning or implementation stages adjacent to the Adobe Falls Faculty/Staff Housing site. Two wetlands habitat restoration projects are currently being implemented (the Adobe Falls SEP and the Alvarado SEP) on lands located directly adjacent to the Adobe Falls Faculty/Staff Housing site. However, these projects, in conjunction with the proposed project, will not result in cumulative impacts to biological resources.

7.0 CONSERVATION AND MITIGATION MEASURES

SDSU, which is its own jurisdictional authority, is not a participating entity or signatory to the MSCP program and therefore is not covered through the MSCP. The following conservation and mitigation measures will reduce significant effects to vegetation communities and sensitive species identified in *Section 6.0* above, including MSCP "covered" sensitive species, to a level less than significant.

7.1 Mitigation for Direct Impacts

7.1.1 Vegetation Communities

Proposed mitigation for significant direct impacts to vegetation communities (including wetlands) may be accomplished through on-site and/or off-site preservation, enhancement, or creation of habitat. The proposed mitigation for direct impacts resulting from the project includes both on-site preservation of uplands habitats (outside of the MHPA) within the upper and lower village areas of the Adobe Falls Faculty/Staff Housing site and off-site preservation of uplands habitat (within the MHPA) (*Table 5*). In addition, on-site creation and ehancement of wetlands and WOUS is proposed within the lower village area of the Adobe falls Faculty/Staff Housing site, and off-site wetlands creation is proposed within the San Diego River watershed (if possible).

Prior to commencement of grading activities on the Adobe Falls Faculty/Staff Housing site, SDSU, or its designee, shall preserve, or cause to be preserved, a total of 9.51 acres of on-site preservation of native habitats. The preservation areas shall occur outside of the MHPA within the proposed open space on the Adobe Falls Faculty/Staff Housing site and shall include 5.20 acres coastal sage scrub, 1.39 acres baccharis scrub, 2.43 acres southern mixed chaparral, and 0.02 acre valley needlegrass grassland, and 0.43 acre non-native annual grassland.

SDSU shall create up to 0.20 acre of wetlands along the western boundary of the site within existing eucalyptus woodland and disturbed habitat on the lower village site of the Adobe Falls Faculty/Staff Housing site, and shall enhance up to 0.56 acres wetlands within existing disturbed sycamore/cottonwood riparian woodland and disturbed wetlands habitats on the lower village

site. This mitigation is for impacts occurring on both the upper and lower viilage areas of the Adobe Falls Faculty/Staff Housing site. All impacts are displayed in detail in *Table 5* below, along with corresponding on site or off site mitigation.

TABLE 5
Proposed Mitigation - All Sites

Impact/Habitat Type Impacted by Proposed Project	Proposed Mitigation Ratio	Proposed On-Site Mitigation/Mitigation Type[1]	Proposed Off-Site Mitigation/Mitigation Type[2]	Total Proposed Mitigation
Upper Village Site – all impacts on site				
0.01 acre ephemeral unvegetated WOUS	**2:1**	0.01 acre enhancement	0.01 acre creation	0.02 acre
0.06 acre mulefat scrub	**3:1**	0.04 acre enhancement	0.02 acre creation	0.06 acre
0.08 acre southern willow scrub	**3:1**	0.16 acre enhancement	0.08 acre creation	0.24 acre
Sub-total - 0.15 acre wetlands/WOUS impacts	**n/a**	**0.21 acre enhancement**	**0.11 acre creation**	**0.32 acre**
0.09 acre baccharis scrub	**2:1**	none	0.18 acre preservation	0.18 acre
3.30 acres coastal sage scrub	**2:1**	4.32 acres preservation	2.28 acres preservation	6.60 acres
0.01 acre disturbed coastal sage scrub	**2:1**	none	0.02 acre preservation	0.02 acre
1.46 acres southern mixed chaparral	**1:1**	0.50 acre preservation	0.96 acre preservation	1.46 acres
0.04 acre non-native annual grassland	**1:1**	0.02 acre preservation	0.02 acre preservation	0.04 acre
0.31 acre ornnamental	**n/a**	none	none	0.00 acre
Sub-total – 5.21 acres uplands impacts	**n/a**	**4.84 acres preservation**	**3.46 acres preservation**	**8.30 acres**
Total – 5.36 acres impacts	**n/a**			**8.62 acres**
Lower Village Site – includes 0.28 acre off site impacts				
0.07 acre intermittent/ephemeral unvegetated WOUS	**2:1**	0.07 acre creation 0.07 acre enhancement	none	0.14 acre

TABLE 5
Proposed Mitigation - All Sites

Impact/Habitat Type Impacted by Proposed Project	Proposed Mitigation Ratio	Proposed On-Site Mitigation/Mitigation Type[1]	Proposed Off-Site Mitigation/Mitigation Type[2]	Total Proposed Mitigation
0.03 acre disturbed sycamore/cottonwood riparian woodland	3:1	0.03 acre creation 0.06 acre enhancement	none	0.09 acre
0.23 acre disturbed wetland – 0.20 acre off site, 0.03 acre on site	2:1	0.10 acre creation 0.23 acre enhancement	0.13 acre creation	0.46 acre
Sub-total – 0.33 acre wetlands impacts	n/a	**0.20 acre creation** **0.36 acre enhancement**	**0.13 acre creation**	**0.69 acre**
3.66 acres baccharis scrub	2:1	1.39 acres preservation	5.93 acres preservation	7.32 acres
5.47 acres coastal sage scrub	2:1	0.88 acres preservation	10.06 acres preservation	10.94 acres
0.67 acre disturbed coastal sage scrub	2:1	0.04 acre preservation	1.30 acres preservation	1.34 acres
2.41 acres southern mixed chaparral	1:1	1.93 acres preservation	0.48 acre preservation	2.41 acres
0.01 acre valley needlegrass grassland	2:1	0.02 acre preservation	none	0.02 acre
1.49 acres non-native annual grassland	1:1	0.41 acre preservation	1.08 acres preservation	1.49 acres
0.48 acre disturbed habitat – 0.07 acre off site, 0.41 acre on site	n/a	none	none	0.00 acre
Sub-total – 14.19 acres uplands impacts[3]	n/a	**4.67 acres preservation**	**18.85 acres preservation**	**23.52 acres**
Project Totals – All Sites **0.48 acre wetlands/WOUS impacts** **19.40 acres uplands impacts [4]**	n/a	**0.57 acre on site wetlands enhancement** **0.20 acre on site wetlands creation** **9.51 acres on site uplands preservation**	**0.26 acre off site wetlands creation** **22.31 acre off site uplands preservation**	**33.94 acres total mitigation**

1 Wetlands impacts resulting from the upper village site will be mitigated, to the extent possible, within open space lands on the lower village site Uplands impacts resulting from the upper and lower village sites will be mitigated, to the extnt possible, on the site where the impacts occur.

2 Off site mitigation will be comprised of purchase of wetlands/uplands mitigation lands (credits) within agency approved mitigation banks.

3 Total includes approximately 0.23 acre of offsite impacts.

4 Impact total does not include ornamental vegatetion or developed areas. No mitigation is proposed for these impacts, which occur on all SDSU project sites (see Table 4).

Note that the remaining needed mitigation includes 0.26 acre of wetlands creation off site. The proposed mitigation shall include purchase of wetlands mitigation credits at an approved off-site mitigation bank, preferably within the San Diego River watershed. In addition, a total of 22.31 additional acres of uplands habitat mitigation are required. The proposed mitigation shall include purchase and preservation of gnatcatcher-occupied Diegan coastal sage scrub habitat off site within the MHPA. Mitigation may occur on Mt. Fortuna, adjacent to Mission Trails Regional Park. The purchase and preservation of this land shall contribute to the overall assembly of the MHPA preserve system in San Diego County and shall ensure that a sensitive area is preserved in perpetuity.

7.1.2 Sensitive Plants

Mitigation is not proposed because impacts to sensitive plant species are not significant.

7.1.3 Sensitive Wildlife

If possible, construction on the Adobe Falls Faculty/Staff Housing site component of the proposed project shall occur outside of the migratory bird nesting season (generally March 15 though September 15 annually) to prevent injury or harm to nesting migratory bird species protected under the Migratory Bird Treaty Act. In adidition, clearing of habitat on the site shall be completed prior to the onset of the migratory nesting bird, whenever possible, to discourage and/or prevent nesting onsite during the nesting season. If construction on the Adobe Falls Faculty/Staff Housing site component of the proposed project is to occur during the general breeding bird season for migratory species, prior to commencement of grading activities, SDSU, or its designee shall conduct thorough nesting bird surveys for migratory species protected under the Mirgatory Brid Treaty Act. The surveys shall focus on detection of nests and nesting activity, with a focus on detection of nesting gnatcatchers.

If construction on the Adobe Falls Faculty/Staff Housing site component of the proposed project is to occur during the raptor breeding season (January through October, annually), prior to commencement of grading activities and at a time during the breeding season, SDSU, or its designee, shall conduct a focused survey for nesting raptors to assess the presence/absence of sensitive nesting raptors within and adjacent to the Adobe Falls Faculty/Staff Housing site. If any active raptor nests are detected, the area will be flagged, along with a buffer of 250 to 300 feet (specific width to be determined by the project biologist) and will be avoided until the birds have fledged, or it has been determined that the nest has failed.

Prior to construction on the proposed U Lot Residence Hall site, SDSU, or its designee, shall conduct a focused survey for the coastal California gnatcatcher on coastal sage scrub—covered slopes adjacent to the site. The surveys shall be conducted to determine the presence or absence

of any nesting gnatcatchers within 500 feet of the proposed construction site. If nests are located within this distance, noise mitigation measures may be required on site to avoid significant indirect impacts to the gnatcatcher.

7.2 Mitigation for Indirect Impacts

Mitigation measures to reduce potential long-term indirect impacts of the project on sensitive biological resources are presented below. Note that all sensitive biological resources occur on the Adobe Falls Faculty/Staff Housing site and adjacent to the U Lot Residence Hall site.

7.2.1 Vegetation Communities

Potentially significant long-term indirect impacts to vegetation communities and sensitive habitat types include introduction of non-native or invasive species, increased foot traffic, and other disturbance in wetland and upland preserve areas and drainage changes that result in altered hydrology in wetland and upland habitat areas. Mitigation measures to reduce long-term indirect impacts associated with implementation of the Adobe Falls Faculty/Staff Housing component of the proposed project below a level of significance include the following measures.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site, non-native or invasive plant species in landscaping shall not be located adjacent to native habitat areas, on slopes adjacent to Alvarado Creek, or upland habitat next to Interstate 8.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, a system of trails within open space preserved areas shall be developed that encourages foot traffic within the least sensitive habitat types while providing views of more sensitive areas adjacent to the proposed development.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, a Storm Water Pollution prevention Plan (SWPPP) shall be developed to address potential impacts to water quality during construction, and a Water Quality Management Plan will be developed to ensure that impacts to water quality on a long-term basis will be avoided and minimized.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, buffers between the proposed development and preserved on-site wetlands shall be developed. The perennial drainage along the west boundary of the site will include a minimum 25-foot-wide buffer along the edge of the development to maintain wildlife habitat functions, and a general 100-foot buffer will be maintained along the floodplain of Alvarado Creek to avoid the existing FEMA floodplain.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, outdoor lighting shall be installed so that it faces away from preserved areas on the periphery of the Adobe Falls Faculty/Staff Housing site, and sodium lights used if possible to decrease negative effects associated with artificial night lighting.

7.2.2 Sensitive Plants

Potentially significant long-term indirect impacts to sensitive plants include trampling by humans and invasion by exotic plants. The following mitigation measures will reduce these potential impacts to a level less than significant.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, native landscaping shall be provided in areas that are adjacent to preserved native habitat.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, installation of fencing at the interface between the development boundary and any native habitat to preclude human intrusion into preserved areas shall be developed.

The preparation of a Storm Water Pollution Prevention Plan and Water Quality Management Plan will also serve to reduce potentially significant long-term indirect impacts to sensitive plants.

7.2.3 Sensitive Wildlife

Potentially significant long-term indirect impacts to sensitive wildlife include introduction of night lighting on the development that could interfere with the activities of nocturnal wildlife and increased predation by domesticated pets. The following mitigation measures shall reduce these potential impacts to a level below significant.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, outdoor lighting shall be installed so that it faces away from preserved areas on the periphery of the Adobe Falls Faculty/Staff Housing site, and sodium lights used if possible to decrease negative effects associated with artificial night lighting.

- During the design phase of the proposed Adobe Falls Faculty/Staff Housing site development, policies and design measures that will reduce intrusion of domestic pets into native habitat areas shall be developed. Measures could include sensitive habitat signage, installing well-defined trails along habitat areas so recreationalists/dog walkers understand trail limits, and incorporating leash laws.

- During the design phase/future environmental documentation phase of the U Lot Residence Hall site development, focused surveys for the federally-listed threatened coastal California gnatcatcher shall be conducted to determine (1) if this species is present in the canyon and (2) whether this species is located within 500 feet of the proposed construction site. If this species is within 500 feet of the proposed construction site, mitigation for indirect impacts must be developed (e.g., noise setbacks, breeding season construction limitations). If nests are located within this distance, noise mitigation measures may be required on site to avoid significant indirect impacts to the gnatcatcher.

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APPENDIX A

Plant Species Observed within the

2007 SDSU

Campus Master Plan Revision Sites

APPENDIX A

ANGIOSPERMAE (DICOTYLEDONES)

ACERACEAE - MAPLE FAMILY

Acer sp.- ornamental pine*

AIZOACEAE - CARPET-WEED FAMILY

Carpobrotus edulis – hottentot fig*
Mesembryanthemum crystallinum - ice plant *

ANACARDIACEAE - SUMAC FAMILY

Malosma laurina - laurel sumac
Rhus integrifolia - lemonadeberry
Schinus molle - Peruvian pepper-tree *
Schinus terebinthifolius - Brazilian pepper-tree *
Toxicodendron diversilobum - poison-oak

APIACEAE - CARROT FAMILY

Apium graveolens - celery *
Foeniculum vulgare - sweet fennel *

APOCYNACEAE - DOGBANE FAMILY

Nerium oleander- oleander *

ASTERACEAE - SUNFLOWER FAMILY

Acourtia microcephala - sacapellote
Ambrosia psilostachya var. *californica* - western ragweed
Artemisia californica - coastal sagebrush
Baccharis salicifolia - mulefat
Baccharis sarothroides - chaparral broom
Centaurea melitensis - tocalote *
Chrysanthemum coronarium - garland chrysanthemum *
Conyza canadensis - horseweed *
Cotula coronopifolia - African brass-buttons *
Cynara cardunculus - cardoon, artichoke thistle *
Encelia californica - California bush sunflower
Gnaphalium palustre - lowland cudweed
Hedypnois cretica - Crete hedypnois *
Hemizonia fasciculata - fascicled tarweed
Hymenoclea monogyra - ragweed

Isocoma menziesii ssp. *veneta* - coastal goldenbush
Iva hayesiana - San Diego marsh elder
Lessingia filaginifolia - virgate cudweed aster
Picris echioides - bristly ox-tongue *
Pluchea odorata - marsh-fleabane
Solidago occidentalis - western goldenrod
Sonchus oleraceus - common sow-thistle *
Stephanomeria virgata - twiggy wreathplant
Xanthium strumarium - cocklebur
Viguiera laciniata - San Diego County viguiera

BORAGINACEAE - BORAGE FAMILY
Heliotropium curassavicum - wild heliotrope

BRASSICACEAE - MUSTARD FAMILY
Brassica nigra - black mustard *
Lepidium virginicum - wild peppergrass *
Lobularia maritima - sweet-alyssum *
Rorippa nasturtium-aquaticum - water cress
Sisymbrium orientale - Oriental mustard *

CACTACEAE - CACTUS FAMILY
Opuntia ficus-indica - Indian fig *
Opuntia littoralis - coastal prickly-pear
Opuntia prolifera - coast cholla

CAPPARACEAE - CAPER FAMILY
Isomeris arborea - bladderpod

CAPRIFOLIACEAE - HONEYSUCKLE FAMILY
Lonicera subspicata var. *denudata* - southern honeysuckle
Sambucus mexicana - Mexican elderberry

CARYOPHYLLACEAE - PINK FAMILY

Spergularia villosa - villous sand-spurrey *

Stellaria media - common chickweed *

CHENOPODIACEAE - GOOSEFOOT FAMILY

Atriplex semibaccata - Australian saltbush *

Salsola tragus - Russian-thistle *

CONVOLVULACEAE - MORNING-GLORY FAMILY

Convolvulus arvensis - bindweed *

CUCURBITACEAE - GOURD FAMILY

Cucurbita foetidissima - coyote-melon, calabazilla

Marah macrocarpus - wild cucumber

CUPRESSACEAE - CYPRESS FAMILY

Thuja occidentalis - arborvitae *

CUSCUTACEAE - DODDER FAMILY

Cuscuta californica - California dodder

DIPSACEAEA - TEASEL FAMILY

Dipsacus sativus - Fuller's teasel *

EUPHORBIACEAE - SPURGE FAMILY

Chamaesyce sp. - spurge *

Croton californicus - California croton

Eremocarpus setigerus - doveweed

Ricinus communis - castor-bean *

FABACEAE - PEA FAMILY

Acacia sp.- acacia *

Astragalus trichopodus - Santa Barbara locoweed

Lotus scoparius - deerweed

Lupinus succulentis - arroyo lupine

Medicago polymorpha - California burclover *

Melilotus indica - yellow sweet-clover *

FAGACEAE - BEECH FAMILY
Quercus agrifolia - coast live oak

GERANIACEAE - GERANIUM FAMILY
Erodium botrys - broad-lobed filaree *

HYDROPHYLLACEAE - WATERLEAF FAMILY
Emmenanthe penduliflora - whispering bells

LAMIACEAE - MINT FAMILY
Marrubium vulgare - horehound *

Salvia mellifera - black sage

MALVACEAE - MALLOW FAMILY
Malacothamnus densiflorus - many-flowered mallow
Malva parviflora - cheeseweed *

MYOPORACEAE - MYOPORUM FAMILY
Myoporum laetum - myoporum *

MYRTACEAE - MYRTLE FAMILY
Eucalyptus globulus – blue gum, eucalyptus *

OLEACEAE - OLIVE FAMILY
Fraxinus uhdei - evergreen ash *
Olea purpurea - european olive *

PINACEAE - PINE FAMILY
Pinus sp. - ornamental pine

PLANTAGINACEAE - PLANTAIN FAMILY
Plantago lanceolata - English plantain *

PLATANACEAE - SYCAMORE FAMILY
Platanus racemosa - western sycamore

POLYGONACEAE - BUCKWHEAT FAMILY
Eriogonum fasciculatum - California buckwheat
Polygonum arenastrum - common knotweed *
Rumex crispus - curly dock *

PRIMULACEAE - PRIMROSE FAMILY

Anagallis arvensis - scarlet pimpernel *

RHAMNACEAE - BUCKTHORN FAMILY

Adolphia californica - California adolphia

Rhamnus crocea - redberry

ROSACEAE - ROSE FAMILY

Heteromeles arbutifolia - toyon

Prunus ilicifolia - holly-leaf cherry

Rosa californica - California rose

SALICACEAE - WILLOW FAMILY

Populus fremontii - Fremont's cottonwood

Salix gooddingii - Goodding's black willow

Salix laevigata - red willow

Salix lasiolepis var. *bracelinae* - arroyo willow

SAURURACEAE - LIZARD'S-TAIL FAMILY

Anemopsis californica - yerba mansa

SCROPHULARIACEAE - FIGWORT FAMILY

Mimulus aurantiacus - bush monkeyflower

Scrophularia californica var. *floribunda* - coast figwort

SOLANACEAE - NIGHTSHADE FAMILY

Datura wrightii - western jimsonweed *

Nicotiana glauca - tree tobacco *

Solanum sp. - nightshade *

ANGIOSPERMAE (MONOCOTYLEDONES)

ARECACEAE - PALM FAMILY

Phoenix canariensis - Canary Island date palm *

Syagrus romanzoffiana -Queen palm *

Washingtonia robusta - Mexican fan palm *

CYPERACEAE - SEDGE FAMILY

Cyperus involucratus - umbrella sedge *

Eleocharis macrostachya - pale spike rush

Scirpus californicus - California bulrush

JUNCACEAE - RUSH FAMILY

Juncus acutus ssp. *leopoldii* - spiny rush

POACEAE - GRASS FAMILY

Arundo donax - giant reed *
Avena fatua - wild oat *
Bromus diandrus - ripgut grass *
Bromus hordeaceus - soft chess *
Bromus madritensis ssp. *rubens* - foxtail chess *
Cortaderia selloana - pampas grass *
Cynodon dactylon - Bermuda grass *
Distichlis spicata - salt grass
Festuca sp. - ornamental fescue grass
Melica sp. - melic grass
Nassella pulchra – purple needlegrass
Pennisetum setaceum - fountain grass *
Poa sp. - ornamental bluegrass
Polypogon monspeliensis - rabbitfoot grass *
Vulpia myuros - rattail fescue*

STRELITZIACEAE - BIRD OF PARADISE FAMILY

Strelitzia reginae - bird of paradise

TYPHACEAE - CATTAIL FAMILY

Typha angustifolia - narrow-leaved cattail

* signifies introduced (non-native) species

APPENDIX B

Wildlife Species Observed/Detected

within the

2007 SDSU Campus Master Plan

Revision Sites

APPENDIX B

WILDLIFE SPECIES -VERTEBRATES

AMPHIBIANS

HYLIDAE - TREEFROGS

Hyla regilla - Pacific treefrog

REPTILES

IGUANIDAE - IGUANID LIZARDS

Sceloporus graciosus - sagebrush lizard
Sceloporus occidentalis - western fence lizard

COLUBRIDAE - COLUBRID SNAKES

Thamnophis hammondii - two-striped garter snake

VIPERIDAE - VIPERS

Crotalus atrox - western diamondback rattlesnake

BIRDS

ANATIDAE - WATERFOWL

Anas platyrhynchos – mallard

ARDEIDAE - HERONS

Ardea herodias - great blue heron
Butorides striatus - green-backed heron
Casmerodius albus - great egret

ACCIPITRIDAE - HAWKS

Accipiter cooperii - Cooper's hawk
Buteo jamaicensis - red-tailed hawk
Buteo lineatus - red-shouldered hawk
Circus cyaneus - northern harrier

CATHARTIDAE - NEW WORLD VULTURES

Cathartes aura - turkey vulture

FALCONIDAE - FALCONS

Falco sparverius - American kestrel

COLUMBIDAE - PIGEONS & DOVES

* *Columba livia* - rock dove

Zenaida macroura - mourning dove

STRIGIDAE - TRUE OWLS

Bubo virginianus - great horned owl

ALCEDINIDAE - KINGFISHERS

Ceryle alcyon - belted kingfisher

TROCHILIDAE - HUMMINGBIRDS

Calypte anna - Anna's hummingbird

Calypte costae - Costa's hummingbird

PICIDAE - WOODPECKERS

Colaptes auratus - northern flicker

Picoides nuttallii - Nuttall's woodpecker

TYRANNIDAE - TYRANT FLYCATCHERS

Sayornis nigricans - black phoebe

Tyrannus verticalis – western kingbird

Tyrannus vociferans - Cassin's kingbird

HIRUNDINIDAE - SWALLOWS

Stelgidopteryx serripennis - northern rough-winged swallow

Tachycineta bicolor - tree swallow

CORVIDAE - JAYS & CROWS

Aphelocoma californica - western scrub-jay

Corvus brachyrhynchos - American crow

Corvus corax - common raven

AEGITHALIDAE - BUSHTITS

Psaltriparus minimus - bushtit

TROGLODYTIDAE - WRENS

Thryomanes bewickii - Bewick's wren

Troglodytes aedon - house wren

SYLVIIDAE - GNATCATCHERS

Polioptila californica - California gnatcatcher

TIMALIIDAE - LAUGHINGTHRUSH AND WRENTIT

Chamaea fasciata - wrentit

MIMIDAE - THRASHERS

Mimus polyglottos - northern mockingbird
Toxostoma redivivum - California thrasher

STURNIDAE - STARLINGS

* *Sturnus vulgaris* - European starling

PARULIDAE - WOOD WARBLERS

Dendroica coronata - yellow-rumped warbler
Dendroica petechia - yellow warbler
Geothlypis trichas - common yellowthroat
Wilsonia pusilla - Wilson's warbler

EMBERIZIDAE - BUNTINGS & SPARROWS

Melospiza melodia - song sparrow
Pipilo crissalis - California towhee
Pipilo maculatus - spotted towhee
Zonotrichia leucophrys - white-crowned sparrow

ICTERIDAE - BLACKBIRDS & ORIOLES

Euphagus cyanocephalus - Brewer's blackbird
Icterus cucullatus - hooded oriole

FRINGILLIDAE - FINCHES

Carpodacus mexicanus - house finch
Carduelis psaltria - lesser goldfinch

PASSERIDAE - OLD WORLD SPARROWS

* *Passer domesticus* - house sparrow

MAMMALS

LEPORIDAE - HARES & RABBITS

Sylvilagus bachmani - brush rabbit

SCIURIDAE - SQUIRRELS

Spermophilus beecheyi - California ground squirrel

GEOMYIDAE - POCKET GOPHERS

Thomomys bottae - Botta's pocket gopher

MURIDAE - RATS & MICE

Neotoma sp. - woodrat

CANIDAE - WOLVES & FOXES

* *Canis familiaris* - domestic dog
Canis latrans - coyote

FELIDAE - CATS

Lynx rufus – bobcat (prints)

WILDLIFE SPECIES - INVERTEBRATES

BUTTERFLIES AND MOTHS

HESPERIIDAE - SKIPPERS

Erynnis funeralis - funereal duskywing

RIODINIDAE - METALMARKS

Apodemia mormo virgulti - Behr's metalmark

* signifies introduced (non-native) species

APPENDIX C

Species Sensitivity Categories

APPENDIX C

SPECIES SENSITIVITY CATEGORIES

Federal (1996)

Endangered.	Taxa threatened throughout all or a significant portion of their range.
Threatened.	Taxa likely to become endangered in the foreseeable future.
Candidate.	Taxa for which the USFWS has enough information on biological vulnerability and threat(s) to support listing them as endangered or threatened species.

State of California (1990)

Endangered.	Taxa which are in serious danger of becoming extinct throughout all, or a significant portion, of their range due to one or more causes including loss of habitat, change in habitat, over exploitation, predation, competition, or disease (Section 2062 of the Fish and Game Code).
Threatened.	Taxa which, although not presently threatened with extinction, are likely to become endangered species in the foreseeable future (Section 2067 of the Fish and Game Code).
Rare.	Taxa which, although not presently threatened with extinction, are present in such small numbers throughout their range that they may become endangered if the present environment worsens (Section 1901 of the Fish and Game Code).
Candidate.	Taxa which the Fish and Game Commission has formally noticed as being under review by the Department in addition to the list of threatened and endangered species.

California Native Plant Society (CNPS) Ranking System (modified January 2006)

List 1A: Plants presumed extinct in California.

List 1B: Plants rare, threatened or endangered in California and elsewhere.

List 2: Plants rare or endangered in California, but more common elsewhere.

List 3: Plants about which more information is needed.

List 4: Plants of limited distribution.

CNPS Threat Code Extensions

The following numeric codes have been developed to replace the Endangerment value from the former R-E-D Code. Species in each CNPS list above are now followed by a threat code value (if applicable) to indicate the level of their endangerment – the lower the number, the higher the corresponding threat level to the species. Note that all List 1A species are not assigned a numeric threat code and some list 3 species lacking threat information are not assigned a numeric threat code.

.1 – Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)

.2 – Fairly endangered in California (20-80% of occurrences threatened)

.3 – Not very endangered in California (<20% or less of occurrences threatened)

Adobe Falls: Field Station Proposal

SAN DIEGO STATE UNIVERSITY

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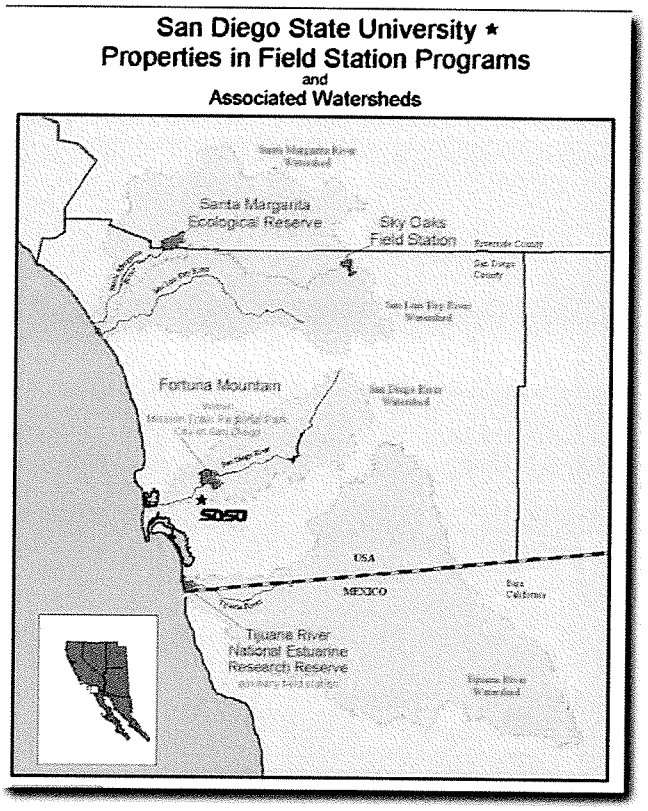
Director

Field Stations Program

About the Field Stations Program

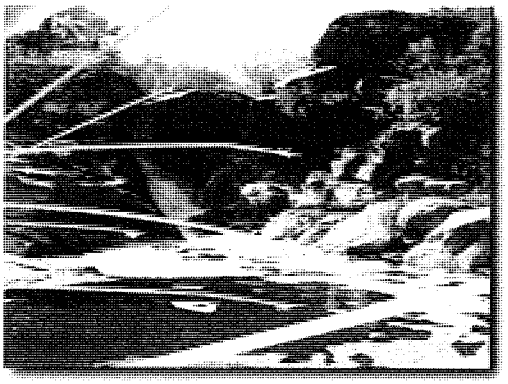
The Field Stations Program at San Diego State University was established in 1962. Like a lab-bench or a campus classroom, field stations are natural areas supporting the mission of San Diego State University: to provide well-balanced, high quality education for undergraduate and graduate students and to contribute to knowledge and the solution of problems through excellence and distinction in teaching, research, and service.



In keeping with the mission of San Diego State University and the SDSU Research Foundation, the Field Stations Program endeavors to support the collection, understanding and sharing of environmental data in southern California. To support this mission, a system of reserves encompassing nearly 10,000 acres, is managed for the long-term preservation of native flora and fauna. We strive to manage and maintain the highest quality environments for innovative discoveries, education, and community outreach. Research on the field stations spans the breadth and depth of the physical and natural sciences, addressing regional, national, and global issues such as climate change, watershed management, and fire ecology. Through innovative research and education, our Program has facilitated greater comprehension and insights in the sciences that are actively applied to outreach and management of our natural resources.

Adobe Falls

As proposed, the Adobe Falls project is intended to provide affordable, high quality housing for faculty, staff, retired faculty, and graduate students. As part of this proposal, a significant portion of habitat will be preserved for public open space and natural habitat values. Limited impacts are anticipated, and offset by mitigation and restoration, including the preservation of 2.93 acres of wetlands, creation of 0.18 acres, and 0.18 acres of enhancement. An additional 8.74 acres of upland coastal sage, chaparral, and grassland habitats are proposed for preservation.



The proximity of this site to the SDSU campus makes it ideal for inclusion as a field station, which will enhance community outreach, education, and long-term management of the natural areas.

Adobe Falls Field Station

In keeping with the long-term planning for the SDSU Field Stations Program, we are constantly seeking new opportunities to enhance the existing network of field stations. Current research efforts are focused on improving our collection of environmental data, and addressing issues of regional relevance. The Adobe Falls property provides a unique opportunity to integrate community needs, open space, habitat preservation, and research/education programs. The Field Stations Program excels at developing and implementing new approaches to understanding the environment, including: visual sensing, wildlife monitoring, air and water quality monitoring, and even remote wild fire alert systems.

The Adobe Falls preserve can become much more than simply open space and parkland. This property can provide a unique opportunity to understand urban wildlands, enhance student education, and provide new public outreach programs for the local community and schools. Several examples are provided below describing some of the potential benefits of creating a field station at Adobe Falls:

Restoration and Management

Field Stations are in essence outdoor laboratories. To make best use of these properties, they are managed for the long-term preservation of the ecosystem. The Adobe Falls property includes unique habitats and features that provide natural and aesthetic value. As part of the management of this property, it will be necessary to restore the habitat and hydrology to the maximum extent practicable. However, under the umbrella of Field Stations, this also provides an opportunity for research and education related to restoration and management.

Education

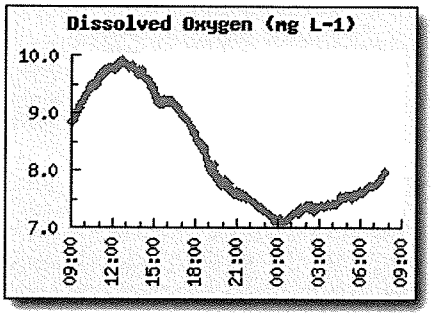
There is so much to learn about our natural environments, even those that are right outside our back yard. Field Stations provide opportunities for students to become actively engaged in applied research and education programs that take place on these sites. Taking the students out of the classroom, and in to the environment is an invaluable learning experience. Our program has been working on developing curriculum for both university-level and K-12 students, addressing some of the most critical issues that face our region today. Students can interact with faculty and staff scientists working on a wide variety of research projects both in the field and through web-based curricula. We anticipate that many of the same projects at our other reserves will be done at Adobe Falls, building on our legacy of innovative research, wireless sensor networks, and real-time data acquisition. For examples of these opportunities, please visit our website at http://fs.sdsu.edu.

Community Outreach

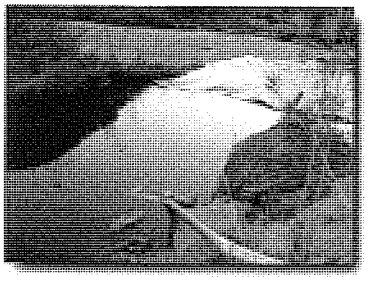
As part of the proposed field station at Adobe Falls, our program would assist in creating a protected natural environment, while also providing a park-like setting that has interpretive trails, educational signs, and community-based programs. Being adjacent to the main campus provides a new opportunity to bring our resources directly to the community and local schools. Typically, community outreach programs allow residents to engage in exciting research and education programs, science lecture series, and docent-led nature walks.

Watershed and Meteorological Monitoring

Through our work at the Santa Margarita Ecological Reserve, we have created a series of wireless water quality monitoring stations. Currently, these stations collect and display real-time data on the physical characteristics of the Santa Margarita River, Stone Creek, and Devils Creek, including water depth, pressure, dissolved oxygen, temperature, pH, and conductivity. We have recently expanded our watershed monitoring program to regularly collect water measurements on nutrients and potential sources of pollution.



Adobe Falls provides similar opportunities for real-time data collection and water quality monitoring. This tool can help inform management and restoration activities on the property. It can also serve as a demonstration of data collection and monitoring programs that can be applied to the San Diego River watershed, informing large-scale management and protection. These sensors can also act as early-warning indicators for potential pollution and severe weather events. All data collected by the Field Stations Program is immediately available for viewing, but is also available online for download and use.



Similarly, our field stations are equipped with wireless weather stations that provide real-time data on local weather conditions (eg. temperature, relative humidity, wind speed/direction, precipitation) all available on our website and free for download.

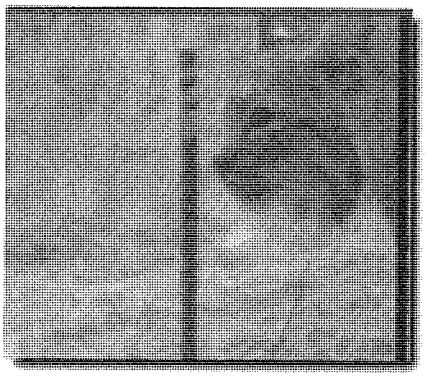
Fire Sensor Technology Development

Fires are a naturally occurring and dangerous part of our landscapes in Southern California causing millions of dollars worth of damage and loss of lives in the wildland-urban interface. Early detection of fire ignitions, especially under dangerous weather conditions, is critical for emergency personnel to contain and extinguish fires before they can cause significant damage. Equally important to reduce financial losses and aid in a quick recovery is community preparedness. Novel solutions using advanced technologies have been suggested as an important, but currently underutilized, tool for increasing fire safety.

The SDSU Field Stations Program, in partnership with many organizations has been working on developing a wireless sensor network that can detect and alert fire officials in the event of a wildfire. This project helped construct an array of 13 state-of-the-art wireless fire detection sensors, 4 weather stations, and 4 remote cameras. Information provided by Ambient Control Systems, Inc. (partner and creator of the fire sensors) reports that the sensors can detect and validate a 4' x 4' wildfire over an area of 160 acres (approximately ¼ mile range) within 2 minutes. This real time information is being delivered to the community along with other static fire-preparedness information via the Wildfire Alert webpage (www.wildfirealert.org). Similar sensors and outreach programs will likely be installed at the Adobe Falls property as a demonstration of the technology.

Wildlife and Habitat Monitoring

As with abiotic factors, we also monitor wildlife and habitats at the field stations. Many of these monitoring efforts are linked to student and faculty research projects. We have installed remote camera stations to track wildlife movement and acoustic sensors to record the echolocation calls of bats. Field Stations provide opportunities for the collection, analysis, and dissemination of long-term ecological data sets. Ideally, the collection of data are linked to local land use planning and conservation efforts. For example, many of the assessment and monitoring programs at the Santa Margarita Ecological Reserve are closely related to the Southwest Riverside Multi-Species Habitat Conservation Program.



Each field station has regularly updated vegetation maps, species lists, and species distribution maps. Of course, studies on our biodiversity lend themselves to education and outreach programs, with many of our science lecture series being hosted by local researchers or students.

While this is just a snapshot of what field stations are, we look forward to the opportunity to explore this further. The Adobe Falls property can become an invaluable resource for the community and the region, providing natural, aesthetic, and educational utility.

For more information, please feel free to contact Dr. Matt Rahn at mrahn@sciences.sdsu.edu, or 61-594-0580. Please visit our website at http://fs.sdsu.edu.