4.4 CULTURAL RESOURCES

This section of the EIR evaluates the potential for cultural impacts associated with implementation of the 2007 LRDP. The regional setting, campus setting, impacts, and mitigation measures related to cultural resources are discussed in the Cultural Resources section (pages 121-139) of Volume I of the 1989 LRDP EIR. Archeological, paleontological, and historical resources assessments for the campus were undertaken in 1988 by RMW Paleo Associates. These reports can be found in Appendices F-H of Volume II of the 1989 LRDP EIR. Additional assessments of cultural resources have been conducted for individual projects implemented within the 1989 LRDP including an assessment of the East Campus, which was conducted in 1997 in support of the East Campus Student Recreation Center project. These reports are summarized in the prospective sections below.

4.4.1 ENVIRONMENTAL SETTING

Cultural resources are categorized into three subtopics: archaeological, historic, and paleontological. Archaeological resources (generally located below ground surface) are divided into two categories: pre-historic and historic. Prehistoric archaeological resources date from before the onset of the Spanish Colonial period (1769-1848) and historic archaeological resources date from after the onset of the Spanish Colonial period. A historic resource (generally located above ground) is any building, structure, or object that is at least 50 years of age and that is, or may be, architecturally or culturally significant in local, state or national history. A paleontological resource refers to fossils consisting of the remains and/or traces of prehistoric plant and animal life.

4.4.1.1 ARCHAEOLOGICAL BACKGROUND

The local chronology of the region is based on extensive excavations that were conducted within the vicinity of the UCI campus by Henry Koerper and Christopher Drover in 1983. Based on their excavations, they developed a chronological sequence that illustrates the various cultural periods that took place between 7500 B.C. and 750 A.D. The local cultural periods in chronological order are Early Man, Milling Stone, Intermediate, and Late Prehistoric.

The beginning of human presence within the local area is unknown. However, there is strong evidence which shows that humans were present by the end of the Pleistocene epoch approximately 10,000 years ago. During the Early Man period, people subsisted primarily by hunting. Because these people existed in small numbers, they were capable of often traveling for long distances in search for new food as game in the area became limited. However, little is known about the culture of these people. In fact, their lithic (stone) tools are the only signs of evidence that survived to show that they existed.

During the Milling Stone Period (7,500 B.C.), tools for the processing of hard seeds began to appear in large numbers for the first time. People during this period became less reliant on hunting and more dependent on gathering hard seeds. The development of tools such as manos (a hand held stone) and metates (a larger stone against which seeds were grounded) provided these people with the capability to utilize a wide range of vegetable resources. Although hunting still continued to play a role in their survival, gathering of hard seeds played an even larger role. Similar to that of the Early Man Period, these people were nomadic, traveling frequently throughout the year to take advantage of fruit and vegetable resources that ripen at varying seasons. Often, they would occupy the same sites from year to year, because unlike game, these resources were predictable.

The Intermediate Period took place between 1000 B.C. and 750 A.D. This was a time of rapid cultural change in which cultural groups began to detach into smaller groups developing their own set of cultural characteristics. The development of new tools such as the mortar and pestle (grinding tools used for pounding) gave these people the capability to exploit acorns and other similar fruits as a food resource. As a result, people's lifestyle began to shift from nomadic to more permanent, because of the abundance and availability of acorns within the area. During this period, the use of steatite (soapstone or talc) began to appear. Since the only known steatite in the area comes from Catalina Island, it is clear that these people mastered the techniques required to cross rather large expanses of ocean.

The Late Prehistoric Period is the final archeological phase, ending with Spanish contact. This period saw the completion of the process of differentiation into tribal units, each with its own distinctive set of cultural units. The indigenous people located within the vicinity of the UCI campus and surrounding areas were known as the Gabrielino, a name bestowed upon them by the Spanish missionaries. Pottery began to appear during the end of this period. However, because pottery and steatite served much of the same purposes, pottery was not used as much. The Gabrielino language is derived from the Tackic family which originated in the Great Basin area, far to the northeast. Other tribes found within the area adjacent to the Gabrielino's are the Hokan found to the north and south and the Juaneño and Luiseño tribes found to the south. It is thought that the entire area was once dominated by the Hokan who were displaced by migrants from the Great Basin. The timing of the migration was thought to occur around 500 B.C. and continued shortly before Spanish contact.

4.4.1.2 ARCHAEOLOGICAL RESOURCES

The last archival records search of archaeological site maps, records, and files conducted for UCI was in November 1988 by RMW Paleo Associates. An update of the current status of archaeological sites on campus was prepared in support of the 2007 LRDP by UCI Campus and Environmental Planning (CEP). Generally, sites are identified by state trinomials with numbers that identify the state (CA), county (ORA), and the number of the site recorded in the county (CA-ORA-###). Recorded prehistoric resources located within the UCI campus are summarized in Table 4.4-1 and are described further below.

Lithic scatters are the primary archaeological resources found on campus. A number of these sites contain elements that were known to be sensitive at one time, but are now considered to be non-sensitive because they have been destroyed or extensively damaged. Due to the prehistoric use of the area, as well as the numerous sites that have been identified on the UCI campus, it is also possible that additional subsurface resources could occur on the campus.

One archaeologic resource site has been named since the 1989 survey. CA-ORA-1194 was found and recovered as part of the archeological monitoring conducted for the University Hills Faculty/Staff housing development. Additionally, there are existing sites which may require further assessment, monitoring and recovery at the project level. Prehistoric sites that are known to be significant or are potentially significant will require additional review if impacted by LRDP development. Prehistoric resource sites that remain intact or partially intact that may be impacted by LRDP development include CA-ORA-115-A; CA-ORA-115-B; CA-ORA-118-B; and CA-ORA 121-B. Testing for significance, with possible ultimate data recovery requirements of some portion of each of these sites, is required under CEQA Guidelines. All other identified sites on the campus have been graded and developed or are located in open space areas such as the NCCP reserve that would not be impacted by LRDP development. Where preservation is not possible, data recovery plans must be developed, approved, and implemented prior to impacts to these sites.

Table 4.4-1. Archeological Resources on the UCI Campus

Site Number	Original Record Site Type	Comments/Status/Significance	Recommendation if Impacted
Central Campus			
CA-ORA-117	One flake, a mano, and a metate.	Small amounts of resources noted. Site was removed by Crawford Hall Athletic Complex development. No future research potential.	No additional work required
CA-ORA-118-A	Shell midden. One mano recovered.	Site removed by Crawford Athletic Complex development with no trace of deposit found.	No additional work required
CA-ORA-118-B	Shell midden	Site disrupted by Mesa Court Housing Development. May be one small strip of possibly intact material	Testing for significance if site is identified to be impacted and data recovery if site is significant
CA-ORA-118-C	Shell midden. One mortar and one core	Site removed by Mesa Court Housing development with no traces of archaeological material found.	No additional work required
South Campus			
CA-ORAa-123	One metate, three mano fragments, three hammerstones, and utilized chert flakes.	Most of the site was destroyed by the construction. Some portion of this site may still be intact.	Testing for significance if site is identified to be impacted and data recovery if site is significant. Site is located in NCCP Reserve
CA-ORA-179	Sandstone manos, a pounder, flakes, a chopper, a hammerstone, cores, a granite metate fragment, a tortoise shell scraper and chert debitage.	Site may be damaged from illegal collection and construction. Some portion of this site may still be intact. Potentially significant site.	Data recovery occurred as a part to University Hills Faculty/Staff Housing Project.
CA-ORA-180	Crude tools, scrapers, hammers and choppers recovered during initial study.	No artifactual materials noted since 1966. Site has had illegal collection of materials	Data recovery occurred as a part to University Hills Faculty/Staff Housing Project.
CA-ORA-181	Shallow deposit. Scattered lithic artifacts, 16 manos, one discoidal, two metate fragments, two hammerstones, one flake scraper, and one shell fragment.	Illegal collection of site between 1976 and 1989 represents major loss. A 1993 study found 14 archaeological artifacts and limited paleontological resources based on no to low sensitivity of the underlying rock unit	No additional work required
CA-ORA-218	Large flakes and cores of ingneous rock, chert flakes, one metate fragment, one large chopping tool, and sparse shell.	Recovered. In 1990, during monitoring of Bison Avenue construction, one groundstone fragment was recovered and sent to Cal State Fullerton. No prehistoric evidence was noted.	No additional work required
CA-ORA-1119	Shell fragments, a schist, metate fragment, a quartz flake, a basalt core, and a fragment of a monzonite discoidal	Recovered.	Data recovery occurred as a part to University Hills Faculty/Staff Housing Project.
ST-1	Chione and pecten shell, chert flakes, a rhyolite hammerstone, and one chert tool.	Recovered.	No additional work required
CA-ORA-1194	Many artifacts including nine hammerstones, ten manos and mano fragments, two plano-convex scrapers, 25 flakes, one scraper fragment, one core and four fragments of shell.	Recovered. Materials appeared to be placed in cracks in soil by weather and former grazing and not as result of cultural deposit. Artifacts are stored at the Orange County Museum of Natural History Foundation.	No additional work required.

Table 4.4-1. Continued

Site Number	Original Record Site Type	Comments/Status/Significance	Recommendation if Impacted
North Campus			
CA-ORAa-115-A	Shells, mano fragments, metate fragment, and scrapers	Site has been substantially removed by North Campus Corporation Yard, but minor deposits may remain in the southeastern portion of the area.	Testing for significance if site is identified to be impacted and data recovery if site is significant.
CA-ORA-115-B	Marine shell (largely oyster) and numerous and varied vertebrate remains. Non-lithic technologies include bone awl and bone bead.	Site of two prehistoric deposits separated temporally by 400 years. Marked shift in faunal remains suggesting significant change in the bay habitat between times of each deposit.	Testing for significance if site is identified to be impacted and data recovery if site is significant.
CA-ORA-116	The site is a coastal shell-midden consisting of 11 structures (house pits) including a sweat lodge. Excavated from the structures were vertebrate and invertebrate faunal remains, worked- bone and shell artifacts, and flakes- and ground-stone tools.	Recovered. The site was excavated and recovered by Statistical Research Inc. (SRI) who conducted this project with the U.S. Army Corps of Engineers. This is an Intermediate-period site suggesting it was a habitation site which appeared to have accommodated relatively small domestic groups. The site's main occupation was between 300 B.C. and A.D. 700 and reflects a series of occupations by small groups. The materials were curated by SRI.	No additional work required.
CA-ORA-121-B	Five shell beads (Chione, Argopecten and Ostrea), remains aquatic species, Western pond turtle, sheepshead and bat ray, providing clues to the habitats available to the prehistoric inhabitants. Technologic remains include chipped and ground stone tools (chert), one obsidian flake and above mentioned shell beads.	Recovered.	Site is believed to be partially intact and testing for significance and data recovery is recommended if site is significant
West Campus			
CA-ORA-552	Thirteen fragments of highly eroded shell and six small mammal bone fragments	Recovered.	No additional work required
CA-ORA-1041	Andesite, felsite and chert shale flakes and an andesite core tool.	Recovered. A February 1999 report based on fieldwork surveys before beginning construction of the University Research Park found on the surface several pieces of shellfish, evidence of prehistoric food remains, and stone tool fragments. Field investigations for this site found no indications of a buried cultural deposit.	No additional work required.
East Campus			
CA-ORA-553	One artifact and sparse shell	Recovered.	No additional work required.
CA-ORA-554	Mano and metate fragments, one large scatter of chert flakes, and debitage.	Recovered.	No additional work required.

Source: RMW Paleo Associates, 1988 and Campus and Environmental Planning, 2006.

Until 1989, UCI's archeological and paleontological recovered resources were provided to a museum located on the University of California – Los Angeles (UCLA) campus for curation. Since 1989, most archaeological artifacts from UCI have been curated at the California State University Fullerton, Anthropology Department, with a few curated at the Irvine Historical Society Museum in Irvine. Paleontological resources, including both vertebrate and plant fossils from UCI and other University of California campuses, are curated and housed at University of California – Berkeley.

4.4.1.3 HISTORIC BACKGROUND

The documented history of present day Orange County began in July 1769 when a Spanish expedition crossed its southern boundary in search of new mission sites and an overland route between the first Franciscan missions established in San Diego in 1769 and Monterey Bay. While the Native Americans of the region had been aware of the Spanish in the area for over two hundred years, the Spanish did not appear near the current location of the UCI campus until 1769. Two Franciscan missions were established in this area: San Gabriel in 1771 and San Juan Capistrano in 1776. In addition to founding missions, the Spanish government began granting cattle grazing rights to soldiers who had participated in the exploration of California.

With the advent of Mexican independence in 1831, California became a state of the new republic. Between 1833 and 1845, mission rule gave way to secularization, resulting in the partition of former mission properties in the form of government land grants. These land grants were awarded to individuals willing to work and make the land productive. Originally controlled by Mission San Juan Capistrano and used for cattle grazing, the UCI campus was part of the Mexican land grant Rancho San Joaquin conferred on Don Jose Andres Sepulveda in 1837. Don Jose built a large adobe house for himself and his family near the later site of the Irvine Ranch cattle operation headquarters, approximately one mile north of UCI. The land of the rancho was primarily used for grazing of cattle and horses during the Mexican and early American Periods.

In 1846, California was ceded to the United States and the Mexican ranchos, which later made up Irvine Ranch and UCI, were increasingly inhabited by American born ranchers. By 1876, James Irvine had purchased Rancho San Joaquin, among other rancheros. The lands of the Irvine Ranch extended from the Pacific Ocean around Newport Bay, across the Tustin Plain and through the foothills of the Santa Ana Mountains to the Santa Ana River. Originally purchased to graze sheep, the ranch diversified into agriculture including citrus and nut orchards, fruits, vegetables, and grains. The more rugged, hilly areas were used for cattle grazing. With the arrival of railroads in the area and increasing population, the Irvine Ranch sold agricultural products to more markets, which facilitated a diversification away from cattle grazing. However, the vicinity of UCI remained remote ranch land accessible only by dirt roads until the construction of UCI in the early 1960's.

4.4.1.4 HISTORIC RESOURCES

An historic resource is generally located above ground and is any building, structure, or object that is at least 50 years of age and that is, or may be, architecturally or culturally significant in local, state, or national history. The 1989 Historic Resources Assessment performed at UCI identified five areas of potential historical significance. Four of these sites were determined to not have any historical significance. The fifth site is called the UCI Ranch Building Complex and is located at the eastern section of the UCI campus off California Avenue between Campus Drive and Anteater Way. The Complex is a group of five structures including three former residences, a renovated barn, and a circular structure known as the "yurt." As of 2007, the yurt was occupied by the Claire Trevor School of the Arts and the residential structures and the barn are occupied by the UCI Farm School, an experimental elementary

school affiliated with UCI's School of Social Sciences. The three residential structures and the renovated barn are historically significant and appear to be eligible for inclusion on the California Register of Historical Resources under several criteria:

(1) It has made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

(2) It is associated with the lives of persons important to California's past, or to the nation; and

(3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

The site of the Ranch Building Complex served as an important node of the operations of the Irvine Ranch since its earliest days. Known as "Bonita Camp" after nearby Bonita Canyon, it was the site of a hog farm operation run by James Irvine's brother-in-law. The three residential structures were components of the Bonita Camp. At the time of their construction, around 1910, the camp was a center of hog, sheep, and cattle ranching activities, as well as a base for agricultural operations on the southern, coastal section of the Ranch. Bonita Camp also served as the primary slaughtering facility for the entire ranch and included a blacksmith shop, granary, water tank, tack room, poultry barn, hog bran, a dairy, five large stock brads, and four dwellings including a bunk house, a cook house, a wash house, various sheds, equipment storage areas, and corrals.

The southernmost dwelling of the UCI Farm School Buildings, Building A, is somewhat larger than the others and served as the foreman's residence in the 1920s through the 1940s. Building B functioned as the cook house and Building C housed ranch hands. Building A is the only element of the UCI Farm School Buildings that retains residential function. Half of the structure is a staff apartment and the other half contains classrooms. Buildings A, B, and C are one-story wood framed, early twentieth century vernacular structures. By 1962, only the three existing residential structures and three large stock barns remained. In 1971, the renovated barn was moved into place and the three barns original to the complex were later removed.

The renovated barn was originally located at the northeast corner of MacArthur Boulevard and Ford Road. Originally part of an experimental ostrich farming operation sponsored by Irvine's son, the history of unusual usage was continued when bison were raised there beginning in the 1950s. The "Newport Harbor Buffalo Ranch" was a popular tourist attraction, drawing visitors from across southern California. In 1961, the Buffalo Ranch Buildings were taken over by William L. Pereira and Associates, the planning and architectural firm responsible for the planning and design of the UCI campus. Pereira renovated the barn to serve as his personal office while working at the UCI campus. Later, Pereira, an old barn enthusiast, had the structure moved intact to Laguna Niguel to function as a field office where his firm was designing the Chet Holifield Memorial Federal Building. Seeking to commemorate his involvement on the UCI project and to preserve the structure, he worked with renowned modern dance innovator, Jersey Gratowski, to bring the barn back to the University for use as a dance studio. In 1971, it was moved to the Farm School area.

A more detailed description of the historical background of the UCI campus and the UCI Farm School Buildings is available in the Cultural and Historical Resources Impact Analysis prepared by Dana N. Slawson, Architectural Historian (1997).

As of June 2007, there were 101 buildings located on the UCI Campus that will be over 50 years of age, and therefore, would be historic structures, by 2026, the horizon year of the 2007 LRDP and may be potentially significant. These buildings include general campus buildings, residential buildings, and

medical buildings located on the Main Campus. Such buildings include Langson Library, Crawford Hall, Steinhaus Hall, Schneiderman Hall, Rowland Hall, Berk Hall, the Ranch Buildings on the East Campus, several buildings in Mesa Court Housing, Verrano Place Housing, and Middle Earth Housing, and the Student Health Center, among others. A complete list of these buildings is shown in Table 4.4-2, below.

4.4.1.5 PALEONTOLOGICAL RESOURCES

Paleontological resources are the remains and/or traces of prehistoric plant and animal life exclusive of humans. Fossil remains such as bones, teeth, shells, leaves, and wood are found in the geologic deposits within which they were originally buried. Paleontological resources can be thought of as including not only the actual fossil remains, but also the collecting localities and the geologic formations containing those remains.

The Los Angeles Basin, including Orange County, is one of the major fossil producing regions. It is well known for fossils of plants, marine invertebrates, marine vertebrates, and terrestrial vertebrates. Locally, fossils are best known in the southern portion of the San Joaquin Hills, Laguna Hills, and Dana Point Districts. However, fossils are not well known within the vicinity of the UCI campus, but new discoveries have been uncovered throughout the years as new development increases within the UCI campus and surrounding areas. Marine terrace deposits within and near the UCI campus are known to contain vertebrate fossils, most notably on the South and West Campuses. However, there are no known records of fossils from the non-marine terrace deposits in the UCI area, although similar deposits produced significant fossils elsewhere in Orange County.

The Topanga Formation in the Santa Ana Mountains has recently been recognized as a major fossil bearing rock unit. Discoveries made at several developments contain the remains of several marine vertebrates of Middle Miocene age (17 to 15 million years ago). Many of these fossils represent species currently known only from the Topanga Formation of Orange County.

In the vicinity of the UCI campus, the Topanga Formation is best known for its invertebrate assemblage. Vertebrate fossils are only occasionally discovered in natural exposures. Occasional invertebrates and vertebrates fossils and abundant plant fossils have been recovered by the Los Trances member of the Topanga Formation at the Coyote Canyon Landfill and invertebrate fossils have been reported from elsewhere in the San Joaquin Hills. Fossils are not well known from the Paularino member, which has produced occasional invertebrate fossils. Within the UCI campus, fossil plant and vertebrate material have been reported from two locations in the Topanga Formation.

Paleontological sensitivity ratings have been developed for the UCI study area based on the history of fossil production in the Topanga Formation and the terrace deposits. This sensitivity is a measure of the potential for the discovery of significant fossils during development. The Topanga Formation is considered to have a high paleontological sensitivity. The non-marine terrace deposits in the eastern portion of the campus are considered to have low to moderate paleontological sensitivity. Throughout implementation of campus development under the existing LRDP all projects involving site grading within the Topanga Formation have included paleontological monitoring and recovery of resources during grading activities. All resources recovered, such as vertebrate and invertebrate fossils, have been delivered to appropriate on or off-campus repositories.

Table 4.4-2. Buildings on the Main Campus Constructed before 1975

Building Name	Type	Year Constructed	Age in 2007	Age in 2026
Administration Building	General campus	1973	34	53
Art Studio (School of the Arts)	General campus	1970	37	56
Arts Instruction and Technology	General campus	1970	37	56
Berk Hall	Medical[1]	1969	38	57
Central Plant	General campus	1965	42	61
Children's Care Center	General campus	1975	32	51
Claire Trevor Theatre	General campus	1970	37	56
Computer Science Building	General campus	1970	37	56
Crawford Hall	General campus	1965	42	61
Dance Studio (School of the Arts)	General campus	1970	37	56
Drama Building (School of the Arts)	General campus	1970	37	56
Engineering Tower	General campus	1970	37	56
Farm School A	General campus	1971	36	55
Farm School B	General campus	1971	36	55
Farm School C	General campus	1971	36	55
Gateway Study Center	General campus	1965	42	61
Greenhouse	General campus	1968	39	58
Humanities Hall	General campus	1965	42	61
Krieger Hall	General campus	1965	42	61
Langson Library	General campus	1965	42	61
Medical Surge I	Medical	1969	38	57
Medical Surge II	Medical	1969	38	57
Mesa Court - Arroyo	Residential	1965	42	61
Mesa Court - Bahia	Residential	1965	42	61
Mesa Court - Brisa	Residential	1968	39	58
Mesa Court - Camino	Residential	1965	42	61
Mesa Court - Cen Ser	Residential	1968	39	58
Mesa Court - Cielo	Residential	1965	42	61
Mesa Court - Ciudad	Residential	1965	42	61
Mesa Court - Cuesta	Residential	1965	42	61
Mesa Court - Cumbre	Residential	1968	39	58
Mesa Court - Estrella	Residential	1970	37	56
Mesa Court - La Mirada	Residential	1971	36	55
Mesa Court - Lago	Residential	1965	42	61
Mesa Court - Loma	Residential	1965	42	61
Mesa Court - Nubes	Residential	1970	37	56
Mesa Court - Otero	Residential	1968	39	58
Mesa Court - Palo	Residential	1970	37	56
Mesa Court - Prado	Residential	1968	39	58
Mesa Court - Puente	Residential	1968	39	58
Mesa Court - Sierra	Residential	1965	42	61
Mesa Court - Vereda	Residential	1968	39	58
Mesa Court - Viento	Residential	1965	42	61
Mesa Court - Vista	Residential	1970	37	56
Middle Earth - Brandywine	Residential	1974	33	52
Middle Earth - Hobbiton	Residential	1974	33	52
Middle Earth - Isengard	Residential	1974	33	52
Middle Earth - Lorien	Residential	1974	33	52
Middle Earth - Mirkwood	Residential	1974	33	52
Middle Earth - Misty Mountain	Residential	1974	33	52
Middle Earth - Rivendell	Residential	1974	33	52
Middle Earth - The Shire	Residential	1974	33	52
Production Studio (School of the Arts)	General campus	1970	37	56

Table 4.4-2. Continued

Building Name	Type	Year Constructed	Age in 2007	Age in 2026
Red Barn	General campus	1971	36	55
Rowland Hall	General campus	1968	39	58
Schneiderman Hall	General campus	1965	42	61
Sculpture and Ceramics Studios (School of the Arts)	General campus	1970	37	56
Social Science Hall	General campus	1971	36	55
Social Science Lab	General campus	1971	36	55
Social Science Tower	General campus	1971	36	55
Steinhaus Hall	General campus	1965	42	61
Student Health Center	General campus	1968	39	58
University Art Gallery	General campus	1970	37	56
Verano Place - Building 100	Residential	1966	41	60
Verano Place - Building 200	Residential	1966	41	60
Verano Place - Building 300	Residential	1966	41	60
Verano Place - Building 400	Residential	1966	41	60
Verano Place - Building 500	Residential	1966	41	60
Verano Place - Building 600	Residential	1966	41	60
Verano Place - Building 700	Residential	1966	41	60
Verano Place - Building 800	Residential	1966	41	60
Verano Place - Building 900	Residential	1968	39	58
Verano Place - Building 1000	Residential	1968	39	58
Verano Place - Building 1100	Residential	1968	39	58
Verano Place - Building 1200	Residential	1968	39	58
Verano Place - Building 1300	Residential	1968	39	58
Verano Place - Building 1400	Residential	1968	39	58
Verano Place - Building 1500	Residential	1968	39	58
Verano Place - Building 1600	Residential	1968	39	58
Verano Place - Building 1700	Residential	1968	39	58
Verano Place - Building 1800	Residential	1968	39	58
Verano Place - Building 1900	Residential	1969	38	57
Verano Place - Building 2000	Residential	1969	38	57
Verano Place - Building 2100	Residential	1969	38	57
Verano Place - Building 2200	Residential	1969	38	57
Verano Place - Building 2300	Residential	1969	38	57
Verano Place - Building 2400	Residential	1969	38	57
Verano Place - Building 2500	Residential	1969	38	57
Verano Place - Building 2600	Residential	1969	38	57
Verano Place - Building 2700	Residential	1969	38	57
Verano Place - Building 2800	Residential	1969	38	57
Verano Place - Building 2900	Residential	1969	38	57
Verano Place - Building 3000	Residential	1969	38	57
Verano Place - Building 3100	Residential	1969	38	57
Verano Place - Building 3200	Residential	1969	38	57
Verano Place - L 203	Residential	1968	39	58
Verano Place - L 204	Residential	1968	39	58
Verano Place - L 305	Residential	1969	38	57
Verano Place - L 306	Residential	1969	38	57
Verano Preschool	General campus	1969	38	57
Winifred Smith Hall (School of the Arts)	General campus	1970	37	56

(1) Medical (Health Sciences portion of UCI Main campus)

4.4.2 REGULATORY FRAMEWORK

The treatment of cultural resources is governed by federal and State laws and guidelines. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. Federal and State significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. Some resources that do not meet federal significance criteria may be considered significant under State criteria. The laws and regulations seek to mitigate impacts on significant prehistoric or historic resources. The federal and state laws and guidelines for protecting historic resources are summarized below. The treatment of paleontological resources is also governed under the federal and State regulations described below. Under these regulations, paleontological resources have been interpreted by agencies to be covered by the references to "scientific" or "informational" values.

4.4.2.1 FEDERAL

The National Historic Preservation Act of 1966

The National Historic Preservation Act of 1966 established the National Register of Historic Places (NRHP) as the official federal list of cultural resources that have been nominated by state offices for their historical significance at the local, state, or national level. Listing on the National Register provides recognition that a property is significant to the nation, the state, or the community and assumes that federal agencies consider historic values in the planning for federal and federally assisted projects. Properties listed in the NRHP, or "determined eligible" for listing, must meet certain criteria for historical significance and possess integrity of form, location, and setting. Structures and features must usually be at least 50 years old to be considered for listing on the NRHP, barring exceptional circumstances. Criteria for listing on the NRHP, which are set forth in Title 36, Part 63 of the Code of Federal Regulations (36 CFR Part 63), include significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures; objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association; and that are:

- Associated with events that have made a significant contribution to the broad patterns of our history;
- Associated with the lives of persons significant in our past;
- Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

Eligible properties must meet at least one of the criteria and exhibit integrity, which is measured by the degree to which the resource retains its historical properties and conveys its historical character, the degree to which the original fabric has been retained, and the reversibility of changes to the property. The fourth criterion is typically reserved for archaeological and paleontological resources. These criteria have largely been incorporated into CEQA Guidelines as well (see Section 4.4.3.1, CEQA Guidelines Section 15064.5, below).

The Native American Graves Protection and Repatriation Act (NAGPRA)

The Native American Graves Protection and Repatriation Act is a federal law passed in 1990. NAGPRA provides a process for museums and federal agencies to return certain Native American cultural items - human remains, funerary objects, sacred objects, or objects of cultural patrimony - to lineal descendants, and culturally affiliated Native American tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on federal and tribal lands, and penalties for noncompliance and illegal trafficking. Although no human remains are anticipated to be encountered, implementation of the 2007 LRDP would be conducted in compliance with NAGPRA.

Federal curation regulations are also provided in 36 CFR Part 79 which apply to collections that are excavated or removed under the authority of the Antiquities Act (16 U.S.C. 431-433), the Reservoir Salvage Act (16 U.S.C. 469-469c), Section 110 of the National Historic Preservation Act (16 U.S.C. 470h-2), or the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm). Such collections generally include those that are the result of a prehistoric or historic resources survey, excavation, or other study conducted in connection with a federal action, assistance, license, or permit.

4.4.2.2 STATE

The California Register of Historic Resources (PRC Section 5020 et. seq.)

State law also protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The California criteria for the register are nearly identical to those for the NRHP. The State Historic Preservation Officer (SHPO) maintains the California Register of Historic Resources (CRHR). Properties listed, or formally designated eligible for listing, on the NRHP are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

Native American Historic Cultural Sites (PRC Section 5097 et. seq.)

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to a year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the California Register of Historic Resources.

California Native American Graves Protection and Repatriation Act (NAGPRA)

The California NAGPRA, enacted in 2001, requires all State agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. California NAGPRA also provides a process for the identification and repatriation of these items to the appropriate tribes. Although no human remains are anticipated to be encountered, implementation of the 2007 LRDP would be conducted in compliance with the California NAGPRA.

4.4.2.3 UC POLICY

UC Policy and Procedures on Curation and Repatriation of Human Remains and Cultural Items

This policy established a University Advisory Group on Cultural Affiliation and Repatriation of Human Remains and Cultural Items. This Advisory Group is composed of a University faculty member from each campus that houses collections covered by NAGPRA and two Native American members selected by the President of the University of California. The Vice Provost of Research acts as the liaison between the Advisory Group and the UC Office of the President. The Advisory Group reviews campus decisions regarding potential cultural resources and repatriation, makes recommendations to the President, and assists in resolution of disputes. Under this policy, campuses are encouraged to solicit input on policy matters from members of Native American groups and from additional faculty members drawn from a variety of disciplines in which the study treatment, curation, and repatriation of human remains is relevant.

4.4.3 PROJECT IMPACTS AND MITIGATION

4.4.3.1 ISSUE 1 – ARCHAEOLOGICAL RESOURCES

Cultural Resources Issue 1 Summary

Would implementation of the 2007 LRDP cause a substantial adverse change in the significance of an archaeological resource?

Impact: Project grading or excavation from implementation of the 2007 LRDP could damage or destroy recorded resources that are determined to be significant upon testing (see Table 4.4-1) or unrecorded resources that are determined to be significant (Cul-1).

Mitigation: Identify resources in Area of Potential Effect and evaluate for significance (Cul-1A); Recover and document significant resources (Cul-1B); and Stop work when unexpected resource is discovered (Cul-1C).

Significance Before Mitigation: Significant.

Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2007 LRDP may have a significant adverse impact if it would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

For purposes of this EIR, implementation of the 2007 LRDP may have a significant adverse impact on archaeological resources if it would result in the following:

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines; or
- Disturb any human remains, including those interred outside of formal cemeteries (e.g., at historic homesteads, as part of archaeological habitation site, etc.).

"Unique archaeological resources" are defined under CEQA through PRC Section 21083.2(g). A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it meets one of the following criteria:

- The archaeological artifact, object, or site contains information needed to answer important scientific questions and there is a demonstrable public interest in that information, or
- The archaeological artifact, object or site has a special and particular quality, such as being the oldest of its type or the best available example of its type, or
- The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

For a resource to qualify as a unique archaeological resource, the agency must determine that there is a high probability that the resource meets one of these criteria without merely adding to the current body of knowledge (PRC Section 21083.3[g]). An archaeological artifact, object, or site that does not meet the above criteria is a non-unique archaeological resource (PRC Section 21083.2[h]). An impact on a non-unique resource is not a significant environmental impact under CEQA (CEQA Guidelines Section 15064.5[c][4]). If an archaeological resource qualifies as a historical resource under CRHR criteria, then the resource is treated as a historical resource for the purposes of CEQA.

Impact Analysis

Impacts to archaeological resources most often occur as the result of excavation or grading. Archaeological resources may also suffer indirect impacts as the result of project activity that increases erosion or increases the accessibility of a surface resource, and thus increases the potential for vandalism or illicit collection. Over the past 42 years, the UCI campus has undergone extensive development in order to accommodate campus program growth. A comprehensive archeological resources report for the UCI campus was conducted in 1988 which cataloged the location, condition, and resource potential of all archeological sites on campus. Since 1988, multiple project specific archeological resource evaluation and recovery studies have been performed on a site-by-site basis consistent with 1989 LRDP EIR Mitigation Measures as part of campus project construction. These site specific studies have been conducted under the guidance of the 1988 campus-wide resource study.

Impacts to the recorded archaeological resources in Table 4.4-1 would be less than significant if the resource has been determined to not be significant, was previously destroyed, or has been recovered. No mitigation is required for impacts to sites that are not significant. Impacts would be considered significant for recorded resources that have been determined to be significant, including sites CA-ORA-118-B, -123, -115-A, -115-B, and -121-B, and recorded resources that have not yet been evaluated for significance. Significant impacts may also occur to unrecorded resources, if it is determined that these resources are also significant.

Impact Cul-1 Project grading or excavation from implementation of the 2007 LRDP could damage or destroy recorded resources that are determined to be significant upon testing (see Table 4.4-1), or unrecorded resources that are determined to be significant.

Mitigation Measures

A mitigation program is provided to address impacts to significant recorded and unrecorded archaeological resources. For all applicable projects under the 2007 LRDP that would impact recorded archaeological sites that are determined to be significant upon testing, implementation of mitigation measures Cul-1A and Cul-1B below would reduce these impacts to a level considered less than

significant. Impacts to unrecorded subsurface archaeological resources would be mitigated with implementation of measure Cul-1C below.

Cul-1A During preparation of the Initial Study for future projects that implement the 2007 LRDP and are located on sites containing recorded archaeological resources, UCI shall retain a qualified archaeologist to define and survey the area of potential effects (APE) on the project site. The APE shall be based on the extent of ground disturbance and site modification anticipated for the project including an appropriate buffer where specific project boundaries have yet to be established.

During the course of project planning, any recorded archaeological sites within the project APE shall be avoided to the extent feasible. If such sites cannot be avoided through project modifications or redesign, then the archeologist shall evaluate all archaeological resources observed within the project APE for significance in accordance with CEQA Guidelines Section 15064.5(c). This evaluation shall also determine the extent of the archaeological resource, if not already established. If an archaeological resource within the project APE is determined to be significant, then mitigation measure Cul-1B shall be implemented.

Cul-1B Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP and would impact a significant archaeological resource as determined by mitigation measure Cul-1A, a qualified archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

i. Perform appropriate technical analyses;

ii. File any resulting reports with the South Coastal Information Center; and

iii. Provide the recovered materials to an appropriate repository for curation.

Cul-1C Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall retain a qualified archaeologist (and, if necessary, a culturally-affiliated Native American) to monitor these activities. In the event of an unexpected archeological discovery during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the archaeological find. A qualified archaeologist shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If the archaeological discovery is determined to be significant, the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

i. Perform appropriate technical analyses;

ii. File any resulting reports with the South Coastal Information Center; and

iii. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.

4.4.3.2 ISSUE 2 – HISTORICAL RESOURCES

Cultural Resources Issue 2 Summary

Would implementation of the 2007 LRDP cause a substantial adverse change in the significance of a historical resource?

Impact: Anticipated and potential development and redevelopment projects under the 2007 LRDP could demolish, relocate, or significantly change historic structures, which could result in changes to the historic significance of the structure (Cul-2).

Mitigation: Identify resources in Area of Potential Effect (Cul-2A); Evaluate significance of resource (Cul-2B); Avoid impacts (Cul-2C); and Rehabilitate or document resources (Cul-2D).

Significance Before Mitigation: Significant.

Significance After Mitigation: Less than significant. .

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2007 LRDP may have a significant adverse impact if it would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

Historical resources include resources listed in, or determined to be eligible for listing in, the CRHR; resources included in a qualifying local register; and resources that the lead agency determines to meet the criteria for listing in the CRHR. These criteria may apply to any historic built environmental feature, and to historic or prehistoric archaeological sites. Properties or sites that are eligible for inclusion in the CRHR are termed "historical resources." Under the provisions of CEQA Guidelines Section 15064.5(a)(3) a lead agency shall find that a property is historically significant if it determines that it meets one or more of the criteria for listing on the CRHR, which extend to any building, structure, feature, or site that:

A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B. Is associated with the lives of persons important in our past;

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual or possesses high artistic values; or

D. Has yielded, or may be likely to yield, information important in prehistory or history.

With few exceptions, to qualify as a historic resource a property must be at least 50 years old and also must retain physical integrity and integrity to its period of significance. For historic structures and buildings, significantly altering the setting, remodeling, or moving the structure may diminish or destroy its integrity. However, under some conditions, a building that has been moved or altered may still retain its historic significance. Landscaping, or landscape features in some cases, may contribute to the significance of a historic architectural property. Such elements are assessed as part of the setting of the historic architectural property.

Archaeological sites may also qualify as historical resources under CEQA Guidelines Section 15064.5(a)(3). Archaeological sites most often are assessed relative to CRHR Criterion D (for potential to yield data important to history or prehistory). An archaeological deposit that has been extensively disturbed and archaeological artifacts found in isolation may not be eligible for listing on the CRHR,

because the lack of stratigraphic context may impair the ability of the resource to yield significant data. A resource that does not meet one of the criteria for eligibility to the CRHR is not a historical resource under CEQA, and impacts to such a property are not significant. Archaeological sites are addressed in Section 4.4.3.1.

A substantial adverse change in the significance of a historical resource would occur if the elements that contribute to its significance were to be damaged through direct or indirect impacts.

Impact Analysis

Historical resources found on campus that are considered to be significant are the UCI Ranch Buildings which include three residential structures, which were constructed in approximately 1910 and are being used by a private elementary school until June 2007, and the renovated barn used by the School of the Arts. Both are located on the East Campus. According to the 1997 Cultural and Historical Resources Impact Analysis, these buildings are eligible for inclusion on the CRHR under Criterion A for importance in regional events related to economic trends and settlement pattern, and under Criterion B for the following reasons: (1) its associations with the Cheney/Brophy family, important personalities in the economic and social history of Orange County, southern California, and the UCI campus itself; and (2) its association with prominent Los Angeles Architect William Pereira, designer of the UCI campus and master planner for the Irvine Ranch. This complex is also considered eligible under Criterion C as a representative example of an increasingly rare type of vernacular agricultural building complex. It may also be significant under Criterion D, but the complex has not been tested.

The UCI Ranch Buildings are located on a six-acre site that is a remnant of a larger Ranch complex. An area north of the Ranch Buildings that contained stock barns, livestock corrals, and other structures was redeveloped as a part of the Student Recreation Center Project.

As the land use for this site is identified for "Mixed Use-Neighborhood" in the 2007 LRDP, implementation of the 2007 LRDP could result in a significant impact to the renovated barn or to the Ranch Buildings, depending on the final site plan configuration for this area. Development of the Mixed Use-Neighborhood on this site could result in removal, relocation, or significant changes to the structures or setting, which would be considered a significant impact.

In addition to the Ranch Buildings, there are 101 buildings located on the UCI Campus that will be over 50 years of age by 2026, the horizon year of the 2007 LRDP. Therefore, once any of these buildings becomes 50 years old, they may be considered historic structures and therefore may be eligible for listing on the CRHR. Any future development that would impact these structures could result in a significant impact to historical resources.

The proposed 2007 LRDP is a general land use plan which does not describe specific development footprints, detailed areas of disturbance for new or redeveloped facilities, and related grading and excavations for future project sites. Therefore, it is assumed, under a worst-case analysis, that implementation of the 2007 LRDP could have a significant impact to historic resources based on anticipated and potential development and redevelopment projects on campus.

Impact Cul-2 Anticipated and potential development and redevelopment projects under the 2007 LRDP could demolish, relocate, or significantly change historic structures, which could result in changes to the historic significance of the structure.

Mitigation Measures

Mitigation measures Cul-2A through Cul-2D below provide a progressive mitigation program for avoiding and/or mitigating impacts to historic resources. Implementation of measures Cul-2A through Cul-2D for all applicable projects under the 2007 LRDP would reduce the significance of impacts to a level of less than significant.

Cul-2A During preparation of the Initial Study for future projects that implement the 2007 LRDP, are located on sites containing facilities that are 50 years of age or older, and are potential historic resources, a qualified professional shall define and survey the Area of Potential Effect (APE) on the project site. The APE shall be based on the extent of ground disturbance and site modification anticipated for the project. If historic resources are present within the project APE, then mitigation measure Cul-2B shall be implemented.

Cul-2B Before altering or otherwise affecting historic resources within the project APE as determined by mitigation measure Cul-2A, they shall be evaluated for significance by the architectural historian in accordance with CEQA Guidelines Section 15064.5. The evaluation process shall include the development of appropriate historical background research as context for the assessment of the significance of the historic resources in the history of the UC system, UCI, and the region. The historic resources shall be recorded on a California Department of Parks and Recreation DPR 523 form or equivalent documentation. If the historic resources are determined to be significant, then mitigation measure Cul-2C shall be implemented.

Cul-2C For historic resources determined to be significant as determined by mitigation measure Cul-2B, UCI shall consider measures that would enable the project to avoid direct or indirect impacts to the significant historic resources. For significant historic resources in which avoidance or reuse on-site is not feasible, mitigation measure Cul-2D shall be implemented.

Cul-2D For significant historic resources in which avoidance or reuse on-site is not feasible as determined by mitigation measure Cul-2C, one of the following options shall be implemented:

i. Remodeling, renovation, or other alterations to significant historic resources within the project APE shall be conducted in compliance with the "Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings."

ii. Prior to relocation or demolition of significant historic resources within the project APE, a qualified professional shall document the resources, including any buildings, associated landscaping and setting. Documentation shall include still and video photographs (to be provided on a CD-ROM) and a written record in accordance with the standards of the Historic American Building Survey or Historic American Engineering Record, including accurate scaled mapping, architectural descriptions, and scaled architectural plans, if available. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. A copy of the record shall be deposited with the UCI archives.

iii. As appropriate, include features in the design of the new project that reuse or represent features or the historic building or provide interpretative information on the historic resource.

4.4.3.3 ISSUE 3 – HUMAN REMAINS

Cultural Resources Issue 3 Summary

Would implementation of the 2007 LRDP disturb any human remains, including those interred outside of formal cemeteries?

Impact: Although unlikely, construction activities under the 2007 LRDP could disturb human remains (Cul-3).

Mitigation: No mitigation required.

Significance Before Mitigation: Less than significant.

Significance After Mitigation: Not applicable.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2007 LRDP may have a significant adverse impact if it would disturb any human remains, including those interred outside of formal cemeteries. Section 15064.5(d) and (e) of the CEQA Guidelines assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC Section 5097.98.

Impact Analysis

Even though this entire area was known to be occupied by indigenous people, there has been no past evidence of human remains found on the UCI campus. However, because human remains are usually found buried beneath the surface and human remains have been found in the UCI vicinity, implementation of the 2007 LRDP may result in the disturbance of human remains during construction activities. If the human remains are disturbed during grading or excavation, UCI will comply with existing laws including CHSC Section 7.50.5 and CEQA Guidelines Section 15064.5(e). As a result, these impacts would be considered less than significant.

Mitigation Measures

Impacts would be less than significant, therefore no mitigation is required.

4.4.3.4 ISSUE 4 – PALEONTOLOGICAL RESOURCES

Cultural Resources Issue 4 Summary

Would implementation of the 2007 LRDP directly or indirectly destroy, disturb, or remove a unique paleontological resource or site or unique geologic feature?

Impact: Construction and earthwork activities under the 2007 LRDP could significantly affect paleontological resources (Cul-4).

Mitigation: Monitor for unrecorded subsurface resources (Cul-4A) and Document and collect discovered resources (Cul-4B and Cul-4C).

Significance Before Mitigation: Significant.

Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2007 LRDP may have a significant adverse impact on paleontological resources if it would directly or indirectly destroy, disturb, or remove a unique paleontological resource or site or unique geologic feature. Because paleontological resources are typically buried and, therefore, not apparent until revealed by excavation, significant impacts to paleontological resources are often determined based on the geologic formations that would be disturbed and the potential for those geologic formations to contain fossils.

Impact Analysis

As described in the environmental setting section, the campus is underlain by various geologic units with varying potentials to contain fossils. The Topanga Formation geologic units under the campus are regionally considered to be of high paleontologic sensitivity. The non-marine terrace deposits geologic units, found on the northeastern area of campus and in an area northwest of campus, are regionally considered to be of low to moderate sensitivity. As shown in Figure 4.4-1, the majority of the campus is rated as High Sensitivity for vertebrate and invertebrate fossils. The 1988 Paleontological Assessment for the UCI campus noted that one of the most unique features of the campus are the micro-paleontological resources found along Bonita Canyon Road. These resources are microscopic fossils of single-celled animals that inhabited the sea floor. The fossils contained in these exposures are of regional and interregional significance, because they provide the basis for comparisons between the depositional histories of various parts of the Los Angeles Basin. Additionally, the information preserved in these exposures can be used for comparisons between the depositional history of the Los Angeles Basin with other sedimentary basins of the west coast.

Exposures along Bonita Canyon Road are located on the South Campus. Residential development is projected for this area under implementation of the 2007 LRDP. It is not yet known whether development will occur directly along Bonita Canyon Road, but for the purposes of this analysis it is assumed that the entire area will be developed. Development in this undeveloped area or other areas of the campus may expose fossil remains due to excavation operations which cut into geologic formations, trenching and tunneling activities, or by natural erosion processes. According to the 1989 LRDP EIR, any project involving excavation into either the Topanga Formation or the terrace deposits will have an adverse effect on paleontological resources. Therefore, development that occurs from the implementation of the 2007 LRDP that involves earthwork would significantly impact paleontological resources.

Impact Cul-4 Construction and earthwork activities under the 2007 LRDP could significantly affect paleontological resources.

Mitigation Measures

The majority of the campus is rated as High Sensitivity for paleontological resources and the remainder of the campus is rated as Low to Moderate Sensitivity. Therefore, mitigation measures Cul-4A and Cul-4B apply to any project on the UCI campus involving the excavation of sedimentary rock material other than topsoil. Implementation of mitigation measures Cul-4A to Cul-4B would reduce potential significant impacts to paleontological resources to a level that is less than significant.

Cul-4A Prior to grading or excavation for future projects that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontologist to monitor these activities. In the event fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring.

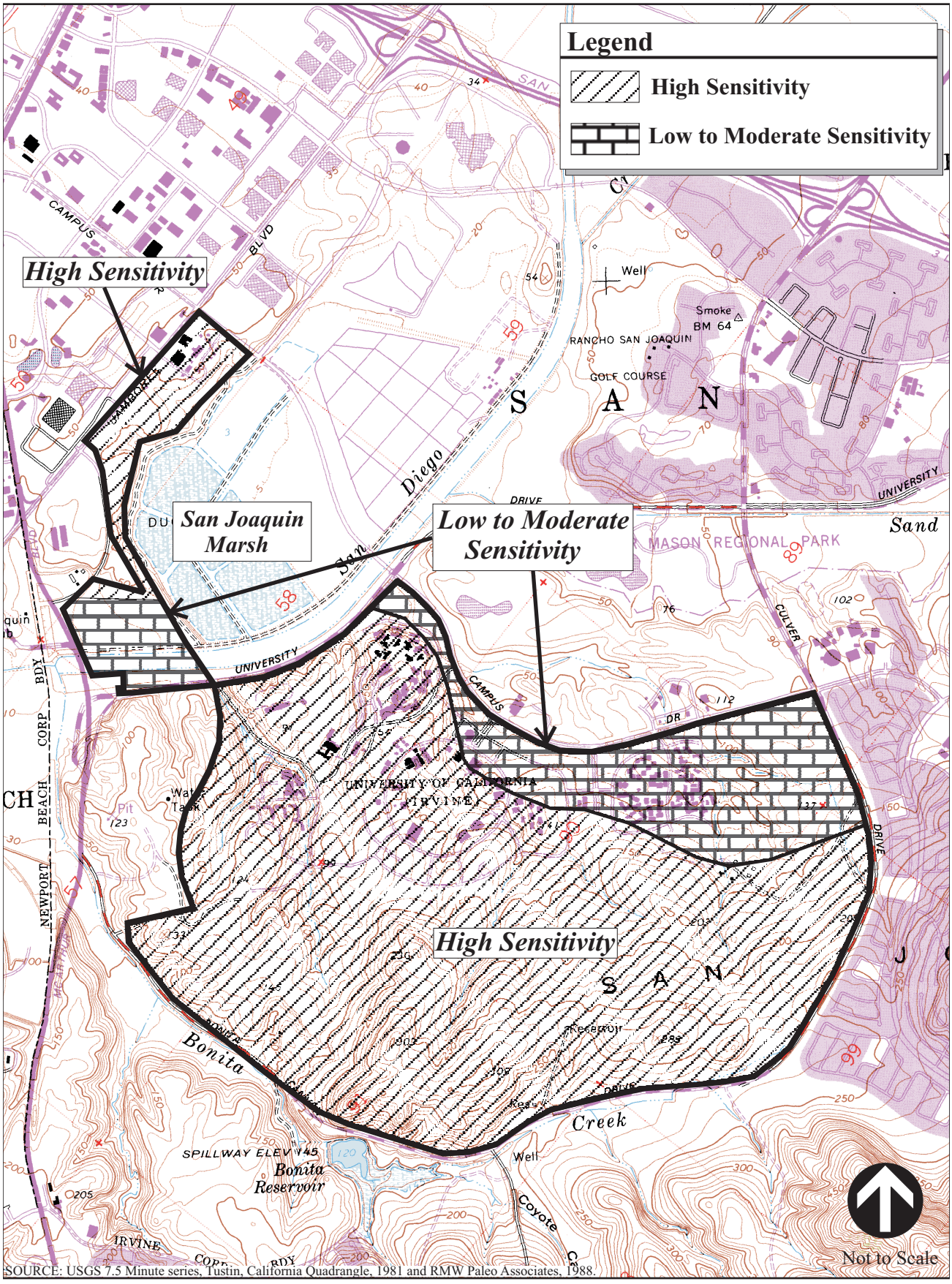
Cul-4B If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.

Cul-4C For significant fossils as determined by mitigation measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

i. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI);

ii. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and

iii. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.



SOURCE: USGS 7.5 Minute series, Tustin, California Quadrangle, 1981 and RMW Paleo Associates, 1988.

PALEONTOLOGICAL SENSITIVITY ZONES **FIGURE 4.4-1**

4.4.4 CUMULATIVE IMPACTS AND MITIGATION

Cultural Resources Cumulative Issue Summary

Would implementation of the 2007 LRDP have a cumulatively considerable contribution to a cumulative cultural resources impact considering past, present, and probable future projects?

Cumulative Impact	Significance	LRDP Contribution
Archaeological Resources: Regional loss of archeological resources.	Significant.	Not cumulatively considerable with implementation of mitigation measures Cul-1A through Cul-1C.
Historic Resources: Regional loss of historical resources.	Significant.	Not cumulatively considerable with implementation of mitigation measures Cul-2A through Cul-2D.
Human Remains: Regional disturbance of human remains.	Significant.	Not cumulatively considerable with implementation of mitigation measure Cul-3A.
Paleontological Resources: Regional loss of paleontological resources.	Less than significant.	N/A

4.4.4.1 ARCHAEOLOGICAL RESOURCES

The geographic context for the analysis of cumulative impacts for archaeological resources encompasses the Orange County Region. Evidence of human occupation in Orange County dates from 17,000 B.C. Over 1,600 archeological sites are registered in Orange County. They contain artifacts and features of value in reconstructing cultural patterns of prehistoric life. Because prehistoric human occupation was most prevalent in areas where food, water, and shelter were available, subsurface resources are abundant in south Orange County, along the coast, and in creek areas. Development of Newport Beach and Irvine under each city's General Plan would include excavation and grading that would potentially impact archaeological resources. Therefore, future development in these cities, and throughout Orange County, would have the potential to impact archaeological resources, which could lead to a significant cumulative impact.

Varieties of lithic scatters have been found throughout the campus. Some have been destroyed or extensively damaged due to construction activities and many of these resources have been lost due to illegal collecting, which further reduces the availability of these resources in the area. However, some resources have remained somewhat intact. The campus is built-out with the exception of a few undeveloped areas located on the South and North Campuses. Archeological resources that were once present in the area have been destroyed, damaged, or lost; however, the potential for intact artifacts exists. Therefore, future development under the 2007 LRDP may uncover and impact unrecorded resources, which could have a cumulatively considerable contribution to the cumulative impact of archeological resources. However, with the implementation of measures Cul-1A through Cul-1C, the project's contribution would be fully mitigated and would be reduced to a level that is not cumulatively considerable.

4.4.4.2 HISTORICAL RESOURCES

The geographic context for the analysis of cumulative impacts for historic cultural resources encompasses the Orange County region. Orange County is host to many buildings and districts listed on the NRHP and the CRHR. Future development under Irvine and Newport Beach's General Plans could include the demolition, destruction, or alteration of historic resources. Though these resources are listed on federal or State lists, the listing itself often grants little or no inherent protection. Further, while development in both Irvine and Newport Beach would be required to adhere to requirements under CEQA, mitigation measures may be found infeasible. Therefore, future development in these cities and in Orange County would have the potential to impact historic resources, which could lead to a significant cumulative impact.

Historic resources found on the UCI campus are the UCI Ranch Buildings and the renovated barn. These buildings represent the rich history of Irvine and the Irvine Ranch. The Irvine Ranch was once considered one of the largest ranches in southern California. As previously mentioned in the existing conditions, the Ranch Buildings are eligible for inclusion on the NRHP and are considered to be a significant historic resource. Further, 101 buildings will be over 50 years old by 2026, the horizon year for the 2007 LRDP and this EIR. The historic significance of these buildings is unknown. Significant impacts to these resources as a result of implementation of the 2007 LRDP would result in a cumulatively considerable contribution to the loss of historic resources in the region and local area. However, with implementation of mitigation measures that would determine historical significance (Cul-2A and Cul-2B) and preserve, restore, and/or fully document significant historic structures (Cul-2D) the project's contribution to the significant cumulative impact would not be cumulatively considerable.

4.4.4.3 HUMAN REMAINS

The geographic context for the analysis of cumulative impacts to human remains encompasses the Orange County Region. Evidence of human occupation in Orange County dates from 17,000 B.C. Because prehistoric human occupation was most prevalent in areas where food, water, and shelter were available, subsurface resources are abundant in south Orange County, along the coast, and in creek areas. Development of Newport Beach and Irvine under each city's General Plan would include excavation and grading that would potentially unearth human remains. Therefore, future development in these cities, and throughout Orange County, would have the potential to disturb human remains, which would lead to a significant cumulative impact.

The campus is built-out with the exception of a few undeveloped areas located on the South and North Campuses. There is no past evidence of human remains found on the UCI campus; however, the potential for unearthing human remains exists. Therefore, future development under the 2007 LRDP may uncover and impact unrecorded human remains, which would have a cumulatively considerable contribution to the impact of archeological resources. However, with the implementation of measure Cul-3A, the project's contribution would not be cumulatively considerable.

4.4.4.4 PALEONTOLOGICAL RESOURCES

The geographic context for the analysis of cumulative impacts to paleontological resources encompasses the Orange County Region. As previously described, the geologic units that occur under the UCI campus are also present in many other areas of the Orange County region. Development of the Orange County region has resulted in disturbance to these geologic units and the fossils that they contain. However, development has also led to the discovery of many fossil sites that have been documented and which have added to the natural history record for the region. Development of the Orange County area will continue

and will have the potential to continue to disturb these geologic units; however, monitoring for paleontological resources is now typically required for projects that require significant earthwork in geologic units with higher paleontological sensitivities, such as the UCI campus. Therefore, because paleontological monitoring is required throughout Orange County and the monitoring enables the discovery, recording, and archiving of additional resources, the cumulative impact to paleontological resources is less than significant.

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