4.5 CULTURAL RESOURCES

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INTRODUCTION

This section of the EIR describes prehistoric and historic cultural resources known to be located on the UCP area. Prehistoric resources are those sites and artifacts associated with the indigenous, non-Euroamerican population, generally prior to contact with people of European descent. Historical resources include structures, features, artifacts, and sites that date from Euroamerican settlement of the region. The extent to which development of the proposed UCP could remove, damage, or destroy existing historic or prehistoric resources is evaluated.

In response to the Notice of Preparation (See Appendix A), the following concerns and recommendations regarding cultural resources were raised: assess the possible presence of any potential impact to paleontologic resources; assess importance of unplowed soil resources in eastern Merced County; conduct appropriate research to assess any project-related impacts on archaeological impacts; impacts on cultural resources. These issues are addressed in this section of the EIR.

ENVIRONMENTAL SETTING

Paleoenvironment

Most of the western United States was subjected to a series of climatic fluctuations over the past several millennia, including the central interior valley of California. Generally warm/dry episodes were followed by intermittent cool/moist periods. The Holocene or Recent epoch comprised six cool periods followed by five warm periods. The Altithermal Period, ending about 2,900 years ago, was a warm/dry episode that apparently had wide-ranging implications throughout the west, leading to changes in animal migrations and plant productivity and distribution. A cooler period followed for the next 1,400 years, with yet another warm/dry climate beginning about 600 years ago, which remains to the present day.

Paleontological resources are the mineralized (fossilized) remains of prehistoric plant and animal organisms, as well as the mineralized impressions (trace fossils) left as indirect evidence of the form and activity of such organisms.

The San Joaquin Valley region has been subjected to the combined influences of sporadic subsidence of the valley floor, uplift in the area of the Sierra Nevada Range and worldwide sea level changes. It has provided a record of geologic and biologic history spanning more than 120 million years, starting in the late Cretaceous period. Sediments and fossils of marine and terrestrial organisms have accumulated to produce a significant but incomplete record of past life and geography. This complex record has been intermittently investigated beginning in the 1860s.

Surficial sedimentary units of predominately Cenozoic age underlie all of the UCP area. These sediments include the andesitic mudflow and intervolcanic channel sands of gravels of the Mehrten Formation (*Tm*), the alluvial fan-derived sediments from the North Merced Gravels (*QTnm*), the Riverbank Formation (*Qrb*), and the underlying Laguna Formation (*Ql*). Lithologies include locally derived, coarse pebble to cobble-size gravels, with interbedded sands, silts, and clays; all of which are potentially favorable to the preservation of paleontological resources.

Available structural and stratigraphic evidence suggests significant westward tilting of the central Sierra Nevada could have occurred during Pliocene times. The Laguna Formation includes at least two major episodes of alluviation, separated by an extensive period of soil formation, and may record the earliest glaciation of the Sierra Nevada. The net result of these periods of late Tertiary Sierran tilting was a shift in drainage direction from southwesterly to westerly. The Late Tertiary uplift in the southern Sierra Nevada could have considerably exceeded that in the north.

During latest Pliocene or earliest Pleistocene time, the Sierra Foothill pediment was beveled across Tertiary and older rocks along the entire western margin of the Sierra Nevada. Beginning in early Turlock Lake time, at least seven periods of glacial outwash deposits may have been superimposed on a progressively subsiding San Joaquin Valley. Extensive periods of stability and soil formation occurred, followed by subsequent incision and dissection.

Basin subsidence could have continued through Quaternary time. This could explain the converging geomorphic surfaces and westward shifts in fan position. Some of the mapped lineaments in the southeastern San Joaquin Valley, especially the northwest-trending sets, could be tensional features associated with a hinge line along the boundary between the Sierra Nevada and the actively subsiding Sacramento and San Joaquin Valleys.

The majority of the UCP area and vicinity includes the Mehrten Formation, the North Merced Gravels, and the Riverbank Formation, which are all late Tertiary and Quaternary age sedimentary rock formations. These formations range in facies type from indurated volcanic mudflow to conglomerate, unconsolidated siltstone, and clay; all of which are potentially fossiliferous. However, abundance and diversity of fossils can potentially vary widely from place to place, with paleontological resource sensitivity likewise varying according to geologic rock unit. This report emphasizes fossils of vertebrates, invertebrates and plants because of their relative rarity in respect to these geological periods in the Sierra Nevada region and the potential scientific importance of the individual specimens within the project area.

Marine and terrestrial vertebrate, invertebrate and paleobotanical fossils have been discovered in the region. Alluvial fan-derived sediments provide potentially favorable conditions for preserving fossils of both animals and plants.

The majority of the UCP area is overlain by vegetation. Tertiary and Quaternary age sediments are obscured in most areas by soil or vegetation cover. Visual detection of fossils is possible only in those areas where erosion has removed the grassland vegetation cover.

Prehistory

The chronological sequence for central California and the Lower Sacramento Valley begins with the Windmiller Pattern. Sites from this period date from about 4,500 to 3,500 years before present (B.P.). Although earlier sites no doubt exist, sites from the Paleo-Indian Period, dating from about 12,000 to 8,000 B.P., and sites from an unnamed phase dating from about 8,000 to 4,500 B.P., are thought to be buried under Holocene alluvial deposits and are not well documented in this part of California. Various scholars have suggested Windmiller sites are associated with an influx of peoples from outside of California who brought with them an adaptation to river-wetland environments.

Windmiller sites are often situated in riverine, marshland, and valley floor setting on small knolls above seasonal floodplains. Most Windmiller sites possess burials in what are thought to be cemeteries. Typically, the human remains are found in an extended position and oriented towards the west. The burials frequently contain numerous mortuary artifacts, which often include large projectile points (spear or dart points), a variety of fishing paraphernalia such as net weights, bone hooks, and spear points, and the vertebrate faunal remains of large and small mammals. Seed-grinding implements, such as mortars and pestles, often included in burials, point to the importance of the gathering and processing of seed resources. Other artifacts, such as charmstones, quartz crystals, *Olivella* and *Haliotis* shell beads, found in association with burials suggest trade routes and various degrees of ceremonialism.

The subsequent Berkeley Pattern (previously part of the Middle Horizon) covers a period from about 3,500 to 1,500 B.P. in the San Francisco Bay region. This pattern overlaps somewhat with Windmiller attributes at the beginning and with Late Prehistoric artifacts at the end. Berkeley Pattern sites are much more common and well documented; therefore, they are better understood than the Windmiller sites. The sites are distributed in more diverse environmental setting, although a riverine focus is common.

Deeply stratified midden deposits (resulting from generations of occupation) are common to Berkeley Pattern sites, as are an abundance of milling and grinding stones for processing vegetal resources. Projectile points are progressively smaller and lighter over time, culminating in the introduction of the bow-and-arrow during the late prehistoric period. As mentioned above, although there are shared traits with Windmiller manifestations, artifacts unique to Berkeley Pattern sites include slate pendants, steatite beads, ear ornaments, and burial techniques using variable directional orientation, flexed body positioning, and a general reduction of mortuary goods.

The late prehistoric period (formerly the Late Horizon) ranges from about 950 to 150 B.P. This period, characterized as the Augustine Pattern, is typified by intensive fishing, hunting and gathering (particularly acorns), a large population increase, increased trade and exchange networks, increases in ceremonial and social attributes, and the practice of cremation (in addition to flexed burial). Certain artifact types also typify the pattern: bone awls for use in basketry manufacture, small notched and serrated projectile points indicative of bow-and-arrow use, some pottery, clay effigies, bone whistles, and stone pipes. The Augustine Pattern and the late prehistoric period can be characterized as the apex of Native American cultural development in this part of California. Further analysis of the various cultural interrelationships can be found in Hughes (1994), Fredrickson (1993), and Elsasser (1986).

Ethnography

Archaeological sites in the northern San Joaquin Valley indicate that it has been occupied, at least intermittently, for the past 5,000 years or longer. The ethnographic inhabitants of the area were the Yokut Indian group who are known to have established semipermanent villages in the UCP vicinity. Unique among Native Californians, the Yokuts are divided into true tribes, each with a name, a dialect, and a geographical territory. Yokuts people spoke more than 30 dialects of Yokuts language, part of the Penutian linguistic stock. Considering the geographical expanse of their territory, the Yokuts dialects were quite homogeneous and members of distant tribes could converse and understand each other. This linguistic capacity was unparalleled for any similar distance in California.

The approximately 50 tribes of Yokuts, each with 300 to 400 persons, lived in the 250-mile long San Joaquin Valley as far north as where the San Joaquin River empties into the Sacramento and as far south as the foot of the Tehachapi Mountains. The exact boundaries of the Yokuts are still a matter of controversy, especially between the Plains division and the adjacent Miwoks. The Yokuts have been separated into three cultural-geographical divisions: Northern Valley, Southern Valley, and Foothills. Each of the Yokuts tribes was an autonomous unit, none being subordinate to any other tribe. Cook (1955) estimates the number of Valley Yokuts (Northern and Southern) in the 18th century as approximately 41,000 persons, which makes them the largest pre-contact ethnic group in California. The Northern Valley Yokuts territory spanned the area from the junction of Bear Creek and the San Joaquin River to the north, south nearly to Fresno, the Diablo Range to the west and the western foothills of the Sierra Nevada to the east. The San Joaquin River, along with its primary tributaries, the Fresno, Chowchilla, Merced, Tuolumne, Stanislaus, and Calaveras, formed the core of the Northern Yokuts homeland.

Although each tribal group had one or more permanent villages, their territory contained numerous smaller campsites used during seasonal rounds of resource exploitation. Because tule grew profusely in their territory along the small creeks, streams and rivers, many extended families lived in lodges of woven tule. Often they built their villages in street-like order. Ceremonial semi-subterranean men's houses (called "sweathouses" by the Spanish) were built at the larger village sites also using grass and earth cover. Given an abundant and continuous subsistence base, ceremony in Yokut life was fairly extensive, and scholars have written much about it based on early ethnographic accounts.

Rituals associated with death were of great importance. Two forms of interment were practiced and mortuary goods were often placed into the grave at the time of burial. Cremation was also occasionally practiced, especially for those who died away from home so that the ashes might be transported for burial. Personal possessions were sometimes burned and the house of death was customarily abandoned. The ashes and unburned bones were gathered and placed in water, or else buried in a basket in the local cemetery.

The UCP vicinity would have provided an excellent location for seasonal resource procurement camps. Tule or balsa canoes were used to navigate rivers and lakes and for hunting and gathering forays into the Delta. Scholars have suggested the early California environment offered a large assortment of resources for use by native people, although acorns, fish, and game mammals formed the staples of their diet. Plant

foods in great variety were gathered as they came into season. Researchers have stressed that acorns were of the utmost importance, as they could be stored in great quantities.

History

Ethnohistory

The Yokuts living in the northern San Joaquin Valley rapidly disappeared as a result of contact with European explorers and settlers. Diseases, declining birth rates, and the effects of the mission system served to largely eradicate the aboriginal lifeways. The first Europeans to explore the area were the Spanish looking for inland mission sites. The Spanish named the low-lying portion of the San Joaquin Valley "Los Tulares," hence the appellation "Tulareños" by which the Yokuts were known. In 1829, Mexican forces quelled conflicts between the missionaries and native populations. These troops controlled the area until the Mexican-American War ended in 1848 and Mexico ceded California to the United States. By the mid 1800s the Yokut population was nearly extinct due to diseases and pressures brought by the influx of missionaries and miners since the beginning of the 19th century.

Regional History

Spanish Period (1806-1822) and Mexican Periods (1822-1848)

The first Spanish expedition to enter the San Joaquin Valley did so in 1806 under the leadership of Gabriel Moraga. Searching for Indians who had stolen horses from Mission San Juan Bautista as well as new mission sites,

> Moraga, accompanied by Father Pedro Munoz (and) a twenty-five soldier escort...left San Juan Bautista on September 30, 1806. After crossing the San Joaquin near the present boundary between Merced and Fresno counties, they named a slough Mariposas. The explorers (also) named the Merced River and decided it had the most desirable mission site. In 1808, Moraga made another visit to the San Joaquin Valley to look for suitable mission sites. Leaving San Jose on September 25, the party crossed the San Joaquin and went as far south as the Merced River, which they explored to its source.

After Mexico gained its independence from Spain in 1822, two additional expedition forces entered the area; however, the purpose of these campaigns was no longer exploratory,

> …[I]nstead, soldiers were sent into the interior to recover stolen animals and punish hostile Indians, in order to reduce the (coastal) attacks upon towns, missions, and ranchos.
>
> On December 27, 1825, Jose Dolores Pico led a force from Monterey via Mission San Juan Bautista...into the San Joaquin Valley (in order) to return runaway neophytes. The party ascended the rain-swollen San Joaquin River into the mountains, looking for a place to ford. After ferrying the horses across the stream on rafts, Pico led the expedition southward along the Sierra Nevada to the King River, which they followed westward into the Great Central Valley. The expedition was "successful" in that a number of hostile Indians were killed, many tribes were intimidated, a number of neophytes were returned, and some horses were reclaimed.

> In 1828, Sebastian Rodriguez led (an) expedition into the interior mainly searching for stolen horses, which had become an important diet item of the Indians. On April 20, he left San Juan Bautista and entered the valley by way of Little Panoche, reaching the San Joaquin south of modern Dos Palos. Ascending the San Joaquin some distance, the party recaptured many neophytes...and found large numbers of stolen horses before returning to San Juan Bautista on May 6.

Americans also began transecting the region during the Mexican period. In both 1827 and 1828, Jedediah Smith entered the San Joaquin Valley via Tejon Pass and trapped beaver along the San Joaquin, Kings and numerous other rivers and streams that flowed down from the Sierra. Smith was followed by fellow trappers such as Peter Ogden, Ewing Young, Kit Carson and Joseph Walker as well as John Fremont, who crossed the San Joaquin River on his way south through the Central Valley in 1844.

During the same period, Mexican ranchers began to settle in the San Joaquin Valley. Throughout the Spanish era the land of Alta California remained under sovereign domain; however, under Mexican rule the government systematically began granting large parcels of land to individuals who, to a great extent, engaged in the cattle and tallow trade.

Although grazing livestock from the ranchos, as well as the paths of the early-nineteenth century Spanish expeditions and, later, American fur trappers and explorers, may have traversed the boundaries of the UCP area, except for the unconfirmed structures on Rancho Rio del San Joaquin, no potential historical archaeological remains or features associated with the Spanish or Mexican periods are known to exist within or immediately adjacent to any of the UCP area.

American Period (1848-present)

On January 24, 1848, John Marshall discovered gold in the Sierra foothills; ten days later, on February 2, 1848, the Mexicans and Americans signed the Treaty of Guadalupe-Hidalgo and California became part of the United States. Over the next two years, gold-seekers poured into California from across the nation and around the world. By the early 1850s, trading posts, mining camps, and small settlements had been established along the sloughs and rivers as well as at ferry crossings throughout the southern Sierra foothills and San Joaquin Valley.

As a result of California's increasing population, in February 1850 the territorial legislature passed an act that would divide the province into 27 counties. Mariposa County, which was the largest, contained 30,000-square miles and enveloped one-fifth of the State. This county alone consisted of land that would eventually become part of ten other counties including Merced.

On April 19, 1855, Merced County was carved from the northwest section of Mariposa County and the seat of government established along Mariposa Creek at the Turner and Osborn Ranch. In 1857 the County seat was relocated to Snelling's Ranch, approximately nine miles north of present-day Lake Yosemite.

By the early 1870s, the population and importance of the small settlements began to fade as the Central Pacific progressed down the San Joaquin Valley, creating the railroad town of Merced between February and April of 1872. People realized that these new communities, with their connection to the railroad,

would grow to be commercial centers in the San Joaquin Valley. As a result, in December 1872, Merced County voters chose to relocate the seat of government from Snelling to the town of Merced.

Not only did the Central Pacific Railroad establish towns and provide transportation throughout the Valley, along with several other factors it also promoted a change in land use from ranching to farming. During the first two decades of the American period, following the excitement of the Gold Rush and the influx of thousands of argonauts, the price of cattle increased from four dollars to as much as forty dollars a head. As a result, ranching and the raising of livestock became central to the San Joaquin Valley economy and most new arrivals who made their fortunes in California did so not in the gold fields but in the cattle business. By the early 1870s, however, the livestock industry began to wane.

In addition to the railroad providing a more efficient and reliable method of shipping freight and farm products, as well as transporting passengers, the development of more productive agricultural machinery such as combines and threshers allowed farmers to produce larger harvests. Further, by 1874, the United States Geological Survey was partitioning the nation into 640-acre sections, thus, opening the public domain for private ownership. That same year a fence law was adopted, which forced ranchers to enclose their rangelands and keep their cattle and sheep from roaming across farmland. The fact that the machine that produced barbed wire was invented at this time greatly reduced the price of fencing and, thus, allowed ranchers and farmers to exist side-by-side. As a result, open-range cattle ranches began to decline and the cultivation of wheat and other agricultural crops increased.

Although early agriculture in Merced County focused on “dry-farming” methods, during the 1860s many local ranchers and farmers began to develop small-scale irrigation projects. The Robla Canal Company and the Farmer’s Canal Company (which eventually absorbed the Robla Canal Company) expanded the extent of irrigation in the area. These irrigation networks relied heavily on existing natural waterways that were modified (i.e., channeled) for the purpose of irrigation. In the early 1870s, “dry-farmed” wheat continued as the dominant agricultural crop. However, as the newly-arrived railroad provided a more efficient means of transport to various marketplaces, farming began to diversify. In 1872, with the establishment of a new railroad stop, Merced became the county seat. Many businesses moved there from the former county seat at Bear Creek. The City of Merced was incorporated in 1889. By the early 1880s, Charles H. Huffman, a prominent businessman and landowner instrumental in the formation of the town of Merced, controlled the irrigation system through the Merced Canal and Irrigation Company. This company expanded existing irrigation systems, and formed agricultural settlements known as “colonies.” These “colonies” served as ready-made irrigated farmsteads, and enticed new settlement and increased real estate values throughout the area. In fact, the water development often was undertaken specifically for the purpose of increasing land values and encouraging settlement. Water developers typically bought up the lands to be served, in advance of their water development, in order to profit from the land boom which would follow.

In 1888, the Merced Canal and Irrigation Company was reorganized and refinanced to form the Crocker-Huffman Land and Water Company. With the financial backing of wealthy landowner Charles Crocker, this new entity organized the First National Bank, which financed numerous development projects in the county including a large creamery, the dam and canal that created Lake Yosemite, and the Fairfield and Le Grand canals leading out of the lake. By the 1890s, the Crocker-Huffman Company had organized sixteen colonies comprising approximately 30,000 acres, with roughly 6,000 acres cultivated. A wide

variety of crops was grown in the colonies, including fruits, nuts, and alfalfa, an important feed crop for dairy cattle in Merced and surrounding areas.

In 1919, Merced County voters approved the creation of the Merced Irrigation District, a publicly owned entity that purchased the Crocker-Huffman system in 1922. Voters soon passed a bond issue funding improvements and expansion of the existing irrigation system, an effort that has continued into the present day. Naturally, the extensive irrigation system served as a catalyst for the expansion of agriculture in general, specifically fostering the production of a variety of crops. In support, the railroad further increased the efficiency of transporting agricultural products from Merced to other California locales.

By the beginning of the 20th century, irrigated agriculture had far surpassed "dry-farming" as the most profitable method of agriculture and allowed smaller farms to produce a variety of high-yielding cash crops. In the early 1990s, the dairy industry became a substantial contributor to the county's economy. Portuguese immigrants emerged as leaders in this industry. Italian immigrants excelled in the production of tomatoes, and by the 1950s, processing of such agricultural products (e.g., packing, freezing) had become a larger part of the Merced economy.

The irrigation system in the county continued to be improved, especially after World War II, when the wholesale replacement of wooden irrigation features with concrete began. The extensive irrigation system served crops such as cotton, figs, sweet potatoes, tomatoes, and onions, all of which emerged as leading crops and continue to be produced in Merced County today.

UCP Area

Existing Uses

The proposed UCP area is currently owned by three landowners: Virginia Smith Trust (VST), Flying "M" Ranch, and Hunt Farms. The VST owns the property generally north of the extension of Bellevue Road in the vicinity of the UCP. The portion of the UCP under VST ownership is an approximately 50-acre portion of the 240-acre Merced Hills Golf Course.

South of the extension of Bellevue Road is the Flying "M" Ranch, which consists of irrigated pasture, currently being leased for cattle grazing. The Flying "M" Ranch portion of the UCP is generally bounded on the east by portions of the Fairfield and Le Grand canals. Various dirt roads traverse the pasturelands and provide access to small structures on the site and water troughs for the cattle. There are also two large circular pivots of irrigated pasture on the ranch that have formed as a result of the mobile irrigation system that irrigates the land in a circular pattern. There are numerous barbed wire fences that divide the Flying "M" Ranch portion of the UCP Area into different grazing pastures.

The southern half of the UCP area, from Cardella Road to Yosemite Avenue, is owned by Hunt Farms, and is cultivated for crops including tomatoes and corn rotated with wheat and oats. Also on the Hunt Farms site are a farmhouse, stables, and barn, located near the western boundary of the site, accessible from Lake Road.

MID Canals

The Merced Irrigation District (MID) canals flow from the northern to the southeastern portion of the UCP site. These open canals provide irrigation water to local farmers for their crops.

The Le Grand Canal is one of the two major canals within the Merced Irrigation District system of irrigation canals that draws its water from Lake Yosemite. The MID built the Le Grand Canal sometime between 1922 and 1927. Flowing in a generally southeasterly direction through the eastern portion of Merced County, the Le Grand Canal serves the communities of Planada and Le Grand. Only a small fraction of the canal – approximately 3.5 miles in length – passes through the UCP survey area.

The Crocker-Huffman Land & Water Company constructed the Fairfield Canal between 1903 and 1909. At some point in the mid- to late-1920s, following its acquisition by MID, the function, alignment, and geometry of this canal was fundamentally realigned. As originally designed, the canal emptied water into Bear Creek, where it was captured by dams downstream for use in land west of Merced. In the 1920s, Fairfield Canal was realigned to pass under Bear Creek in a siphon and to supply water to canals south and east of Merced.

The histories of agriculture and water development are closely intertwined in Merced County and throughout California. The transition of the county's agriculture from dry farming and stock raising to dairy farming and row crops was made possible through entrepreneurial water development, first by private firms and later by public agencies.

REGULATORY CONTEXT

Federal, State and local governments have developed laws and regulations designed to protect significant cultural resources that may be affected by actions that they undertake or regulate. The National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA) are the basic federal and state laws governing preservation of historic and archaeological resources of national, regional, State and local significance.

Federal Regulations

Federal regulations for cultural resources are governed primarily by Section 106 of the NHPA of 1966. Section 106 of NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Council's implementing regulations, "Protection of Historic Properties," are found in 36 Code of Federal Regulations (CFR) Part 800. The goal of the Section 106 review process is to offer a measure of protection to sites which are determined eligible for listing on the National Register of Historic Places. The criteria for determining National Register eligibility are found in 36 CFR Part 60. Amendments to the Act (1986 and 1992) and subsequent revisions to the implementing regulations have, among other things, strengthened the provisions for Native American consultation and participation in the Section 106 review process.

The National Register of Historic Places criteria (contained in 36 CFR 60.4) are used to evaluate resources when complying with NHPA Section 106. Those criteria state that eligible resources comprise:

> …[D]istricts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that (a) are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or (d) that have yielded or may be likely to yield, information important to history or prehistory.

Archaeological site evaluation assesses the potential of each site to meet one or more of the criteria for "importance" (CEQA) or NRHP eligibility based upon visual surface and subsurface evidence (if available) at each site location, information gathered during the literature and record searches, and the researcher's knowledge of and familiarity with the historic or prehistoric context associated with each site.

The National Register of Historic Places was established to recognize resources associated with the country's history and heritage. Guidelines for nomination are based on significance in American history, architecture, archaeology, engineering, and culture is present in resources that possess integrity of location, design, setting, materials, workmanship, feeling, and association (National Register of Historic Places).

Archeological site evaluation assesses the potential of each site to meet one or more of the criteria for "importance" (CEQA) or NRHP eligibility based upon visual surface and subsurface evidence (if available) at each site location, information gathered during the literature and record searches, and the researcher's knowledge of and familiarity with the historic or prehistoric context associated with each site.

To be eligible for California State Landmark registration, a cultural resource must have significance as the first and only, or most significant of a type in a region, be associated with an individual who has a profound influence on the history of California, or have architectural significance. The structure must also be visible and accessible to the public, and must be maintained by the owner in its historic style (California State Landmarks Board). The criteria for governing California State Points of Historical Interest are generally the same as those which govern State Landmarks, but are oriented to local, city, or county areas. Points of Interest should be significant to the County or local area's social, cultural, economical, political, religious, or military history (California State Landmarks Board).

Another federal regulation, the American Indian Religious Freedom Act, Title 42 United States Code, Section 1996, protects Native American religious practices, ethnic heritage sites, and land uses.

State Regulations

State historic preservation regulations affecting this project include the statutes and guidelines contained in the California Environmental Quality Act (CEQA; Public Resources Code Sections 21083.2 and

21084.1 and Section 15064.5 of the CEQA guidelines). CEQA requires lead agencies to carefully consider the potential effects of a project on historical resources. An "historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant (Public Resources Code Section 5020.1). Section 15064.5 of the CEQA Guidelines specifies criteria for evaluating the importance of cultural resources, including:

- The resource is associated with events that have made a contribution to the broad patterns of California history;
- The resource is associated with the lives of important persons from our past;
- The resource embodies the distinctive characteristics of a type, period, region or method construction, or represents the work of an important individual or possesses high artistic values; or
- The resource has yielded, or may be likely to yield, important information in prehistory or history.

Advice on procedures to identify such resources, evaluate their importance and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

California Historic Register

The State Historic Preservation Office (SHPO) also maintains the California State Register of Historic Resources (CRHR). Properties that are listed on the National Register of Historic Properties (NRHP) are automatically listed on the CRHR, along with State Landmarks and Points of Interest. The CRHR can

also include properties designated under local ordinances or identified through local historical resource surveys.

Local Regulations

Merced County General Plan

The purpose of the Open Space/Conservation Chapter of the Merced County General Plan is to ensure that historical resources are properly managed.

Goal 2: Soil, water, mineral, energy, historical, and air resources are properly managed.

Objective 2.E.: Significant archaeological and cultural resources are recognized and managed.

Policies:

21. Projects which affect archaeological sites and artifacts should be carefully managed to avoid damage;
22. The original architectural character of significant historic structures should be maintained whenever possible;
23. To discourage looting and vandalism, significant historical and archaeological resources should be subject to limited or controlled public access.

PLAN ELEMENTS

The UCP contains the following policies for the protection of cultural resources.

C 1.1: Require that an intensive archaeological survey of the University Community planning area be conducted concurrent with the preparation of sub-area Specific Plans in accordance with CEQA Section 15064.5.

C 1.2: Require that, prior to ground disturbance, developers shall notify contractors that they are required to watch for potential archaeological sites and artifacts and to notify the County of Merced immediately upon any find. Evidence of potential archaeological sites and artifacts includes, but is not limited to, aboriginal or historic skeletal remains, chipped stone, groundstone, shell and bone artifacts, concentrations of fire cracked rock, shell, bone and historic features such as privies, trash pits or concentrations, and building foundations.

C 1.3: Require that, should a previously unidentified cultural resource be discovered during grading, trenching, or other on-site earthwork, construction activity be stopped within 100 feet of the identified materials until a professional archaeologist certified by the Registry of Professional Archaeologists RDA), and the County of Merced evaluates the significance of the find and suggest appropriate mitigation(s), as determined necessary.

C 2.1: Require that, prior to construction, construction personnel shall be informed of the potential for encountering significant paleontological resources. All construction personnel shall be informed of the need to stop work in the vicinity of a potential discovery until a qualified paleontologist has

been provide the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find. Construction personnel shall also be informed of the requirement that unauthorized collection of fossil resources is prohibited.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

A record search was completed of the UCP area March 26, 2001 (File #4138I) by the California Historical Resources Information System Central California Information Center (CCIC) staff at Turlock, California. CCIC files were searched for information on previous archaeological surveys and recorded sites for the UCP area and within a 1/4-mile radius of the UCP area to identify and evaluate the potential for the presence of cultural resources. Search of their files included a review of the *National Register of Historic Places*, the *California Register of Historical Resources*, the *California Inventory of Historic Resources* (1976), the *California Historical Landmarks* (1990), the *California Points of Historical Interest* listing (May 1992 and updates), the *Historic Property Directory* (Office of Historic Preservation current computer list, the *Survey of Surveys* (1989), GLO Plats, and other pertinent historic data available at the CCIC for each specific county.

In addition to the sources mentioned above, information was gathered from late early 20th century U.S. Geological Survey topographic maps of the area. These resources provided limited historic information on the location of possible structures, foundation remains, or other historic resources within the project area. No structures are shown to be located on the portion of the GLO Plat T6S/R14E 1853-1907 (CCIC File # 44- 407 and 44-477).

Previous Surveys

A small section in the northern portion of the UCP area was previously surveyed for the presence of archaeological resources. No sites or cultural resources were recorded within the immediate UCP area. One previous survey was conducted adjacent to the WSA survey area with negative results. No prehistoric resources, or other historic resources (including evaluated historic properties) have been reported within the UCP area.

Recent Surveys

A focused cultural resource survey was conducted by William Self Associates on May 8, 2001. The focus of this survey encompassed a 50-foot wide transect along sections of the Fairfield and Le Grand Canals beginning at the intersection of the Fairfield Canal and Yosemite Avenue and running north to the Merced Hills Golf Course and then south along the Le Grand Canal for a total of approximately four miles. No archaeological or prehistoric cultural resources were observed within the area surveyed.

Information was also gathered from late and early 20th century U.S. Geological Survey topographic maps of the area. These resources provided limited historic information on the location of possible structures, foundation remains, or other historic resources within the UCP area. No structures are shown to be located on the portion of the GLO Plat T6S/R14E 1853-1907.

Native American Consultation

The Native American Heritage Commission (NAHC) in Sacramento was contacted by letter with a description of the proposed project and a request for a listing of local, interested Native American Representatives, and information on traditional or sacred lands within the UCP area and vicinity. No individual or tribal members have been notified at this time. Debbie Pilas-Treadway from the NAHC responded to the request on March 30, 2001, noting "a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate UCP area."

Both of the canals, which are owned and operated by the Merced Irrigation District, pass through the Area of Potential Effect (APE) for the proposed UCP. JRP Historical Consulting Services (JRP) inventoried and evaluated both canals. The report concluded that neither of the canals appears to meet the criteria for listing in the National Register or State Register because they are not significant historically or for their engineering, and because they lack integrity to their periods of significance.

Additional Baseline Assumptions

The above setting information constitutes a portion of the baseline condition for the UCP. However, as discussed in Section 4.0, Introduction to the Analysis, the UCP will be adopted only after adoption of the UC Merced Long Range Development Plan. Therefore, concurrent development of the UC Merced campus and the University Community is assumed and the UC Merced campus is assumed in the baseline conditions. The existing conditions on the UC Merced campus site and anticipated conditions at buildout of the UC Merced campus are discussed below.

Although no resources were documented, earth-moving construction activities during campus development could result in the disturbance and/or destruction of previously unidentified archeological, historic, and/or paleontological resources. Please refer the UC Merced LRDP EIR for a complete description of setting and LRDP elements related to cultural resources.

Standards of Significance

The following standards of significance are based on Appendix G of the State CEQA Guidelines.

For the purposes of this EIR, an impact would be considered significant if the proposed UCP would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

- Disturb any human remains, including those interred outside of formal cemeteries.

Project-Specific Impacts and Mitigation Measures

4.5-1 Development under the UCP could disturb or destroy paleontological resources that could be present in the UCP area.

Applicable Regulations: CEQA Guidelines 15064.5

Significance: Significant

Mitigation Included in the UCP: C 1.3 and 2.1

Significance After Mitigation Included in the UCP: Less than Significant

Additional Mitigation: None required

Residual Significance: Less than Significant

Baseline Plus Buildout Scenario

There are no known paleontological resources within the project area. The closest known Pleistocene-age vertebrate locality is located approximately 3 miles from the project site. The geologic formations underlying the UCP area are judged to have either a moderate (North Merced Gravels [QTnm]), or a high potential (Merhten Formation [Tm] and Riverbank Formation [Qrb]) to contain significant paleontological resources. If present, any disturbance to or removal of the resource would constitute a significant impact.

Construction of roadways, buildings and structures, parking, other infrastructure and utilities could disturb or destroy paleontological resources if present in these formations. These direct impacts could also result in the loss of geologic context, which is used to determine the age and significance of the resource. Indirect impacts of unauthorized collecting of significant fossils could occur or be increased by drawing attention to the presence and location of paleontological sites. While the potential impacts associated with construction activities could result in damage or destruction of undiscovered fossil deposits, their detection prior to and during construction would make these resources accessible until they are again covered over by the proposed UCP. The discovery and concomitant salvage of these fossils by professionals would add to the paleontological knowledge base and would represent a beneficial impact of construction.

UCP Policy C2.1 requires that construction workers be informed of the potential for encountering paleontological resources. Policy C1.3 requires that construction work cease if any cultural resource is encountered, until the significance and appropriate treatment of the resource can be determined. These policies would reduce potential impacts on paleontological resources to a less-than-significant level.

Baseline Plus 2015 Scenario

New development in 2015 could occupy portions of the Town Center and Residential Villages 1 and 2 and has the potential to disturb and destroy existing but unknown paleontological resources. However, with implementation of the above policies, this impact would be less than significant.

4.5-2 The proposed UCP could result in damage to or destruction of unidentified prehistoric cultural resources.

Applicable Regulations: California Health and Safety Code Section 7050.5(b); CEQA 21083.3

Significance: Significant

Mitigation Included in the UCP: Policies C1.1 through 1.3

Significance After Mitigation Included in the UCP: Less than Significant

Additional Mitigation: None required

Residual Significance: Less than Significant

Baseline Plus Buildout Scenario

Impacts on cultural resources can result either directly or indirectly from pre-construction activities and construction of the project. Direct impacts are those that result from the immediate disturbance of resources, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or alteration of the setting of a resource. Indirect impacts are those that result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource materials due to improved accessibility.

Since project development and construction usually entail surface and sub-surface disturbance of the ground, development within the proposed UCP area has the potential to adversely affect cultural resources. Exposure of cultural resources during pre-construction site preparation or during construction excavation can also have a beneficial effect by making the data accessible for research. If these resources and their temporal and spatial context receive proper protection and analysis, they can add to the understanding human adaptation to the environment and their use of the land and its resources. Analysis of cultural resources also can provide a very important key to understanding population changes and human movement within and throughout a geographic region.

Based upon the findings of the recent record and literature search, impacts on significant cultural resource sites within the UCP area would not be anticipated, as none were identified. It is possible, however, that otherwise unknown resources could be discovered during construction or vegetation removal. Prehistoric resources include chert or obsidian flakes, projectile points, mortars and pestles, and dark, friable midden soil containing bone and shell. Historic resources include glass, metal, ceramics, wood, and similar debris.

Adherence to Section 7050.5(b) of the California Health and Safety code would protect any previously unidentified buried human remains. Implementation of UCP Policies C1.1 through 1.3 would ensure that readily visible archaeological resources were identified, and would put in place protective measures if subsurface artifacts were to be uncovered during construction activities. These policies would reduce the impact to a less-than-significant level.

Baseline Plus 2015 Scenario

Only a portion of the UCP area in the Town Center and Residential Villages 1 and 2 would be developed in 2015. As with buildout conditions, the potential for construction activity to disturb previously unidentified cultural resources exists. With adherence to State regulations, and implementation of, UCP Policies C1.1 through 1.3 the impact would be reduced to a less-than-significant level.

4.5-3 The UCP could result in damage to, or destruction of, historical sites and/or artifacts.

Applicable Regulations: CEQA 21084.1; Public Res. Code 5020 et seq.

Significance: Less than Significant

Mitigation Included in the UCP: None

Significance After Mitigation Included in the UCP: Less than Significant

Additional Mitigation: None required

Residual Significance: Less than Significant

Baseline Plus Buildout Scenario

The UCP area contains several old structures, including structures associated with the Flying "M" Ranch, and two canals, the Le Grand and the Fairfield canals. Although these structures are over fifty years of age, which makes them historic, none of these structures appear to meet the criteria for listing in the National Register of Historic Places or the California State Register of Historic Places. There is no local historic register.

There are two areas in which the canals might be seen as significant: under Criterion A, for its association with events important to our history; and Criterion C, as a distinguished example of a type, period, or method of construction. However, the Fairfield Canal and Le Grand Canal do not appear to meet the criteria for listing in the National or California State Register of Historic Places, primarily because they lack integrity of design, materials, workmanship, feeling, and association.

The houses and farm buildings would eventually be removed to accommodate new development. The canals would be retained, but their context would be altered from a rural, agricultural setting, to an urban

development. These changes would not be significant, however, because none of the structures are considered historically significant.

Baseline Plus 2015 Scenario

New development in 2015 could occupy portions of the Town Center and Residential Villages 1 and 2. The structures in this area are the Fairfield and Le Grand Canals. Development in the vicinity of the canals would alter their historic context. However, this is considered a less-than-significant impact, because the canals are not considered historically significant.

4.5-4 The proposed UCP would require construction of offsite infrastructure that could damage or destroy undiscovered archaeological and/or historical resources.

Applicable Regulations: California Health and Safety Code Section 7050.5(b); CEQA 21083.2 and 21084.1; Public Res. Code 5020 et seq.

Significance: Significant

Mitigation Included in the UCP: Policies C 1.1 through 1.3, and 2.1

Significance After Mitigation Included in the UCP: Significant

Additional Mitigation: Mitigation Measure 4.5-4

> *The County shall document that appropriate cultural resource surveys and measures to protect cultural resources, if present, are completed prior to construction of offsite improvements outside of the UCP area*.

Residual Significance: Less than Significant

Baseline Plus Buildout Scenario

As discussed in Chapter 2, Project Description, the proposed UCP would require construction of offsite infrastructure such as connections to roadways, and sewer and water infrastructure. The water and sewer lines would generally be placed in existing and proposed roadway alignments. It would be speculative to estimate the exact alignment of offsite water or sewer lines needed to serve the UCP area, because infrastructure plans have not been finalized. For example, groundwater wells are anticipated to be located within the UCP area, if site conditions are favorable. However, if necessary, wells could be located offsite. The drilling of wells and construction of water lines from the wells to the UCP area would require excavation. If construction of such infrastructure occurs in undeveloped areas where historic or prehistoric resources are present, they could be damaged or destroyed by excavation.

Implementation of UCP Policies would reduce impacts on undiscovered paleonotological, prehistoric and historic resources to a less-than-significant level by ensuring that appropriate surveys are conducted, and that recordation or preservation would occur before construction.

Baseline Plus 2015 Scenario

By 2015, portions of the Town Center and Residential Villages 1 and 2 would be developed. This development could require the extension of infrastructure. UCP Policies C1.1 through 1.3 and 2.1 and Mitigation Measure 4.5-4 would ensure that offsite infrastructure impacts on cultural resources would be less than significant.

Cumulative Impacts and Mitigation Measures

The cumulative context for cultural resources is Merced County.

4.5-5 Cumulative-plus-project development could damage or destroy unidentified prehistoric and historic cultural resources.

Applicable Regulations: California Health and Safety Code Section 7050.5(b); CEQA 21083.2 and 21084.1; Public Res. Code 5020 et seq.

Significance: Significant

Mitigation Included in the UCP: Policies C 1.1 through 1.3 and 2.1

Significance After Mitigation Included in the UCP: Significant

Additional Mitigation 4.5-5: Implement Mitigation Measure 4.5-4

Residual Significance: Less than Significant

Cumulative Buildout Scenario

Based upon previous cultural resource surveys and research, the Central Valley areas of California have been inhabited by prehistoric and historic peoples for thousands of years. The proposed UCP in addition to development of the UC Merced campus and other development in the Central Valley could contribute to the potential for loss of significant cultural resources.

Because all significant cultural resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resources base. The loss of any one archaeological site affects all others in a region because these other properties are best understood completely in the context of the cultural system of which they (and the destroyed resource) were a part. The boundaries of an archaeologically important site could extend beyond the property boundaries. As a result, a meaningful approach to preserving and managing cultural research must focus on the likely distribution of cultural resources, rather than project or parcel boundaries. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains.

However, proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions and cultures by recording data about any sites discovered and preserving artifacts found. Because, based on the findings of the records and literature search, there would be little likelihood of the presence of unique prehistoric or historic cultural resources on the UCP area, this would be reduced to a less-than–significant level by UCP cultural resource policies and Mitigation Measure 4.5-4.

Development of the UCP, in combination with the campus, would result in the same level of significance with or without the campus because, identical to the UCP area, the likelihood of the presence of unique prehistoric or historic cultural resources is limited.

2015 Cumulative Scenario

Although a smaller area would be developed, the potential to adversely affect cultural resources would be similar to the Cumulative Buildout scenario. UCP Policies and Mitigation Measure 4.5-4 would ensure that the UCP's contribution to the cumulative loss of cultural resources would be less than significant.

ENDNOTES

1. William Self Associates, *Archaeological Survey and Assessment of the Fairfield Canal and Le Grand Canal Located in the Western Project Area of the Merced University Community Plan (Hunt Farms and Flying M Ranch), Merced County, California*, Orinda, California, May 2001.

2. JRP Historical Consulting Services, *Historic Architectural Survey Report, University Community Plan, University of California Merced, Merced County, California*, Davis, California, July 2001.

3. JRP Historical Consulting Services, *Historic Architectural Survey Report/Historic Resource Evaluation Report, Campus Parkway Project, Merced County, California*, Davis, California, June 2001.

4. EIP Associates, *University of California, San Joaquin Site Selection Draft Environmental Impact Report*, Sacramento, California, May 1995.