

Section 7.7

7.7 Cultural and Paleontological Resources

Introduction

This section describes the existing environmental conditions and the consequences of the SDIP alternatives on cultural and paleontological resources in the south Delta and includes summaries of regional paleontology, prehistory, ethnography, and history. The primary concern related to cultural resources is potential damage or destruction to archaeological sites and buried human remains. These potential impacts are reduced to a less-than-significant level by implementing mitigation measures that are based on mitigation measures in the CALFED Programmatic ROD. The mitigation measures may include measures such as stopping work if archaeological materials or human remains are discovered during construction or dredging.

Summary of Significant Impacts

Table 7.7-S summarizes the significant impacts on cultural resources as a result of implementation of the project alternatives.

Table 7.7-S. Summary of Significant Impacts on Cultural Resources

Impact	Applicable Alternative	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance after Mitigation
Impact CR-2: Inadvertent Damage to or Destruction of Buried Archaeological Sites and Human Remains	2A-2C, 3E, 4B	Significant	CR-MM-1: Stop Work If Archaeological Materials Are Discovered during Construction or Dredging. CR-MM-2: Stop Work If Human Remains Are Discovered during Construction or Dredging	Less than significant

Affected Environment

The SDIP is located in the Sacramento-San Joaquin Delta, which is one of the areas of California that archaeologists have studied most intensively. Prior to the 1960s, archaeologists working in the Delta focused on documenting large habitation sites, which are recognizable by mounds and midden soil (Cook and Ebaesser 1956). The inception of cultural resources management in 1966 resulted in archaeological studies that documented a broader range of site types, including historic archaeological sites. Study of historic cultural resources has received somewhat less attention prior to the late 1980s, although at least one

comprehensive overview of historic cultural resources and numerous project-specific historical studies have been conducted since that time (Owens 1991).

Sources of Information

The affected environment and impact assessments presented in this section are based on:

- review of existing information,
- consultation with interested parties,
- field surveys of the SDIP area of potential effects (APE),
- archival research, and
- evaluation of identified cultural resources (Jones & Stokes 2002⁴).

Records Search

The review of existing information included records search materials provided by DWR. The records searches were conducted at the Central California Information Center (CCIC) and the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS). Each regional information center of CHRIS maintains the state's database of previous cultural resource studies and known cultural resources for the counties in its jurisdiction; the CCIC maintains the database for a seven-county area that includes San Joaquin County, whereas the NWIC maintains the database for a 16-county area that includes Contra Costa County. The records maintained by the CHRIS, including cultural resource locations and cultural resource studies containing locations of cultural resources, are not accessible to the general public but to cultural resource professionals.

In addition to the state's database of previous cultural resource studies and known cultural resources, the record searches included reviews of historic topographic maps, local historical surveys and overviews, primary and secondary historical writings, and the Caltrans' Historical Bridges Inventory.

The records search indicates that portions of the SDIP have been surveyed for archaeological resources using methods that are considered professionally sound today (Archeo-Tec 1989, 1990; Baker and Shoup 1991; Peak & Associates 1997; Shapiro 1997; Shapiro and Syda 1997a, 1997b, 1997c; True et al. 1981; U.S. Army Engineer District 1985; West 1991, 1994; West and Scott 1990; Windmiller and Osanna 2000). The proposed dredge spoil areas, however, have not been previously surveyed for the presence of cultural resources. The SDIP APE consists primarily of those areas that will be subject to ground disturbance during construction and operation activities. A survey of historic architecture and other elements of the built environment (including water conveyance features) was conducted by a qualified architectural historian.

Paleontological Research and Setting

The analysis of project impacts on paleontological resources is based on a review of existing paleontological, geological, cultural resources, and environmental review literature, as well as a records search through the University of California Museum of Paleontology (UCMP) online database (<http://bsci.berkeley.edu/ucmp/>).

A records search of the UCMP online paleontological database was conducted. The database documents reported paleontological finds around the world, including the project area. The records search was conducted by examining all entries for Contra Costa and San Joaquin counties. No paleontological finds are recorded in this database for the project area. The closest fossil find was located at the Tracy Corral Pit, southwest of the project area approximately 8 miles. The find is a vertebrate fossil of Pliocene age (10,000 - 1.6 million years old).

Literature pertinent to the geology and paleontology of the project vicinity were examined as well. The literature examined is cited in the setting information immediately below.

Paleontological Setting

Atwater (1982-Sheets 20, 21) maps the surface geology of the project area as undivided alluvium of surficial floodplains, Holocene Epoch (10,000 years before present (B.P.) or 1950-present). Although Atwater (1982-S, Sheet 21) does not indicate the depth of these Holocene deposits, the approximate age and depth of deposits are inferable from radiocarbon dates obtained from subsurface peat deposits in the vicinity of CCF. The oldest date obtained was 4540 ± 150 B.P. at a depth of 19.5 feet below ground surface or 17.1 feet below mean sea level. It is therefore reasonable to expect that Pleistocene-age fossils would not occur in the project area, as the maximum depth of channel excavation is 10 feet below the present channel bottom and structural excavation will not exceed 10 feet below the present ground surface, clearly within Holocene sedimentary deposits.

Delta sediments contain Holocene micro- and macrofossils of paleontological interest, but sediments at proposed construction sites are too badly disturbed to be useful (West 1994:35). The project area has low suitability for the presence of significant Holocene fossils (Farris and Resource Insights 1996:17-1, 17-8, 17-10, 17-13, 17-16; West 1994:34, 35).

Prehistoric Setting

Little is known of human occupation in the lower Sacramento Valley prior to 4500 B.P. (years before present, or 1950). Because of rapid alluvial and colluvial deposition in the valley over the past 10,000 years, ancient cultural deposits are deeply buried in many areas. The earliest evidence of widespread occupation of the lower Sacramento Valley/Delta region comes from several sites assigned to

Known Cultural Resources

Based on the records search, a review of historic maps, and the architectural and archaeological surveys, five cultural resources were identified in the SDIP APE. These consist of the Grant Line/Fabian and Bell Canal, the West Canal, a levee system, a farm complex located near Middle River, and a building complex.

Grant Line/Fabian and Bell Canal

The Grant Line/Fabian and Bell Canal is an earthen canal approximately 200 feet wide extending roughly 10 miles from east to west along the southern portion of the APE. Levees are located on either side of the canal. The segment of the canal to the east is a single waterway that divides into two separate parallel canals, creating an island strip in the middle as it extends westward. The canal to the south of the island strip is referred to as the Fabian and Bell Canal, and the canal to the east is the Grant Line Canal.

West Canal

Because of limited access, a formal pedestrian survey of the West Canal was not possible for the purposes of this project. However, based on characteristics observed at nearby irrigation features (i.e., the Grant Line/Fabian and Bell Canal), it is assumed that the West Canal displays design and construction materials and methods similar to the irrigation features located in the vicinity.

Levee System

A system of earthen levees, which borders canals and rivers, is located throughout the project area. The levees vary in width and height but typically measure approximately 40 feet wide and 10 to 15 feet high.

Farm Complex

The farm complex is located on the south bank of the Middle River in the vicinity of the proposed Middle River gate site. The complex contains a wood-frame single-family residence and several metal-framed barns and outbuildings.

Grant Line/Fabian and Bell Canal Buildings

A cluster of historic buildings is located on the island strip in the Grant Line/Fabian and Bell Canal. The buildings are windowless wood-frame structures with gabled roofs.

Environmental Consequences

Assessment Methods—Cultural Resources

Impact assessments for cultural resources focus on properties eligible for listing in the National Register of Historic Places (NRHP) (historic properties), the California Register of Historic Resources (CRHR), or those properties considered significant resources or unique archaeological resources under CEQA.

2. Identification of historic properties.
3. Assessment of adverse effects to historic properties.
4. Resolution of adverse effects to historic properties.

The APE for the SDIP is formally defined in the confidential cultural resources inventory and evaluation report prepared for this undertaking (Jones & Stokes 2004b). The APE is confined largely to those areas that will be subject to ground-disturbance during construction and operation of the SDIP.

State—California Environmental Quality Act

CEQA requires that public agencies (in this case, DWR) that finance or approve public or private projects assess the effects of the project on cultural resources. Cultural resources are defined as buildings, sites, structures, districts, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. CEQA requires that if a project results in significant effects on important cultural resources, alternative plans or mitigation measures must be considered; only significant cultural resources, however, need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are:

- identify cultural resources,
- evaluate the significance of resources,
- evaluate the effects of a project on all resources, and
- develop and implement measures to mitigate the effects of the project only on significant resources.

Assessment Methods and Regulatory Setting— Paleontological Resources

NEPA and CEQA provide impetus for federal and state agencies to consider the effects of proposed projects on paleontological resources. Under NEPA, federal agencies are directed to consider the "degree to which the action may... cause loss or destruction of significant scientific, cultural, or historical resources" (40 CFR 1508.27(b)(8)). Similarly, 14 CCR 15064.5(a)(2) states that a historical resource under CEQA shall include any "object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, ... areas of California." State statute regarding PPR 21000.5 stipulates that the term environment be taken to mean "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance." Paleontological resources, as a non-renewable source of information about the

Recent and distant past, are objects of potential scientific importance and are part of the mineral subset of the environment.

The Society of Vertebrate Paleontology provides guidance in defining a significant paleontological resource in its Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources - Standard Guidelines. The Standard Guidelines define significant nonrenewable paleontologic resources as "fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or botanical fossils except when present within a given vertebrate assemblage. Certain plant and invertebrate fossils or assemblages may be defined as significant by a project paleontologist, local paleontologist, specialist or special interest groups, or by Land Agencies or local governments." (Society of Vertebrate Paleontology 2004.)

Areas of Controversy

Under CEQA, areas of controversy involve factors that reflect differing opinions among technical experts. Differences of opinion among technical experts stem from differing methodological or theoretical orientations. Although differences of theoretical and methodological approach exist among paleontologists, archaeologists, historians, and cultural anthropologists, these do not appear to affect the assessment of impacts that may result from the SDDP alternatives. Therefore, no areas of controversy relate to cultural or paleontological resources for the purposes of the SDDP.

Evaluation of Identified Cultural Resources

Grant Line/Fabian and Bell Canal, West Canal, Levee System, Farm Complex, Grant Line/Fabian and Bell Canal Buildings

Five known cultural resources are located in the project area. Fieldwork conducted by Jones & Stokes did not identify additional cultural resources in the project area. An evaluation was conducted to determine whether these features meet the criteria for listing in the NRHP or CRHP (Jones & Stokes 2004b). None of the features appears to meet the criteria for eligibility because of loss of integrity, lack of historical and architectural significance, or non-historic dates of construction. The State Historic Preservation Officer (SHPO) must concur with these determinations pursuant to 36 CFR 800.4. Resource evaluations are summarized below.

Grant Line/Fabian and Bell Canal

Grant Line/Fabian and Bell Canal follows the same alignment as it did in the 19th century from an engineering standpoint, but the canal bears little resemblance to a canal from the period of significance. Rather, it is very much a product of the

NRHP or the CRHR, the type of impact, and the extent of the impact. Under CEQA, impacts on cultural resources are considered significant if they would adversely affect significant cultural resources. Similarly, pursuant to 36 CFR 800.5 regulations, a federal action or undertaking would have an adverse effect if the undertaking alters the characteristics that make a property eligible for inclusion in the NRHP. Specific actions under the SDIP that may adversely affect cultural resources include the modification of existing levees, construction of operable gates, construction of support structures and access roads, and channel dredging.

As indicated under Assessment Methods, impacts on cultural resources that may result from a federal action include:

- ground disturbance,
- modification and alteration of historic structures,
- visual and auditory intrusions to a resource's historic setting, and
- vandalism.

Physical damage or destruction to significant cultural resources, particularly archaeological sites, may affect the physical integrity of those resources and thus reduce their information or research potential (NRHP Criterion D or CRHR Criterion 4). Physical damage or alteration may also have deleterious effects on the characteristics of a cultural resource that convey its significant association with an important historical event, person, or architectural design quality (NRHP Criteria A-C or CRHR Criteria 1-3).

Impacts on paleontological resources that may result from a proposed project include ground disturbance, burial, and vandalism (unauthorized collection or damage). Removal of a paleontological resource from the context in which it is preserved and damage to or destruction of fossils are potentially significant impact mechanisms. Burial of known fossil deposits under DIF may also constitute a potentially significant impact mechanism because future access to the deposits by professional paleontologists would be impeded or prevented.

Because no known fossil occurrences have been reported in the project area and previous studies indicate that the project area has low potential for the presence of significant fossiliferous deposits, the proposed project would have no impact on paleontological resources. Impacts on paleontological resources will not be considered further in this EIS/EIR.

CALFED Programmatic Mitigation Measures

The August 2000 CALFED Programmatic ROD includes mitigation measures for agencies to consider and use where appropriate in the development and implementation of project specific actions. The mitigation measures address the short-term, long-term and cumulative effects of the CALFED Program.