Chapter 18
Cultural Resources

18.1 Environmental Setting/Affected Environment

18.1.1 Methods for Resource Identification

18.1.1.4 Native American Correspondence

The NAHC was contacted on May 21, 2009, and May 5, 2011, for information about the location of known heritage or sacred sites in the Plan Area. The NAHC responded and provided a list of Native American individuals and organizations that may have knowledge of cultural resources in the Plan Area. DWR Staff archaeologists sent letters to the parties identified by the NAHC on June 15 and 22, 2009, requesting information regarding resources that may occur in the Plan Area. Updated letters were sent on January 28, 2012 and follow-up phone calls were placed on July 26, 2012.

The NAHC indicated that the sacred lands file does not contain any mapped resources in the Plan Area. In addition, representatives of the following Native American organizations also responded and indicated that there were no objections or concerns about the BDCP at that time, but wished to be kept apprised of future progress on the project: Wintun Environmental Protection Agency; Cortina Indian Rancheria (CIR); Rumsey Indian Rancheria; and the United Auburn Indian Community of Auburn Rancheria. ~~No additional comments have been received to date.~~

In addition to letters, DWR hosted tribal consultation meetings in 2014 (dates and tribal participants listed below). Although some meetings concerned DWR tribal policy in general, they are also included here because BDCP in particular was discussed in detail.

- Northern Region Tribal Consultation April 23, 2014
- BDCP Bay-Delta Tribes Consultation Meeting June 13, 2014
  - Ione Band of Miwok Indians
  - Coyote Valley Band of Pomo Indians
  - Yocha Dehe Wintu Nation
- South Central Regional Tribal Consultation June 17, 2014
  - Tule River Indian Tribe
  - North Fork Mono Tribe
  - Tuolumne Band of Miwok Indians
  - Table Mountain Rancheria
- Santa Clara Valley Water District and Dept. of Water Resources Joint Tribal Informational Meeting June 27, 2014
- Southern Regional Tribal Consultation Meeting October 7, 2014
  - Ramona Band of Cahuilla Indians

- Viejas Band of Mission Indians
- Luiseño Indians
- Soboba Band of Luiseño Indians
- Colorado River Indian Tribes
- Pauma Band of Mission Indians
- Morongo Band of Mission Indians
- Mesa Grande Band of Mission Indians
- Rincon Band of Mission Indians
- La Jolla Band of Mission Indians
- Fort Mojave Indian Tribe

- December 10, 2014 – Informational Meeting on the Proposed BDCP for the California Tribal Community

18.1.1.5 Interested Parties and Local Agency Correspondence

DWR sent letters to 23 potentially interested parties, including local historical societies, local ethnic history groups, and local agencies on March 11, 2015. The letter briefly described the project and requested that the recipient groups or agencies provide input about historic resources they may be aware of that may not have been included in the survey due to access issues or otherwise not captured in the survey. The letter also asked if they were interested in participating in the development of a programmatic agreement (PA), pursuant to section 106 36 Code of Federal Regulations part 800.14(b) of the National Historic Preservation Act (NHPA) that will be prepared for the conveyance facility and its components, with the United States Army Corps of Engineers (USACE) as lead federal agency. A PA is being prepared between the USACE, California State Historic Preservation Officer (SHPO), DWR, and may include Native American Tribes and other interested parties and local agencies who chose to participate. ~~The Yolo County Historical Society could not be reached.~~ The following are the recipients of the letter, which included exhibits showing the general alignment of each alternative:

- Sacramento River Delta Historical Society
- San Joaquin County Historical Society
- Sacramento County Historical Society
- Center for Sacramento History
- Isleton-Brannan-Andrus Historical Society
- West Sacramento Historical Society
- Sacramento-Delta Chapter of Filipino American National Historical Society
- Chinese American Council of Sacramento
- Japanese American Citizens League, Florin Chapter
- Portuguese Historical and Cultural Society
- East Contra Costa Historical Society and Museum

- Locke Foundation
- Dai Loy Museum
- Rio Vista Museum
- Solano County Historical Society
- Contra Costa Historical Society
- California Historical Society
- Contra Costa County Community Development Department
- Solano County Department of Resource Management, Planning Department
- Yolo County Department of Public Works, and Environmental Services
- Sacramento County Community Development Department, Planning and Environmental Review
- Alameda County Community Development Agency
- San Joaquin County Community Development Department, Planning/Development Services Division

The Yolo County Historical Society could not be reached. No responses have been received to date.

18.2 Regulatory Setting

18.2.1 Federal Plans, Policies, and Regulations

18.2.1.3 Compliance with Section 106 of the National Historic Preservation Act for the BDCP

Section 106 review will be performed for relevant federal actions that qualify as undertakings and that are necessary to implement the BDCP. Phased identification and evaluation of cultural resources will be completed as authorized by 36 CFR 800.4(b)(2) and 36 CFR 800.14(b)(1). The phased completion of these steps will be accomplished by a programmatic agreement (PA) covering federal agency responsibilities under the NHPA. This PA will require Reclamation~~,~~ and USACE~~, USFWS and NMFS~~ to complete the management steps required under Section 106 for all future undertakings necessary to implement the BDCP. For each undertaking the agencies shall:

- Identify the area in which historic properties may be affected.
- Complete an inventory for historic properties.
- Evaluate identified resources to determine if they are historic properties.
- Determine if the undertaking will adversely affect those properties.
- Resolve adverse effects.

These steps will be completed in consultation with the SHPO and Indian Tribes, the ACHP, and other interested parties that choose to participate in the Section 106 process.

A PA is currently in development and the USACE will be the lead. The PA identifies the major projects related to the proposed project and will include the water conveyance system and its components.

18.2.1.4 Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) provides a process for federal agencies to determine custody of Native American cultural items to lineal descendants and culturally affiliated Indian tribes. NAGPRA defines the ownership of Native American human remains and funerary materials excavated on lands owned or controlled by the federal government. NAGPRA establishes a hierarchy of ownership rights for Native American remains identified on these lands (25 USC Section 3002[a]):

- Where the lineal descendants can be found, the lineal descendants own the remains.
- Where the lineal descendants cannot be found, the remains belong to the Indian tribe or Native Hawaiian organization on whose land the remains were found.
- If the remains are discovered on other lands owned or controlled by the federal government and the lineal descendants cannot be determined, the remains belong to the Indian tribe or Native Hawaiian organization that is culturally affiliated with the remains, or the tribe that aboriginally occupied the land where the remains were discovered.

Under NAGPRA intentional excavation of Native American human remains on lands owned or controlled by the federal government may occur (25 USC Section 3002[c]) only under the following circumstances.

- With a permit issued under the Archaeological Resources Protection Act (16 USC Section 470cc); and;
- After documented consultation with the relevant tribal or Native American groups.
- Ownership and disposition follows NAGPRA for all human ~~remains~~ burials and associated artifacts (25 US Code Section 3001 and 43 CFR Section 10.6) when cultural affiliation can be determined.

NAGPRA also provides guidance on inadvertent discoveries of Native American or Hawaiian human remains on lands owned or controlled by the federal government. When an inadvertent discovery on these lands occurs in association with construction, construction must cease. The party that discovers the remains must notify the relevant federal agency, and the remains must be transferred according the ownership provisions above (25 USC Section 3002[d]).

18.3 Environmental Consequences

18.3.5 Effects and Mitigation Approaches

18.3.5.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel and Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)

Impact CUL-1: Effects on Identified Archaeological Sites Resulting from Construction of Conveyance Facilities

Identified Resources

Record searches at the CHRIS and inventory efforts for the BDCP have identified ten previously recorded archaeological sites in the footprint of this alternative (Appendix 18B, Table 18B-1). Site descriptions summarizing available information regarding these resources, are provided in Appendix 18B, Section B.1.2 *Archaeological Site Descriptions*. These ten previously recorded resources represent the known resources that occur in the footprint of this alternative. The majority of these sites either have burials or cultural constituents or characteristics strongly associated with burials (such as a "mound" deposit or burial associated items such as *Olivella biplicata* beads).

Significance of Identified Archaeological Resources

Many of the directly affected sites are midden sites, with debris and artifacts associated with prehistoric habitation and residence activities. Midden sites in the Plan Area are often colloquially referred to as "mound sites" because they often form low mounds elevated relative to the surrounding landform. While the original raised deposit has sometimes been destroyed, midden sites often have substantial deposits below the original raised landform that remain intact that typically contain the material remains associated with prehistoric habitation. This organic debris can be used for radiocarbon dating, as well as material that reveals the nature of subsistence activities pursued by prehistoric populations. Because there is no single unified prehistoric chronology for the Delta region, substantial research questions remain unresolved regarding nature and changes of subsistence and settlement activity over the span of the prehistoric occupation of the Delta. The Delta is the prehistoric point of articulation between Central Valley cultures and the aboriginal people that occupied the San Francisco Bay area. Because the cultural chronology and sources of cultural change for the Delta remain unresolved in part, sites in the footprint of this alternative likely contain information that could help clarify these research issues. For this reason these resources are likely significant under the fourth criterion for the CRHR and NRHP.

Two of the identified sites contain human burials, as described on the site records. Many of the remaining sites are likely to contain additional burials because midden sites in the Plan Area typically contain human burials or cremations. Burial components within these sites often contain ornaments and other personal items such as charmstones, beads, and other decorative material. Because the style and form of these artifacts change throughout prehistory, and because these stylistic changes have been defined, these materials provide a method of associating archaeological material with specific prehistoric time periods. The ability to associate habitation remains with specific time periods is one of the most significant problems in prehistoric research, because the sequence of specific adaptations and behaviors only becomes clear when a chronology can be

constructed that associates behavior and material culture with specific time frames. For this reason these resources are likely significant under the fourth criterion for the CRHR and NRHP.

Because many of these resources are large (typically in excess of 30 meters across), they are each likely to contain some portion of the deposit with sufficient integrity to yield artifacts in their original associations in a manner that will convey these significance themes. Therefore these identified resources are likely to qualify as historical resources under CEQA. For the same reasons, these resources are likely to qualify as historic properties under the NRHP.

Impact Mechanisms ~~For~~ for Identified Resources

The exact location of these resources cannot be disclosed because such disclosure might lead to damage and disturbance. However, these resources occur within the footprint of both temporary work areas and permanent surface impacts. The resources are distributed evenly across the alignment, but are somewhat clustered where construction of large above-ground features would occur, such as the northern end of the alignment, at the intermediate forebay, and at the southern end of the alignment. Ground-disturbing construction is likely to disturb the deposits and thus materially alter their ability to convey their significance. Much of the data potential in archaeological resources exists in the spatial associations of different artifacts and other cultural material. Where artifacts that have known associations with particular time periods occur adjacent to other material such as faunal bone or plant remains from subsistence activity, the proximity of the materials allows an inference as to the age of the subsistence remains, thereby allowing researchers to infer particular subsistence strategies during different prehistoric periods. Intrusive ground-disturbing construction, vibration, and other physical disturbance may disrupt these associations and thus disrupt the qualities for which the sites may qualify as historical resources or historic properties. In addition, because not all identified resources are legally accessible, these resources may be significant for other reasons than their data potential. Indirect effects such as introduction of changes to the setting associated with construction of new features or creation of new sources of noise (also a change to the setting) or vibration may diminish the basis for the significance of these resources. For these reasons, construction has the potential to materially impair these resources under CEQA and to adversely affect the resources as defined by Section 106 of the NHPA.

NEPA Effects: Construction may disturb NRHP and CRHR-eligible archaeological resources and damage these resources. This damage may impair the integrity of these resources and thus reduce their ability to convey their significance. For these reasons this effect would be adverse.

***CEQA Conclusion*:** Construction of conveyance facilities would affect ten identified archaeological resources that occur in the footprint of this alternative. DWR identified these resources and finds that they are likely to qualify as historical resources under CEQA (see the individual site descriptions in Appendix 18B, Section B.1.2 *Archaeological Site Descriptions*.) This impact would be significant because construction could materially alter or destroy the potential of these resources to yield information useful in archaeological research, the basis for the significance of these resources, through excavation and disruption of the spatial associations that contain meaningful information. Identified but currently inaccessible resources may also be significant under other register criteria; indirect effects such as introduction of new inconsistent changes to the setting may also diminish the significance of these resources. Mitigation Measure CUL-1 would reduce this impact by recovering scientifically important material prior to construction through the sensitive area, but would not guarantee that all of the scientifically important material would be retrieved because feasible archaeological excavation only typically retrieves a sample of the deposit, and portions of

the site may remain after treatment with important information. Construction could damage these remaining portions of the deposit. Therefore, this impact is significant and unavoidable.

Mitigation Measure CUL-1: Prepare a Data Recovery Plan and Perform Data Recovery Excavations on the Affected Portion of the Deposits of Identified and Significant Archaeological Sites

Prior to ground-disturbing construction, DWR will implement treatment for identified and register eligible archaeological sites affected by Alternative 4 construction.

Basis for Selection of Treatment

Identified archaeological resources occur in the footprint of large features that would be constructed under this alternative. Because they occur within the footprint of these features, avoidance may not be feasible. These objectives include protection of other sensitive environmental resources where possible. Because of the density and location of other sensitive environmental resources such as natural communities and habitats, relocation of proposed facilities necessary to ensure all historical resources are preserved in places is unlikely to be feasible. Furthermore, the large, linear, nature of proposed conveyance facilities would result in overlap with cultural resources across almost any potential alignment because of the manner in which cultural resources are distributed in the study area. These same facilities will require ongoing maintenance and operational activities that would likely be inconsistent with dedicated conservation easements or other land management methods designed to preserve existing resources in place. For these reasons, preservation of all potentially affected archaeological sites through capping with soil or incorporation into conservation easements or green space is not likely to be feasible. Accordingly, data recovery is proposed to retrieve the scientifically important material that remains in these deposits. This data recovery excavation will conform to the following standards that meet the Secretary of the Department of the Interior's professional qualification standards provided in 36 CFR 68.

- DWR will retain a qualified archaeological consultant to conduct data recovery excavations necessary to retrieve material that would otherwise be lost, (material with scientifically important data associated with the significance of the resource). Qualified archaeological consultant here means a consultant with demonstrated experience conducting effective data recovery excavations at the kinds of sites subject to treatment, including qualification under the Secretary of the Interior's Professional Qualification Standards.
- BDCP proponents will prepare, and deposit with the relevant information center of the CHRIS, a data recovery plan prior to conducting these excavations, as required under State CEQA Guidelines Section 15126.4(b)(3)(C). The plan will provide a literature review of recent regional archaeological research and a summary of regional research questions. The plan will incorporate the methods prescribed above and include a more detailed description of the sampling and excavation methods that are appropriate for the regional research questions. The plan will not disclose the location of the resources subject to treatment in a manner that would allow their location by the public and inadvertent damage.
- Data recovery excavations will remove a sample of the affected portion of the deposit to retrieve scientifically important material. Excavation will be conducted in representative levels, and material removed will be divided and screened through a combination of 1/4" and 1/8" mesh screen, so as to capture both the gross cultural constituents and the finer

material that can only be captured in fine mesh. Excavation will be conducted in 10-centimeter levels so that the horizontal association of different cultural materials is recorded. Removed material will be segregated by type and bagged with labels noting their horizontal and vertical location relative to an established datum point. The datum point will be recorded in the field with GPS to at least 10-centimeter horizontal and vertical accuracy. If, in the course of data recovery excavations, it is determined that, contrary to available evidence, the resource lacks integrity, data recovery excavations will cease.

- Faunal material (animal bone) will be segregated and studied by a qualified faunal analyst to identify the species pursued, relative abundance and diversity of different species present, and the manner in which the prey were processed by the prehistoric occupants.
- Obsidian glass will be retrieved and studied through both X-ray fluorescence (a method that allows the source of the obsidian to be identified) and obsidian hydration analysis (a method that allows approximate determination of the time when the material was subject to human modification).
- Soil samples will be retrieved, with their horizontal and vertical location recorded, for flotation analysis (a method of separating light organic material such as fine plant remains from the deposit, in order to identify plant species pursued by prehistoric populations).
- Because some of the resources subject to treatment contain human remains, provisions for such remains are necessary. If human remains are discovered in these deposits during data recovery, the county coroner will be contacted as required in California Health and Safety Code Section 7050.5. If the coroner confirms the remains are of prehistoric origin, the NAHC will be contacted and given the opportunity to identify a MLD. The MLD will be given the opportunity to reinter the remains with appropriate dignity. If the NAHC fails to identify the MLD or if the parties cannot reach agreement as to how to reinter the remains as described in California PRC Section 5097.98(e), the landowner will reinter the remains at a location not subject to further disturbance. DWR will ensure the protections prescribed in California PRC Section 5097.98(e), are performed, such as the use of conservation easements and recording of the location with whichever county in which the remains are found as well as the relevant information center of the CHRIS and the NAHC.
- After completion of data recovery excavations DWR and appropriate federal agencies will prepare a data recovery report synthesizing the results of data recovery and associated studies and analysis. The consultant or staff archaeologists will synthesize the results of these studies and summarize the results relative to regional research questions in the data recovery report. The report will be filed with the relevant information center of the CHRIS. DWR and appropriate federal agencies will also store the recovered material at an appropriate facility for curation. Relevant federal curation standards such as 36 CFR 79 will be followed where applicable.
- **Construction phase monitoring and resource protection:** During construction on or near the resource, DWR and appropriate federal agencies will retain a qualified archaeologist (a person knowledgeable in the identification of the kind of resources known to occur), to observe excavations over any remaining portions of the deposit that are sensitive for buried human remains or which may contain other significant buried archaeological material that could be inadvertently damaged. If human remains are discovered the archaeologist will direct compliance with the requirements of California Health and Safety Code Section 7050.5 and California PRC Section 5097.98 and the relevant federal agency with

responsibility for Section 106 will be contacted. In addition DWR and the appropriate federal agencies will use fencing, flagging, or other appropriate means to exclude unnecessary disturbance and activity from sensitive resources during construction.

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-2: Effects on Archaeological Sites to Be Identified through Future Inventory Efforts

An inventory for the majority of the footprint for this alternative has not been conducted because the footprint is not currently legally accessible (Appendix 4A, *Summary of Survey Data Collection by Department of Water Resources to Obtain Information Regarding Baseline Conditions in Areas That Could Be Affected by BDCP*). Furthermore, complete evaluation of all potentially affected resources associated with this alternative may require destructive test excavation in advance of any final decision regarding the selection of the alternative. Because several prehistoric archaeological sites qualifying as historical resources have been identified in the footprint of this alternative, the remaining portion of the footprint for this conveyance feature is sensitive for previously unidentified archaeological resources. Record searches at the relevant information centers of the CHRIS reviewed the mapped location of previous cultural resource inventories in the footprint of this alternative and the vicinity. This map review revealed that a cultural resources inventory has never been conducted in the majority of the footprint for this alternative. The presence of three archaeological sites that qualify as historical resources and historic properties in the portion of the footprint that has been previously inspected provides a sample of the likely density and occurrence of resources in the remaining footprint. For this reason, additional prehistoric archaeological resources are likely to be found in the portion of the footprint where surveys have not been conducted, once access is available and such studies can be completed.

In addition to prehistoric archaeological resources, the BDCP area is sensitive for historic-era archaeological resources. It is likely that previously unidentified historic archaeological sites occur in the footprint of this alternative because of the intensity of human activity in the Plan Area during the historic era, as described in Section 18.1.6, *Historic-Era Setting.*

Prehistoric sites in the Plan Area tend to be large and rich in material remains, including human burials and associated ornaments and beads. Habitation debris also often contains both floral and faunal material that can be used for both radiocarbon dating and analysis regarding subsistence strategies. In addition, the large scale of typical prehistoric archaeological resources suggests portions of these deposits will remain with sufficient integrity to convey research information. Therefore, these sites are likely to qualify as historical resources or unique archaeological resources under CEQA and historic properties under Section 106 of the NHPA.

Historic sites are likely to be associated with the historic-era themes of settlement, reclamation, agriculture, and flood management in the Delta region. Because the reclamation and agricultural development of the Delta region provided part of the economic base for the development of surrounding urban centers, these historic themes are significant at both a state and national level. These resources accordingly may contain data useful in historical research. In addition, the intensity

of historic activity in the Delta region suggests that many of these resources are likely be distributed across the footprint of this alternative and some are likely to retain sufficient integrity to convey this significance if they are subject to archaeological excavation and investigation. Therefore, these sites are likely to qualify as historical resources or unique archaeological resources under CEQA and historic properties under Section 106 of the NHPA.

Absent mitigation, ground-disturbing construction is likely to physically damage many of these resources by disrupting the spatial associations that convey data useful in research or changing the setting such that the resource no longer contains its significance. The locations of various features such as intakes, forebays, and tunnels shaft locations are depicted in Figure M3-4 in the mapbook volume. These impacts would thus materially impair these resources within the meaning of CEQA and adversely affect the resources within the meaning of Section 106 of the NHPA. These effects would be adverse.

NEPA Effects: This alternative has the potential to damage previously unidentified archaeological sites. Because these sites may qualify for the NRHP or CRHR, damage to these sites may diminish their integrity. For these reasons this effect would be adverse.

CEQA Conclusion: The footprint for this alternative is sensitive for both prehistoric and historic-era resources that cannot be identified at this time because much of the footprint is not legally accessible. Because many of these resources are likely to have data useful in prehistoric and historic archaeological research, as well as the integrity to convey this significance, they are likely to qualify as historical resources or unique archaeological sites under CEQA or historic properties under the Section 106 of the NHPA. Ground-disturbing construction may materially alter the significance of these resources by disrupting the spatial associations that could yield important data, resulting in a significant effect. While mitigation is available (Mitigation Measure CUL-2) to reduce impacts by taking inventory of cultural resources within the affected area and thereby making it possible to preserve or recover data from the sensitive area, this mitigation cannot guarantee that all eligible or significant resources would be preserved in place, or that all important data would be retrieved before construction destroys these resources. The scale of the BDCP, investment into existing designs, and the presence of other important environmental resources such as habitat, natural communities, and wetlands that should be avoided are constraints on the flexibility and feasibility of avoidance. For these reasons this impact is significant and unavoidable.

Mitigation Measure CUL-2: Conduct Inventory, Evaluation, and Treatment of Archaeological Resources

Prior to ground-disturbing construction, DWR will implement the following mitigation measures.

- Because DWR and federal agencies could not feasibly access the majority of the footprint for this alternative, a cultural resource inventory has not been completed for the entire footprint. Prior to ground-disturbing construction, DWR will ensure that an inventory and evaluation report for cultural resources is completed. The inventory will cover the federal APE for relevant undertakings.
- The scope of the inventory will include the entire area where effects may occur. Such effects consist of direct disturbance through excavation or indirect damage through vibration or changes to the setting, where the setting may be relevant for archaeological resources.

- The work will be led or supervised by cultural resource specialists that meet the Secretary of the Department of the Interior's professional qualification standards provided in 36 CFR 61.
- Inventory methods will include pedestrian surveys and other any other appropriate sampling methods identified by DWR and the federal lead agencies.
- Identified resources will be mapped and described on forms provided by the California State Parks forms ("DPR" forms). Mapping will be performed by recording data points with GPS hardware that can be imported and managed digitally.
- For all identified resources DWR and appropriate federal agencies will evaluate the resources to determine if they are any of the following.
    - Historical resources (State CEQA Guidelines Section 15064.5[a])
    - Unique archaeological resources under CEQA (California PRC Section 21083.2[g])
    - Historic properties (36 CFR 60.4)
    - Eligible for local registers
- The recorded resources and the resource evaluations will be summarized in an inventory report. In the inventory report DWR and appropriate federal agencies will also determine if individual resources qualifying as unique archaeological sites, historical resources, or historic properties will require mitigation to the extent feasible, as described below. DWR will make such a determination if the BDCP would involve any of the following consequences.
    - Demolish or materially alter the qualities that make the resource eligible for listing in the CRHR (State CEQA Guidelines Section 15064.5[b][2][A],[C]).
    - Demolish or materially alter the qualities that justify the inclusion of the resource on a local register or its identification in an historical resources survey meeting the requirements of California PRC Section 5024.1(g), unless DWR establishes by a preponderance of evidence that the resource is not historically or culturally significant (State CEQA Guidelines Section 15064.5[b][2][B]).
    - Alter, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP (36 CFR 800.5[a][1]).
    - Demolish or materially impair the qualities that allow a resource to qualify as a unique archaeological site (California PRC Section 21083.2).
- For all resources qualifying as unique archaeological resources, historical resources, or historic properties that would be subject to significant effects, DWR will develop and implement treatment. Such treatment will consist of the following, in order of priority.
    - It should be noted that this order of priority applies to mitigation on historical resources performed to satisfy CEQA. Relevant federal agencies with management responsibilities for cultural resources shall implement mitigation for adverse effects to satisfy Section 106 of the NHPA, which does not specify this order of priority.
    - Preservation in place where feasible, in light of costs, logistics, technological, and environmental considerations, and the extent to which avoidance is consistent with the objectives of the project, through methods such as redesign of relevant facilities to avoid

destruction or damage to eligible cultural resources, capping resources with fill, or deeding resources into conservation easements.

- Review and study of existing collections previously retrieved from affected resources, where feasible, in lieu of data recovery excavations.
- Data recovery excavations that retrieve the information that makes the resource eligible for CRHR or NRHP listing, or that qualifies the site as a unique archaeological resource. If data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, will be prepared and adopted prior to any excavation being undertaken. Such studies will be deposited with the relevant information center of the CHRIS. Excavation as mitigation will be restricted to those parts of the resource that would be damaged or destroyed by the BDCP. If, in the course of data recovery excavations, it is determined that contrary to available evidence, the resource lacks the ability to yield information about the past...~~integrity~~, data recovery excavations will cease. The data recovery plan will specify the basis for the significance of the resource and methods for retrieving the consequential information from the site. After completion of excavation DWR will retain a qualified archaeological consultant to synthesize the findings into a data recovery report describing the findings and will deposit the report at the relevant information center of the CHRIS.

- The treatment plan will identify treatment methods that are proposed by the Lead Agencies and other public entities. The plan will also specify the basis for selecting a particular mitigation measure.
- For archaeological sites that qualify as historical resources, the BDCP proponents will consider preservation in place as the preferred treatment where feasible, in light of costs, logistics, technological, and environmental considerations and the extent to which avoidance is consistent with the objectives of the project
- If preservation in place of archaeological sites that qualify as historical resources or unique archaeological resources is not feasible in light of costs, logistics, technological considerations, the location of the find, and the extent to which preservation of the find is consistent or inconsistent with the design and objectives of the BDCP, the BDCP proponents will include a discussion in the treatment plan describing why the selected mitigation serves the interests protected by CEQA better than preservation in place.
- **Construction phase monitoring**: During construction on or near resources sensitive for human remains or archaeological resources, DWR will retain a qualified archaeologist to observe excavations over any remaining portions of the deposit that are sensitive for buried deposits or human remains. If human remains are discovered the archaeologist will direct compliance with the requirements of California Health and Safety Code Section 7050.5 and California PRC Section 5097.98 and the relevant federal agency with responsibility for Section 106 will be contacted. If Native American human remains are discovered on federal land, work in the immediate vicinity will cease, and DWR will contact the relevant representative of the federal agency where the remains were discovered, as prescribed in 25 USC Section 3002(d) (NAGPRA). After notification from the relevant agency representative and treatment of the remains as required under NAGPRA, work may continue. Disposition of the remains will follow the ownership priority described in NAGPRA (25 USC Section 3002[a]).

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-3: Effects on Archaeological Sites That May Not Be Identified through Inventory Efforts

Appendix 18A, *Archaeological Resources Sensitivity Assessment*, presents an overview of the sensitivity of the Plan Area for previously unidentified archaeological resources and demonstrates that additional prehistoric and historic-era sites that have not yet been identified are almost certain to occur in the portion of the Plan Area where this alternative would be constructed. While surveys will be completed for the footprint, once access is available, such surveys cannot guarantee that all sites will be identified prior to construction. The rapid rate of at which alluvium and sediment accumulates in the Delta region, and the geologically unstable nature of the floodplain and riverbank environments in which these resources may occur makes it likely that numerous sites occur buried below surface soils. Cultural resource inventory efforts cannot always identify such resources, even with intermittent surface excavation designed to reveal sites with little or no surface manifestation because exhaustive sampling to identify every resource is economically and technically infeasible. These sites may also occur buried at the depth at which tunnel boring operations would be performed.

Many of these unidentified prehistoric resources are likely to qualify as historical resources, historic properties, or unique archaeological resources because prehistoric sites in the Delta region tend to be large and contain a rich material culture. In particular, burial features tend to be associated with numerous shell ornaments, charmstones, and associated grave goods. Habitation components often contain abundant faunal and floral remains that elucidate prehistoric adaptations such as subsistence methods.

In addition to prehistoric archaeological resources, the BDCP area is sensitive for historic-era archaeological resources. Archaeological debris found in historic era archaeological sites activity is likely to be associated with significant themes such as agriculture, reclamation, and settlement of the Delta region. The size of the Plan area and the intensity of historic activity suggest that some of these resources may qualify as historical resources, historic properties, or unique archaeological resources.

Ground-disturbing work, including the construction of surface features such as intakes, and the subterranean tunnel boring operations and shafts may disturb and damage these resources before they can be identified and avoided during monitoring efforts required under Mitigation Measure CUL-3. This damage and disturbance may materially impair these resources within the meaning of CEQA or adversely affect the resources within the meaning of Section 106 because this disturbance would impair the ability of these resources to yield data useful in research. While Mitigation Measure CUL-3 would reduce the potential for this impact, it would not guarantee the impact would be avoided entirely. Therefore, this impact is adverse.

NEPA Effects: This alternative has the potential to damage previously unidentified archaeological sites that also may not necessarily be identified prior to construction. While cultural resource inventories will be completed once legal access is secured, no inventory can ensure that all

resources are identified prior to construction. Because these sites may qualify for the NRHP or CRHR, damage to these sites may diminish their integrity. For these reasons this effect would be adverse.

***CEQA Conclusion*:** This impact would be significant. Construction has the potential to disturb previously unidentified archaeological sites qualifying as historical resources, historic properties, or unique archaeological resources. Because direct excavation, compaction, or other disturbance may disrupt the spatial associations that contain scientifically useful information it would alter the potential basis for eligibility, thus materially altering the resource and resulting in a significant effect. Because these resources would not be identified prior to construction, they cannot be recorded and effects cannot be managed through construction treatment. Mitigation Measures CUL-3 would reduce but not entirely avoid the potential for this impact, by implementing construction worker training, monitoring and discovery protocols. However, because archaeological resources may not be identified prior to disturbance through these measures, the effect cannot be entirely avoided. Therefore, this impact would remain significant and unavoidable.

Mitigation Measure CUL-3: Implement an Archaeological Resources Discovery Plan, Perform Training of Construction Workers, and Conduct Construction Monitoring

Prior to ground-disturbing construction, the BDCP proponents will include a cultural resources discovery plan in the contract conditions of the construction contractor, incorporating the following actions to be taken in the event of the inadvertent discovery of cultural resources.

- An archaeological monitor will be present to observe construction at geographic locations that are sensitive for unidentified cultural resources. Such locations consist of construction near identified sites (within a 100-foot radius around the known boundaries of identified resources), and where ground-disturbing construction will occur within 500 feet of major water features.
- In the event of an archaeological resources discovery, work will cease in the immediate vicinity of the find (typically 100-feet), based on the direction of the archaeological monitor or the apparent distribution of cultural resources if no monitor is present. A qualified archaeologist will assess the significance of the find and make recommendations for further evaluation and treatment as necessary.
- Discovered resources will be mapped and described on forms provided by the DPR. Mapping will be performed by recording data points with GPS hardware that can be imported and managed digitally.
- Evaluation and treatment will follow the standards and order of priority described above for Mitigation Measure CUL-2. After receiving recommendations from the qualified archaeologist, DWR and appropriate federal agencies shall jointly determine the feasibility of such recommendations, and particularly any recommended avoidance measures, in light of factors such as costs, logistics, technological, and environmental considerations and the extent to which avoidance is consistent with the objectives of the project.
- If human remains are discovered as part of a larger cultural deposit, DWR and the contractors will coordinate with the county coroner and NAHC to make the determinations and perform the management steps prescribed in California Health and Safety Code Section 7050.5 and California PRC Section 5097.98.

- If Native American human remains are discovered on federal land, work in the immediate vicinity will cease, and DWR will contact the relevant representative of the federal agency where the remains were discovered, as prescribed in 25 USC Section 3002(d) (NAGPRA). After notification from the relevant agency representative and treatment of the remains as required under NAGPRA, work may continue. Disposition of the remains will follow the ownership priority described in NAGPRA (25 USC Section 3002[a]), as defined below under Mitigation Measure CUL-4.
- DWR and appropriate federal agencies shall provide pre-construction training of all construction personnel engaged in construction that has the potential to affect archaeological resources. This training will provide instruction on how to identify resources in the field and appropriate measures to be taken if a discovery or potential discovery occurs.

DWR will include a list of DWR cultural-resources staff that can respond to cultural resource discoveries and provide management direction following discoveries in the construction training materials, and will also provide this list as well as these discovery requirements to the supervisory field staff for the construction workers.

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-4: Effects on Buried Human Remains Damaged during Construction

The footprint of this alternative is sensitive for buried human remains that may occur in isolation, rather than as part of prehistoric or historic archaeological sites. Historic and prehistoric human remains have been discovered as isolated interments rather than as part of larger sites. Because these isolated resources are not associated with larger deposits, their distribution and depth cannot be estimated. Construction of this alternative would require ground-disturbing work that may damage previously unidentified human remains, resulting in direct effects on these resources. While inventory and monitoring efforts are prescribed above under Mitigation Measures CUL-2 and CUL-3, the large acreages subject to disturbance under this alternative make exhaustive sampling to identify all buried and isolated human remains technically and economically infeasible. For these reasons the potential remains that such resources may be damaged or exposed before they can be discovered through inventory or monitoring. This effect would be adverse.

NEPA Effects: Buried human remains may be damaged by this alternative because such remains may occur either in isolation or as part of identified and previously unidentified archaeological resources where construction will occur. This effect would be adverse.

***CEQA Conclusion*:** This impact would be significant. The project area is sensitive for buried human remains. Construction would likely result in disturbance of these features. Disturbance of human remains, including remains interred outside of cemeteries is considered a significant impact in the CEQA Appendix G checklist~~,~~ ; therefore, disturbance of these remains would result in a significant effect. Mitigation ~~measures~~ Measure CUL-4 would reduce the severity of this impact by appropriately protecting the integrity of the human remains discovered, but not to a less-than-

significant level because mitigation would not guarantee that these features could be discovered and treated in advance of construction; the scale of construction makes it technically and economically infeasible to perform the level of sampling necessary to identify all such resources prior to construction. Therefore, this impact is considered significant and unavoidable.

Mitigation Measure CUL-4: Follow State and Federal Law Governing Human Remains if Such Resources Are Discovered during Construction

- If human remains are discovered as part a larger cultural deposit, the BDCP proponents and the construction contractors will coordinate with the county coroner and NAHC to make the determinations and perform the management steps prescribed in California Health and Safety Code Section 7050.5 and California PRC Section 5097.98. The provisions of these state laws apply unless discoveries occur on land owned or controlled by the federal government. For discoveries on federal land the bulleted procedures for NAGPRA, provided below shall be followed. Compliance with state law for discoveries occurring on private or state lands requires the following steps.
    - Notification of the county coroner so the coroner may determine if an investigation regarding the cause of death is required. It the coroner determines that the remains are of prehistoric Native American origin, the coroner will notify the NAHC.
    - Upon notification the NAHC will identify the MLD, and the MLD will be given the opportunity to reinter the remains with appropriate dignity. If the NAHC fails to identify the MLD or if the parties cannot reach agreement as to how to reinter the remains as described in California PRC Section 5097.98(e), the landowner will reinter the remains at a location not subject to further disturbance. DWR will ensure the protections prescribed in California PRC Section 5097.98(e), are performed, such as the use of conservation easements and recording of the location with the relevant county and information center of the CHRIS.
- If Native American human remains are discovered on federal land, work in the immediate vicinity will cease, and DWR will contact the relevant representative of the federal agency where the remains were discovered, as prescribed in 25 USC Section 3002(d) (NAGPRA). After notification from the relevant agency representative and treatment of the remains as required under NAGPRA, work may continue. Disposition of the remains will follow the ownership priority described in NAGPRA (25 USC Section 3002[a]):
    - Where the lineal descendants can be found, the lineal descendants own the remains.
    - Where the lineal descendants cannot be found, the remains belong to the Indian tribe on whose land the remains were found.
    - If the remains are discovered on other lands owned or controlled by the federal government and the lineal descendants cannot be determined, the remains belong to the Indian tribe that is culturally affiliated with the remains, or the tribe that aboriginally occupied the land where the remains were discovered.
    - "Indian Tribe" here means federally recognized tribes identified in the list of such tribes published by the Bureau of Indian Affairs in the *Federal Register* as well as in the tribal directory compiled by the BIA.

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-5: Direct and Indirect Effects on Eligible and Potentially Eligible Historic Architectural/Built-Environment Resources Resulting from Construction Activities

Built-environment resources that may be affected by this alternative include resources identified and evaluated in inventory efforts conducted for other projects and resources identified in surveys for the BDCP. Some of resources are considered historic properties for the purposes of this analysis because they meet the criteria in the NRHP regulations (36 CFR 60.4), as described below. For the similar reasons some are considered historical resources under CEQA. As identified in Appendix 18B, Table 18B-9, a total of ~~18~~ ~~17~~ 10built-environment resources have the potential to be directly or indirectly affected by construction of this alternative. Some of these resources have multiple contributing elements, as described in Appendix 18B. The specific nature and location of the impact mechanism for each affected resource is also described in Table 18B-9. The affected resources have been evaluated for the NRHP and CRHR. The basis for the eligibility recommendations for each resource is provided in Appendix 18B, in Section B.1.2, *Built Environment Resource Descriptions.*

Discussion of Anticipated Effects on Identified and Accessible Resources

The construction of intakes, transmission lines, RTM spoil areas and other features would result in direct and indirect effects on identified and eligible resources. The exact effect mechanism for each resource is described in Appendix 18B, in Table 18B-9. Facility redesign to avoid direct impacts on historic architectural resources is preferred as mitigation if possible. However, it is unlikely that all identified resources can be avoided because of the scale of the BDCP and the need to balance avoidance of other important environmental resources such as wetlands, natural communities, and special-status species habitat. These effects would materially impair the resources within the meaning of CEQA and result in adverse effects within the meaning of Section 106 because they would diminish the characteristics that convey the significance of the resources. Some direct demolition and indirect effects such as setting changes are likely to occur even with mitigation. Therefore, these effects would be adverse.

NEPA Effects: This alternative would result in direct and indirect effects on NRHP and CRHR eligible built environment resources. These alterations may diminish the integrity of these resources. For these reasons this effect would be adverse.

***CEQA Conclusion*:** Several identified historic-era built-environment resources have been identified in the footprint of this alternative (~~18~~ 17 individual resources, as described in Appendix 18B, Table 18B-9). These resources have been evaluated for the CRHR and qualify as historical resources under CEQA. Construction of conveyance facilities may require demolition of the historic built-environment resources. Construction may also result in permanent indirect effects such as changes to the setting. Direct demolition or changes to the setting would be material alterations because they would either remove the resource or alter the resource character, resulting in an inability of the resource to convey its significance. For these reasons this would be a significant effect. Mitigation Measure CUL-5 ~~described below~~ may reduce these effects by implementing protective measures and

monitoring protocols for historic resources in close proximity to the project and capturing and preserving a description of the significant information and characteristics associated with directly and adversely impacted resources, but cannot guarantee ~~they~~ that effects would be entirely avoided. The scale of the BDCP and the constraints imposed by other environmental resources make avoidance of all significant effects unlikely. For these reasons this impact remains significant and unavoidable even with implementation of the following mitigation measures.

Mitigation Measure CUL-5: Consult with Relevant Parties, Prepare and ~~implement~~ Implement a Built Environment Treatment Plan

All mitigation will be undertaken by individuals who meet the Secretary of the Interior's professional qualifications and have demonstrable experience conducting the following recommended measures. In preparation of the built environment treatment measures relevant parties will be consulted. Such parties may include but are not limited to the SHPO, the ACHP, local historical societies, and other interested parties such as local preservation and community organizations. DWR will perform the following measures as part of mitigation and monitoring for compliance with CEQA. Appropriate federal agencies shall perform these measures as part of their management responsibilities performed to satisfy Section 106 of the NHPA. ~~Property specific mitigation is identified in Tables 18B-17 through 18B-31. Typical mitigation for affected and eligible properties consists of the following:~~

A BETP will be prepared by an architectural historian with demonstrated experience preparing treatment for similar kinds of resources, and reviewed by relevant parties prior to any demolition or ground-disturbing activity for all built-environment resources subject to adverse effects or significant impacts. Recommended property specific mitigation is identified in Tables 18B-17 through 18B-31 and shall be implemented in accordance with the specifics developed in the BETP.

The following protective measures and monitoring protocols will be implemented for historic resources in close proximity to the project but that are not anticipated to be directly affected by demolition or construction but which may be subject to direct effects such as vibration or inadvertent damage activities:

- HSR will be prepared for buildings and structures adjacent to the project for which detailed information is required to develop protection measures. These will be done for buildings and structures that appear to be in poor condition and, therefore, potentially sensitive to construction-related activities such as vibration. Preconstruction stabilization or temporary removal of these buildings may be necessary.
- Preconstruction condition assessments will be prepared for buildings and structures adjacent to the project that are stable, but could be unintentionally damaged during construction. Should there be any question as to whether or not the project caused damage, these condition assessments will provide confirmation of the preconstruction condition.
- Precautions to protect built resources from construction vehicles, debris and dust may include fencing or debris meshing. Temporary mothballing, and fire and intrusion protection may be needed if the buildings are unoccupied during construction.
- Protective measures will be field checked as needed during construction by a qualified architectural historian with demonstrated experience conducting monitoring of this nature. Vibration monitoring may be required for buildings determined to be susceptible to

vibration damage that are in close proximity to construction activities or machinery that cause vibration.

- These measures are designed to avoid direct effects such as vibration that may result in structural damage or inadvertent direct effects such as demolition.
- Redesign of relevant facilities will be used to avoid destruction or damage where feasible.

For built resources that will be directly and adversely impacted, the BETP will specify resource-specific treatment measures such as, but not limited to the following examples of treatments used to minimize effects on built-environment resources~~mitigation typically includes~~:

- HABS ~~records~~ documentation will be prepared for CRHR and NRHP-eligible historic buildings and structures that will be demolished (National Park Service 2000). These reports will include written and photographic documentation of the significant and character-defining features of these properties. These reports will minimize the adverse effect by capturing and preserving a description of the significant information and characteristics associated with the resource.
  - ~~All~~ In recent years, the National Park Service and National Archives have issued directives indicating that they will not accept formal submissions under the HABS program unless the resource being documented is a rare, unusual, or exceptionally high-quality example of its type, due to the huge volume of submissions generated by environmental mitigation requirements. The BETP will indicate whether the HABS documentation will be formally submitted to the National Park Service for review and approval, based on a consideration of the rarity or caliber of the resource being mitigated, or instead will be prepared informally for distribution to local repositories or for re-use for interpretive or educational programs.
  - For formal HABS documentation, reports are subject to review and approval by the National Park Service. Following approval, the BDCP lead agencies will produce sufficient copies for distribution to ~~identified~~ repositories identified in the BETP, including the Library of Congress, the California State Library, the University of California Water Resources Center Archives, and any local repositories, as appropriate and agreed upon with the SHPO and interested parties. Distribution will further enhance the mitigation of the adverse effect because it will ensure that the significance is retained and conveyed to a wide audience.
  - For informal HABS documentation, report contents may be prepared in high-resolution digital format, rather than being produced to the high archival standards required by the National Park Service for formal submissions. The ~~BDCP l~~Lead ~~a~~Agencies will produce sufficient copies for distribution to repositories identified in the BETP, which may include the California State Library, the University of California Water Resources Center Archives, and any local repositories, as appropriate and agreed upon with the SHPO and interested parties.
- As applicable, HALS records and HAER documents will be prepared for historic water-associated resources (National Park Service 2005). The levees and other CRHR and NRHP-eligible linear historic features will be recorded following HAER guidelines. Additionally the settings will be recorded following HALS guidelines. These reports will include written and photographic documentation of the significant and character-defining features of these properties. The HALS and HAER reports will minimize the adverse effect by capturing and

retaining a description of the significant engineering and design information associated with the resource.

- In recent years, the National Park Service and National Archives have issued directives indicating that they will not accept formal submissions under the HALS and HAER programs unless the resource being documented is a rare, unusual, or exceptionally high-quality example of its type, due to the huge volume of submissions generated by environmental mitigation requirements. The BETP will indicate whether the HALS or HAER documentation will be formally submitted to the National Park Service for review and approval, based on a consideration of the rarity or caliber of the resource being mitigated, or instead will be prepared informally for distribution to local repositories or for re-use for interpretive or educational programs.

- ~~All~~ Formal HALS/HAER ~~reports~~ submissions are subject to review and approval by the National Park Service. Following approval, the BDCP lead agencies will produce sufficient copies for distribution to ~~identified~~ repositories identified in the BETP, including the Library of Congress, the California State Library, the University of California Water Resources Center Archives, and any local repositories, as appropriate and agreed upon with the SHPO and interested parties. Distribution will further enhance the mitigation of the adverse effect because it will ensure that the significance is retained and conveyed to a wide audience.

- For informal HALS/HAER documentation, report contents may be prepared in high-resolution digital format, rather than being produced to the high archival standards required by the National Park Service for formal submissions. The ~~BDCP~~ Lead ~~a~~Agencies will produce sufficient copies for distribution to repositories identified in the BETP, which may include the California State Library, the University of California Water Resources Center Archives, and any local repositories, as appropriate and agreed upon with the SHPO and interested parties.

- Preparation of interpretive or educational media such as displays in public spaces, print materials, or websites. Interpretive and educational media may incorporate written, photographic, and archival documentation, such as those compiled for informal HABS/HAER/HALS reports), oral history interviews, video, or animation to tell the story of the heritage represented by the impacted resource. Interpretive media is an appropriate mitigation for resources that are CRHR- or NRHP-eligible because they are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage or that are associated with persons important in our past.

- Salvage of materials will be performed to the extent feasible to enable the restoration of similar buildings, structures, or water-conveyance features outside of the area of direct impact. Salvage will further minimize adverse effects by using salvaged materials to ensure that similar resources are restored and maintained in manner that will ensure the significance of the resource is preserved.

- Relocation of historic buildings that would otherwise be demolished.

- Following the Secretary of the Interior's standards to restore built resources outside of the area of direct effect that are of the same type as resources that will be demolished by the BDCP.

- Other appropriate treatment methods that are identified in relation to particular resources that are affected.

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-6: Direct and Indirect Effects on Unidentified and Unevaluated Historic Architectural/Built-Environment Resources Resulting from Construction Activities

Because DWR does not have legal access to the majority of the footprint for this alternative, inventory efforts in the entire footprint have not been completed. Nonetheless, the intensity of activity in the Delta region during the historic era and a review of available data such as aerial photographs suggest that numerous additional resources occur in the footprint that have not been identified or which cannot currently be accessed and evaluated.

Review of available data such as aerial photographs, historic topographic maps, and assessors' records also indicates that many of these inaccessible properties are 45 years of age or older and have the potential to be eligible historic resources. Approximately 37 unevaluated built-environment resources have been identified that may be subject to direct or indirect effects as a result of the construction of this alternative (ICF 2013, see tables of inaccessible properties and associated maps, one inaccessible property was determined NRHP-eligible and is not counted here but included under CUL-5 for this alternative). Many of these resources are likely to be significant because they may be associated with the important historical themes described above in Section 18.1.6, *Historic-Era Setting*. In addition, such resources may be associated with historically significant persons, or may represent significant artistic values. Thus the resources may have significance under both CEQA (State CEQA Guidelines Section 15064.5[a][3]) and the NRHP (30 CFR 60.4). In addition, because many of the historic-era structures in the Delta region are intact, and retain their rural agricultural setting, many of these resources are likely to have integrity within the meaning of CEQA and the NRHP (14 CCR Section 4852[c], 30 CFR 60.4). Because many unidentified resources are likely to have significance and integrity, they may qualify as historical resources under CEQA and historic properties under Section 106 of the NHPA.

Anticipated Effects

Construction may result in direct demolition of these resources, damage through vibration, or indirect effects such as changes to the setting. While mitigation is available to reduce these effects, this mitigation cannot guarantee that all effects would be avoided because mitigation cannot guarantee that eligible resources would be avoided and that adverse changes to the setting would not occur. The scale of the BDCP and other design constraints, such as the presence of other important environmental resources, makes avoidance of all direct and indirect effects unlikely. Therefore, this effect would be adverse.

Traditional cultural properties may also occur within the footprint of this alternative. These resources consist of built environment features or activity areas that are important in the cultural life of a living community. Examples of such resources include local gathering halls and Native American traditional activity areas. Where these resources have both integrity of condition and

integrity of relationship, and meet the criteria for listing in the NRHP, they can qualify as historic properties (National Park Service 1998:11–12). Resources that are NRHP-eligible would also be historical resources under CEQA (California PRC Section 5024.1[d][1]) Construction has the potential to directly or indirectly damage built-environment resources through demolition or introduction of new inconsistent features into the setting. These changes would impair the ability of the resources to convey their significance because the character defining elements or setting of the resource would be lost. Therefore, impacts on these resources may be adverse.

NEPA Effects: This alternative may result in direct modification or indirect changes to the setting for inaccessible and NRHP and CRHR-eligible resources. These changes may diminish the integrity of these resources. For these reasons, this effect would be adverse.

***CEQA Conclusion*:** The study area is sensitive for built-environment resources that have not yet been recorded and evaluated because the majority of the area is legally inaccessible. Inventory efforts have not gathered complete information in these inaccessible areas. Many of these resources are likely to be associated with important historical themes or persons, or possess high creative values; therefore, they are likely to have significance under CEQA and the NHPA. Because many of these resources remain intact and retain their rural agricultural setting they are also likely to have integrity under CEQA and the NHPA. Therefore, many are likely to qualify as historic properties or historical resources under the NHPA and CEQA. Construction of conveyance facilities may require demolition of the historic built-environment resources. Construction may also result in permanent indirect effects such as changes to the setting. Direct demolition or changes to the setting would be material alterations because they would either remove the resource or alter the resource character, resulting in an inability of the resource to convey its significance. For these reasons this would be a significant effect. Mitigation Measure CUL-6 ~~described below~~ may reduce these effects by ensuring that previously inaccessible properties are properly inventoried so that impacts can be avoided to the extend possible~~, but cannot guarantee they would be entirely avoided~~. However, ~~T~~the scale of the BDCP and the constraints imposed by other environmental resources make avoidance of all significant effects unlikely. For these reasons this impact remains significant and unavoidable even with implementation of the following mitigation measures.

Mitigation Measure CUL-6: Conduct a Survey of Inaccessible Properties to Assess Eligibility, Determine if These Properties Will Be Adversely Impacted by the Project, and Develop Treatment to Resolve or Mitigate Adverse Impacts

Because DWR does not have legal access to the majority of the footprint for this alternative, a built resources inventory has not been completed for the entire footprint for this alternative. Prior to construction, the BDCP proponents will ensure that an inventory and evaluation report is completed within all areas where effects on built resources may occur. This subsequent survey will be conducted in a manner consistent with the May–June 2012 survey.

- The scope of the inventory will include the entire area where effects may occur that were inaccessible or partially inaccessible in the first survey efforts. Such effects consist of direct disturbance, damage through vibration, or changes to the setting.
- The work will be led or supervised by architectural historians that meet the Secretary of the Department of the Interior's professional qualification standards provided in 36 CFR 61.

- Inventory methods and evaluation will include pedestrian surveys, photographic documentation, historical research using both primary and secondary sources, and interviews and oral histories.
- Newly identified resources will be mapped and described on forms provided by the DPR. Mapping will be performed by recording data points with GPS hardware that can be imported and managed digitally.
- For all identified resources, DWR will evaluate the resources to determine if they are any of the following.
    - Historical resources (State CEQA Guidelines Section 15064.5[a])
    - Significant historic resources under CEQA (California PRC Section 21084.1)
    - Historic properties (36 CFR 60.4)
    - Eligible for local registers
- The recorded resources and the resource evaluations will be summarized in an inventory report. In the inventory report, DWR will also determine if individual resources qualifying as historical resources or historic properties will be subject to significant effects. DWR will make such a finding if the BDCP would result in the following.
    - Demolish or materially alter the qualities that make the resource eligible for listing in the CRHR (State CEQA Guidelines Section 15064.5[b][2][A],[C]).
    - Demolish or materially alter the qualities that justify the inclusion of the resource on a local register or its identification in an historical resources survey meeting the requirements of California PRC Section 5024.1(g), unless DWR establishes by a preponderance of evidence that the resource is not historically or culturally significant (State CEQA Guidelines Section 15064.5[b][2][B]).
    - Alter, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP (36 CFR 800.5[a][1]).
    - Cause a substantial adverse change in the significance of an historical resource (California PRC Section 21084.1).

Where built-environment resources that are listed or qualify for listing in the CRHR or NRHP, or that have been designated as locally significant, or are otherwise identified by DWR as historical resources will be subject to significant effects, DWR will prepare a BETP. The treatment plan will provide detailed descriptions of treatment measures that will be implemented to avoid, protect, minimize, and mitigate adverse effects on historic properties in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68) and the National Park Service's Guidelines for the Treatment of Cultural Landscapes. The treatment plan will describe work to be done prior to, during, and after construction.

- Where feasible, in light of costs, logistics, technological and environmental considerations, and the extent to which avoidance is consistent with the objectives of the project, DWR will first seek to avoid demolition or materially altering the historical resource by avoidance measures, such as the following.
    - Construction condition assessments or HSRs of properties adjacent to construction to determine if these properties are at risk of being damaged.

- Redesign of relevant facilities to avoid destruction or damage.
- Determination of tolerable levels of construction vibration
- Stabilization design and implementation to ensure fragile built resources are not damaged by construction activities
- Temporarily moving built resources, or other measures determined appropriate.

- If avoidance is not feasible, DWR will implement treatment measures such as, but not limited to the following examples of treatments used to minimize effects on built-environment resources.
  - Redesign of relevant facilities to minimize the scale or extent of damage to eligible or listed built resources.
  - Design standards to minimize the visual impact and to ensure context-appropriate design.
  - Complete documentation in accordance with HABS/HAER/HALS programs, including written and photographic documentation of the significant qualities of the CRHR and NRHP listed and determined eligible districts or individually eligible resources (where resources cannot be avoided).
  - Relocation of historic buildings that would otherwise be demolished.
  - Following the Secretary of the Interior's standards to restore built resources outside of the area of direct effect that are of the same type as resources that will be demolished by the BDCP.
  - Other appropriate treatment methods that are identified in relation to particular resources that are affected.

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-7: Effects of Other Conservation Measures on Cultural Resources

This impact describes the potential effects of other conservation measures at a program level of detail, with the exception of *CM1 Water Facilities and Operation*. The following conservation measures would not result in impacts on cultural resources because they consist of changes to existing activities, or planning and regulatory actions that do not have the potential to result in ground-disturbing work with effects on cultural resources.

- *CM11: Natural Communities Enhancement and Management*
- *CM12: Methylmercury Management*
- *CM13: Invasive Aquatic Vegetation Control*
- *CM14: Stockton Deep Water Ship Channel Dissolved Oxygen Levels*
- *CM15: Predator Control*

- *CM16: Nonphysical Fish Barriers*
- *CM17: Illegal Harvest Reduction*
- *CM19: Urban Stormwater Treatment*
- *CM20: Recreational Users Invasive Species Program*
- *CM21: Nonproject Diversions*
- ~~*CM22: Avoidance and Minimization Measures*~~

Implementation of the remaining conservation measures could result in effects on prehistoric and historic archaeological resources, as well as TCPs and the built environment because the scope of conservation actions includes large areas of land, and the areas identified for potential restoration or other conservation actions are sensitive for cultural resources, including prehistoric and historic archaeological sites as well as human remains, architectural resources, and rural historic landscapes. Specific conservation actions that would result in foreseeable ground-disturbing work that could alter or impair the significance of NRHP-, CRHR-, or local registry-eligible cultural resources are listed below.

- *CM2: Yolo Bypass Fisheries Enhancement*
- *CM3: Natural Communities Protection and Restoration*
- *CM4: Tidal Natural Communities Restoration*
- *CM5: Seasonally Inundated Floodplain Restoration*
- *CM6: Channel Margin Enhancement*
- *CM7: Riparian Natural Community Restoration*
- *CM8: Grassland Natural Community Restoration*
- *CM9: Vernal Pool Complex Restoration*
- *CM10: Nontidal Marsh Restoration*
- *CM18: Conservation Hatcheries*

These measures would result in effects on cultural resources when ground-disturbing work is performed to construct improvements and enhance or restore natural communities. Direct effects would occur through demolition or destruction of NRHP-, CRHR-, and/or local registry-eligible prehistoric and historic archaeological sites, unique archaeological sites, TCPs, human remains, and built-environment resources. Indirect effects may occur where changes to the setting alter the existing setting in a manner that is inconsistent with the feeling and association of the resource. Because the ability of the resources to convey their significance would be lost this effect would materially alter these resources under CEQA and would be adverse under NEPA. For example, reclaimed agricultural landscapes that are converted to habitat may no longer convey the themes of agriculture and settlement, and thus would be inconsistent with remaining features associated with rural historic landscapes created by reclamation, cultivation, and ranching.

Mitigation Measure CUL-7 below addresses this effect. However, because of the large acreages of land included in all conservation measures that would be implemented under this alternative, it is unlikely that all effects on NRHP-, CRHR-, and /or local registry-eligible resources and unique archaeological sites could be avoided. Therefore, this impact would be adverse.

***NEPA Effects*:** Implementation of conservation measures will result in ground disturbing work and introduction of new infrastructure to the Plan Area. These physical modifications may result in direct effects on NRHP and CRHR eligible resources. These changes may therefore reduce the integrity of these resources. For these reasons these effects would be adverse.

***CEQA Conclusion*:** Construction and implementation of conservation measures would result in ground-disturbing work that could alter the significant characteristics of NRHP, CRHR, and/or local registry-eligible cultural resources, including prehistoric and historic archaeological sites, TCPs, and built-environment resources such as historic architectural structures and rural historic landscapes. The same construction may damage unique archaeological sites. This construction would likely result in materially adverse changes for the following reasons.

- Ground-disturbing construction in archaeological sites disrupts the spatial associations that contain data useful in research, thus diminishing or destroying the basis for the significance of the resource.
- Ground-disturbing construction may either directly demolish or indirectly affect the setting of built-environment resources, resulting in an inability of the resource to convey its significance.
- Ground-disturbing construction may either directly demolish or change the setting of TCPs resulting in an inability of the resource to convey its significance.
- Ground-disturbing construction may inadvertently disturb human remains.

The alteration of a resource that changes the characteristics that convey its significance is a material alteration under CEQA. The inadvertent disturbance of human remains is a significant impact under CEQA under the Appendix G checklist. Because this construction would materially alter these categories of resources and disturb human remains it would result in a significant impact. Mitigation is available to reduce these impacts by identifying and evaluating resources, avoiding resources where possible, and developing treatment where avoidance is not possible. In addition construction would be monitored. However, because of the acreage associated with the proposed restoration under conservation measures, as well as the multiple constraints associated with other environmental resources that require mitigation or avoidance, it is unlikely that all cultural resources could be avoided. Therefore, this impact remains significant and unavoidable.

Mitigation Measure CUL-7: Conduct Cultural Resource Studies and Adopt Cultural Resource Mitigation Measures for Cultural Resource Impacts Associated with Implementation of ~~Conservation Measures 2–22~~CM21–21

As part of the site-specific environmental review for all conservation measures other than *CM1 Water Facilities and Operation* that could involve adverse effects on cultural resources within the meaning of NEPA, or significant impacts on cultural resources within the meaning of CEQA, the BDCP proponents will conduct cultural resource studies and develop mitigation measures. The cultural resource studies will include the following steps.

- Record searches at the relevant information centers of the CHRIS to retrieve records of identified resources. Inventories will consist of surveys using both historical and map research as well as field-inspection. Evaluation will consist of assessment of identified resources to determine if they have both significance and integrity sufficient to qualify for the CRHR, and NRHP, as well as any relevant local registers.

- Cultural resource inventories and evaluations that identify archaeological resources and built-environment resources.
- Correspondence or discussion with the Native American contacts on file with the NAHC and relevant tribes from the list of relevant federally recognized tribes that qualify as *Indian tribes*, as used in 36 CFR 800.16(m), maintained by the BIA, in order to identify resources that may be known to the Native American community, and to incorporate their preferences for treatment and management.
- Resource-specific evaluations that apply the criteria to determine if the identified resources qualify as historical resources (State CEQA Guidelines Section 15064.5[a]) or unique archaeological resources under CEQA (California PRC Section 21083.2[g]), historic properties (36 CFR 60.4), or are eligible for local registers.
- Resource-specific treatment for historical resources, unique archaeological resources, and historic properties that would be materially impaired as defined in CEQA (State CEQA Guidelines Section 15064.5[b][1]) or adversely affected, as defined in the Section 106 regulations (36 CFR 800.5[a][1]).

Treatment and mitigation will include the following elements and steps.

- Treatment for archaeological resources qualifying as historical resources that are subject to significant effects will follow the order of preference described in State CEQA Guidelines Section 15126.4[b][3].
- Treatment for unique archaeological resources subject to significant effects will conform to the mitigation prescribed under CEQA (California PRC Section 21083.2[b])
- Treatment for historic properties subject to adverse effects will seek to avoid or minimize the consequences of the BDCP that would diminish the characteristics that make the historic property eligible for inclusion in the NRHP.
- Treatment plans or mitigation measures in environmental documents will include monitoring and discovery plans that provide for observation of construction to avoid inadvertent effects on previously unidentified human remains and cultural resources, to the extent feasible.
- Treatment plans or mitigation measures in environmental documents will also include the notification and consultation provisions required for discoveries of human remains provided in California Health and Safety Code Section 7050.5 and California PRC Section 5097.98.
- If Native American human remains are discovered on federal land, work in the immediate vicinity will cease and DWR will contact the relevant representative of the federal agency where the remains were discovered, as prescribed in 25 USC Section 3002(d) (NAGPRA). After notification from the relevant agency representative and treatment of the remains as required under NAGPRA, work may continue. Disposition of the remains will follow the ownership priority described in NAGPRA (25 USC Section 3002[a]).
- For federal agency undertakings, management will be coordinated through a PA and memoranda of agreement, as described above in 18.2.1.3, *Section 106 Compliance for the BDCP.*

The Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers are entering into a Programmatic Agreement with the California State Historic Preservation Officer for the implementation of NHPA Section 106 for their undertakings associated with the BDCP. The effects of Federal undertakings (actions) on historic properties (eligible for or listed on the National Register of Historic Places) will be taken into account through the implementation of this programmatic agreement.

Impact CUL-8: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Plans and Policies

Constructing the proposed water conveyance facilities (CM1) and implementing CM2–~~CM22~~CM21 could result in the potential for incompatibilities with plans and policies adopted to protect the cultural resources of the Delta. A number of plans and policies that coincide with the study area provide guidance for protection of cultural resources as overviewed in Section 18.2.3, *Regional and Local Plans, Policies, and Regulations*. This overview of plan and policy compatibility evaluates whether Alternative 4 is compatible or incompatible with these policies, rather than whether impacts are adverse or not adverse or significant or less than significant. The physical and indirect effects of the alternatives on cultural resources are address in Impacts CUL-1 through CUL-7, as described for each alternative. The following comparison analyzes the compatibility of the BDCP with the cultural resource preservation plans and policies of the cities and counties in the region that have adopted such policies. In general, these policies fall into two categories; policies that emphasize preservation *or* mitigation for effects on significant cultural resources, and policies that specifically emphasize or favor preservation as the preferred management method. For policies that emphasize preservation or mitigation the BDCP will be compatible with these policies because significant cultural resources will be avoided where feasible, and mitigation will be implemented to reduce effects where avoidance and preservation is not feasible. For policies that emphasize preservation the BDCP is incompatible in some instances because multiple constraints governing the location of proposed facilities makes preservation of all significant cultural resources unlikely.

- The Alameda County East Area Plan requires that Alameda County design development to avoid cultural resources that contribute to the heritage of the County, or in the alternative to include mitigation to offset impacts to those resources (Alameda County 2000:36). Because the BDCP includes mitigation measures requiring identification of cultural resources, evaluation for the CRHR and NRHP, and mitigation to reduce unavoidable effects, the BDCP would be compatible with this policy.

- The Contra Costa County General Plan encourages identification and preservation of important cultural resources, preferably in public ownership. While other general plans and policies typically encourage preservation or mitigation, the Contra Costa County General Plan emphasizes preservation (Contra Costa County 2005: 9-11). While the BDCP will require identification, evaluation, and mitigation to the extent feasible, the preservation of all affected cultural resources is infeasible because conflicting constraints such as the location of other significant environmental resources make such avoidance unlikely in every instance. For this reason, the BDCP is not compatible with the Contra Costa County General Plan.

- San Joaquin County has adopted cultural resource protection policies as part of their general plan (San Joaquin County 1992:VI-37). These policies require identification of cultural resources prior to construction where feasible, and assessment of resources identified during construction so that appropriate mitigation may be implemented. The BDCP would be compatible with these policies because cultural resource inventories are in progress for the BDCP, and this section

identifies mitigation measures and consultation that will be conducted to manage effects on cultural resources.

- The Sacramento County General Plan includes policies encouraging preservation of important buildings, bridges, and other important structures (Sacramento County 2011:80). The General Plan requires that projects involving structures or districts of architectural importance are referred to the Cultural Resources Committee of the County to recommend appropriate mitigation. The BDCP would be potentially incompatible with these policies because the scale of the project and the constraints associated with mitigation and avoidance for other resources makes protection and avoidance of all significant architectural resources unlikely.
- The Solano County General Plan encourages identification and preservation of important archaeological and built-environment resources (Solano County 2008:RS-43). The BDCP would be potentially incompatible with these policies because the scale of the project and the constraints associated with mitigation and avoidance for other resources makes protection and avoidance of all significant architectural resources unlikely.
- The Yolo County General Plan requires identification of important cultural resources, consultation with Native Americans that attach significance to these resources, and avoidance or mitigation for important cultural resources affected by development (County of Yolo 2009a:CO-55 to CO-56). The General Plan also requires that permitted land uses in the Primary Zone of the Delta are consistent with the policies of the Land Use and Resource Management Plan of the Delta Protection Commission, but these policies do not have specific provisions for cultural resources. The BDCP would be compatible with these policies because cultural resource inventories are in progress for the BDCP, and this section identifies mitigation measures and consultation that will be conducted to manage effects on cultural resources.
- The Yolo County General Plan also encourages the preservation and protection of cultural resources where feasible and consultation with Native American tribes (County of Yolo 2009a:CO-55). The plan specifically encourages identification efforts, avoidance and mitigation to the maximum extent feasible, and consultation with tribes that attach significance to those resources. Because the BDCP includes mitigation measures requiring identification of cultural resources, evaluation for the CRHR and NRHP, consultation with Native American individuals and organizations, and mitigation to reduce unavoidable effects, the BDCP would be compatible with this policy.

It should be noted that, as described in *Land Use*, Section 13.2.3, state and federal agencies are not subject to local land use regulations. Furthermore, policy incompatibility, by itself is not a physical impact on the environment.

NEPA Effects: Because federal agencies are not regulated by local land use policy, the BDCP alternatives would not result in a conflict with local land use laws.

CEQA Conclusion: The Plan Area is governed by cultural resource management policies adopted by the various counties with jurisdiction in this region. For policies that emphasize preservation or mitigation the BDCP will be compatible with these policies because DWR and appropriate federal agencies will implement cultural resource management practices that will identify significant resources, preserve such resources where feasible, and complete mitigation to reduce significant effects where preservation is not feasible. For policies that emphasize preservation the BDCP is incompatible in some instances because multiple constraints governing the location of proposed facilities makes preservation of all significant cultural resources unlikely. It should be noted that, as

described in *Land Use*, Section 13.2.3, state and federal agencies are not subject to local land use regulations. Furthermore, policy incompatibility, by itself is not a physical impact on the environment.