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August 15, 2012

VIA E-MAIL AND
REGULAR MAIL

Ms. Alicia Forsythe
SJRRP Program Manager
Bureau of Reclamation
2800 Cottage Way, MP-170
Sacramento, CA 95825-1898
Email to:
PEIS/RComments@restoresjr.net and
aforsythe@usbr.gov

Ms. Fran Schulte
California Department of Water Resources
South Central Region Office
3374 East Shields Avenue
Fresno, CA 93726
Email to: fschulte@water.ca.gov

Re: Supplemental Comments to the Final PEIS/R Based on New Information from the San Joaquin River Exchange Contractors Water Authority and the San Joaquin River Resource Management Coalition

Dear Ms. Forsythe and Ms. Schulte:

These supplemental comments to the Final PEIS/R are submitted by the San Joaquin River Exchange Contractors Water Authority and the San Joaquin River Resource Management Coalition (hereafter collectively as "Exchange Contractors").

It recently came to our attention that there is a substantial occurrence of subsidence in the general area of Restoration Reaches 3 and 4 of the San Joaquin River that has resulted in a halt to the further engineering and construction of the Sack Dam/Arroyo Canal project, one of the Phase One and Core projects identified in the Settlement and the draft Framework for Implementation, respectively. The existence of this subsidence problem should have been analyzed in the PEIS/R. Given that the subsidence has resulted in the halt of the Sack Dam/Arroyo Canal project and could, if unchecked, significantly impact the San Joaquin River and the flood control system to a degree that would cause a substantial reconsideration of the SJRRP in that area, further analysis is necessary. The Exchange Contractors raised this issue in their protest to the petitions filed by Reclamation with the State Water Resources Control Board pursuant to Water

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Code 1700, *et seq.* A copy of the Exchange Contractors' protest was provided to Reclamation on or about June 17, 2012.

Based upon measurements that have recently been made public by Reclamation and DWR, subsidence since 2008 in the subject area has been as much as 1.2 feet. If unabated, within ten years subsidence in this area could be more than five additional feet. The impact on the San Joaquin River and flood control system is such that the flow capacity is being seriously degraded, the dry year restoration flow hydrograph routed through the area will result in flooding of thousands of acres of prime farm land and threaten the flooding of the City of Dos Palos which is significantly lower that the river (about 10 feet lower). As noted in the Final PEIS/R, neither Reclamation nor DWR has authority to regulate groundwater pumping, which is the cause of the subsidence. Yet, Reclamation and DWR must analyze the impacts of this groundwater overdraft and identify mitigation measures or unavoidable impacts to the restoration area and program.

The following is more specific factual information concerning this issue.

Differential subsidence on the scale of up to 0.6 feet per year has been documented within the study area of the San Joaquin River Restoration Program (Program) near Western Madera. The subsidence is a result of recently initiated deep well pumping from under the Corcoran Clay for overlying lands. The Program will need to determine how to address existing and increasing future subsidence effects and how this will impact the planning and design of Program facilities and overall implementation schedule.

Surveys by RBF Consulting for the CA Department of Water Resources as part of the FloodSafe Program identified subsidence based on comparison of survey observations and previous LiDAR measurements (RBF Memo, July 2010). USGS informally evaluated Interferometric Synthetic Aperture Radar (InSAR) measurements from 2008 to 2010 to map the spatial extent of subsidence in the area and confirmed the conclusion. It appears that the installation of a large number of deep wells at the center of the subsidence area in unincorporated Madera County and associated planting of orchards, vineyards and other crops is likely the cause of the recent subsidence. In addition, the large permanent planting acreages are new, meaning that pumping rates will increase as they mature, increasing the rate of subsidence along the river and flood control system.

This extreme rate of subsidence may have a significant impact on the SJRRP schedule to complete the planning, design, and construction of the Phase 1 projects. Phase 1 facilities and other critical river reaches in the general vicinity will be impacted by this subsidence issue. The potential maximum subsidence in the area is huge as documented in a nearby area that was similarly impacted by deep well pumping induced subsidence. The area located southwest of the

city of Mendota experienced over 28' of land subsidence from 1926 to 1972. Phase 1 facilities and river reaches that will be impacted include:

- Modifications to Sack Dam and Screening the Arroyo Canal
- Flow capacity of Reaches 3 and 4A
- Flood flow capacity in the Chowchilla Bypass
- Flood flow capacity in the Eastside Bypass
- Modifications at the Reach 4B headgate
- Modifications to the Sand Slough Control Structure
- Modifications in San Joaquin River Reach 4B1

The USGS has proposed a study to measure subsidence in more detail and the CA Department of Water Resources needs to assess the potential impacts to the State Flood Control Project and the SJRRP. If unchecked, local irrigation districts, including Central California Irrigation District, will have to construct additional improvements to their facilities to accommodate the additional differential subsidence in the surrounding area. Accompanying this letter is are two diagrams of the subsidence that has been measured in the subject area. The first chart was prepared by USGS and the second chart was prepared by RBF for DWR. We understand that your agencies have additional information on this problem.

We look forward to reviewing the analysis of the impacts of this subsidence on the environment in the lower reaches of the upper San Joaquin River, most likely in the form of a recirculated PEIS/R.

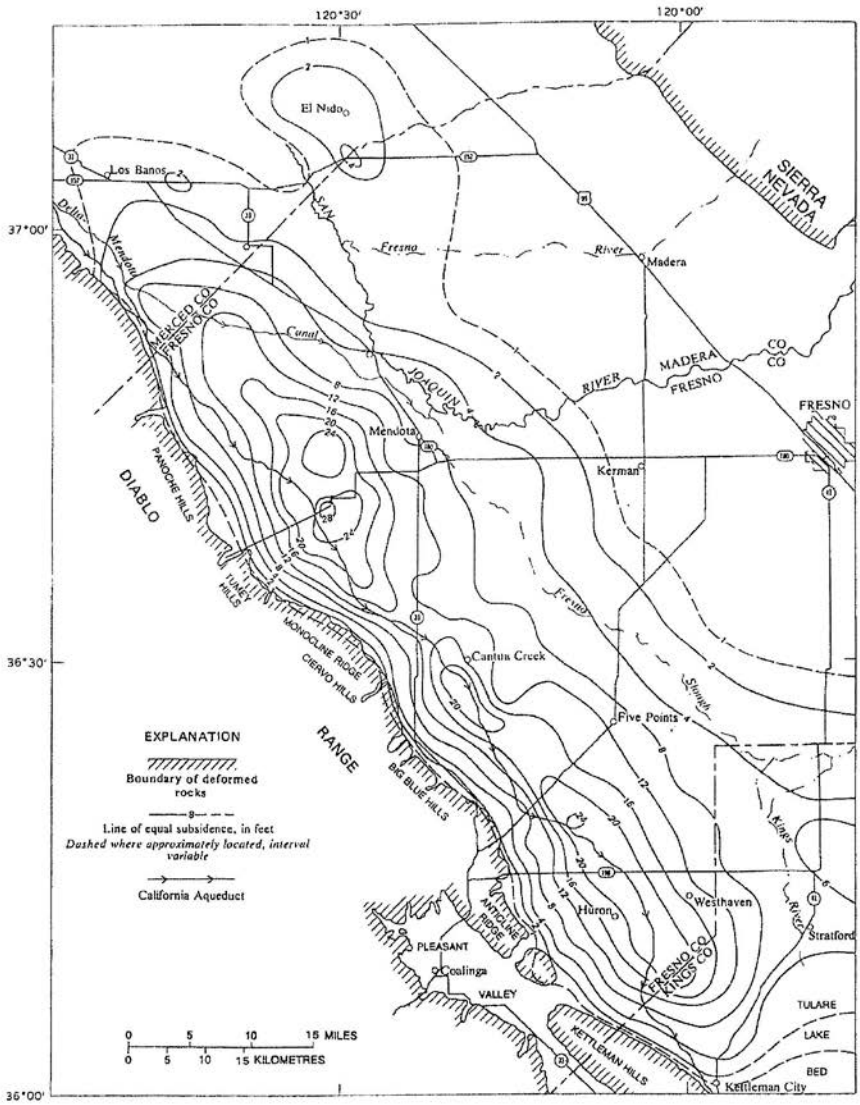
Sincerely yours,

Thomas M. Berliner (jsa)

Thomas M. Berliner

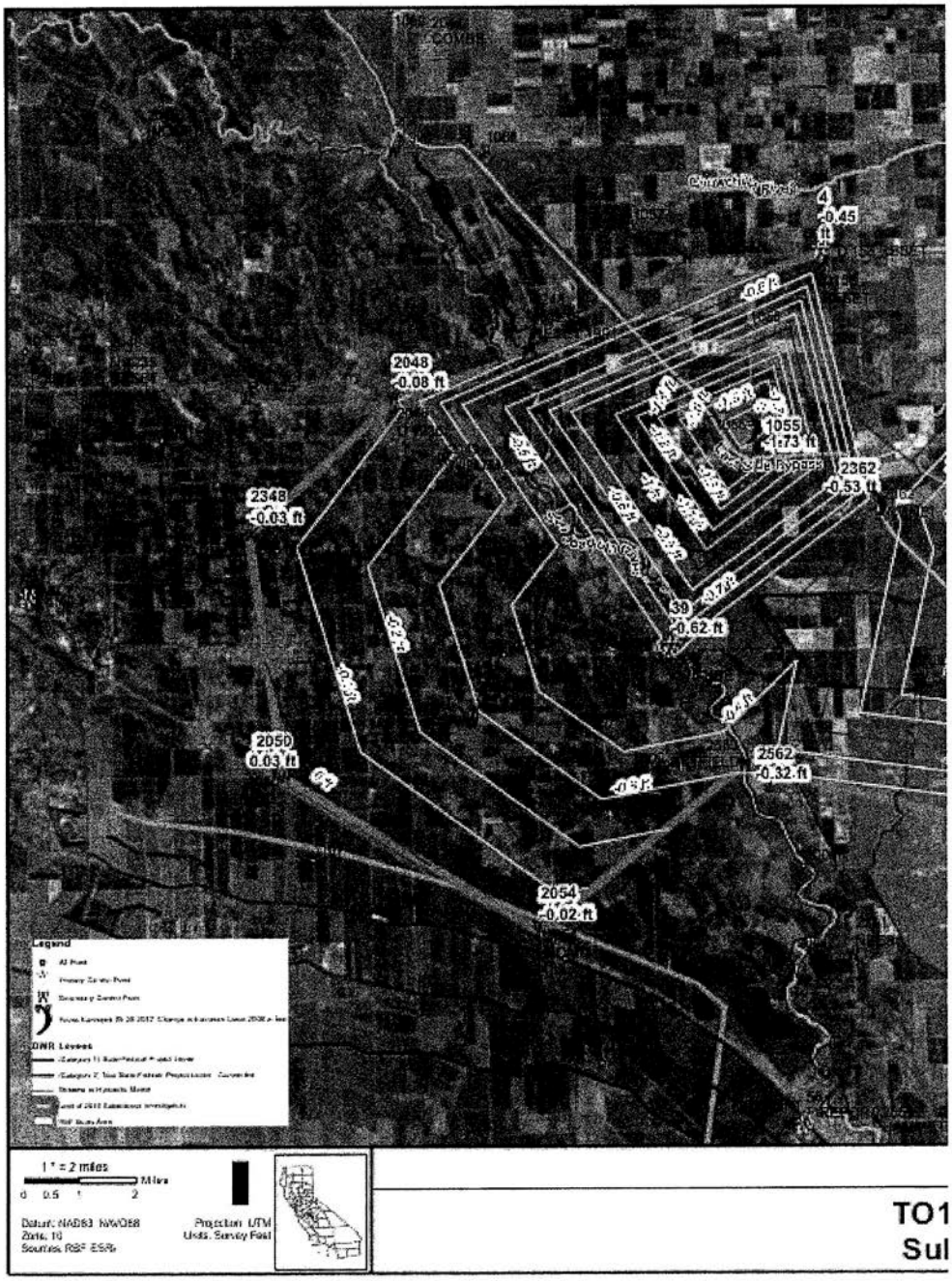
TMB:dls
Attachments

cc: San Joaquin River Exchange Contractors Water Authority
San Luis & Delta-Mendota Water Authority
San Joaquin Tributaries Association
Lower San Joaquin Levee District



Base from U.S. Geological Survey Central Valley map, 1:250,000, 1958

FIGURE 17.—Land subsidence, 1926–72, Los Banos–Kettleman City area. Compiled as sum of subsidence for 1926–69 (fig. 15) and for 1969–72 (fig. 16).


4
-0.45
ft
2048
-0.08 ft
1055
-1.73 ft
2362
-0.53 ft
2348
-0.03 ft
39
-0.62 ft
2050
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2562
-0.32 ft
2054
-0.02 ft
Legend
DWR Levees
1 " = 2 miles
Miles
0 0.5 1 2
Datum: NAD83 NAVD88
Zone: 10
Source: RSF ESRI
Projection: UTM
Units: Survey Feet
TO1
Sul

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

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IN REPLY REFER TO:
MP-170
LAW-1.00

SEP 0 1 2009

Mr. Steve Chedester
Executive Director
San Joaquin River Exchange
Contractors Water Authority
P.O. Box 2115, 541 H Street
Los Banos, CA 93635

Subject: San Joaquin River Restoration Program - San Joaquin River Resources Management Coalition Concerns Regarding Interim Flows and Fish Screens at the Proposed Mendota Pool Bypass

Dear Mr. Chedester:

Thank you for coming to my office on August 27, 2009, to discuss specific concerns regarding the implementation of the Water Year (WY) 2010 Interim Flows Project as part of the San Joaquin River Restoration Program (Program). This letter is to respond to concerns that are highlighted in the briefing paper dated August 20, 2009, by the San Joaquin River Resource Management Coalition (RMC), which was the topic of discussion at our meeting.

The San Joaquin River Restoration Settlement Act (Act), included in Public Law 111-11, directs the Secretary of the Interior (Secretary) to implement the terms and conditions of the Stipulation of Settlement (Settlement) in *Natural Resources Defense Council, et al. v. Kirk Rodgers, et al.* The Act also contains several conditions that must be met during the implementation, including conditions that deal specifically with Interim Flows. The Bureau of Reclamation is committed to implementing the stipulations in the Settlement, and will do so in full compliance with all applicable State and Federal laws, including the Act. As described in this letter, it is our belief that we have been complying with and in no way have we been in violation of these laws.

Regarding Interim Flows specifically, the Settlement requires the Secretary to initiate Interim Flows no later than October 1, 2009, in order to "collect relevant data concerning flows, temperatures, fish needs, seepage losses, recirculation, recapture, and reuse." The Settlement also states that "...the Secretary agrees to undertake all reasonable measures to protect such rights to manage and control Restoration Flows and Interim Flows, including requesting necessary permit modifications and initiation of any appropriate enforcement proceedings to prevent unlawful diversions of or interference with Restoration Flows and Interim Flows." The Act has conditions as well regarding the Interim Flows, specifically as follows:

(h) INTERIM FLOWS—

(1) STUDY REQUIRED—Prior to releasing any Interim Flows under the Settlement, the Secretary shall prepare an analysis in compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), including at a minimum—

(A) an analysis of channel conveyance capacities and potential for levee or groundwater seepage;

(B) a description of the associated seepage monitoring program;

(C) an evaluation of—

(i) possible impacts associated with the release of Interim Flows; and

(ii) mitigation measures for those impacts that are determined to be significant;

(D) a description of the associated flow monitoring program; and

(E) an analysis of the likely Federal costs, if any, of any fish screens, fish bypass facilities, fish salvage facilities, and related operations on the San Joaquin River south of the confluence with the Merced River required under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) as a result of the Interim Flows.

(2) CONDITIONS FOR RELEASE—The Secretary is authorized to release Interim Flows to the extent that such flows would not—

(A) impede or delay completion of the measures specified in Paragraph 11(a) of the Settlement; or

(B) exceed existing downstream channel capacities.

(3) SEEPAGE IMPACTS—The Secretary shall reduce Interim Flows to the extent necessary to address any material adverse impacts to third parties from groundwater seepage caused by such flows that the Secretary identifies based on the monitoring program of the Secretary.

The requirements of the Settlement and Act and the RMC's concerns are addressed in more detail below.

WY 2010 Interim Flow Environmental Assessment (EA)

As described above, pursuant to Paragraph 15 of the Settlement, we are implementing an Interim Flows program to collect relevant data concerning flows, temperatures, fish needs, seepage losses, recirculation, and recapture and reuse. The Interim Flows program is to be initiated no later than October 1, 2009. In mid-2008, we began the planning and environmental compliance activities for the first year of Interim Flows, referred to as WY 2010 Interim Flows. At our December 2, 2008, meeting the Program Manager, Jason Phillips, shared our strategy for this first year of Interim Flows with the RMC and Exchange Contractors. Throughout early to mid 2009, we developed the WY 2010 Interim Flows project description and conducted the analysis for the WY 2010 Interim Flows EA. During this time, we regularly sought input from the RMC, Exchange Contractors, and local landowners on the project description and analysis in the EA via focused meetings, regularly scheduled landowner meetings, and monthly RMC meetings. The cooperation and information provided at these meetings has been very helpful to Reclamation. On June 3, 2009, we released a

joint EA/Initial Study with the California Department of Water Resources (DWR) for the project. The document describes the direct, indirect, and cumulative effects of the WY 2010 Interim Flows on the environment. The Draft EA was released for a 30-day public review period. Based on requests from the RMC and others, the 30-day review period was extended and comments were due on July 20, 2009.

The RMC has expressed three primary concerns regarding the WY 2010 Interim Flows EA. First, the RMC has expressed that the proposed 1-year Interim Flows action violates the National Environmental Policy Act (NEPA). We prepared the EA in accordance with the requirements of NEPA, conducted the appropriate analysis of impacts under NEPA, and followed the procedural requirements of NEPA. We feel that the 1-year action constitutes a complete project under NEPA because it is a demonstration project that has independent utility and provides useful information on flows, temperatures, fish needs, seepage losses, recirculation, and recapture and reuse conditions regardless of the future implementation of the Settlement. As such, we do not feel that the EA is in violation of NEPA.

Secondly, the RMC has expressed concerns that Reclamation has not met with the RMC to review their comments and will issue the Final EA regardless of the comments submitted. As required under NEPA, we are preparing responses to all comments received on the Draft EA, including the RMC's comments. The responses to comments and changes to the Draft EA will be included in the Final EA. The Final EA is scheduled to be released in mid-September, prior to the scheduled flow releases beginning on October 1. We will consider all comments received on the Draft EA when deciding to approve and carry out the Project. Additionally, we have scheduled a meeting with you for September 3 to discuss your comments.

Lastly, the RMC has expressed concerns that Reclamation has not complied with Section 10004(h)(1) of the Act, and specifically Sections 10004(h)(1)(B) and 10004(h)(1)(E) in preparing the EA. As described previously in this letter, Section 10004(h)(1)(B) of the Act requires a description of the seepage monitoring program for Interim Flows. The Interim Flows Seepage Management Plan (Plan) was included as Appendix D of the Draft EA. The Plan describes management objectives for groundwater and levee seepage, approaches for detecting seepage, monitoring conditions indicating that seepage management objectives have been attained, and potential actions that could be taken to address seepage before it impacts adjacent lands. As required by Section 10004(h)(3) of the Act, the Plan includes the reduction of Interim Flows to the extent necessary to address any material adverse impacts for groundwater seepage that the Secretary identifies based on the monitoring program of the Secretary.

Section 10004(h)(1)(E) of the Act requires an analysis of the Federal costs, if any, of fish screens, fish bypass facilities, fish salvage facilities required under the Endangered Species Act (ESA) as a result of Interim Flows. As described in Chapters 2 and 4 of the EA, the Hills Ferry Barrier (Barrier) will be installed by the California Department of Fish and Game (CDFG) during the fall flows and a monitoring plan will be developed prior to February 1, 2010, with the National Marine Fisheries Service (NMFS) to check for Central Valley steelhead during spring Interim Flows. These actions were also included as part of the WY 2010 Interim Flows Biological Assessment (BA). The BA finds that the WY 2010 Interim Flows may affect, but are not likely to adversely affect, special status fish species. We are seeking concurrence from NMFS on this finding, and

such concurrence or formal consultation is needed prior to releasing Interim Flows past the Merced River confluence. Although our BA has found that fish screens, fish bypass facilities, fish salvage facilities as a result of Interim Flows are not anticipated to be necessary at this time, if such facilities are determined to be necessary under the ESA, we will comply with the terms of the Act. Consistent with Section 10004(h)(4) of the Act, if it is determined that any unintended upstream migration of anadromous fish upstream of the Merced River confluence occurs and is caused by the Interim Flows, and such migration will result in regulatory action against third parties, the Secretary is authorized to assist CDFG with improving the Barrier. Additionally, if third parties are required to install fish screens or fish bypass facilities due to the release of Interim Flows in order to comply with the ESA, the Secretary shall bear the costs of the installation of such facilities except to the extent that such costs are willingly borne by the State of California or by the third parties.

Friant Dam Water Rights Petition

The RMC has expressed concerns that the water right permit change petition submitted by Reclamation for the WY 2010 Interim Flows violates the State Water Resources Control Board (State Board) rules and NEPA and will result in injury to downstream landowners and water users. The State Board has indicated that our petition is complete and has not indicated that its rules have been violated in any manner. Additionally, and as described previously in this letter, we have prepared a Draft EA for the project. As described in this EA, the WY 2010 Interim Flows were formulated in such a way to avoid impacts and material seepage damages to downstream landowners and water users, and impacts in the EA were determined to be less than significant. We have taken a very conservative approach to determining non-damaging flows for the WY 2010 Interim Flows and do not feel that the flows will result in injury to downstream landowners and water users.

The RMC also requests that the petition be withdrawn. As described previously in this letter, the Settlement requires that "... the Secretary agrees to undertake all reasonable measures to protect such rights to manage and control Restoration Flows and Interim Flows, including requesting necessary permit modifications ...." Withdrawing the petition would not be consistent with our requirements in the Settlement.

Facility Use Agreements

The RMC has expressed concerns that Reclamation must enter into agreements with facility owners in order to release WY 2010 Interim Flows and that these agreements do not exist nor have negotiations been started for these agreements. We are currently working with facility owners and operators on the San Joaquin River to understand the coordination needs and any additional resource requirements resulting from Interim Flows. The status of these discussions is provided below.

- Lower San Joaquin Levee District (Levee District) – Discussions with the Levee District began early this year and a financial assistance agreement addressing additional operations and maintenance needs by the Levee District as a result of the Interim Flows has been developed and is in process.

- San Luis-Delta Mendota Water Authority (SLDMWA) – We do not believe that a formal agreement for operations of the Delta-Mendota Canal is needed. To coordinate operations in the Mendota Pool, we have agreed to maintain frequent coordination on Friant Dam releases and flows below the Chowchilla Bifurcation Structure with SLDMWA during the Interim Flows period.

- Central California Irrigation District (CCID) – Technical discussions with CCID began in early 2009. At that time, CCID indicated that no major operational changes would result from the flows that we proposed. We believe that an understanding of frequent coordination, similar to that with SLDMWA, should be adequate and that there is no reason to believe impacts to Mendota Dam would occur. We will continue to work with CCID on this coordination plan and our technical understanding of coordination needs.

- San Luis Canal Company (SLCC) – Technical discussions with SLCC also began in early 2009. At that time, SLCC indicated that no major operations changes would result from the flows that we proposed, but that an agreement would be needed to address minor operational changes. In mid-August 2009, we re-initiated discussions with SLCC on the scope and content of such an agreement. Like CCID, we believe that an understanding of frequent coordination should be adequate and that there is no reason to believe impacts to Sack Dam would occur. We will continue to work with SLCC on this coordination plan and our technical understanding of coordination needs.

Fish Screens in the New Mendota Pool Bypass

The RMC has requested that Reclamation take the position that we must provide a fish screen or fish diversion facility at the new Mendota Pool Bypass to protect the Exchange Contractors water rights. As we have described in previous letters to the Exchange Contractors, we have initiated preparation of the Mendota Pool Bypass and Reach 2B Channel Improvements Project Environmental Impact Statements/Environmental Impact Report (EIS/R). Based on our current analysis, we feel that it will be important to include a positive fish barrier in the design to reduce or avoid entrainment in the Mendota Pool and will evaluate this in the EIS/R. As described in pre-Settlement materials, the intent of the new Mendota Pool Bypass is to reduce fish entrainment in the Mendota Pool. We will continue to evaluate the need for a fish screen or other fish diversion facility at this location as part of the EIS/R and will commit to include such a facility as part of the project unless other measures can be taken to adequately reduce fish entrainment in the Mendota Pool.

In summary, we are confident that we have complied with Federal law and are in compliance with the Settlement with regard to the WY 2010 Interim Flows project. At this time, it is my understanding that the Settling Parties do not feel that there is a basis to modify the Settlement to limit the downstream extent of the flow to Mendota Pool. As such, we will proceed with the finalization of the WY 2010 Interim Flows EA, continue to pursue the required water right petition for the WY 2010 Interim Flows project, and will continue to plan on initiating Interim Flows

starting on October 1, 2009, routing these flows in a manner consistent with the Settlement, subject to permits, approvals, and agreements in place at that time.

I look forward to continuing to work with you as we move forward in implementing the restoration program. If you have any questions, please contact Jason Phillips at 916-978-5456 or jphillips@usbr.gov.

Sincerely,

FOR Donald R. Glaser
Regional Director

Identical Letter Sent To:

Ms. Mari Martin
Chair, San Joaquin River Resource
Management Coalition
P.O. Box 2115
Los Banos, CA 93635

cc: Honorable Dianne Feinstein
United States Senate
Washington, DC 20515

Honorable Barbara Boxer
United States Senate
Washington, DC 20515

Honorable George Radanovich
House of Representatives
Washington, DC 20515

Honorable Dennis Cardoza
House of Representatives
Washington, DC 20515

Honorable Jim Costa
House of Representatives
Washington, DC 20515

Continued on next page

II.6.2 Responses to Duane Morris LLP (on behalf of the Exchange Contractors)

Response to Comment O-EC-1

Your comments and the attachments to your comment letter have been reviewed and considered in preparation of the Final EIS/R.

Response to Comment O-EC-2

Thank you for your comment. Stakeholder involvement is an important component of the SJRRP and this Project. Reclamation appreciates all of the assistance that the Exchange Contractors have provided throughout the years for this Project and for the overall SJRRP. Specifically, Reclamation has held over 14 landowner meetings, inviting all potentially impacted landowners and stakeholders. For the vast majority of these meetings, the Exchange Contractors have provided assistance in reaching out to landowners, setting meeting dates that work for the majority of the group, distributing information, and providing meeting locations free of charge. Reclamation has also held dozens of one-on-one meetings, and has conducted dozens of tours, site visits, and field data collection efforts as part of this Project. The Exchange Contractors, with special emphasis on Columbia Canal Company and Randy Houk, have been invaluable in all of these efforts. Thank you for your time and efforts in helping Reclamation and CSLC develop a preferred alternative that both meets the Project needs and works for those most impacted by the Project along with our environmental stakeholders.

Response to Comment O-EC-3

The SJRRP's funding sources and funding outlook are described in detail in the Revised Framework (SJRRP 2015). As described in the Revised Framework, Reclamation has a variety of funding sources available to it for implementation of the SJRRP. These include the San Joaquin River Restoration Fund, Federal appropriations, the Central Valley Project Restoration Fund, and State Funds. The SJRRP is also looking for other opportunistic funding sources, such as grants and costs-shares (see Appendix E of the Revised Framework). However, as identified in the Revised Framework, even with these funding sources, a $390 million shortfall for the Federal government and an approximately equal shortfall for the State government have been identified for implementation of the SJRRP. It is important to note that the SJRRP is comprised of a series of smaller projects, such as the Mendota Pool Bypass, Reach 2B channel and levee improvements, the Arroyo Canal Fish Screen and Sack Dam Fish Passage actions, seepage projects, levee stability projects, the Reach 4B actions, and Water Management Goal actions. While there is a funding challenge to implement the entire SJRRP, there is sufficient funding available to implement a series of actions.

Recognizing the funding challenges of the SJRRP, the Revised Framework seeks to prioritize individual SJRRP projects in way that adds value and meets Reclamation's obligations in implementing the Settlement and Settlement Act over time. The projects that have the greatest value and work to achieve the greatest benefit to implementing the Settlement and Settlement Act are given a higher priority for funding and are scheduled to be implemented early in the Program, when funding is more secure. The Revised Framework also seeks to prioritize projects that would add value to the San Joaquin River

and the San Joaquin Valley regardless of the overall implementation of the SJRRP. Said another way, the Revised Framework prioritizes projects in a way that there are no stranded assets. If no more funding becomes available to complete the entire SJRRP, the Revised Framework prioritizes projects that add value and work to meet Reclamation's obligations in the Settlement and Settlement Act as best as possible.

Fundamental to Reclamation's obligations in the Settlement and Settlement Act are the release of Restoration Flows from Friant Dam and the conveyance of those flows to the Merced River along with the reintroduction of spring-run and fall-run Chinook salmon. With regard to the Restoration Goal, the Revised Framework prioritizes those projects that are key to conveying as close to Full Restoration flows as soon as possible to the Merced River and reintroducing salmon. To this effect, the Revised Framework prioritizes the following projects to achieve the following goals:

- Mendota Pool Bypass, Sack Dam improvements, and fish passage improvements in the Eastside Bypass, as these actions allow for unimpeded fish passage;
- Reach 2B levee setbacks, along with seepage and levee stability projects to achieve 2,500 cfs capacity from Friant Dam to the Merced River confluence, to provide flows for salmon at a rate that the SJRRP generally believes it can obtain suitable water temperatures for salmon in most years; and
- Arroyo Canal fish screen, to reduce fish entrainment in the Arroyo Canal.

As described in the Construction Funding Appendix (Appendix C) of the Revised Framework, the SJRRP expects to have funds to build all of the projects identified above with funds from the San Joaquin River Restoration Fund, appropriated funds allocated to the SJRRP, and State funds. In this way, Reclamation is working to be thoughtful and careful in incrementally implementing its obligations in the Settlement and Settlement Act while not resulting in stranded assets due to limited funding. See also MCR-5: Project Funding. Also note that the additional $60 million in funding identified in July 2015 was due to an oddity of federal appropriations accounting, has since been reversed and is no longer available.

Response to Comment O-EC-4

Reclamation agrees that the Mendota Bypass and Reach 2B Improvements Project is an essential step towards implementation of the SJRRP. See response to comment O-EC-3 for more information on how Reclamation is prioritizing projects to incrementally implement its obligations in the Settlement and Settlement Act. Factors such as habitat sufficiency, water temperatures, and predation are being considered in Project development, to the extent feasible, based on Reclamation analyses, Technical Advisory Committee reports, and Restoration Administrator recommendations, and Implementing Agency input.

Response to Comment O-EC-5

The level of detail provided in the Draft EIS/R and this Final EIS/R is sufficient to analyze the environmental impacts of the entire Project at a project-level of detail under NEPA and CEQA. The EIS/R represents a 15 to 30 percent level of design for the

Project. This is consistent with both CEQA and NEPA, in which the environmental analysis process occurs before completion of final design. Section 1501.2 of the CEQ's regulations implementing NEPA states that "[a]agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts" (40 CFR 1501.2). Similarly, State CEQA Guidelines section 15004 indicates that environmental analysis "should be prepared as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment." As provided in State CEQA Guidelines section 15146, the level of detail in the environmental analysis is to "correspond to the degree of specificity involved in the underlying activity which is described in the EIR." This EIS/R is based on the level of engineering and planning currently available and is adequate to identify potential environmental impacts of the alternatives and identify appropriate mitigation measures.

Section 2.2 of this EIS/R describes the Project alternatives, the facilities associated with each of the alternatives, and the general operations of those facilities. For example, the description of each alternative includes a discussion of the structures and channels needed to convey flows and to allow unimpeded fish passage in the river, as well as a discussion of how water would be delivered to Mendota Pool. Section 2.2.4 of this EIS/R provides additional detail on elements common to all alternatives. While the level of design and operational details required for an operations plan are not available at this time, Reclamation would continue to coordinate with and seek input from stakeholders, such as the Exchange Contractors, as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction. See also MCR-4: Project Design and Operations.

Tracking funds is outside of the scope of the EIS/R. However, as part of the PEIS/R ROD (Reclamation 2012), Reclamation committed to development of an Annual Work Plan that tracks obligations and expenditures of the entire SJRRP. This commitment includes review of the Annual Work Plan by the Exchange Contractors, which Reclamation has completed each year since signing the ROD. In addition, as part of the Revised Framework, the Implementing Agencies have committed to Quarterly Budget and Schedule meetings that include quarterly expenditures and schedule tracking for the entire SJRRP, including this Project. These SJRRP-wide actions, which are completely open to the public, are the appropriate mechanisms to track obligations and expenditures of the entire SJRRP.

See response to comment O-EC-3 and MCR-5: Project Funding for more information on how Reclamation is prioritizing projects to incrementally implement its obligations in the Settlement and Settlement Act and prevent stranded assets.

Response to Comment O-EC-6

Reclamation has completed an extensive analysis, based on the best available information, of the potential loss of fish to the Mendota Pool. This information is important, as the whole purpose of the Mendota Pool Bypass is to reduce fish entrainment in the Mendota Pool to better meet the Restoration Goal. Said another way,

the SJRRP does not want to lose so many fish in the Mendota Pool such that it compromises the Program's ability to meet the Restoration Goal.

There are two primary scenarios where water from the San Joaquin River would flow into Mendota Pool after construction of the Mendota Pool Bypass. One is when flood flows are released from Friant Dam, either to improve the storage potential of Millerton Lake to retain floods or when the reservoir is spilling water. Under this condition, water is diverted into Mendota Pool to be used by the Exchange Contractors. The second scenario occurs when water is released from Friant Dam with the express purpose of supplying water to the Exchange Contractors in fulfillment of Exchange Contract. The entrainment analysis includes both flood deliveries and calls on Friant to satisfy the Exchange Contract, and includes a higher frequency of calls on Friant than has historically occurred through 2015.

Reclamation has determined that the number of juvenile fall-run and spring-run Chinook salmon that would be lost to Mendota Pool without a fish screen is not within the range that is acceptable to the SJRRP The number of juveniles expected to be entrained in Mendota Pool is small (on average approximately 6 to 7 percent of the annual population) when considered over a variety of water year types, but could include multiple years in a row with more than 20 percent of the annual population of juveniles entrained in Mendota Pool. The greatest entrainment is expected to occur during flood releases in February and March. Calls on Friant to satisfy the Exchange Contract in late spring and/or early summer months would have minimal impact to juvenile fall-run and spring-run Chinook salmon because these fish are expected to emigrate out of the area prior to mid-May.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See MCR-1: Mendota Pool Fish Screen.

The commentor identifies that Reclamation "promised" a fish screen in a letter from the Regional Director to the Exchange Contractors dated September 1, 2009. That letter states (emphasis added):

> *The RMC has requested that Reclamation take the position that we must provide a fish screen or fish diversion facility at the new Mendota Pool Bypass to protect the Exchange Contractors water rights. As we have described in previous letters to the Exchange Contractors, we have initiated preparation of the Mendota Pool Bypass and Reach 2B*

> *Channel Improvements Project Environmental Impact Statements/Environmental Impact Report (EIS/R). Based on our current analysis, we feel that it will be important to include a positive fish barrier in the design to reduce or avoid entrainment in the Mendota Pool and will evaluate this in the EIS/R. As described in pre-Settlement materials, the intent of the new Mendota Pool Bypass is to reduce fish entrainment in the Mendota Pool. We will continue to evaluate the need for a fish screen or other fish diversion facility at this location as part of the EIS/R and will commit to include such a facility as part of the project unless other measures can be taken to adequately reduce fish entrainment in the Mendota Pool.*

Reclamation has upheld the commitments it made in this September 1, 2009, letter to you. Looking at each one of these components individually:

- *Based on our current analysis, we feel that it will be important to include a positive fish barrier in the design to reduce or avoid entrainment in the Mendota Pool and will evaluate this in the EIS/R.* – In this sentence, Reclamation committed to including an evaluation of a fish screen in the design and EIS/R. We have upheld this commitment in that the Draft EIS/R includes a fish screen in Alternatives A, C, and D and includes the Mendota Pool Fish Screen in Alternative B, if determined necessary. (The conditional language used in Alternative B that indicates that the Mendota Pool Fish Screen would be built "if determined necessary" has been deleted in the Final EIS/R to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project.)
- *As described in pre-Settlement materials, the intent of the new Mendota Pool Bypass is to reduce fish entrainment in the Mendota Pool.* – Much speculation has existed as to how many fish would be lost in the Mendota Pool absent a fish screen. As described in MCR-1: Mendota Pool Fish Screen, Reclamation has completed an extensive analysis, based on the best available information, of the potential loss of fish in the Mendota Pool. This information is important as the whole purpose of the Mendota Pool Bypass is to reduce fish entrainment in the Mendota Pool to better meet the Restoration Goal. Said another way, the SJRRP does not want to lose so many fish in the Mendota Pool such that it compromises the Program's ability to meet the Restoration Goal. That would be counterproductive. Reclamation has fulfilled this commitment in that we have completed additional analysis to determine the potential loss of fish in Mendota Pool absent the fish screen.
- *We will continue to evaluate the need for a fish screen or other fish diversion facility at this location as part of the EIS/R and will commit to include such a facility as part of the project unless other measures can be taken to adequately reduce fish entrainment in the Mendota Pool.* – As described above, Reclamation has continued to evaluate the need for a fish screen by both including one in the Draft EIS/R for Alternatives A, C, and D and including one in Alternative B, if determined necessary, and by completing the separate analysis described in MCR-

> 1: Mendota Pool Fish Screen. As described in MCR-1: Mendota Pool Fish Screen, the SJRRP has determined in that the number of fish lost in Mendota Pool is not within an acceptable range and therefore has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative.

Reclamation's letter never commits to building the fish screen, it merely commits to continuing to evaluate it. A letter from Reclamation, in itself, cannot commit Reclamation to constructing the fish screen. This commitment can only be made after appropriate NEPA review in a ROD. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R.

Response to Comment O-EC-7

The SJRRP Implementing Agencies agree that subsidence is a major issue and are taking a variety of actions to account for subsidence in implementation of the SJRRP. In 2011, Reclamation established the SJRRP Geodetic Control Network, using static GPS methods, to investigate subsidence within the Restoration Area. Reclamation conducts bi-annual surveys, in July and December, of the established network to monitor the rate of subsidence over time. The network is made up of National Geodetic Survey, Reclamation, USGS, California Department of Transportation, and DWR benchmarks. Each of the 85 control point elevations are updated after each survey and are used by the SJRRP to study subsidence, as well as to provide accurate horizontal and vertical controls for other studies. After each survey, Reclamation prepares exhibit maps that compare the most recent data with the data from the previous survey and with data from prior years. The exhibit maps provide an overall picture of the subsidence within the Restoration Area. Annual subsidence rates have varied with time, but in general, subsidence trends appear to have either remained constant, or in some areas increase in the Restoration Area, since the start of the surveys. Subsidence rates range from about 0.15 foot per year to 0.75 foot per year in the Restoration Area, as calculated from survey data collected between December 2011 and December 2015 (SJRRP 2016a, Reclamation 2016).

Reclamation and DWR have also performed subsidence monitoring along the Flood Control Project levees to help further refine the estimated annual subsidence rates along the levees of the flood bypasses. Beginning in May 2012, Reclamation began monitoring the Arroyo and Temple-Santa Rita Canals to clarify localized subsidence near Sack Dam. To accomplish this, two precise leveling networks were established – Arroyo Canal starting at Sack Dam running approximately 6 miles westerly and the Temple-Santa Rita Canal starting at Check Structure 1 on the Arroyo Canal running approximately 11 miles northerly. These level networks were surveyed monthly for just over a year. In 2012 and later in 2013, DWR collected topographic ground elevations to help further refine the estimated annual rates in the lower 3 miles of Reach 2A, the Chowchilla Bypass (from the Chowchilla Bifurcation Structure to its confluence with the Fresno River), the Upper Eastside Bypass (from its confluence with the Fresno River to the Sand Slough Connector), the Middle Eastside Bypass (from the Sand Slough Connector to the Eastside Bypass Control Structure), and the Mariposa Bypass. In addition to the above surveys, DWR also completed surveys in 2013 and 2014 of the levee and channel in the lower portion of Reach 3, Reach 4A, and the Middle Eastside Bypass (SJRRP 2014b).

Subsidence rates in the Project area range from about 0 to 0.3 foot per year, as calculated from survey data collected between December 2011 and December 2015 (Reclamation 2016). Subsidence rates vary annually, with higher rates occurring during critical dry conditions when the river is dry and when groundwater pumping is likely to increase. For example, average subsidence rates in the Project area were 0.15 to 0.3 foot per year in 2015 during critical dry conditions.

As discussed in Section 2.2.4 of this EIS/R, causes of the observed subsidence, data from previously conducted studies, subsidence locations expected to require special design considerations, anticipated subsidence rates, and methods to mitigate the anticipated ground subsidence would be identified during the design process and incorporated into the design. As described during the November 18, 2015, design briefing for landowners and stakeholders in the Reach 2B area, Reclamation is designing new Reach 2B levees and water control structures, such as the Mendota Pool Control Structure and the Compact Bypass Control Structure, to account for 5 feet of subsidence. This is equivalent to the current rate of subsidence for 25 years. This design criterion is considered conservative, because in 2040 (25 years from now) the Sustainable Groundwater Management Act will have required Groundwater Sustainability Agencies to reach sustainable levels of groundwater withdrawal in critically-overdrafted State groundwater basins. This presumably means that subsidence will have stopped in the Project area by 2040. The Project area is in a critically-overdrafted basin. Methods to account for this anticipated ground subsidence in the Project design include additional freeboard on levees, additional height of control structures and intake facilities, and additional stoplogs or concrete walls to maintain the same low flow elevation after years of subsidence on control structures. See also MCR-3: Subsidence.

As described in this EIS/R, the Project would construct set-back levees and expand the floodplain in Reach 2B. This would increase infiltration from river flows, recharging the shallow groundwater, a beneficial effect with respect to groundwater overdraft and subsidence. Chapter 11, “Geology and Soils,” Chapter 13, “Hydrology – Groundwater,” and Chapter 14, “Surface Water Resources and Water Quality,” of the Draft EIS/R cite a USGS study that was prepared in cooperation with Reclamation and the San Luis and Delta-Mendota Water Authority (Sneed et al. 2013) as a source of information regarding Valley-wide subsidence effects and local effects near Mendota Dam. Additional data compiled by Reclamation for recent subsidence rates in the SJRRP Restoration Area are included in Sections 11.1.7, 13.1.1, and 13.1.2 of the Final EIS/R. These data provide additional information regarding existing conditions in areas downstream of the Project area. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-8

Sections 1.6.2 and 1.6.3 of this EIS/R first introduce Mendota Pool operations, describing the various inflows and outflows from Mendota Pool and the basic flow scenarios involving water deliveries and flood management. Chapter 14 of this EIS/R provides more detail, describing the limited storage capacity of the Pool and the limited operating elevations. The release of Restoration Flows is a Program-related activity analyzed in the

PEIS/R. Overall SJRRP activities are outside of the scope of this Project. Therefore, releasing Restoration Flows is not re-analyzed in this EIS/R as a Project impact.

The Action Alternatives would remove a portion of the San Joaquin River arm of Mendota Pool upstream of the Compact Bypass or Fresno Slough Dam. The transient storage capacity of Mendota Pool is estimated to be between 290 and 1,460 acre-feet, corresponding to the top 0.2 and 1.0 foot of the Pool, respectively. The reduction in transient storage capacity is estimated to be between 33 and 164 acre-feet for the Compact Bypass alternatives and between 46 and 230 acre-feet for the Fresno Slough Dam alternatives. This represents a reduction of approximately 11 to 16 percent of the transient storage capacity of the Pool (DWR 2012b). Fluctuations in transient storage depth are expected to be within historical fluctuations found during wet, normal-wet, and normal-dry water years. The historical overall annual range can vary from greater than 2.0 feet (wet water year), 0.7 foot (normal wet water year), and 0.5 foot (normal dry water year). In addition, six SCADA (supervisory control and data acquisition) gates were recently installed at Mendota Dam. Knowledge of Mendota Pool operations, in combination with the new SCADA system partially funded by the SJRRP, will be used to assure that the Pool is operated in a manner similar to the way it has always been operated. This information is clarified in Section 23.3.3 of the Final EIS/R.

Response to Comment O-EC-9

Although the implementing agencies responsible for the SJRRP are Reclamation, USFWS, NMFS, DWR, and DFW, Reclamation has taken the lead role in development and implementation of the Project. Reclamation is currently working on the Project design and is responsible for Project construction. It was originally anticipated that DWR would be a construction partner for the Project, but this could not be realized due to State funding constraints. As described in the Revised Framework (SJRRP 2015; Tables 4-10 and 5-11), all of the costs for the Mendota Pool Bypass in the Five Year Vision and all of the costs for the Reach 2B levee expansion in the Ten Year Vision are Federal costs. DWR is responsible for levee stability projects in reaches other than Reach 2B and 4B – where the Channel Capacity Report identifies existing levees as not able to pass Restoration Flows while meeting Corps criteria. If additional State funds become available, DWR may undertake the fish passage improvements to the San Joaquin River Structure at the Chowchilla Bifurcation Structure. Although DWR would continue to have a lead role in SJRRP implementation, including levee stability in downstream reaches, DWR does not have the principal responsibility for Project implementation in Reach 2B, nor does it have responsibility for permit issuance for the Project.

CSLC is a State land-owning agency with discretionary approval for permit issuance in the Project area in areas of sovereign lands. (CSLC is not a construction partner.) CSLC became the CEQA lead agency because of this Project-specific relationship.

This information was clarified in Section 27.2.2 of the Final EIS/R.

Response to Comment O-EC-10

The Implementing Agencies have been open and clear that the original schedule in the Settlement for implementation of Paragraph 11(a) and 11(b) projects can no longer be

achieved. As the schedule has not worked out as originally planned, the Implementing Agencies have worked to determine the obligations in the Settlement and Settlement Act based on the process of statutory interpretation and construction. This process resulted in the Revised Framework.

The release of Restoration Flows, the reintroduction of salmon, and the overall implementation of Paragraph 11(a) and 11(b) projects in areas outside of the Mendota Bypass and Reach 2B improvements area are Program-related activities analyzed in the PEIS/R. Overall SJRRP activities are outside of the scope of this Project and therefore, these activities are not re-analyzed in this EIS/R.

Although the Project and many Program-related activities have been delayed, this delay does not in itself require recirculation of the environmental compliance documentation for this EIS/R or for the PEIS/R. Supplemental environmental compliance documentation would be required if substantial changes were made to alternatives that are relevant to environmental concerns or significant new circumstances or information relevant to environmental concerns arise that have a bearing on the proposed action (40 CFR 1502.9(c); State CEQA Guidelines, § 15162). Delayed implementation does not, in itself, substantially change selected alternatives or provide new information that would warrant supplemental environmental compliance documentation.

This EIS/R describes a range of existing conditions, including those associated with pre-Interim flows (consistent with the timing of the July 2009 Notice of Preparation) and those that reflect the Restoration Flows as they exist now. The EIS/R also analyzes a No-Action Alternative which describes conditions that are predicted to exist in the Project area, if the Project is not implemented. The No-Action Alternative assumes that other components of the SJRRP selected alternative, as described in the SJRRP ROD, and other reasonably foreseeable actions expected to occur in the Project area consistent with current management direction, would be implemented. Therefore, the No-Action Alternative generally assumes that flows and fish are present in the system, but no channel or structural improvements would be made in Reach 2B. Restoration Flows would also be reduced to the then-existing channel capacity in the river system.

Response to Comment O-EC-11

This comment refers to the September 1, 2009 letter from the Reclamation Regional Director to the Exchange Contractor and raises issues that are substantially similar to comment O-EC-6. Refer to response to comment O-EC-6 for a response to these issues.

This comment also identifies that at the time of preparation of the PEIS/R and the drafting of the September 1, 2009 letter, it was anticipated that flows to the Mendota Pool would only occur during flood years. This is not entirely correct. At the time of preparation of the PEIS/R, Reclamation was well aware that flows into the Mendota Pool could result from both flood flows as well as a delivery of water under the Exchange Contract via the San Joaquin River. This was reflected in the Settlement itself, which calls for “a structure capable of directing flow down the bypass and allowing the Secretary of the Interior to make deliveries of San Joaquin River water into the Mendota Pool when necessary.” However, at that time, the delivery of water under the Exchange

Contract via the San Joaquin River had never occurred. While the frequency of occurrence of deliveries under the Exchange Contract via the San Joaquin River is speculative at this time, Reclamation has attempted to account for this potential in the analysis in MCR-1: Mendota Pool Fish Screen by simulating deliveries to Mendota Pool beginning May 15 and July 15 for Critical–Low and Critical–High water years, respectively. In general and as described in MCR-1: Mendota Pool Fish Screen, juvenile salmon are expected to emigrate out of the area prior to mid-May and therefore the entrainment of juvenile fall-run and spring-run Chinook salmon due to May and June flows for the Exchange Contractors is very small. In one out of every 20 years, less than 2 percent of the annual population would be entrained by these deliveries (Part VI – Appendices to the Responses).

The commenter identifies that there may be the loss of 20 to 40 percent of the reintroduced spring-run Chinook salmon in the Mendota Pool. However, this information is not supported by evidence or facts and it is unclear how these estimates were developed.

As discussed in response to comment O-EC-6, Reclamation has determined that the number of juvenile fall-run and spring-run Chinook salmon that would be lost to Mendota Pool without a fish screen is not within the range that is acceptable to the SJRRP. The number of juveniles expected to be entrained in Mendota Pool is small (on average approximately 6 to 7 percent of the annual population) when considered over a variety of water year types, but could include multiple years in a row with more than 20 percent of the annual population of juveniles entrained in Mendota Pool. The greatest entrainment is expected to occur during flood releases in February and March.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See MCR-1: Mendota Pool Fish Screen.

Response to Comment O-EC-12

Seepage projects and levee stability projects have been identified in the Restoration Area where potential seepage impacts or levee stability would otherwise cause a constraint in Restoration Flows. As described in the PEIS/R (and in Section 2.2.10 of this EIS/R), Restoration Flows would be maintained at or below estimates of the then-existing channel capacity for the reaches that convey the flow. Because the reaches are connected, flows through Reach 2B would be less than 4,500 cfs until downstream seepage and levee stability projects are completed and Reclamation, in compliance with the commitments it made in the PEIS/R ROD (Reclamation 2012) and consistent with the

requirements in its water rights order, has determined that the non-damaging channel capacity is 4,500 cfs. Said another way, flows would not increase in the river reaches until Reclamation, through the seepage management efforts and through the channel capacity report process, determines that such flows would not damage adjacent landowners or impact levee stability. See MCR-6: Flood Management Considerations and O&M Costs for additional detail on the SJRRP's commitment to maintain flows below then-existing channel capacities.

As discussed in the Revised Framework, the Five Year Vision (FY 2015 to 2019) includes completion of seepage and levee stability projects in the river reaches to allow for flow up 1,300 cfs, the Ten Year Vision (FY 2020 to 2024) includes completion of seepage and levee stability projects to 2,500 cfs and increasing channel capacity in all other reaches to 2,500 cfs, and the Fifteen Year Vision (FY 2025 to 2029) includes completion of seepage and levee stability projects to 4,500 cfs and increasing channel capacity in all reaches to 4,500 cfs. Minimizing seepage damage in downstream reaches will be addressed through these seepage projects. (See also MCR-2: Seepage Management.)

Corrections have been made on page ES-11 to indicate that screening would occur, if appropriate. This clarifying correction in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-13

The Revised Framework provides an analysis of budget and schedule for the SJRRP projects, including the Project. As described in that document, and in Section 2.2.4 of the EIS/R, the Project would be phased over the Five Year Vision (FY 2015 to 2019) and Ten Year Vision (FY 2020 to 2024), with the Mendota Pool Bypass portion of the Project being built prior to the Reach 2B channel improvements. This phasing is consistent with the analysis in the EIS/R, where the overall construction schedule was estimated to be 10 to 13 years.

As described in the Construction Funding Appendix (Appendix C) of the Revised Framework, the SJRRP expects to have funds to build the Project with funds from the San Joaquin River Restoration Fund and appropriated funds allocated to the SJRRP. In this way, Reclamation is working to be thoughtful and careful, and working to incrementally implement its obligations in the Settlement and Settlement Act while not resulting in stranded assets due to limited funding. See response to comment O-EC-3 for more information on overall SJRRP funding and prioritization of SJRRP projects. How the construction schedule for the Project would affect other SJRRP projects and the timetable for completion of all of the SJRRP improvements is outside of the scope of this EIS/R and is addressed in the Revised Framework and the PEIS/R.

It is important to clarify that when the EIS/R uses the term phasing, it is specifying that the construction is necessarily being scheduled over time to be realistic and achievable. It would be incredibly challenging to construct a project of this magnitude all at one time both from an environmental impact standpoint and from a logistical standpoint. The amount of activity, workers, equipment, and disturbance to the local communities would

be tremendous to construct the project all at once. In addition, and to minimize disturbances, environmental impacts, and control costs, some activities need to occur prior to others. For example, the excavation of the Mendota Pool Bypass needs to occur early in the Project construction sequencing as the materials excavated are anticipated to be used as levee materials for the Reach 2B levees. The EIS/R uses the word phasing when referring to the sequence in which the actual Project components would be constructed. Construction considerations were included in the description of the Project alternatives (Sections 2.2.5 through 2.2.8 of this EIS/R). Construction impacts to fisheries, water supply, land use, flood management, and other resource areas, including those that could occur for multiple years are discussed in Chapters 4 through 24 of this EIS/R.

As described in Chapter 5 of this EIS/R, there are several impediments to upstream and downstream fish passage under existing conditions. As the Project is built, fish would encounter fewer of these obstacles. For example, once the Mendota Pool Bypass and associated fish ladders are complete, upmigrating fish would be able to pass by Mendota Dam. In-channel construction could also affect fish passage (see Impact AQUA-5), however, construction actions would be designed and implemented in such a way as to allow fish passage to continue in the channel or in the completed portions of structures while other portions are built.

Response to Comment O-EC-14

Table 5-2b of the Revised Framework identifies an O&M budget of $200,000 a year for the Mendota Pool Bypass starting in FY 2020, after construction has completed in FY 2019. Table 5-2b assigns this cost to the Federal government (Reclamation). In addition, Table 6-2b of the Revised Framework identifies an O&M budget of $200,000 a year for the Reach 2B Improvements starting in FY 2026, after construction has completed in FY 2025. Table 6-2b assigns this cost to the Federal government (Reclamation). These O&M costs are included until FY 2029, which is the end of the planning horizon for the Revised Framework. In addition, the SJRRP has committed to long-term O&M activities to be implemented in the SJRRP Restoration Area that could contribute to actions in the Mendota Pool Bypass and Reach 2B area. These activities including invasive species management ($300,000 per year) and vegetation management ($200,000 per year), both funded through FY 2029 in the Revised Framework (again, the end of the planning horizon in the Revised Framework). Although the budget has not been developed beyond FY 2029, funding for Project O&M activities is intended to continue for the life of the Project. For additional information on SJRRP funding, see MCR-5: Project Funding.

Response to Comment O-EC-15

It is unclear what levees the commenter is referring to here. The term then-existing channel capacity is a term used by the SJRRP in determining channel capacity in the existing reaches of the river. It is unclear if the commenter is referring to the Project levees or levees upstream and downstream of the Project area. Both are addressed here to be responsive to the comment.

As discussed in Section 2.2.4 of this EIS/R, seepage control measures would be included, as necessary, in the Project area where seepage is likely to affect adjacent land uses (*i.e.,*

where native soils do not provide sufficient control for under-seepage). These measures are included in the levee design in the Action Alternatives. Project levees would be designed to the current levee design standards available from the Corps, the expert on levee design. As described in Sections 2.2.4 and 2.2.11 of the EIS/R, levee design would be based on the Corps' Engineer Manual 1110-2-1913, *Design and Construction of Levees* (Corps 2000a), Engineer Manual 1110-2-1902, *Slope Stability* (Corps 2003), Engineering Technical Letter 1110-2-569, *Design Guidance for Levee Underseepage* (Corps 2005), and Engineer Technical Letter 1110-2-583, *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures* (Corps 2014). These design standards require that the levees be designed using a slope stability Factor of Safety and an underseepage Factor of Safety (described below). These design factors would minimize the potential for the Project levees to fail. The Mendota Pool Bypass and Reach 2B levees would be designed to a capacity of 4,500 cfs with 3 feet of freeboard.

The approach to determining then-existing channel capacity in the existing reaches of the river is extensive and is described in detail in the PEIS/R ROD from Page 9 to 15 (Reclamation 2012) and summarized in MCR-6: Flood Management Considerations and O&M Costs in this Final EIS/R. In summary, throughout Settlement implementation, the maximum downstream extent and rate of Restoration Flows to be released would be maintained at or below then-existing channel capacities. Then-existing channel capacities within the Restoration Area correspond to flows that would not significantly increase flood risk from Restoration Flows in the Restoration Area.

The levee design criteria developed by the Corps and presented in *Design and Construction of Levees* (Engineer Manual 1110-2-1913) (Corps 2000a), *Slope Stability* (Engineer Manual 1110-2-1902) (Corps 2003), and *Design Guidance for Levee Underseepage* (Engineering Technical Letter 1110-2-569) (Corps 2005) would be applied throughout the Restoration Area to identify the Restoration Flows that would not cause the levee slope stability Factor of Safety to be reduced below 1.4, or the underseepage Factor of Safety to be reduced below the value corresponding to an exit gradient at the toe of the levee of 0.5. The levee slope stability Factor of Safety is defined as the ratio of available shear strength of the top stratum of the levee slope to the necessary shear strength to keep the slope stable (Corps 2003). The application of the levee slope stability Factor of Safety of 1.4 is required for federally authorized flood control projects. Through-seepage is calculated as part of the slope stability analysis and does not have a separate Factor of Safety. The underseepage Factor of Safety is defined as a ratio of the critical hydraulic gradient to the actual exit gradient of seepage on the levee. Corps design guidance recommends that the allowable underseepage factor of safety for use in evaluations and/or design of seepage control measures should correspond to an exit gradient at the toe of the levee of 0.5 (in general, this would provide a Factor of Safety of 1.6), but states that deviation from recommended design guidance is acceptable when based and documented on sound engineering judgment and experience (Corps 2005).

Until adequate data are available to determine the Factors of Safety, Reclamation would limit the release of Restoration Flows to those which would remain in-channel. In-

channel flows are flows that maintain a water surface elevation at or below the elevation of the landside levee toe (*i.e.*, the base of the levee). When sufficient data are available to determine the Factors of Safety, Reclamation would limit Restoration Flows to levels that would correspond to a levee slope stability Factor of Safety of 1.4 or higher and an underseepage Factor of Safety corresponding to an exit gradient at the toe of the levee of 0.5 or lower at all times. The SJRRP strategy to reduce flood risk is based on a conservative approach of using the Corps' standards and maintaining flows below the toe of the levee until such information can be collected to use the Corps standards.

The commenter also expresses concerns related to O&M costs for the flood system. It is unclear if the commenter is referring to the O&M costs of the Project facilities or the O&M costs for the Flood Control Project. See response to comment O-EC-14 and MCR-5: Project Funding for more information on the Project O&M costs. See MCR-6: Flood Management Considerations and O&M Costs for more information on the responsible party for O&M of the Flood Control Project.

Response to Comment O-EC-16

Effects from groundwater seepage were analyzed in Section 13.3.3 of this EIS/R (see Impact GRW-3). As discussed in Section 2.2.4 of this EIS/R, seepage control measures would be included, as necessary, in Project areas where seepage is likely to affect adjacent land uses (*i.e.*, where native soils do not provide sufficient control for under-seepage). These measures are included in the levee design in the Action Alternatives for the full range of design flows up to 4,500 cfs, including flows greater than 1,200 cfs. As discussed in MCR-2: Seepage Management, the current design for the Compact Bypass includes bentonite slurry cut-off walls in the levees surrounding the Compact Bypass and in the north levee from about RM 206 and 208. The cutoff walls would be about 3 feet wide and would extend 15 to 20 feet below grade and about 8 feet above grade. Inspection trenches would also be included periodically, where needed. A bentonite slurry cut-off wall may be constructed to control groundwater seepage elsewhere on the floodplain, although other seepage control measures may also be used, such as drainage ditches, interceptor lines, or seepage easements. The seepage control measures used in the Reach 2B improvements area would be selected based on site evaluations, suitability of site conditions, feasibility, and landowners and stakeholder input.

As described in the Revised Framework, seepage and levee stability projects in other reaches are anticipated to be completed during FY 2015 to 2029 in a manner that allows for an increase in Restoration Flows while not exceeding the then-existing capacity of the reaches that convey the flow. The highest priority seepage projects in the Restoration Area are those located in areas that would be impacted at the lowest San Joaquin River flows. Key areas of concern include the downstream end of Reach 2A, portions of Reach 3, and the downstream end of Reach 4A. Seepage projects are expected to be complete by 2020 in areas that would otherwise cause flow to be constrained below 1,300 cfs. Subsequent seepage projects are expected to be complete by 2025 in areas that would otherwise be affected by flows up to 2,500 cfs. All seepage projects are expected to be complete by 2030 to allow up to 4,500 cfs of Restoration Flows in the San Joaquin River. See MCR-2: Seepage Management for additional information on the SJRRP's seepage projects in upstream and downstream reaches. See also response to comment O-EC-15

and MCR-6: Flood Management Considerations and O&M Costs for additional information on the SJRRP's approach to determining then-existing channel capacities.

Effects to recreation are discussed in Chapter 20 of this EIS/R. This chapter also describes existing access points to the river in Reach 2B and provides for boat portage facilities around Project structures in Mitigation Measure REC-2, Establish Boat Portage Facilities around Project Facilities.

The only public crossing that could be used for emergency access in the Project area is the San Mateo Avenue crossing. The EIS/R analyzes the temporary and long-term effects of replacing the San Mateo Avenue crossing (Alternatives A and C) or removing this crossing (Alternatives B and D). It also analyzes the temporary and long-term effects to emergency vehicle access at Drive 10 1/2, which crosses the river at Mendota Dam (see Section 22.3.3, Impact TRA-4). The Project does not propose new bridge or low-flow crossings at other locations.

Response to Comment O-EC-17

It is important to clarify that when the EIS/R uses the term phasing, it is specifying that the construction is necessarily being scheduled over time to be realistic and achievable. The construction schedule and timing for construction of the Project is introduced in Chapters 1 and 2 of this EIS/R, and analyzed in the resource chapters. As described in Section 2.2.4 of the EIS/R and the Revised Framework, the Mendota Pool Bypass portion of the Project is expected to be constructed prior to levee setbacks in Reach 2B. Although the duration of construction at a given location may be limited, some construction impacts can occur over a multi-year period. See Chapters 4 through 24 of this EIS/R for resource-specific details on construction impacts. See also response to comment O-EC-13 for additional information on Project construction scheduling.

Effects on fisheries from Project construction activities are described in Section 5.3.3 of this EIS/R under Impact AQUA-5. As identified in this section, construction actions would be designed and implemented in such a way as to allow fish passage to continue in the channel or in the completed portions of structures while other portions are built. Avoidance and minimization measures would be implemented during in-channel construction activities including temporary bypass facilities that meet fish passage criteria around construction areas, use of cofferdams to allow construction in dewatered portions of the channel, and/or fish rescue and relocation. These areas would not hold warm, standing water.

Response to Comment O-EC-18

It is important to clarify that when the EIS/R uses the term phasing, it is specifying that the construction is necessarily being scheduled over time to be realistic and achievable. The construction schedule and timing for construction of the Project is introduced in Chapters 1 and 2 of this EIS/R, and analyzed in the resource chapters. See Chapters 4 through 24 of this EIS/R for resource-specific details on construction impacts. See also response to comment O-EC-13 for additional information on Project construction scheduling.

As described in Section 2.2.4 of the EIS/R and in the Revised Framework, the Mendota Pool Bypass portion of the Project is expected to be constructed prior to levee setbacks in Reach 2B. Section 2.2.6 of this EIS/R describes construction considerations for the preferred alternative. Construction of the Compact Bypass channel includes excavating the bypass channel, constructing levees and in-channel structures, removing existing levees, and relocating or modifying existing infrastructure. The bypass channel would be excavated in areas protected by existing levees. The construction of the Mendota Pool control structure would require removable cofferdams in three phases to facilitate the construction without blocking flow. If flow is present in the river during the construction period, flow would be diverted around the work area via a temporary diversion pipe or canal and fish passage would be provided. Through standard engineering design methods, backwater effects would be minimal. Once the Compact Bypass and control structures are complete, levee setbacks and other Reach 2B improvements would be constructed. An expanded floodplain would allow riverine inundation in new areas. As discussed in Section 2.2.4 of this EIS/R, seepage control measures would be included in the levee design in the Action Alternatives, as necessary, where seepage is likely to affect adjacent land uses. This construction sequencing would not create new seepage or flood management impacts that are not already described in the EIS/R.

Redirecting San Joaquin River flows through the Compact Bypass is expected to reduce water levels and stresses on Mendota Pool levees because less water would be going over Mendota Dam. Levees located upstream of the Compact Bypass are expected to experience similar or lower water levels because the Compact Bypass would convey flows more efficiently than Mendota Pool due to the elevation and slope of the bypass. Effects to channel erosion are described in Section 14.3.3 of this EIS/R. Construction sequencing would not create additional erosion or sedimentation impacts that are not already analyzed in the EIS/R.

Changes to the Flood Control Manual are speculative at this time and are outside of the scope of this project. Effects due to changes to the Flood Control Manual, if any are made, would require analysis by the flood management agencies and separate environmental documentation, as appropriate. With respect to O&M costs for Flood Control Project, see MCR-6: Flood Management Considerations and O&M Costs.

Response to Comment O-EC-19

Effects on agricultural land productivity due to seepage are analyzed in Section 16.3.3 of this EIS/R (see Impact LU-4). As discussed in Section 2.2.4 of this EIS/R, seepage control measures would be included, as necessary, in Project areas where seepage is likely to affect adjacent land uses. These measures are included in the levee design in the Action Alternatives for the full range of design flows up to 4,500 cfs, including flows greater than 1,200 cfs. (See response to comment O-EC-16 and MCR-2: Seepage Management for additional information.) Through implementation of these seepage control measures, seepage effects on agricultural lands in Reach 2B would be less than significant.

See response to comment O-EC-12, MCR-6: Flood Management Considerations and O&M Costs, and MCR-2: Seepage Management regarding conveyance of flows through

Reach 2B, the implementation of downstream seepage and levee stability projects, and SJRRP's commitment to maintain Restoration Flows below then-existing channel capacities. Minimizing seepage damage in downstream reaches will be addressed through these seepage projects.

Response to Comment O-EC-20

The term "Third Parties" is a phrase commonly used in SJRRP documents, including the Settlement and the Settlement Act. Typically, the term "Third Party" refers to groups that are not party to a lawsuit or agreement, but are implicated in such lawsuits or agreements. In the context of this response to comment and this Final EIS/R, Third Parties include landowners and agencies that have a vested interest in implementing the SJRRP. These entities include the Exchange Contractors, Central California Irrigation District, Firebaugh Canal Water District, San Luis Canal Company, Columbia Canal Company, Merced Irrigation District, Turlock Irrigation District, Modesto Irrigation District, Oakdale Irrigation District, South San Joaquin Irrigation District, San Joaquin Tributaries Association, the San Joaquin River Resources Management Coalition, Westlands Water District, and San Luis and Delta-Mendota Water Authority. A Memorandum of Understanding (MOU) between Reclamation and the Third Parties regarding planning, designing, and implementing appropriate aspects of the Settlement outlines the manner through which the Third Parties are involved in the SJRRP. As stated in the MOU, Reclamation and the other Implementing Agencies and Settling Parties (Natural Resources Defense Council, Friant Water Authority, and the U.S. Departments of the Interior and Commerce) are primarily responsible for implementing the Settlement. The Third Parties are not party to the Settlement. While the MOU states that the Third Parties agree to cooperate with Reclamation in implementing the Settlement, the Third Parties retained all rights of actions or claims of relief with respect to implementing the Settlement that they have under any applicable law.

This comment asserts that no impacts to Third Parties should occur from the Project. The Settlement and the Settlement Act, however, present requirements separate and distinct from NEPA and CEQA requirements for evaluating environmental impacts. Reclamation is committed to implementing the Project to meet Settlement requirements while meeting Third-Party protections provided in the Settlement Act. Additionally, nothing in the Settlement or the Settlement Act prevents full disclosure of environmental impacts under NEPA and CEQA, whether or not such impacts adversely affect Third Parties. Paragraph 7 of the Settlement states the following:

> *The [Settling] Parties believe that this Settlement provides numerous important benefits to the State of California, including third parties located in the San Joaquin River Basin or who use the waters of the San Joaquin River or the Sacramento-San Joaquin Delta. The Parties neither intend nor believe that the implementation of this Settlement will have a material adverse effect on any third parties or other streams or rivers tributary to the San Joaquin River.*

The EIS/R demonstrates that, while adverse impacts would occur to various resources with implementing the Project, benefits to numerous resources such as fisheries,

vegetation, wildlife, wetlands, groundwater quality, groundwater recharge, and recreation would occur, as shown in Table ES-3 of this EIS/R. The Settlement Act subsequently described, in Section 10004, specific provisions for mitigating potential impacts on adjacent and downstream water users and landowners:

> *(d) MITIGATION OF IMPACTS. – Prior to the implementation of decisions or agreements to construct, improve, operate, or maintain facilities that the Secretary determines are needed to implement the Settlement, the Secretary shall identify –*
>
> *1. the impacts associated with such actions; and*
>
> *2. the measures which shall be implemented to mitigate impacts on adjacent and downstream water users and landowners.*

Completing the EIS/R as part of the NEPA process and identifying mitigation measures to be implemented fulfills Reclamation's obligations under this section of the Settlement Act. The commenter asserts that "pursuant to section 10004(d) of the Act, the Secretary of the Interior is legally required to mitigate the impacts identified" and asserts that no significant and unavoidable impacts may occur. Section 10004(d) of the Settlement Act does not require mitigation of all impacts identified. It requires the identification of impacts and the measures which shall be implemented to mitigate impacts. It basically requires NEPA be completed, which Reclamation is doing as part of this EIS/R. Section 10004(d) of the Settlement Act has no prohibition on the implementation of an action with a potentially significant and unavoidable impact.

Section 16.3.3 of this EIS/R discusses the mitigation measures required for land use planning and agricultural resources. Specifically, Mitigation Measure LU-1 will be implemented to minimize adverse effects on agricultural lands to the extent practicable. Similarly, Mitigation Measures LU-2 and LU-3 provide mitigation for impacts to Designated Farmland and Williamson Act contracts, respectively.

As discussed in Section 2.2.4 of this EIS/R, seepage control measures would be included, as necessary, in Project areas where seepage is likely to affect adjacent land uses. These measures are included in the levee design in the Action Alternatives for the full range of design flows up to 4,500 cfs. This Project-specific information is considered in evaluating Impact LU-4 (Degradation of Agricultural Land Productivity due to Seepage).

Response to Comment O-EC-21

Economic information is included in the EIS/R to meet NEPA requirements for analysis of social and economic impacts as part of the human environment. In the context of CEQA, economic effects are not considered significant effects on the environment (State CEQA Guidelines, § 15131, subd. (a)). The use of term "less than substantial" was used instead of the more common CEQA terminology ("less than significant") due to this distinction. As discussed in Section 21.3.3 of this EIS/R, with regards to agricultural production, a less than substantial impact on socioeconomic conditions in the Project area would result from a less than substantial decrease in the value of agricultural production

relative to region-wide conditions. At the regional level, the decline in agricultural production values is minor (less than 0.1 percent) when compared to agricultural activity in Fresno and Madera counties.

Response to Comment O-EC-22

Section 22.3.3 of this EIS/R evaluates the potential for inadequate emergency access (see Impact TRA-4). Project construction activities would create temporary or permanent roadway closures that may affect emergency access/emergency response times to areas immediately north of the San Mateo Avenue crossing or near Drive 10 ½. For those alternatives that improve the San Mateo Avenue crossing (Alternatives A and C), mitigation measures would require a temporary roadway and crossing to allow for thru-traffic and access across levee, canal, and river crossing construction areas, as applicable. The mitigation measure for Alternative B requires construction sequencing to provide continuous emergency access at Drive 10 ½. In Alternative B, new permanent access would be created across the new Mendota Pool and Compact Bypass control structures for specific agencies, such as emergency agencies and those with local facilities. Alternative D would also remove the San Mateo Avenue crossing, but in this case, construction sequencing may not be able to provide alternative access means during the temporary closures at Mendota Dam affecting Drive 10 ½. In all cases, one crossing would be removed and one would remain in the long-term to allow emergency access across the river. The analysis in Section 22.3.3 of this EIS/R shows that response times immediately north of whichever crossing is closed would increase beyond the County's 20 minutes goal for rural areas, while response times immediately north of the crossing that remains and in areas further from the river would be unchanged. In all cases, local emergency dispatchers will be notified of temporary and permanent road closures.

As identified in comment O-EC-24, the San Mateo Avenue crossing is "essentially a private river crossing because the south portion of the crossing is on private land." Although it provides emergency access in the event of an emergency, it is not a typical emergency access route as it is both a partially private road and it is inundated at relatively low flows in the river (around 150 cfs).

Section 23.3.3 of this EIS/R discusses the potential for new fire stations or the expansion of existing facilities due to this access limitation (see Impact UTL-1). The expansion of existing facilities and the siting of new firefighting stations occur in response to new growth areas, and the Action Alternatives would not increase population growth in the Project area or vicinity.

Response to Comment O-EC-23

Section 10.3.3 of this EIS/R evaluates effects on environmental justice communities, including those effects due to removing land from agricultural production. Mitigation measures implemented for agricultural resources can also reduce adverse effects on environmental justice communities through coordination with landowners and agricultural operators during construction. This EIS/R includes a measure that will be implemented for agricultural resources that requires Reclamation to coordinate with local growers to minimize traffic-related disruption from construction activities (Mitigation Measure LU-1). This EIS/R also includes a measure that requires local emergency

dispatchers to be notified of temporary road closures (Mitigation Measures TRA-4A and TRA-4B.) Also note that under the preferred alternative, agricultural activities would be allowed on the floodplain after construction, which would reduce job impacts to the community. Reclamation has held a meeting discussing this Project with the Spanish-speaking community in the City of Mendota, and anticipates holding several more meetings throughout Project implementation. See also response to comment O-EC-20 for a discussion of the requirements of Section 10004(d) of the Settlement Act.

Response to Comment O-EC-24

Section 1.6.2 of this EIS/R provides an introduction to these features and describes existing conditions. Project impacts to access across the river are discussed in the resource chapters, specifically Chapters 20 and 22 of this EIS/R. The EIS/R analyzes the temporary and long-term effects of replacing the San Mateo Avenue crossing (Alternatives A and C) or removing this crossing (Alternatives B and D). It also analyzes the temporary and long-term effects to emergency vehicle access at Drive 10 1/2, which crosses the river at Mendota Dam (see Section 22.3.3, Impact TRA-4). The Project does not propose new bridge or low-flow crossings at other locations. The Project does not propose to change the type of access that is allowed over water control structures (*e.g.*, Mendota Dam or bifurcation structures).

As identified in the comment, the San Mateo Avenue crossing is "essentially a private river crossing because the south portion of the crossing is on private land." Although in effect it provides public access across the river, it is not a public right-of-way south of the river; it is both a partially private road and it is inundated at relatively low flows in the river (around 150 cfs). Removal of this crossing would not affect public rights-of-way.

Reclamation does anticipate that in Alternative B access across the Mendota Pool and Compact Bypass control structures would be allowed to emergency agencies and those with local facilities despite Reclamation and homeland security-related restrictions.

Response to Comment O-EC-25

As identified in Sections 1.1.3 and 1.4 of this EIS/R, the Project implements two requirements in Paragraph 11 of the Settlement. Paragraph 11 of the Settlement states that "the following are the necessary improvements, which shall be developed in accordance with all applicable federal and state laws..." Not implementing the Project would not achieve the requirements in the Settlement and Settlement Act.

The commenter states that the incorrect No-Action Alternative has been used as other components of the Settlement cannot be implemented in the absence of the Paragraph 11 projects or any other mandated improvement project. This is not correct. Reclamation is working diligently to implement the Settlement and Settlement Act in coordination and with input from the Friant Contractors, Natural Resources Defense Council, and the Third Parties, including the Exchange Contractors. However, and fundamentally, Reclamation is contractually bound and obligated to implement the Settlement (see Paragraph 40 and 41 of the Settlement) and the Settlement Act (see Section 10004 of the Settlement Act). In determining those obligations, Reclamation follows the process of statutory

interpretation and construction established by long-standing court cases and the requirements of Paragraph 41 of the Settlement.

Paragraph 13 of the Settlement requires the release of water from Friant Dam to the confluence with the Merced River in accordance with the hydrographs attached in Exhibit B of the Settlement. Paragraph 13(i) goes on to identify that the Secretary of the Interior is to release as much of the Restoration Flows as possible in light of existing channel capacity and without delaying completion of the Phase 1 (Paragraph 11(a) projects). The language of Paragraph 13 is clear – the only reason Reclamation cannot release Restoration Flows is due to existing channel capacity and delays in completion of the Paragraph 11(a) projects. There is nothing in the Settlement Act that further constrains the release of Restoration Flows and the need for those flows to be connected to the Merced River as soon as possible. Stated differently, Reclamation is required to release Restoration Flows, up to channel capacity and without delaying the Paragraph 11(a) projects, as soon as possible. Restoration Flow releases are not tied to or conditioned upon the completion of the Paragraph 11 projects.

Paragraph 14 of the Settlement states that spring-run and fall-run salmon shall be reintroduced by December 31, 2012, consistent with all applicable law. Paragraph 14(a) goes on to identify the steps to further the goal of reintroduction. These include the following: (1) the USFWS is to ensure that spring-run and fall-run are reintroduced at the earliest practical date after commencement of sufficient flows and the issuance of all necessary permits; (2) USFWS shall submit a completed permit application to NMFS for the reintroduction of spring-run salmon and NMFS shall issue a decision on the application. The language of Paragraph 14 is clear. There is nothing in Paragraph 14 or anywhere else in the Settlement that requires the construction of the Paragraph 11 projects occur prior to the reintroduction of salmon. The only requirement for reintroduction is needing to do so “consistent with all applicable law,” “after the commencement of sufficient flows,” and “completion of all necessary permits.” Section 10011 of the Settlement Act requires the reintroduction of spring-run salmon pursuant to ESA Section 10(j) provided that the Secretary of Commerce can issue a permit under ESA Section 10(a)(1)(A). Section 10011(c)(2) goes onto require a rule pursuant to ESA Section 4(d) and specifies certain requirements of the rule. The language of Section 10011 of the Settlement Act is clear. There is nothing in Section 10011or anywhere else in the Settlement Act that requires the construction of the Paragraph 11 projects occur prior to the reintroduction of salmon. The only requirement for reintroduction in the Settlement Act is needing to complete the necessary ESA Section 10(j), Section 4(d), and Section 10(a)(1)(A) requirements. In summary, the Settlement and Settlement Act identify the conditions under which the SJRRP is to reintroduce spring-run and fall-run salmon. Nowhere in either document has Reclamation been able to find a requirement that the construction of the Paragraph 11 projects occur prior to the reintroduction of salmon. On the contrary, the requirements for fish reintroduction are tied to the completion of ESA permits and rules and sufficient flows in the river. Stated differently, USFWS is required to reintroduce fish regardless of the status of the construction of the Paragraph 11 projects as long as the necessary permits and approvals are obtained and there are sufficient flows in the river.

Of course, and as identified in this EIS/R, without the Project, Reclamation would not achieve all of the requirements in the Settlement and Settlement Act. However, Reclamation would continue to implement the Settlement and Settlement Act to the best of its abilities. Therefore, the No-Action Alternative as described in this EIS/R is appropriate as the implementation of the other components of the Settlement are reasonably foreseeable actions as they are required in the Settlement and by the Settlement Act.

Project impacts are compared against existing conditions per the State CEQA Guidelines and compared against the No-Action Alternative to satisfy NEPA requirements. Similar to the State CEQA Guidelines regarding feasibility of alternatives that implement a project (quoted in the comment), the CEQ requires that the Action Alternatives be feasible and reasonable alternatives. This is applicable to the Action Alternatives (*i.e.*, the alternatives that implement the Project), not the No-Action conditions.

Response to Comment O-EC-26

This comment is referring to a paragraph in Section 2.2.4 of the Draft EIS/R that discusses the potential for fish screens at Lone Willow Slough and big and Little Bertha Pumps. Text was revised in this section of the Final EIS/R to include the diversion to Mendota Pool in this list. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. The Mendota Pool Fish Screen is discussed in Section 2.2.6 of this EIS/R, where the need for similar planning and design is indicated.

As described in response to comment O-EC-6 and MCR-1: Mendota Pool Fish Screen, Reclamation has completed an extensive analysis, based on the best available information, of the potential loss of fish to the Mendota Pool. This entrainment analysis includes both flood deliveries and calls on Friant to satisfy the Exchange Contract, and includes a higher frequency of calls on Friant than has historically occurred through 2015. Reclamation has determined that the number of juvenile fall-run and spring-run Chinook salmon that would be lost to Mendota Pool without a fish screen is not within the range that is acceptable to the SJRRP. The number of juveniles expected to be entrained in Mendota Pool is small (on average approximately 6 to 7 percent of the annual population) when considered over a variety of water year types, but could include multiple years in a row with more than 20 percent of the annual population of juveniles entrained in Mendota Pool. The greatest entrainment is expected to occur during flood releases in February and March. Calls on Friant to satisfy the Exchange Contract in late spring and/or early summer months would have minimal impact to juvenile fall-run and spring-run Chinook salmon because these fish are expected to emigrate out of the area prior to mid-May.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of

the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See MCR-1: Mendota Pool Fish Screen.

Response to Comment O-EC-27

As described in response to comment O-EC-15 and in Sections 2.2.4 and 2.2.11 of the EIS/R, levee design would be based on the Corps' Engineer Manual 1110-2-1913, *Design and Construction of Levees* (Corps 2000a), Engineer Manual 1110-2-1902, *Slope Stability* (Corps 2003), Engineering Technical Letter 1110-2-569, *Design Guidance for Levee Underseepage* (Corps 2005), and Engineer Technical Letter 1110-2-583, *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures* (Corps 2014).

As described in Section 2.2.4 of this EIS/R, a 300-foot buffer is provided between the existing channel and the proposed levees to allow for potential channel migration. In areas where the channel is constrained (*i.e.*, a 300-foot buffer cannot be maintained), then erosion protection for the levee in the form of revetment would be included. A 300-foot buffer was chosen based on an assessment of the sediment transport conditions within the Project area by the design engineers (Reclamation 2015a, Appendix C).

Response to Comment O-EC-28

The seepage management measures that would be implemented in Reach 2B area are part of this Project and are included in the Action Alternatives, accounted for in the impact analysis, and incorporated into the levee design, as described in Section 2.2.4 of the EIS/R. The EIS/R impact analysis accounts for the area adjacent to the levees where a variety of the seepage management measures would be implemented (*e.g.*, cutoff walls, inceptor drains or ditches, seepage wells, seepage berms, etc.) Construction effects are described for the Project and the anticipated construction durations are accounted for in the construction schedule. See Chapters 4 through 24 of this EIS/R for resource-specific details on construction impacts. Long-term effects from the seepage management measures are also described in Sections 13.3.3 and 16.3.3 of the EIS/R. The environmental analysis of the seepage management measures have not been segmented from other aspects of the Project.

Response to Comment O-EC-29

As described in Section 2.2.4 of this EIS/R, a fish screen would include an automated cleaner system and maintenance activities could include removing the screens for cleaning, replacing screens when needed, periodic repair or replacement of brush cleaning system components, periodic repair or replacement of trash rack components, inspection for operation, greasing and inspecting motors, and in-channel sediment removal in the structure vicinity.

Response to Comment O-EC-30

The comment is describing the text provided in Section 2.2.4 of this EIS/R. There are no questions or additional issues raised regarding the Project or the EIS/R in the comment.

Response to Comment O-EC-31

As described in Section 2.2.4 of this EIS/R, floodplain maintenance includes periodic floodplain and channel shaping to retain capacity and prevent fish stranding, and other floodplain maintenance activities such as debris removal and repair of channel banks and bank protection measures.

Response to Comment O-EC-32

See response to comment O-EC-14 and MCR-5: Project Funding for a discussion of Project O&M costs and funding sources. Reclamation is planning for $200,000 annually for O&M of the Compact Bypass, which would include costs for maintenance of fish facilities, and another $200,000 annually for O&M of the Reach 2B setback levees and floodplain.

Response to Comment O-EC-33

This comment refers to comment O-EC-13 and the previously stated concerns about phased implementation. Refer to response to comment O-EC-13 for a response to these issues. See also response to comments O-EC-17 and O-EC-18 for further details.

Response to Comment O-EC-34

See response to comments O-EC-13, O-EC-17, and O-EC-18. Section 2.2.6 of the EIS/R, Construction Considerations, describes how cofferdams would be used to construct in-channel control structures. It also indicates that flow in the San Joaquin River, operations at the existing Mendota Dam, operations at the Chowchilla Bifurcation Structure, and operation of the existing Columbia Canal would be maintained during construction. Reclamation intends to construct the project in a way that allows for the continued operation of all water supply and flood control facilities during and after construction. Additionally, while the exact construction details are not available at this time, Reclamation would continue to coordinate with and seek input from the Exchange Contractors, the LSJLD, and the potentially impacted landowners, as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction.

Response to Comment O-EC-35

As described in response to comment O-EC-6 and MCR-1: Mendota Pool Fish Screen, Reclamation has completed an extensive analysis, based on the best available information, of the potential loss of fish to the Mendota Pool. This entrainment analysis includes both flood deliveries and calls on Friant to satisfy the Exchange Contract, and includes a higher frequency of calls on Friant than has historically occurred through 2015. Reclamation has determined that the number of juvenile fall-run and spring-run Chinook salmon that would be lost to Mendota Pool without a fish screen is not within the range that is acceptable to the SJRRP. The number of juveniles expected to be entrained in Mendota Pool is small (on average approximately 6 to 7 percent of the annual population) when considered over a variety of water year types, but could include multiple years in a row with more than 20 percent of the annual population of juveniles entrained in Mendota Pool. The greatest entrainment is expected to occur during flood releases in February and March. Calls on Friant to satisfy the Exchange Contract in late spring and/or early summer months would have minimal impact to juvenile fall-run and

spring-run Chinook salmon because these fish are expected to emigrate out of the area prior to mid-May.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R.

Response to Comment O-EC-36

The design of the Compact Bypass channel includes consideration of stability, slope, scour, erosion, and channel migration. Grade control would occur at the top of the channel due to the sill elevation of the Compact Bypass Control Structure. There would also be two grade control structures. The most upstream one would be located immediately downstream of the Compact Bypass Control Structure. The second grade control structure would be located near the Columbia Canal siphon crossing. The section of the channel between the two grade control structures would be reinforced with rip-rap or other engineered materials. Although there would be no hardened structures in the main channel below the second grade control structure, vegetation would be planted in a manner that increases channel stability.

Sediment aggradation and degradation, bed erosion, and potential for channel instability are analyzed as part of the Project design (Reclamation 2015a, Appendix C) and the environmental effects of these processes are discussed in Section 14.3.3 of the Draft EIS/R. Additional clarifying detail regarding the design of the Compact Bypass channel and grade control structures is included in Section 2.2.6 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-37

A fish ladder, or fish passage facility, would not change the flood control function of the associated water control structure, nor would it reduce channel capacity below the channel's design criteria. Therefore it would not compromise the ability of the water control structure to convey flood flows. Additional clarifying detail regarding the design of fish passage facilities is included in Sections 2.2.5, 2.2.6, 2.2.7, and 2.2.8 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-38

This comment reiterates concerns about fish passage facilities compromising the ability to pass flood flows or restricting flood operations previously raised in comment O-EC-37. Refer to response to comment O-EC-37 for a response to this issue. As described in

1.6.3 of this EIS/R, flood management agencies have ultimate discretion in directing flood flows. Fish passage improvements would not affect flood routing operations.

Response to Comment O-EC-39

The Mendota Pool Control Structure and wing-wall levees are designed to retain the Pool. The differential in water surface elevations in the river and Pool are anticipated in the design. The Compact Bypass Control Structure is also designed to accommodate a differential in water surface elevations. Water deliveries to the Pool are part of the design. Reclamation will continue to work with landowners and stakeholders in the Reach 2B area during the design process. Reclamation held a design briefing for updates in the design of the Compact Bypass on November 18, 2015, inviting landowners and stakeholders in the Reach 2B area to provide feedback. Similar design briefings are anticipated as the design progresses.

Response to Comment O-EC-40

This comment reiterates concerns about the Mendota Pool Fish Screen previously raised in comments O-EC-6, O-EC-11, and O-EC-26. Refer to the response to comments O-EC-6, O-EC-11 and O-EC-26 for a response to this issue.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See also MCR-1: Mendota Pool Fish Screen.

Response to Comment O-EC-41

See MCR-1: Mendota Pool Fish Screen and the responses to comments O-EC-6, O-EC-11, O-EC-26, and O-EC-35. The fish screen analysis includes both flood deliveries and calls on Friant, and includes a higher frequency of calls on Friant than has historically occurred through 2015.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R.

Response to Comment O-EC-42

A discussion of impacts to Mendota Pool operations is not applicable in the section introducing the Mendota Pool Fish Screen, as requested by the commenter.

As described in response to comment O-EC-8, the Project would remove a portion of the San Joaquin River arm of Mendota Pool upstream of the Compact Bypass or Fresno Slough Dam. The transient storage capacity of Mendota Pool is estimated to be between 290 and 1,460 acre-feet, corresponding to the top 0.2 and 1.0 foot of the Pool, respectively. The reduction in transient storage capacity is estimated to be between 33 and 164 acre-feet for the Compact Bypass alternatives and between 46 and 230 acre-feet for the Fresno Slough Dam alternatives. This represents a reduction of approximately 11 to 16 percent of the transient storage capacity of the Pool (DWR 2012b). Fluctuations in transient storage depth are expected to be within historical fluctuations found during wet, normal-wet, and normal-dry water years. The historical overall annual range can vary from greater than 2.0 feet (wet water year), 0.7 foot (normal wet water year), and 0.5 foot (normal dry water year).

Seepage and pump cavitation problems in Fresno Slough would only occur if fluctuating water surface elevations created much higher or lower water surface elevations than the typical operating range. The Project would not change the operating range of water surface elevation in Mendota Pool, and therefore does not cause impacts to seepage or levees in the Fresno Slough.

In addition, six SCADA (supervisory control and data acquisition) gates were recently installed at Mendota Dam. Knowledge of Mendota Pool operations, in combination with the new SCADA system partially funded by the SJRRP, would be used to assure that the Pool is operated in a manner similar to the way it has always been operated. This information is clarified in Section 23.3.3 of the Final EIS/R.

Response to Comment O-EC-43

The water quality (salinity) of Mendota Pool is influenced by its major inputs: the Delta Mendota Canal, flood flows from the San Joaquin River, flood flows from Fresno Slough, and, more recently, Restoration Flows. All of the major inputs are of sufficient quality for agricultural purposes.

Prior to Interim and Restoration Flows, the majority of the water was from a single source – the Delta Mendota Canal – with only occasional inputs from flood flows. Restoration Flows now provide a new source of relatively clean, high quality water to the Pool (Friant Dam releases) which has provided a temporary benefit to the Exchange Contractors. Implementation of the Project would bypass Restoration Flows around Mendota Pool. While smaller, the Pool operations would in essence be similar to those that would have occurred prior to the SJRRP, as the San Joaquin River would contribute water to the Pool primarily under flood flow conditions. Bypassing Restoration Flows around Mendota Pool would also keep Delta Mendota Canal inflows higher and reduce water quality issues that have arisen in the past due to groundwater pump-ins to the Delta Mendota Canal at low Delta Mendota Canal flows.

Response to Comment O-EC-44

As described in response to comment O-EC-6 and MCR-1: Mendota Pool Fish Screen, Reclamation has completed an extensive analysis, based on the best available information, of the potential loss of fish to the Mendota Pool. This entrainment analysis includes both flood deliveries and calls on Friant to satisfy the Exchange Contract, and includes a higher frequency of calls on Friant than has historically occurred through 2015. Reclamation has determined that the number of juvenile fall-run and spring-run Chinook salmon that would be lost to Mendota Pool without a fish screen is not within the range that is acceptable to the SJRRP. The number of juveniles expected to be entrained in Mendota Pool is small (on average approximately 6 to 7 percent of the annual population) when considered over a variety of water year types, but could include multiple years in a row with more than 20 percent of the annual population of juveniles entrained in Mendota Pool. The greatest entrainment is expected to occur during flood releases in February and March. Calls on Friant to satisfy the Exchange Contract in late spring and/or early summer months would have minimal impact to juvenile fall-run and spring-run Chinook salmon because these fish are expected to emigrate out of the area prior to mid-May.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See MCR-1: Mendota Pool Fish Screen.

Response to Comment O-EC-45

As discussed in response to comment O-EC-36, two grade control structures are included on the downstream side of the Compact Bypass Control Structure in Alternative B. If additional grade control structures are included in the Compact Bypass, these structures would be designed such that sediment would fill areas on the upstream side of the structure and that a plunge pool would develop on the downstream side of the structure. Continual maintenance would not be needed to remove the sediment that builds up behind the structure. Regardless, as discussed in the Revised Framework (SJRRP 2015), Reclamation is planning for $200,000 of O&M funding annually for the Compact Bypass.

Response to Comment O-EC-46

Effects from a false migration pathway are analyzed in Section 5.3.3 of this EIS/R. If water deliveries to Arroyo Canal were rerouted into or immediately downstream of the Compact Bypass channel, the effects of the false migration pathway would be reduced. The EIS/R analyzes conditions with the fish barrier (Alternative A) and without the fish barrier (Alternative B), the worst-case scenario with respect to the false migration

pathway for fisheries. In Alternative B, a false migration pathway up to the base of Mendota Dam – of approximately 2,000 feet – would be available to fish in all years, and a false migration pathway into Mendota Pool and Fresno Slough (potentially into the King River system) would occur about once in 5 years when the boards are taken out of Mendota Dam to pass Pine Flat flood releases into Reach 3. However, this false migration pathway to Mendota Dam would also occur under the No-Action Alternative. Because the Compact Bypass would provide upstream passage under Alternative B, the false migration pathway would affect less fish than under the No-Action Alternative. Therefore passage is improved and the effect is beneficial.

Response to Comment O-EC-47

Sediment aggradation and degradation and bed erosion is analyzed Section 14.3.3 of this EIS/R. The Compact Bypass would be heavily and actively revegetated to stabilize the channel prior to adding flows. Also, a pilot channel is expected to be dredged upstream of the Compact Bypass to reduce sediment erosion from upstream of the Compact Bypass.

As described in Section 2.2.6 of this EIS/R, some areas may be passively revegetated by creating riparian establishment areas that provide a riparian seed bank of native species. The passive restoration areas are expected to colonize from this riparian seed bank. Natural riparian recruitment (passive restoration) would also promote continual habitat succession, particularly in areas where sediment is deposited or vegetation is removed by natural processes.

Response to Comment O-EC-48

A description of water delivery operations is provided in Section 2.2.6 of this EIS/R. Detailed hydraulic analyses and plans will be completed in the later stages of design. As described in response to comment O-EC-5 and MCR-4: Project Design and Operations, the EIS/R is based on the level of engineering and planning currently available and is adequate to identify potential environmental impacts of the alternatives and identify appropriate mitigation measures. It is not intended to convey the same type of details as an operations plan. While final design and operations details are not available at this time, Reclamation would continue to coordinate with and seek input from the Exchange Contractors and the LSJLD, as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction.

Response to Comment O-EC-49

Section 2.2.6 of the Draft EIS/R includes a brief description of the Columbia Canal siphon as one of the in-channel structures associated with the bypass channel. The “Water Deliveries” subsection is used to focus on operations of the Mendota Pool and Compact Bypass control structures needed for deliveries to the Pool. Additional clarifying detail regarding Columbia Canal facilities, based on the 30 percent design, are included in Section 2.2.6 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Reclamation is considering sedimentation and floating vegetation concerns in the design of the Columbia Canal siphon and intake structure and shared the current design with the

public, including the Exchange Contractors, at a meeting on November 18, 2015. While final design and operations details are not available at this time, Reclamation would continue to coordinate with and seek input from the Exchange Contractors, including Columbia Canal Company, as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction.

Response to Comment O-EC-50

Section 2.2.6, Construction Considerations, describes how cofferdams would be used to construct in-channel control structures. It also indicates that flow in the San Joaquin River, operations at the existing Mendota Dam, operations at the Chowchilla Bifurcation Structure, and operation of the existing Columbia Canal would be maintained during construction. The Mendota Pool Bypass portion of the Project would be constructed prior to levee setbacks in Reach 2B. This construction sequencing would not cause additional water supply or flood control impacts during construction. Reclamation intends to construct the Project in a way that allows for the continued operation of all water supply and flood control facilities during and after construction. Additionally, while the exact construction details are not available at this time, Reclamation would continue to coordinate with and seek input from the Exchange Contractors, the LSJLD, and the potentially impacted landowners, as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction.

Response to Comment O-EC-51

This comment refers to increased O&M costs for the Flood Control Project that are a result of the SJRRP's Restoration Flows. As described previously, this EIS/R addresses Project actions. The environmental impacts, environmental commitments, and mitigation measures related to the release of SJRRP Restoration Flows were addressed in the PEIS/R and subsequent ROD and are outside of the scope of this document. However, for the ease of the reader, information on changes to the O&M costs for the Flood Control Project that results from the SJRRP Restoration Flows is provided in MCR-6: Flood Management Considerations and O&M Costs.

Response to Comment O-EC-52

As described in 1.6.3 of this EIS/R, flood management agencies have ultimate discretion in directing flood flows. See also response to comment O-EC-38.

Response to Comment O-EC-53

This comment refers to increased O&M costs for the Flood Control Project that are a result of the SJRRP's Restoration Flows and raises issues that are substantially similar to comment O-EC-51. Refer to response to comment O-EC-51 and MCR-6: Flood Management Considerations and O&M Costs for a response to this issue. In addition, Reclamation is open to considering one-time payments to allow the LSJLD to purchase additional equipment to allow them to perform O&M in the wetted channel.

Response to Comment O-EC-54

As described in the introduction of Chapter 3 of this EIS/R, the geographic range of the study area varies by resource and includes upstream and downstream river reaches. Detailed descriptions are provided for areas where direct effects may occur. See response to comment O-EC-12 regarding the seepage and levee stability projects that are anticipated to be constructed by the Implementing Agencies in downstream reaches prior to releasing 4,500 cfs flows for conveyance through Reach 2B. The release of Restoration Flows is a SJRRP-related activity analyzed in the PEIS/R and not reanalyzed in this EIS/R. The anticipated schedule and prioritization for the seepage and levee stability projects is also described in response to comment O-EC-12.

It is important to clarify that when the EIS/R uses the term phasing, it is specifying that the construction is necessarily being scheduled over time to be realistic and achievable. The construction schedule and timing for construction of the Project is introduced in Chapters 1 and 2 of the EIS/R, and analyzed in the resource chapters. See Chapters 4 through 24 of the EIS/R for resource-specific details on construction impacts.

Response to Comment O-EC-55

As described in Section 28.1.4 of this Final EIS/R, air quality impacts were reanalyzed to provide a more realistic estimate of the effects from off-site haul trucks and on-site construction emissions on sensitive receptors. Mendota Elementary School is included in the list of sensitive receptors. In addition, Figure 4-2 was revised for the Final EIS/R to identify the location of this sensitive receptor. Sensitive receptors were found to have a significant increase in cancer risk for a resident child exposure scenario, but not for the school child exposure scenario. Project mitigation measures, as described in Section 4.3.3 of the EIS/R, will reduce potential effects below SJVAPCD significance thresholds. Impacts to sensitive receptors would be less than significant after mitigation.

Response to Comment O-EC-56

Chapter 3 of this EIS/R describes the level of detail for direct and indirect effects. The Project would increase the conveyance capacity of Reach 2B, which would allow more water to be conveyed past Reach 2B when the Project is complete. However, the release of larger Restoration Flows that could fill this capacity, and the timing and effects of those flows, have already been analyzed in the PEIS/R. Overall SJRRP activities are outside of the scope of this Project. Effects from the Restoration Flows, in-and-of themselves, are not re-analyzed in the EIS/R as Project impacts or benefits. Therefore, the environmental setting of the EIS/R generally focuses on Reach 2B and the immediate upstream and downstream reaches. Some discussions include consideration of additional reaches, such as the discussion of food web processes, where insect drift is expected from Reach 1 and would continue to downstream reaches, and the discussion of invasive fish species, which can be imported in Mendota Pool from the Delta Mendota Canal, described in Section 5.1 of this EIS/R.

Response to Comment O-EC-57

As described in Section 5.1 of this EIS/R, a range of conditions were used to describe existing conditions for fisheries including pre-Interim Flows conditions (*e.g.,* July 2009)

and more recent conditions documented by fish surveys and aquatic habitat surveys conducted by the SJRRP since the start of Interim Flows.

With respect to subsidence, refer to response to comment O-EC-7 and MCR-3: Subsidence for a summary of recent actions conducted by Reclamation and DWR to evaluate and monitor subsidence in the Restoration Area. Also note that Chapters 2, 11, 13, 14, and 25 of this EIS/R provide descriptions of land subsidence. A more recent USGS study that was prepared in cooperation with Reclamation and the San Luis and Delta-Mendota Water Authority (Sneed et al. 2013) was cited in the Draft EIS/R as a source of information regarding Valley-wide subsidence effects and local effects near Mendota Dam. Additional data compiled by Reclamation for recent (December 2011 to December 2015) subsidence rates in the Project area are included in Sections 11.1.7 and 13.1 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Flood management is described in Chapter 12. Additional information from the SJRRP Channel Capacity Report, 2016 Restoration Year (SJRRP 2016a) is included in the environmental setting for downstream reaches in the Final EIS/R, including the updated in-channel capacities for Reach 3, Reach 4A, and the Eastside Bypass which considers subsidence. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

See response to comment O-EC-12, MCR-6: Flood Management Considerations and O&M Costs, and MCR-2: Seepage Management regarding conveyance of flows through Reach 2B, implementation of downstream seepage and levee stability projects, and SJRRP's commitment to maintain Restoration Flows below then-existing channel capacities. The sequencing of the Project and other SJRRP projects allows restoration to move forward as these issues are addressed.

Response to Comment O-EC-58

This comment is substantially the same as O-EC-25. See the response to comment O-EC-25.

Response to Comment O-EC-59

As described in Section 5.1.1 of this EIS/R, since the start of Interim Flows there have been beneficial changes to the aquatic habitat of Reach 2B, mostly between the Chowchilla Bifurcation Structure and San Mateo Avenue, as a result of more regular inundation and the establishment of hydrophilic vegetation. The aquatic habitat now includes a series of low gradient riffles, flatwater glides, and mid-channel pools (DFW 2010). Although these effects are improvements over existing conditions, the benefits are minor compared to what is expected to be achieved with Project implementation. Because of this, the impact statements in this EIS/R were qualified, stating in-text that effects "would not fully meet the Project purpose and need or achieve the Settlement goals." This statement was not changed in the Final EIS/R.

Response to Comment O-EC-60

If other SJRRP projects were implemented, downstream barriers would be removed. If a trap and haul program was not conducted around Reach 2B, adult salmon would then be blocked on their upstream migration at Mendota Dam in all years except wet year types. Potential benefits would be marginal, as salmon would reach spawning grounds only in wet years without a trap and haul program. Text was revised in Section 5.3.3 of the Final EIS/R to include this clarifying information. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-61

This comment reiterates concerns about the Mendota Pool Fish Screen previously raised in comments O-EC-6, O-EC-11, and O-EC-26. Refer to the response to comments O-EC-6, O-EC-11 and O-EC-26 for a response to this issue.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See also MCR-1: Mendota Pool Fish Screen.

Response to Comment O-EC-62

This comment is substantially the same as O-EC-46. See response to comment O-EC-46.

Response to Comment O-EC-63

This comment reiterates concerns about the Mendota Pool Fish Screen previously raised in comments O-EC-6, O-EC-11, and O-EC-26. Refer to the response to comments O-EC-6, O-EC-11 and O-EC-26 for a response to this issue.

Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal. Based on the detailed technical analysis performed by Reclamation (provided in Part VI – Appendices to the Responses), the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. See also MCR-1: Mendota Pool Fish Screen.

Response to Comment O-EC-64

As described in Section 2.2.4 of this EIS/R, the SJRRP would monitor channel capacity per the Program's Physical Monitoring and Management Plan and sediment mobilization per the Program's Sediment Management Plan in the Restoration Area (inclusive of Reach 2B). However, as described in Section 14.3.3 of this EIS/R and in the design report for the Compact Bypass (Reclamation 2015a), channel bed erosion is expected in Reach 2B after construction of the Compact Bypass to remove sediment that has been deposited in the San Joaquin River arm of Mendota Pool. This would result in sediment deposition in the Reach 3 channel. The Reach 3 deposition is anticipated to be up to 7 feet thick near the downstream end of the bypass and gradually decrease to zero deposition approximately 1 mile downstream (RM 203). These changes in the bed profile are expected to occur over the first 6 to 15 years post-construction depending on flows. These effects would be minimized by dredging a pilot channel in Reach 2B and actively revegetating the Compact Bypass channel prior to putting flows through the Compact Bypass. Effects are not anticipated at the Eastside Bypass, as it is located approximately 23 miles downstream. As described in Section 12.3.3 of this EIS/R, the maximum estimated water surface increase resulting from this sedimentation is approximately 0.25 foot. Levee improvements would be extended in the upper portion of Reach 3 to approximately RM 203 to offset this water surface increase if needed to maintain 3 feet of freeboard. The hydrologic, hydraulic, and sediment transport modeling performed for this analysis is described in more detail in Appendix C of the design report (Reclamation 2015a).

Response to Comment O-EC-65

As described in Section 2.2.4 of this EIS/R, levee and structure protection maintenance for the Project includes repair and restoration of protection measures due to erosion or degradation. This long-term monitoring and maintenance is included in the Action Alternatives.

Response to Comment O-EC-66

This sentence was deleted in the Final EIS/R. Deletion of this sentence in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-67

The recommended capacity for conveyance of Restoration Flows at Reach 2B is 1,120 cfs, based on the ground elevations near the landside levee toe (SJRRP 2016a). Text was revised in Section 12.1.3 of the Final EIS/R to include this clarifying information. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-68

This sentence was revised in the Final EIS/R to indicate that the increase in conveyance capacity in Reach 2B may have an indirect effect of providing flood management agencies additional flexibility in how flood flows are managed in the lower San Joaquin River system, if deemed appropriate. This sentence is caveated with a footnote that indicates the following: (1) flood management agencies have ultimate discretion in directing flood flows, (2) the Flood Control Project is operated to minimize flood impacts

throughout the flood protection area, and (3) prior to use of the additional capacity in Reach 2B, the flood management agency would evaluate flood operations from a system-wide perspective. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Also note that seepage and levee stability projects are anticipated to be implemented in the Restoration Area between FY 2015 and FY2029, as discussed in response to comment O-EC-12, MCR-6: Flood Management Considerations and O&M Costs, and MCR-2: Seepage Management. The seepage and levee stability projects are anticipated to have a direct effect by strengthening levees in lower river reaches and by reducing seepage effects for flows up to 4,500 cfs, which would indirectly benefit the City of Firebaugh and landowners along Reach 3 when the same reaches are conveying higher-level flood flows.

Response to Comment O-EC-69

Several paragraphs were deleted and text was revised in Section 12.3.3 of the Final EIS/R to indicated that current flood management operational strategies are to maximize the amount of flood flows conveyed through the Chowchilla Bypass to minimize potential flood impacts to the City of Firebaugh and to landowners along Reach 3. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-70

This comment is substantially the same as comment O-EC-69. See response to comment O-EC-69.

Response to Comment O-EC-71

This comment is substantially the same as comments O-EC-68 and O-EC-69. See responses to comments O-EC-68 and O-EC-69.

Additionally, Section 1.6.3 of this EIS/R describes flow scenarios where flood flows and Restoration Flows would be conveyed through Reach 2B. This section indicates that the flood management agencies will have ultimate discretion in directing flood flows, and when both are anticipated in the river, some portion of the San Joaquin River flood flows would perform as Restoration Flows in Reach 2B. Reclamation will not release Restoration Flows on top of flood control releases when flood control releases already meet the Restoration Administrator's flow targets.

Response to Comment O-EC-72

The commenter has expressed concerns related to O&M costs for the flood system. It is unclear if the commenter is referring to the O&M costs of the Project facilities or the O&M costs for the Flood Control Project. See response to comment O-EC-14 and MCR-5: Project Funding for more information on the Project O&M costs. See MCR-6: Flood Management Considerations and O&M Costs for more information on the responsible party for O&M of the Flood Control Project.

Also note that Program monitoring and maintenance efforts are included in the budget described in the Revised Framework. Costs to implement the SJRRP's Physical Monitoring and Management Plan and Channel Capacity Advisory Group, which includes actions to ensure that the SJRRP is not impacting flood conveyance in Reach 3, are included in the "Channel Capacity Advisory Group" line item.

Response to Comment O-EC-73

The San Joaquin River Restoration Daily Flow Model was developed in RiverWare based on best available information. The Daily Flow Model models the restoration reaches of the San Joaquin River system from Millerton Lake and Friant Dam near Friant, California to just below the confluence with the Merced River near Newman, California. The Daily Flow Model used as its basis of climatology the actual record of precipitation in the basin, from water years 1922 to 2003, and synthesized a future condition under which Restoration Flows were fully operational and unconstrained by channel conveyance. The model accounts for Millerton inflows, Millerton flood operations for rain events and for snowmelt events, outflow ramping at Millerton, Madera and Friant-Kern canals diversions, the Restoration Flow schedule, inflows along the San Joaquin River and flood bypasses, diversion requests, channel flow losses, and flow routing. The Daily Flow Model includes the SJRRP-specific information needed to predict future flows under restoration conditions.

Reclamation has developed climate change projections for four climate change scenarios that are representative of more than 100 discrete climate model simulations and for a fifth "consensus scenario" that is an ensemble of the central tendency of temperature and precipitation. Key conclusions include (Reclamation 2015b):

- The consensus scenario predicts air temperatures in the basin to rise by 3.6° F (2.0° C), with the suite of four scenarios predicting a range from 1.8° to 4.7° F (1.0° to 2.6° C).
- The consensus scenario predicts runoff in the basin to decline by 6 percent, with a suite of four scenarios predicting a range from +25 percent to -31 percent.
- The consensus scenario predicts that reduction in runoff will be primarily from reduced number of "Normal-wet" years in favor of "Normal-dry" years. The proportion of "Dry," "Critical-high," and "Critical-low" water year types are predicted to remain relatively stable under this scenario.
- All scenarios predict the timing of peak runoff to advance, occurring slightly earlier in the year. Earlier runoff as predicted by all climate models may benefit restoration efforts as it more closely coincides the timing of natural runoff with anticipated Restoration Flow releases.

Reclamation's climate change results shows that climate change is both uncertain and variable. The climate change results indicate that runoff to the basin would, on average, decrease by 6 percent, however the variability in this climate change prediction indicates that runoff to the basin could be up to 23 percent higher or 31 percent lower. If the Daily Flow Model was reanalyzed to account for climate change, the uncertainty that would be introduced into the analysis (as seen by climate change predictions for basin runoff that

range +25 percent to -31 percent) would be much greater than the expected change in the results (in this case, a 6 percent decrease in runoff.)

Response to Comment O-EC-74

This analysis shows that the frequency increases for 4,500 cfs flows. However, as described in the PEIS/R (and Section 2.2.10), Restoration Flows would be maintained at or below estimates of the then-existing channel capacity in the reaches that convey the flow. Erosion would be monitored and maintenance would occur, or Restoration Flows would be reduced, as necessary, to avoid erosion-related impacts. These avoidance and minimization measures implemented by the Program will reduce the risk of levee failure for flows up to 4,500 cfs. With respect to seepage damage in Reach 3 and the City of Firebaugh, see response to comment O-EC-68.

Response to Comment O-EC-75

The flow frequency analysis provided in Section 12.3.3 of this EIS/R describes how often flows of a certain size would occur and shows that flows below the 2 percent annual exceedance would occur more frequently under restoration conditions; it does not predict that there would be a 2,000 cfs increase in flows.

Section 12.3.3 of the Final EIS/R provides additional information on whether a given event would be larger with implementation of the Action Alternatives and result in more damages. SJRRP conducted a flood risk assessment on the translation of flood risk from Reach 2B to reaches downstream, *i.e.,* to Reach 3 and Reach 4A. The objective of the analysis was to determine if damages would change based on changes in the flood hydrographs and if the likely failure points for levees used in the PEIS/R evaluation were reasonable. The analysis included a comparison of flood hydrographs at four index points in Reaches 3 and 4A, an evaluation of flood damages at these locations, and an evaluation of the updated levee data in Reach 3 and Reach 4A. The study concluded that, based on a comparison of changes to flood hydrographs, there would be little to no increase in damages – the one area that showed a slight increase in damages was likely due to perturbation effects in the model – and therefore redirected flood impacts would be minor. Furthermore, the risk analysis also evaluated information from recently completed levee evaluations including the drilling information and seepage and stability analysis in Reaches 2A, 3, and 4A. A review of the levee evaluations concluded that the likely failure points for these levees that were used in the PEIS/R were reasonable and conservative. See MCR-6: Flood Management Considerations and O&M Costs for additional details.

As described in the PEIS/R (and Section 2.2.10), Restoration Flows would be maintained at or below estimates of the then-existing channel capacity within the reaches that convey the flow. In addition, seepage projects and levee stability projects have been identified in the Restoration Area where potential seepage impacts or levee stability would otherwise cause a constraint in Restoration Flows, including areas near the City of Firebaugh. Restoration Flows would not increase in the river reaches until Reclamation, through the seepage management efforts and through the channel capacity report process, determines that such flows would not damage adjacent landowners or impact levee stability. Erosion would also be monitored and maintenance would occur, or Restoration Flows would be

reduced, as necessary, to avoid erosion-related impacts. (See MCR-6: Flood Management Considerations and O&M Costs and MCR-2: Seepage Management.)

This information is included in Section 12.3.3 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the conclusions of the Draft EIS/R.

Response to Comment O-EC-76

This paragraph was deleted and text was revised in Section 12.3.3 of the Final EIS/R to describe the avoidance and minimization measure that would be implemented by the Program (see response to comment O-EC-75). This revision in the Final EIS/R does not change the conclusions of the Draft EIS/R. Current flood management strategies are also clarified, as discussed in response to comment O-EC-69.

Response to Comment O-EC-77

The commenter expresses concerns related to O&M costs for the flood system. It is unclear if the commenter is referring to the O&M costs of the Project facilities or the O&M costs for the Flood Control Project. See response to comment O-EC-14 and MCR-5: Project Funding for more information on the Project O&M costs. See MCR-6: Flood Management Considerations and O&M Costs for more information on the responsible party for O&M of the Flood Control Project.

Response to Comment O-EC-78

This comment is referring to comments O-EC-68 though O-EC-77. See response to comments O-EC-68 to O-EC-77.

Response to Comment O-EC-79

A public draft document is not yet available for the 20-Year Extension of the 2005 Mendota Pool Exchange Agreements. The groundwater studies and modeling expected to be included in the 20-Year Extension document are not referenced in Section 13.1 of this EIS/R because the information is not publicly available.

Response to Comment O-EC-80

With respect to subsidence, refer to response to comment O-EC-7 and MCR-3: Subsidence for a summary of recent actions conducted by Reclamation and DWR to evaluate and monitor subsidence in the Restoration Area. Also note that subsidence and its relationship to groundwater is discussed in Sections 13.1.1 and 13.1.2 of the Draft EIS/R. Additional data compiled by Reclamation for recent (December 2011 to December 2015) subsidence rates in the Project area are included in the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

With respect to reduction in downstream channel capacity, as described in the PEIS/R and in Section 2.2.10 of this EIS/R, Restoration Flows would be maintained at or below estimates of the then-existing channel capacity in the reaches that convey the flow. Refer to MCR-6: Flood Management Considerations and O&M Costs for additional information on how Reclamation determines then-existing channel capacity. Because the

reaches are connected, flows through Reach 2B would be less than 4,500 cfs until downstream river seepage and levee stability projects are completed and Reclamation, in compliance with the commitments it made in the PEIS/R ROD (Reclamation 2012) and consistent with the requirements in its water rights order, has determined that the non-damaging channel capacity is 4,500 cfs. This is not considered inconsistent with successful restoration efforts. Additionally, subsidence near the Red Top area in Reach 3 actually slightly decreases the water surface elevations in Reach 2B due to increasing the gradient of the river.

Response to Comment O-EC-81

See response to comment O-EC-7 and MCR-3: Subsidence for a summary of recent actions conducted by Reclamation and DWR to evaluate and monitor subsidence in the Restoration Area and for a discussion of how subsidence has been accounted for in the Project design. Conducting a detailed Valley-wide subsidence analysis based on projections of Delta exports is beyond the scope of this EIS/R. The EIS/R is based on the level of engineering and planning detail currently available and is adequate to identify potential environmental impacts of the alternatives and identify appropriate mitigation measures. The Project would construct set-back levees and expand the floodplain in Reach 2B, increasing local infiltration from river flows and recharging the shallow groundwater. With respect to subsidence, Project actions would result in minor, localized beneficial effects.

Factors such as water temperature are being considered in Project development, to the extent feasible, based on Reclamation analyses, Technical Advisory Committee reports, and Restoration Administrator recommendations, and Implementing Agency input. Strategies being used during design include, but are not limited to, the following.

- Enhanced riparian vegetation can substantially lower water temperatures by several degrees, particularly if shading is increased over several miles of riverway. The SJRRP has evaluated shading scenarios in a calibrated and verified water temperature model for the San Joaquin River, finding that dense riparian vegetation shading can reduce summer temperatures by approximately 3° F.
- Altering the river geomorphology, principally by narrowing the low-water channel, can also have a beneficial impact upon water temperature. SJRRP modeling demonstrates that reducing channel width and increasing channel depth may reduce summer temperatures by 3° to 9° F.
- Water temperature models available for the San Joaquin River do not adequately characterize the thermal structure of deep pools in the river, which provide a refuge for fish during periods of warmer water temperatures. These thermal refugia already exist in the San Joaquin River and bypasses and will improve fish survival during warmer periods.
- Fish temperature thresholds are generally protective of the full range of fish temperature tolerances, and thus a self-sustaining naturally reproducing population may be possible without meeting temperature thresholds during all migration windows. Fish temperature thresholds represent key aspects of their

tolerances, and operate over a gradient – not an absolute number; critical temperatures do not mean all fish die, but that on average their survival decreases.

Response to Comment O-EC-82

The commenters concern about the extent of the Project area is similar to comment O-EC-56. See response to comment O-EC-56 regarding the extent of the Project area. See also response to comment O-EC-12, MCR-6: Flood Management Considerations and O&M Costs, and MCR-2: Seepage Management regarding conveyance of flows through Reach 2B, implementation of downstream seepage and levee stability projects, and SJRRP's commitment to maintain Restoration Flows below then-existing channel capacities.

Response to Comment O-EC-83

Refer to response to comment O-EC-7 and MCR-3: Subsidence for a summary of recent actions conducted by Reclamation and DWR to evaluate and monitor subsidence in the Restoration Area. Additional data compiled by Reclamation for recent (December 2011 to December 2015) subsidence rates in the Restoration Area and the Project area are included in Sections 13.1.1 and 13.1.2 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-84

Refer to response to comment O-EC-7 and MCR-3: Subsidence for a summary of recent actions conducted by Reclamation and DWR to evaluate and monitor subsidence in the Restoration Area (inclusive of both the river channels and the Flood Control Project), how recent subsidence data have been used to support the Project design and the design of other SJRRP projects, and for a summary of the upcoming subsidence-related studies that will be conducted by Reclamation and DWR.

Additional data compiled by Reclamation for recent (December 2011 to December 2015) subsidence rates in the Restoration Area and the Project area are included in Sections 13.1.1 and 13.1.2 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-85

Although Traum et al. (2014) provided updated information regarding the USGS Central Valley Hydrologic Model (CVHM) model and the San Joaquin River Restoration Program Groundwater Model (SJRRPGW), as described in the section on "Future Work" for that report, the existing conditions baseline and the future conditions baseline is not fully developed. Additional Project-specific modeling using the levee alignments in the Action Alternatives was needed to evaluate effects.

Response to Comment O-EC-86

As discussed in response to comment O-EC-16 and MCR-2: Seepage Management, seepage control measures in the Project area are included as part of the Project design for the Action Alternatives. Seepage control measures would be included, as necessary, in Project areas where seepage is likely to affect adjacent land uses (*i.e.,* where native soils

do not provide sufficient control for under-seepage). The EIS/R identifies potential impacts to areas adjacent to the levees where a variety of the seepage management measures could be implemented in the Project area. These impacts are described in Chapters 4 through 24 of the EIS/R. See also response to comment O-EC-5 and MCR-4: Project Design and Operations regarding the level of design needed for the environmental review.

The current design for the Compact Bypass includes bentonite slurry cut-off walls in the levees surrounding the Compact Bypass and in the north levee from about river mile (RM) 206 and 208. The cutoff walls would be about 3 feet wide and would extend 15 to 20 feet below grade and about 8 feet above grade. Inspection trenches would also be included periodically, where needed. A bentonite slurry cut-off wall may be constructed to control groundwater seepage elsewhere on the floodplain, although other seepage control measures may also be used, such as drainage ditches, interceptor lines, or seepage easements. The seepage control measures used in the Reach 2B improvements area would be finalized based on site evaluations, suitability of site conditions, feasibility, and landowners and stakeholder input. Reclamation will continue to work with landowners and stakeholders in the Reach 2B area during the design process. Reclamation held a design briefing for updates in the design of the Compact Bypass on November 18, 2015, inviting landowners and stakeholders in the Reach 2B area to provide feedback. Similar design briefings are anticipated for the Reach 2B improvements area as the design progresses.

Response to Comment O-EC-87

This comment discusses seepage management measures in the Project area and raises issues that are similar to comment O-EC-86. Refer to response to comment O-EC-86 for a response to these issues. Also note that fee title land acquisition for seepage management was removed from the potential measures analyzed in the Final EIS/R. The removal of this potential management measure in the Final EIS/R does not change the conclusions of the Draft EIS/R.

Response to Comment O-EC-88

See response to comment O-EC-12, MCR-2: Seepage Management, and MCR-6: Flood Management Considerations and O&M Costs, regarding conveyance of flows through Reach 2B, implementation of downstream seepage and levee stability projects, and SJRRP's commitment to maintain Restoration Flows below then-existing channel capacities.

The Project would increase the conveyance capacity of Reach 2B, which would allow more water to be conveyed past Reach 2B when the Project is complete. However, the release of larger Restoration Flows that could fill this capacity (*i.e.*, flows up to 4,500 cfs), and the timing and effects of those flows, have already been analyzed in the PEIS/R. In addition, Mendota Pool and Reach 2B Improvements (Paragraph 11(a) projects in the Settlement) were analyzed at a programmatic level in the PEIS/R, which included consideration of the increased capacity when evaluating Restoration Flows. Overall SJRRP activities are outside of the scope of this Project. Effects from the Restoration

Flows, in-and-of themselves, are not re-analyzed in this EIS/R as Project impacts or benefits.

Response to Comment O-EC-89

See response to comment O-EC-13 for a discussion of Project construction phasing. It is important to clarify that when the EIS/R uses the term phasing, it is specifying that the construction is necessarily being scheduled over time to be realistic and achievable. The construction schedule and timing for construction of the Project is introduced in Chapters 1 and 2 of this EIS/R, and analyzed in the resource chapters.

See MCR-5: Project Funding for a discussion of Project construction funding and funding sources. Reclamation would be funding Project construction. The SJRRP would have funds to build the Project with funds from the San Joaquin River Restoration Fund and appropriated funds allocated to the SJRRP. Seepage projects in Reach 2B would be constructed concurrently with the rest of the Project.

See response to comment O-EC-14 and MCR-5: Project Funding for a discussion of Project O&M costs and funding sources. Reclamation is planning for $200,000 annually for O&M of the Compact Bypass, which would include costs for maintenance of fish facilities, and another $200,000 annually for O&M of the Reach 2B setback levees and floodplain.

Response to Comment O-EC-90

Section 14.1.2 of this EIS/R provides a general description of Mendota Pool. The importance of water deliveries for the Project is first introduced in Section 1.1 of this EIS/R and is expanded in Section 1.4 where Paragraph 11(a)(1) of the Settlement is used to define the purpose and objectives of the Project. Water deliveries to the Exchange Contractors is further discussed in the Action Alternatives (Section 2.2)

Text was revised in Section 14.1.2 of the Final EIS/R to indicate that flows for Arroyo Canal are up to 700 cfs. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment O-EC-91

This comment refers to the reduced volume of the Mendota Pool that would be caused by the Project and raises issues that are similar to comment O-EC-42. See response to comment O-EC-42. Also note that the environmental setting is used to describe the existing conditions, not potential Project impacts.

Response to Comment O-EC-92

This comment refers to the reduced volume of the Mendota Pool that would be caused by the Project and raises issues that are similar to comment O-EC-43. See response to comment O-EC-43.

Response to Comment O-EC-93

Documents referenced in the EIS/R include published studies conducted for the SJRRP Restoration Area and for Reach 2B. These documents are not attached as EIS/R appendices because they were published elsewhere (*e.g.,* on Reclamation's or the

SJRRP's website). Section 14.3.3 of this EIS/R includes a description of the results of the sediment transport analyses by Tetra Tech (2011) and sediment-transport modeling by Reclamation (2011b) where the results are used as part of the impact analyses. The detailed input data, methods, calibration, and quantitative analysis results can be found in those modeling studies. These studies can be accessed at http://www.restoresjr.net/restoration-goal/2b-and-mendota-reach-bypass/.

Response to Comment O-EC-94

As described in responses to comments O-EC-5, O-EC-48, and MCR-4: Project Design and Operations, the EIS/R is based on the level of engineering and planning currently available and is adequate to identify potential environmental impacts of the alternatives and identify appropriate mitigation measures. Detailed hydraulic analyses and plans will be completed in the later stages of design. While final design and operations details are not available at this time, Reclamation would continue to coordinate with and seek input from the Exchange Contractors and the LSJLD, as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction.

Response to Comment O-EC-95

The commenter expresses concerns related to O&M costs for the flood system. It is unclear if the commenter is referring to the O&M costs of the Project facilities or the O&M costs for the Flood Control Project. See response to comment O-EC-14 and MCR-5: Project Funding for more information on the Project O&M costs. See MCR-6: Flood Management Considerations and O&M Costs for more information on the responsible party for O&M of the Flood Control Project.

As described in the PEIS/R (and in Section 2.2.10 of this EIS/R), the SJRRP would closely monitor erosion in the river and perform maintenance and/or reduce restoration flows as necessary to avoid erosion-related impacts. Sediments from Reach 2B are not anticipated to reach the Eastside Bypass, as the bypass is located approximately 23 miles downstream. Costs to implement the SJRRP's Physical Monitoring and Management Plan and Channel Capacity Advisory Group, which includes actions to ensure that the SJRRP is not impacting flood conveyance in Reach 3, are included in the "Channel Capacity Advisory Group" line item in the Revised Framework.

Response to Comment O-EC-96

The design of the Compact Bypass channel and the Compact Bypass structures are inter-related and based on the same hydraulics. As described in Section 14.3.3 of this EIS/R, channel bed erosion is expected in Reach 2B after construction of the Compact Bypass to remove sediment that has been deposited in the San Joaquin River arm of Mendota Pool. This would result in sediment deposition in the Reach 3 channel. The Reach 3 deposition is anticipated to be up to 7 feet thick near the downstream end of the Compact Bypass and gradually decrease to zero deposition approximately 1 mile downstream (RM 203). These changes in the bed profile are expected to occur over the first 6 to 15 years post-construction depending on flows. These effects would be minimized by dredging a pilot channel in Reach 2B and actively revegetating the Compact Bypass channel prior to putting flows through the Compact Bypass. Effects are not anticipated at the Eastside

Bypass, as it is located approximately 23 miles downstream. As described in Section 12.3.3 of this EIS/R, the maximum estimated water surface increase resulting from this sedimentation is approximately 0.25 foot. Levee improvements would be extended in the upper portion of Reach 3 to approximately RM 203 to offset this water surface increase if needed to maintain 3 feet of freeboard.

The hydrologic, hydraulic, and sediment transport modeling performed for this analysis is described in more detail in Appendix C of the design report (Reclamation 2015a; available at http://www.restoresjr.net/restoration-goal/2b-and-mendota-reach-bypass/). This analysis is appropriate and is based on the best available information to characterize the sediment loads, bed material, and sediment transport conditions.

Response to Comment O-EC-97

This comment is referring to the sediment transport modeling performed for the Project design and raises issues that are similar to comment O-EC-96.See the responses to comments O-EC-93 and O-EC-96.

Response to Comment O-EC-98

The maximum potential extent of Reach 2B seepage impacts outside of the setback levees would be less than 0.5 mile (see Figures 13-8, 13-9, and 13-10; Note: these figures show estimated groundwater depth if seepage control measures are not implemented.) However, seepage control measures would be included, as necessary, in Project areas where seepage is likely to affect adjacent land uses. These measures are included in the levee design in the Action Alternatives for the full range of design flows of up to 4,500 cfs. This Project-specific information is considered in evaluating Impact LU-4 (Degradation of Agricultural Land Productivity due to Seepage).

See response to comment O-EC-12, MCR-2: Seepage Management, and MCR-6: Flood Management Considerations and O&M Costs, regarding conveyance of flows through Reach 2B, implementation of downstream seepage and levee stability projects, and SJRRP's commitment to maintain Restoration Flows below then-existing channel capacities.

The Project would increase the conveyance capacity of Reach 2B, which would allow more water to be conveyed past Reach 2B when the Project is complete. However, the release of larger Restoration Flows that could fill this capacity (*i.e.*, flows up to 4,500 cfs), and the timing and effects of those flows, have already been analyzed in the PEIS/R. Overall SJRRP activities are outside of the scope of this Project.

Response to Comment O-EC-99

This comment raises issues that are substantially similar to comment O-EC-25. Refer to response to comment O-EC-25 for a response to these issues.

Response to Comment O-EC-100

This comment raises issues that are substantially similar to comment O-EC-20. Refer to response to comment O-EC-20 for a response to these issues.

Response to Comment O-EC-101
This comment raises issues that are substantially similar to comment O-EC-20. Refer to response to comment O-EC-20 for a response to these issues.

Response to Comment O-EC-102
This comment raises issues that are substantially similar to comment O-EC-20. Refer to response to comment O-EC-20 for a response to these issues.

Response to Comment O-EC-103
This comment raises issues that are substantially similar to comment O-EC-28 and O-EC-86. Refer to response to comments O-EC-28 and O-EC-86 and MCR-2: Seepage Management for a response to these issues. Also note that fee title land acquisition for seepage management was removed from the potential measures analyzed in the Final EIS/R. The removal of this potential management measure in the Final EIS/R does not change the conclusions of the Draft EIS/R.

Response to Comment O-EC-104
As described in Section 21.3.1 of this EIS/R, regional economic impacts from Project spending and changes in agricultural production have been assessed using the Impact Analysis for Planning (IMPLAN) model. The IMPLAN modeling accounts for the economic effects of taking the land out of agricultural production, effects to the local economy (including nearby communities) based on inter-industry linkages between the agricultural sector and other sectors of the economy, and effects to the regional economy. The IMPLAN model performs an input-output analysis, measuring the flow of commodities and services among industries, institutions, and final consumers within an economy. This type of input-output model captures all monetary market transactions for consumption in a given time period accounting for inter-industry linkages and availability of regionally produced goods and services. This is the best available information for determining these types of impacts.

As described in Impact ECON-1, the direct economic effect on agricultural landowners in the Project area would be negligible because privately-owned farmland would be purchased from landowners at fair market value.

See also response to comment O-EC-20 for a discussion of Third Party impacts.

Response to Comment O-EC-105
This comment refers to prior comments regarding the formulation of the No-Action Alternative. See response to comment O-EC-25 for a response to this issue.

Response to Comment O-EC-106
See response to comment O-EC-98 and MCR-2: Seepage Management for a discussion of seepage impacts in the Project area. See response to comment O-EC-20 for a discussion of Third Party impacts.

Response to Comment O-EC-107
This comment raises issues that are substantially similar to comment O-EC-104. See the response to comment O-EC-104 for a response to this issue.

Response to Comment O-EC-108

This comment refers to prior comments regarding potential impacts from the Project on economics and socioeconomics. See response to comments O-EC-98, O-EC-104, and O-EC-106 and MCR-2: Seepage Management.

Response to Comment O-EC-109

This comment is referring to seepage projects in the Restoration Area and raises issues that are similar to comment O-EC-12 and O-EC-16. See response to comments O-EC-12, O-EC-16, MCR-2: Seepage Management, and MCR-6: Flood Management Considerations and O&M Costs, regarding conveyance of flows through Reach 2B, implementation of downstream seepage and levee stability projects, and SJRRP's commitment to maintain Restoration Flows below then-existing channel capacities.

Response to Comment O-EC-110

Stakeholder involvement has been a priority in the development of this Project and as Reclamation has worked to meets its obligations in the Settlement and Settlement Act.

II.6.3 Mitigation Lands Trust

1986 Mitigation Lands Trust
4888 E. Jensen Ave
Fresno, CA 93725
559-266-0767

August 10, 2015

Ms. Becky Victorine, Project Manager
Bureau of Reclamation
San Joaquin River Restoration Program Office
MP-170, 2800 Cottage Way
Sacramento, CA 95825-1898
Email: Reach2B_EISEIR_Comments@restoresjr.net

Mr. Christopher Huitt, Project Manager
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202
Email: CEQAcomments@slc.ca.gov

Subject: Comments on San Joaquin River Restoration Program
Mendota Pool Bypass and Reach 2B Improvements Project
Draft Environmental Impact Statement / Environmental Impact Report

Dear Ms. Victorine/Mr. Huitt:

O-MLT-1 Please accept the following comments on the above-referenced San Joaquin River Restoration Program (SJRRP) Mendota Pool Bypass and Reach 2B Improvements Project Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R) on behalf of the 1986 Mitigation Lands Trust (MLT). Please include these comments in the administrative record for the SJRRP Mendota Pool Bypass and Reach 2B Improvements Project DEIS/R.

O-MLT-2 The two land parcels that the MLT ownes in Madera County are in the alignment of the compact bypass channel that is shown in all alternatives presented. As such it is our understanding that the project will be looking to aquire said parcels. While the MLT has numerous concerns regarding the proposed activities, the primary concern at this point in time is that our property will receive fair market value for all water rights and asscessed acreage.

Thank you for your consideration of our comments. If you have any questions in regards to these comments, please direct these to:

Steven Haugen, Trustee
1986 Mitigation Lands Trust
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shaugen@kingsriverwater.org

Steven Haugen
Trustee
1986 Mitiagtion Lands Trust

II.6.4 Responses to Mitigation Lands Trust

Response to Comment O-MLT-1

Your comments have been reviewed and considered in preparation of the Final EIS/R.

Response to Comment O-MLT-2

The land acquisition process for the Project will be consistent with existing Federal standards and processes. Consistent with Federal law, Reclamation complies with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the Uniform Appraisal Standards for Federal Land Acquisitions, and the Department of Justice Title Standards for land acquisition actions. These standards require assessing fair market value. The Office of Valuation Services reviews appraisals and approves them for government use. Appraisers to date have taken a comparison sales approach to determine the fair market value of properties, based on the highest and best use of a property.