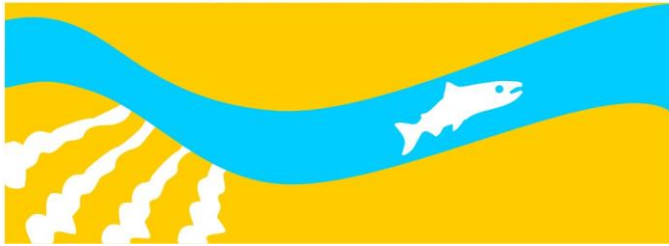


**Study 13**

# **Levee Geotechnical Exploration**

**Final  
2015 Monitoring and Analysis Plan**

**SAN JOAQUIN RIVER  
RESTORATION PROGRAM**





# 1.0 Levee Geotechnical Exploration

## **Theme(s):**

- Conveyance

## **Related Question(s):**

Questions not developed for this theme to date.

## 1.1 Statement of Need

The Stipulation of the Settlement in *NRDC, et al., v. Kirk Rodgers, et al.* (Settlement) and the San Joaquin River Restoration Program (SJRRP), Program Environmental Impact Statement/ Program Environmental Impact Report (PEIS/PEIR) (July 2012) determined that Restoration Flows cannot negatively impact the levee stability of the Lower San Joaquin River Flood Control Project (Project) and the non-Project levee segments under near-term or long-term Restoration flow scenarios. This levee stability analysis will assist SJRRP in assessing flood risks and identify potential mitigation strategies to maintain acceptable risk management associated with actions of the SJRRP with respect to levee seepage and stability. The geotechnical data collection and technical evaluations will help inform the SJRRP of the flood risks.

## 1.2 Background

The U. S. Department of the Interior, Bureau of Reclamation (Reclamation), as lead agency for the SJRRP, has initiated restoration releases from Friant Dam and is evaluating alternatives for routing of near-term and long-term Restoration Flows to support reintroduction of fish into the San Joaquin River as required by the Settlement. The Department of Water Resources (DWR) is not a settling party, however, the State of California has signed a Memorandum of Understanding with the Settling Parties under which DWR is assisting in various aspects of the planning, design, and construction of physical improvements identified in the Settlement, including projects related to flood protection, levee relocation, construction standards and maintenance. DWR is assessing the impacts of Restoration Flows under the SJRRP on flood management and operations in the Restoration Area and to develop strategies to manage those impacts. DWR has developed the SJRRP Levee Evaluation (SJLE) Project to assist the SJRRP in identifying potential flood impacts to levee seepage and stability due to current and future Restoration Flows under the SJRRP.

The project goal is to assist SJRRP in assessing flood risks and identify potential mitigation strategies to maintain acceptable flood risk management associated with actions of the SJRRP with respect to levee seepage and stability. The technical

evaluations for this project are being performed by DWR Non-Urban Levee Evaluations Program technical staff and contractors.

### 1.3 Anticipated Outcomes

The study will result in the following outcomes related to levee stability, including:

- Development the geotechnical data needed for the levee stability analysis
- Identifying all existing Project and non-Project levee segments along which Restoration flows under the SJRRP may be routed under near-term or long-term Restoration flow scenarios
- Prioritizing levee segments for potential future geotechnical exploration and analyses based on existing hydraulic analyses and anticipated routing alternatives identified by the SJRRP.

Inform other ongoing work, such as the Monitoring of In-channel Capacity study

### 1.4 Methods

**Type of Study:** Combination of geotechnical data collection and analysis

**Reaches:** Reach 2A, Reach 4A, and the Middle Eastside Bypasses

The primary source for information regarding the location of levees within the Restoration Area and the extent of any past geotechnical exploration data is the DWR's Non-Urban Levee Evaluation (NULE) Project.

Hydraulic data to determine the location and length of segments along which levees may be contacted by Restoration Flows is being provided by Tetra Tech., dba Mussetter Engineering, Inc. (TT-MEI) under contract to DWR South Central Regional Office.

Information regarding the potential routing options is based on planning and environmental documents prepared by the SJRRP, including but not limited to, the Framework for Implementation and the PEIS/PEIR (July 2012); and on-going communication with the SJRRP team. In addition there is the following information:

- 1) The existing information available (initial NULE reports)
- 2) Timing for the study (Report will be completed by April 2015)
- 3) Specific locations (geotechnical data collection point maps attached)

## 1.5 Deliverables and Schedule

In 2013, DWR completed a preliminary geotechnical analysis of several levee segments with low channel capacity along the Middle Eastside Bypass. The analyses were performed using geotechnical data collected during the first exploration phase. The results were documented in a technical memorandum in August of 2013. The results were incorporated into the 2013 Channel Capacity Technical Report where they confirmed adjustments to then-existing channel capacity in the Middle Eastside Bypass.

Separate data reports will be prepared for the geomorphology and geophysics studies and for the geotechnical explorations. A single geotechnical data report will be prepared after completion of the supplemental explorations. The current schedule for data reports is:

- Geophysics Data Report will be completed by August 2014
- Geomorphology studies will be completed by September 2014
- Geotechnical Data Report (GDR) will be completed by December 2014
- Geotechnical Overview Report (GOR) will be completed by April 2015

Levee seepage and stability analyses results will be documented in a Geotechnical Overview Report (GOR). The report will identify levee segments that do not meet USACE levee design criteria and will identify scoping-level remediation measures. The final work of this phase of the preliminary geotechnical work will be the Geotechnical Overview Report (GOR) which will be completed by April 2015. It will include recommendations for future geotechnical work.

## 1.6 Budget

The total cost estimate is \$1,000,000.00 for 2015.

**Table 1-1. Proposed 2015 Budget**

<b>Task</b>	<b>Cost</b>
Data collection and report preparation	\$1,000,000.00
<b>Total</b>	<b>\$1,000,000.00</b>

## 1.7 Point of Contact / Agency Principal Investigator

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## 1.8 References

No applicable references.

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