DWR Geotechnical Studies in Support of SJRRP

Overview and Status of the San Joaquin Levee Evaluation (SJLE) Project and the Non Urban Levee Evaluation (NULE) Project
August 20, 2014
San Joaquin Levee Evaluation (SJLE) Project

- **Goal:** Assist SJRRP in assessing flood control system integrity associated with levee seepage and stability

- **Scope**
  - Task 1 - Levee prioritization based on channel capacity
  - Task 2 - Geotechnical explorations
  - Task 3 - Geotechnical analyses using Corps criteria

- **Limitations**
  - Analyses limited to levee seepage and stability
SJLE Task 1 – Levee Prioritization

• DWR Geotechnical Analysis findings:
  – High flood hazards for most SJRRP levees
  – Significant levee segments with limited geotechnical data

• Levees prioritized for geotechnical exploration based on:
  – Current channel capacity limitations
  – Relationship to Prior DWR explorations
  – Anticipated Restoration Flow routing
SJLE Task 1 - Levee Evaluation
Priorities
SJLE Task 2 – Geotechnical Explorations

- Phased exploration of Priority 1 levee segments consistent with DWR levee evaluations protocol
- Initial Phase completed May 2013
  - Cone Penetrometer Tests (156)
  - Exploratory Borings (35)
- Supplemental Explorations Underway
  - Geophysical surveys
  - Hand auger borings
  - Exploratory borings
SJLE Task 2 – Geotechnical Explorations completed

Middle Eastside BP
LB – 51 CPTs, 10 borings
RB - 53 CPTs, 9 Borings

Upper Eastside BP
LB – 8 CPTs, 2 borings
RB - 5 CPTs, 1 Boring

Reach 4A
LB – 10 CPTs, 3 borings
RB - 11 CPTs, 2 Boring

Reach 2A
LB – 18 CPTs, 8 borings
SJLE Task 2 – Geotechnical Explorations in 2014

- **Eastside Bypass**
  - Geophysical surveys (completed June 2014)
  - Hand augers (completed July 2014)
  - Borings (underway)

- **Reach 2A**
  - Geophysical surveys (completed June 2014)
  - Hand augers (completed July 2014)
  - Borings (est. Fall 2014)
SJLE Task 3 – Geotechnical Analysis

• Geotechnical analyses of Priority 1 levees
  – Limited to seepage and stability
  – Applied USACE levee performance criteria

• Key subtasks
  – Development of geotechnical analysis methodology (complete)
  – Analyses of low channel capacity sites in Eastside Bypass (completed in 2013)
  – Geomorphology analyses (estimated completion September 2014)
  – Geotechnical analyses and reporting (estimated completion April 2015)
## SJLE – Schedule

<table>
<thead>
<tr>
<th>Phase</th>
<th>Task</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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<td>1</td>
<td>Identification/Prioritization of Levee Segments</td>
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<td>2</td>
<td>Geomorphic Studies</td>
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<td>Geotechnical Analysis and Reporting</td>
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*Colors indicate progress status.*
SJLE – Next Steps

• Complete Priority 1 levee evaluation
• Support SJRRP in:
  – Assessing channel capacity revisions
  – Identifying levee remediation needs
  – Identify monitoring needs for flood management under Restoration flows
• Continue coordination with SJRRP and Reclamation on Priority 2 and 3 needs
• Identify future funding availability for additional evaluations
Goals

- Support CVFPP in evaluating levee integrity and remedial needs
- Study Area expanded to include all SJRRP reaches to support SJRRP

Phased Approach

- Phase 1 - Preliminary Evaluations Using Existing Data
  • Completed June 2011
- Phase 2 - Targeted Geotechnical Exploration/Analyses
  • Scope limited to levees protecting > 1,000 people
  • Data collection completed 2013
  • Analyses scheduled for completion by December 2014
**NULE Activities to Date**

**Phase 1 GAR Results**

- Levee Hazard Assessments of all SJRRP levees

**Phase 2 Explorations**

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<th>Area</th>
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Summary

Questions and Summary