THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
Yuba County Government Center, Board Chambers
915 Eighth Street, Suite 109A
Marysville, California

MARCH 3, 2015 – 3:00 P.M.

CALL TO ORDER: Welcome to the Three Rivers Levee Improvement Authority (TRLIA) meeting. As a courtesy to others, please turn off cell phones, pagers, or other electronic devices which might disrupt the meeting. Thank you.

I ROLL CALL – Directors Atwal, Brown, Crippen, Griego, Nicoletti

II PUBLIC COMMUNICATIONS: Any person may speak about any subject of concern within the jurisdiction of TRLIA which is not on today’s agenda. The total amount of time allotted shall be limited to a total of 15 minutes and each individual or group will be limited to no more than 5 minutes. Prior to this time, speakers are requested to fill out a “Request to Speak” card and submit it to the secretary.

III CONSENT AGENDA: Matters listed are considered to be routine and can be enacted by one motion.

A. Approve minutes of the meeting of February 17, 2015.

IV ACTION ITEMS

A. Adopt resolution approving Preliminary Basin Plan and authorizing Executive Director to modify Plan as appropriate and finalize.

B. Approve Amendment No. 8 in an amount not to exceed $382,386, to agreement with AECOM Technical Services, Inc. for environmental services and authorize Executive Director to negotiate and execute final amendment upon review of Counsel.

V BOARD AND STAFF MEMBER REPORTS

VI ADJOURN

The complete agenda is available at the Yuba County Government Center, 915 8th Street, Suite 109 Marysville, and www.trlia.org. Any disclosable public record related to an open session item on the agenda and distributed to all or a majority of the Board less than 72 hours prior to the meeting is available at Suite 109 during normal business hours. In compliance with the Americans with Disabilities Act, the meeting room is wheelchair accessible and disabled parking is available. If you have a disability and need disability-related modifications or accommodations to participate in this meeting, please contact the Clerk of the Board's office at (530) 749-7510 or (530) 749-7353 (fax). Requests must be made one full business day before the start of the meeting.
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
FEBRUARY 17, 2015
MINUTES

A meeting of the Board of Directors of the Three Rivers Levee Improvement Authority (TRLIA) was held on the above date, commencing at 2:02 p.m., within the Government Center, Marysville, California, with a quorum being present as follows: Directors Rick Brown, Mary Jane Griego, and John Nicoletti. Directors Sarbdeep Atwal and Jerry Crippen were absent. Also present were Executive Director Paul Brunner and Secretary/Clerk of the Board of Supervisors Donna Stottlemyer. Chair Griego presided.


II PUBLIC COMMUNICATIONS: None

III CONSENT AGENDA: Matters listed are considered to be routine and can be enacted by one motion.

MOTION: Move to approve  MOVED: John Nicoletti  SECOND: Rick Brown
AYES: Rick Brown, Mary Jane Griego, John Nicoletti
NOES: None  ABSTAIN: None  ABSENT: Sarbdeep Atwal, Jerry Crippen

A. Approve minutes of the meeting of January 20, 2015. Approved.

B. Approve Amendment No. 16 extending agreement to December 31, 2016 with Bookman-Edmonston/GEI Consultants for construction management and authorize Executive Director to execute. Approved.

C. Approve Amendment No. 5 extending agreement to December 31, 2016 with Kim Floyd Communications for public outreach and authorize Executive Director to execute. Approved.

D. Approve Amendment No. 3 extending agreement to December 31, 2016 with ENGEO Inc. for engineering services and authorize Executive Director to execute. Approved.

E. Approve Amendment No. 6 extending agreement to December 31, 2016 with MHM Inc. for engineering and surveying services and authorize Executive Director to execute. Approved.

IV ACTION ITEMS

A. Adopt resolution authorizing application to California Department of Water Resources for funding under the Urban Flood Risk Reduction Program for the Goldfields Project and authorizing Executive Director to conduct all negotiations, execute and submit all necessary documents required to accept funding. Executive Director Paul Brunner recapped analysis of proposed Goldfields project improvement, setback levee and cost share, and responded to Board inquiries.

MOTION: Move to adopt  MOVED: John Nicoletti  SECOND: Rick Brown
AYES: Rick Brown, Mary Jane Griego, John Nicoletti
NOES: None  ABSTAIN: None  ABSENT: Sarbdeep Atwal, Jerry Crippen
Adopted Resolution No. 2015-01, which is on file in TRLIA Resolution Book No. 9.

B. Approve Amendment No. 6 to agreement with CTA engineering and Surveying in the amount of $52,415 for engineering services and authorize Executive Director to execute.

MOTION: Move to approve
MOVED: John Nicoletti
SECOND: Rick Brown
AYES: Rick Brown, Mary Jane Griego, John Nicoletti
NOES: None
ABSTAIN: None
ABSENT: Sarbdeep Atwal, Jerry Crippen

V BOARD AND STAFF MEMBER REPORTS

Executive Director Paul Brunner
• June 30, 2014 Financial Statements
• Advanced mitigation bank
• Hosted levee system tour for French delegation team December 17, 2015
• Move of access from Broadway to Star Bend targeted for March 2015

VII ADJOURN: 2:42 p.m.

_________________________________________
Chair

ATTEST: DONNA STOTTLEMEYER
CLERK OF THE BOARD OF SUPERVISORS
AND SECRETARY OF THE PUBLIC AUTHORITY

_________________________________________
Approved: ____________________________

02/17/2015 – TRLIA
March 3, 2015

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul G. Brunner, Executive Director
SUBJECT: Approval of a Resolution approving TRLIA’s Concept Basin Plan in support of TRLIA’s efforts to secure additional State Funding for the continued implementation of the RD 784 Levee Improvement Program

Recommendation
Staff recommends that the Board of Directors approve a resolution adopting the TRLIA Preliminary Basin Plan which is required for application for a State UFRR Grant, and authorize the Executive Director to make the necessary changes to finalize, as needed.

Background
The California Department of Water Resources (DWR) is working to advance a new post Central Valley Flood Protection Plan program called the Urban Flood Risk Reduction (UFRR) Program. The UFRR Program is essentially a continuation of funding under the Early Implementation Program, the program currently funding several of TRLIA’s Basin Area Projects (the Feather River Levee Improvement Project and the Upper Yuba Levee Improvement Project). On January 20, 2015 DWR issued an UFRR Proposal Solicitation Package and the final version of the UFRR Guidelines. These documents can be found here: http://www.water.ca.gov/floodmgmt/fpo/guidelines/. The guidelines require agencies applying for funding to adopt a Basin Plan for providing 200-year protection. A Basin for the purposes of this plan is described as a separable hydraulic area protected by a system of flood-management infrastructure.

The DWR UFRR guidelines outline several steps that need to occur prior to a state funding agreement being approved. The first step is for applicants to submit a concept project by March 9, 2015. DWR will review and score the initial proposals and then notify the project proponents if they should submit a final application.

TRLIA is proposing to submit an UFRR proposal for construction of a Goldfields Project that would prevent 200-year flood flows from traveling through the Goldfields and flanking the existing flood protection system for Reclamation District (RD) 784. The proposed project is a levee south of the Goldfields extending from end of the Upper Yuba Levee project approximately 3 miles to high ground (near Beale AFB). The estimated cost of the levee is $41.3 million. The concept proposal identifies this levee stretch as a setback levee that is re-establishing the high ground features relied upon for Flood Control in the Goldfields that are no longer present. Based on the UFRR guidelines the TRLIA proposes a state cost share of 89% for the project. The local share would be $4.5 million. Expected reimbursements and the release of State retention for TRLIA’s current E1P Projects combined with available remaining YFLA bond proceeds would fund the local share.

The UFRR Guidelines require that the concept proposal contain “an overall plan for improving flood management within a Basin, which may include one or more Projects”. The guidelines refer to this plan as a Preliminary Basin Plan. The Preliminary Basin Plan needs to include the following items at a minimum:
• Existing Conditions and Deficiencies
• Hydraulics and Floodplain Mapping
• Basin Plan to achieve 200-year or greater Level of Protection
• Project(s) Description
• Basin Plan Alternatives
• Preliminary Cost Share Recommendation
• Schedule
• Any programmatic approach to permitting
• Any proposal for how to mitigate for impacts to other measures taken for avoidance and minimization (Best Management Practices)

Attached to this staff report is the proposed Preliminary Basin Plan for the RD 784 Urban Area which includes the information required for the concept proposal. To ensure that TRLIA can pursue UFRR funding for the Goldfields Project, Staff recommends that the Board adopt the attached resolution which approves the TRLIA Preliminary Basin Plan and authorizes the Executive Director to make necessary changes to finalize, as needed. Should the 200-yr Goldfields Project be selected for State UFRR funding, the Preliminary Basin Plan will be updated and finalized. The TRLIA Board will be asked to approve the Final Basin Plan as well.

**Fiscal Impact**
The immediate action being requested of the Board is to approve the Preliminary Basin Plan. Approval of the recommended action does not obligate TRLIA to incur additional expenses until an UFRR agreement is signed. Adoption of the attached resolution will allow TRLIA to request and receive funding from the State for the Goldfields Project.

**Attachments**
1. Resolution to Adopt the Preliminary Basin Plan
2. Preliminary Basin Plan
RESOLUTION 2015-__

RESOLUTION OF THE THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
APPROVING THE THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
PRELIMINARY BASIN PLAN

WHEREAS, the Three Rivers Levee Improvement Authority ("TRLIA") is a joint
powers authority that has spent over $400 million improving and rehabilitating levees protecting
areas of Yuba County from flooding from the Yuba, Feather and Bear Rivers; and

WHEREAS, the goal of TRLIA is to provide a minimum level of 200-year flood
protection for urban areas in the Yuba Basin; and

WHEREAS, TRLIA intends to complete its work to provide 200-year protection to the
Basin by constructing flood protection work in the Yuba Goldfields ("Goldfields Project"); and

WHEREAS, the California Department of Water Resources ("DWR") has finalized its
new grant funding requirements under the Urban Flood Risk Reduction ("UFRR") program; and

WHEREAS, TRLIA wishes to seek funding for the Goldfields Project through the
Urban Flood Risk Reduction Program; and

WHEREAS, DWR’s prior funding program guidelines required that funding applicants
develop an Area Plan for achieving a specific level of flood protection for an area, and TRLIA
prepared an Area Plan that included the Goldfields Project; and

WHEREAS, DWR’s UFRR funding guidelines changed the name of the required Area
Plan to “Basin Plan;” and

WHEREAS, TRLIA has renamed and revised the Area Plan so that it complies with the
UFRR requirements, and wishes through this resolution to formally adopt a Preliminary Basin
Plan (which is attached hereto as Exhibit A).

NOW, THEREFORE, THE THREE RIVERS LEVEE IMPROVEMENT
AUTHORITY RESOLVES AS FOLLOWS:

1. The Board hereby approves the Three Rivers Levee Improvement Authority
   Preliminary Basin Plan.

2. The Board hereby grants to the Executive Director authority to modify the
   Preliminary Basin Plan as appropriate and to finalize it.

PASSED AND ADOPTED this 17th day of February, 2015, by the Board of Directors of the
Three Rivers Levee Improvement Authority.
AYES:
NOES:
ABSTAIN:
ABSENT:

Mary Jane Griego, CHAIRPERSON

ATTEST:

Donna Stottlemeyer, Clerk of the Board

APPROVED AS TO FORM
GENERAL COUNSEL

By:____________________
4.0 CONCEPT BASIN PLAN

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4.2 Hydraulics and Floodplain Mapping

In March 2010, the United States Army Corps of Engineers (USACE) gave a presentation to the Central Valley Flood Protection Board (CVFPB) that included a summary of the results from USACE's hydraulic analysis of the Goldfields. The USACE analysis concluded that the Goldfields do not present a flood risk for the RD 784 urban area in the event of a 100-year storm, but do present a flood risk in the event of a 200-year storm. The USACE analysis was a coarse level 2-dimensional analysis to conservatively estimate flood damages and costs as part of its Yuba Basin General Reevaluation Report. USACE concluded that there was not an economically viable engineered solution to preserve historic flood protection (i.e., constructing a new levee south of the Goldfields area). This conclusion was primarily based on the USACE finding at that time that the Goldfields do not present a flood risk in the event of a 100-year event.

Based on the USACE analysis showing that TRLIA's RD784 SPFC improvements could be flanked; TRLIA began an effort to better define the residual flood risk associated with the Goldfields. TRLIA, through its hydraulic consultant, MBK Engineers, refined and expanded the hydraulic analysis of the Upper Yuba River into the Goldfields. Appendix C of the Goldfields Flood Protection Feasibility Study, Initial Report, TRLIA, July 2013 provides a description of the hydraulic model development and some preliminary hydraulic results. This analysis included the most recent topographic information available for the Goldfields and development of a comprehensive 2-dimensional hydraulic model to simulate surface flow through the complex Goldfields area and into the RD 784 urban area should a breach occur in the Yuba River south bank tailings mound. In addition to the hydraulic modeling, TRLIA evaluated the south bank tailings mounds to examine how this feature has performed during past flood events and determine the reliability of the tailings mounds to safely pass a 100-year flood event. Results from the TRLIA analysis were completed in October 2011, and indicated that contrary to USACE's findings, the Goldfields do present a risk at both the 100-year and 200-year storm levels. See Appendix D of the Technical Memorandum, Preliminary Analysis of the Yuba River South Training Wall, MBK, October 18, 2011.

4.2.1 Preliminary Flood Risk Analysis

For the October 2011 evaluation, TRLIA obtained recent topographic information from DWR to use in identifying potential flow paths through the Goldfields in the event of a breach of the south tailings mound. This analysis was difficult in that there are many potential pathways. Through careful analysis of the topography, discussion with the mining operators and others familiar with Goldfields hydraulics during past flood events, and comparisons to past large flow events, TRLIA was able to identify the most likely pathways for flows through the Goldfields and the most probable exit points from the Goldfields into the RD 784 urban area. Historic aerial photography of the Goldfields was analyzed to see how mining and dredging operations are
changing these flow paths and to evaluate how past flood events did not break out of the Goldfields and why those same size flood events might flow through the Goldfields today.

The hydraulic analysis also identified locations at which the Yuba River directly attacks the south bank tailings mounds, see Figure 2. This helped to identify eroding sites of greatest risk of a breach in the south bank tailings mounds. The identified sites were studied in more detail in a geomorphic evaluation. Information on these potential breach sites is presented in Table 1.

4.2.2 Geomorphic Evaluation:

TRLIA’s geomorphic consultant, cbec, conducted a more extensive geomorphic evaluation of the Yuba River along the Goldfields as part of the TRLIA Feasibility Study (See Appendix E of the Goldfields Flood Protection Feasibility Study, Initial Report, TRLIA, July 2013). CBEC also completed a literature review to identify studies already done for this reach. These studies, historic maps, and aerial photographs were evaluated to determine recent river changes and the features influencing these changes. Historic meander patterns were determined and predictions made as to future meander paths. A work-retreat analysis was done at several of the eroding sites to develop a relationship between historic work performed by the river and the retreat that occurred at that site. This relationship can be used to predict future retreat at these sites based on different hydrologic cycles. This retreat analysis shows that several of the eroding sites are expected to continue to erode and at some time in the future will breach. Table 2 shows the predicted lateral retreat due to design events, historical events, and historical periods. Two of the eroding sites (Sites B and F) were evaluated by reviewing historic photographs and plotting the erosion of the tailings mounds at these locations. Erosion ranged from 150 to 175 feet over the past 45 years. This analysis demonstrates that the Yuba River is attempting to meander south at several locations and is actively eroding the south bank tailings mound. This meandering has the potential to cause a breach in the south bank tailings mounds during a future large flood event. When a breach develops at either Site B, F, or J flows can enter channels in the Goldfields, flow through the Goldfields and flank the SPFC, and flood the RD 784 urban area. Additional historic photographic analysis has identified landform changes within the Goldfields created through mining and dredging operations which have made it easier for flood waters to flow through the Goldfields and exit into the RD 784 urban area once a breach occurs. Examples of the floodplains that could result from breaches in the south bank tailings mounds are shown in Figures 3 and 4.
Figure 2 Potential Erosion Sites
## Table 1  Potential Breach Sites

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Freeboard Above 100-year Water Surface Elevation (feet)</th>
<th>Tailings Mound Width (feet)</th>
<th>Is Site Bank Location Eroding?</th>
<th>Isolated from Flood Plain?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site A</td>
<td>-2, small crossing overtopped</td>
<td>N/A</td>
<td>No</td>
<td>Partially</td>
<td>Overtopping will occur with high river levels, channel restricts volume flowing the Goldfields. Plugs constructed in 2011 reduce threat of RD 784 flooding.</td>
</tr>
<tr>
<td>Site B</td>
<td>0</td>
<td>N/A</td>
<td>Yes, 1964-2009 Avg. retreat 135 feet and increasing</td>
<td>Partially</td>
<td>High potential for breach and flooding RD 784. Plugs constructed in 2011 reduce threat of RD 784 flooding.</td>
</tr>
<tr>
<td>Site C</td>
<td>3 but rapidly decreasing</td>
<td>N/A</td>
<td>Yes, 1964-2009 Avg. retreat 170 feet</td>
<td>Yes</td>
<td>Perpendicular mounds behind Site C location will contain breached flows. Low potential for flooding RD 784</td>
</tr>
<tr>
<td>Site D</td>
<td>-3, Waterway 13 outlet</td>
<td>N/A</td>
<td>Yes, Slight Erosion occurring but Lack of Freeboard is Main Concern</td>
<td>Yes</td>
<td>Overtopping will occur with high river levels. Would have flowed through ice cut and into RD 784. However 2011 Crossing 21 Plug prevents this.</td>
</tr>
<tr>
<td>Site E</td>
<td>-7, small crossing overtopped</td>
<td>N/A</td>
<td>No</td>
<td>Yes</td>
<td>Overtopping will occur with high river levels. Would have flowed through ice cut and into RD 784. However 2011 Crossing 21 Plug prevents this.</td>
</tr>
<tr>
<td>Site F</td>
<td>40</td>
<td>105</td>
<td>Yes, 1964-2009 Avg. retreat 146 feet</td>
<td>Yes</td>
<td>Erosion is occurring. Embankment is currently stable at 100-Year Water Surface Elevation.</td>
</tr>
<tr>
<td>Site G</td>
<td>4</td>
<td>45</td>
<td>Yes, Freeboard exists to prevent overtopping. No erosion is occurring. USACE arbitrarily selected as breach site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site H</td>
<td>31</td>
<td>390</td>
<td>No</td>
<td>Yes</td>
<td>Freeboard exists to prevent overtopping. Site is stable at 100-year Water Surface Elevation. No erosion is occurring.</td>
</tr>
<tr>
<td>Site I</td>
<td>23</td>
<td>240</td>
<td>No</td>
<td>Yes</td>
<td>Freeboard exists to prevent overtopping. Site is stable at 100-year Water Surface Elevation. No erosion is occurring.</td>
</tr>
<tr>
<td>Site J</td>
<td>38</td>
<td>180</td>
<td>Yes, 1964-2009 Avg. retreat 225 feet</td>
<td>No</td>
<td>Erosion is occurring. Embankment is currently stable at 100-Year Water Surface Elevation.</td>
</tr>
</tbody>
</table>
Table 2  Predicted Lateral Retreat Due to Design Events, Historical Events and Historical Periods

<table>
<thead>
<tr>
<th>Event / Period</th>
<th>Peak Discharge (cfs)</th>
<th>Duration &gt; 20,000 cfs (days)</th>
<th>Predicted Retreat (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Site B</td>
</tr>
<tr>
<td><strong>Design Events</strong>²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-yr return period</td>
<td>93,060</td>
<td>4.6</td>
<td>12</td>
</tr>
<tr>
<td>25-yr return period</td>
<td>128,563</td>
<td>5.5</td>
<td>13</td>
</tr>
<tr>
<td>50-yr return period</td>
<td>151,602</td>
<td>6.6</td>
<td>14</td>
</tr>
<tr>
<td>100-yr return period</td>
<td>154,979</td>
<td>7.0</td>
<td>16</td>
</tr>
<tr>
<td><strong>Historical Events</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/23/1964</td>
<td>180,000</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>2/19/1986</td>
<td>111,000</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1/2/1997</td>
<td>161,000</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>12/31/2005</td>
<td>114,000</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td><strong>Historical Analysis Periods</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1964 – 1984</td>
<td>180,000</td>
<td>65</td>
<td>48</td>
</tr>
<tr>
<td>1984 – 1993</td>
<td>111,000</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>1993 – 1999</td>
<td>161,000</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>1999 – 2005</td>
<td>32,237</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>2005 – 2009</td>
<td>114,000</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td><strong>Historical 10-yr Periods</strong>²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970 – 1980</td>
<td>49,450</td>
<td>9</td>
<td>72</td>
</tr>
<tr>
<td>1990 – 2000</td>
<td>161,000</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>1990 – 2000 w/o 1997 event</td>
<td>56,110</td>
<td>24</td>
<td>18</td>
</tr>
</tbody>
</table>

Notes:

1) Design event hydrographs obtained from MBK reflect Lower Feather River Floodplain Mapping Study (2005).
Figure 3 100-year Flood Plain from Breach at Site B

Legend

- Breach Location
- Goldfields Channel
- Floodplain

Maximum Flood Depth (Feet)

0
0 - 1
1 - 2
2 - 5
5 - 10
10 +

Goldfields Feasibility Study
100-YEAR FLOODPLAIN FROM BREACH AT SITE B

FIGURE 3
Figure 4 100-year Flood Plain from Breach at Site F
These analyses show that contrary to early reconnaissance findings by USACE, there is a risk of SPFC flanking for floods more frequent than the 100-year flood. This is a result of landform changes made by aggregate miners and a gold dredge; and also from a more detailed understanding of the rate of erosion of the Yuba River south bank dredge tailings embankments. This flood risk would flood areas that were thought to have 200-year protection and decrease the flood inundation benefits associated with the SPFC. It would also result in FEMA having to map residual flood plains in the RD 784 urban area along with these residual flooded areas having to purchase flood insurance. With this better understanding of the flood threat from the Goldfields, TRLIA has added a Basin Project (Basin Project 8 - Goldfields Setback Levee) to its Basin Plan to address this SPFC deficiency.
4.3 Basin Plan Description

To address deficiencies in the SPFC identified in 2004-2009, TRLIA implemented a comprehensive Levee Improvement Basin Plan for RD 784 (Basin Plan) in south Yuba County. TRLIA’s Basin Plan consists of numerous Basin Projects, which are described in more detail later in Section 4 of this Basin Plan. The Basin Project locations are shown on Figure 5. The Basin Projects were implemented to address the greatest flood risks first with those projects that could be quickly implemented with available funding. The initial Basin Projects and their status are provided in Table 3.

Table 3 Initial Basin Plan Costs and Status

<table>
<thead>
<tr>
<th>Initial Basin Plan Projects</th>
<th>Project Costs</th>
<th>Status</th>
<th>Year Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basin Project 1 - Yuba River South Levee</td>
<td>$4,153,512</td>
<td>Completed</td>
<td>2004</td>
</tr>
<tr>
<td>Basin Project 2 - WPIC, Yuba, Upper Bear, ODH</td>
<td>$48,826,743</td>
<td>Completed</td>
<td>2006</td>
</tr>
<tr>
<td>Basin Project 3 - Bear River North Setback Levee</td>
<td>$76,106,936</td>
<td>Completed</td>
<td>2006</td>
</tr>
<tr>
<td>Basin Project 4 - Yuba River South Levee UPRR to Simpson Lane</td>
<td>$15,858,493</td>
<td>Completed</td>
<td>2007</td>
</tr>
<tr>
<td>Basin Project 5 - Feather River East Levee Segments 1&amp;3</td>
<td>$32,336,962</td>
<td>Completed</td>
<td>2009</td>
</tr>
<tr>
<td>Basin Project 6 - Feather River East Levee Segment 2 - Setback Levee</td>
<td>$168,871,463</td>
<td>Completed</td>
<td>2010</td>
</tr>
<tr>
<td>Total Initial Basin Projects</td>
<td>$401,491,434</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] The west levee work of the Western Pacific Interceptor Canal work is scheduled to complete construction in 2016.

The initial Basin Projects included strengthen in place features such as cutoff walls, stability berms, and seepage berms and two setback levees. The setback levee projects provided regional flood protection benefits to Yuba and Sutter Counties and included the implementation of environmental restoration projects.

TRLIA has identified a final Basin Project for the RD 784 urban area (Basin Project 8 Goldfields Setback Levee) that will assure and improve the flood protection provided by the SPFC. This final Basin Project is described in more detail in Section 4.7 of this Basin Plan. This final Basin Project was identified by TRLIA through a feasibility study funded in part by a DWR Proposition 13 Grant. Once the Basin Plan is complete, the entire RD 784 Urban Area will have greater than 200-year flood protection, as shown in Table 4.
<table>
<thead>
<tr>
<th>Location</th>
<th>Annual Exceedance Probability (Before Basin Plan)</th>
<th>Annual Exceedance Probability (After Basin Plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuba River at Goldfields</td>
<td>&lt;1:100</td>
<td>&gt;1:200</td>
</tr>
<tr>
<td>Yuba River above Feather River</td>
<td>1:50</td>
<td>1:320</td>
</tr>
<tr>
<td>Feather River between Yuba and Bear Rivers</td>
<td>1:20</td>
<td>1:280</td>
</tr>
<tr>
<td>Bear River above Feather River</td>
<td>1:20</td>
<td>1:310</td>
</tr>
<tr>
<td>WPIC above Bear River</td>
<td>1:20</td>
<td>1:370</td>
</tr>
</tbody>
</table>

Values taken from Table VI-19 of Appendix VI of the 2006 Alternatives Analysis Report
4.4 Basin Projects Descriptions

4.4.1 Basin Project 1 - Yuba River South Levee Phase 1

This project strengthened the existing Yuba River south levee between Highway 70 and approximate Yuba River Project Levee Mile (PLM) 0.8 (1986 levee breach site). This work consisted of construction of a 50-foot-deep cutoff wall and was completed in 2004.

4.4.2 Basin Project 2 - WPIC, Yuba, Upper Bear, ODB - Phase 2

This project strengthened and raised the existing upper Bear River north levee from about 200 feet downstream from Highway 70 to the WPIC west levee, added a seepage berm to the existing Yuba River south levee at the corner of the levee and the UPRR west of Highway 70 and from Shad Road to the UPRR, strengthened and raised the existing WPIC west levee, relocated Pump Station No. 6, and constructed the Olivehurst detention basin, pumping plant, and ring levee. This work was completed in 2006.

4.4.3 Basin Project 3 - Bear River North Setback Levee

This project constructed a new Bear River north setback levee from the Feather River east levee near Pump Station No. 2 to the west end of the Phase 2 Upper Bear River north levee work. The existing levee was degraded which provided new floodplain area for flood elevation reduction and environmental restoration. This project is also referred to as the Bear River Setback Levee project (BRSL). Existing walnut orchards were removed from the existing floodplain and the expanded floodplain created by setting back the levee. This setback area was planted to create a mosaic of riparian, wetland, and grassland habitats. Both waterside and landside toe access corridors were established along the Bear Setback Levee to prevent encroachment of vegetation and development along this levee reach and improve access for operation and maintenance (O&M). The landside toe access corridor also allows for better inspection and potential flood fighting access during a large flood event. Levee work was completed in 2006 and environmental restoration work was completed in 2007.

4.4.4 Basin Project 4 - Yuba River South Levee UPRR to Simpson Lane

This project strengthened the existing Yuba River south levee from the UPRR to Simpson Lane by constructing an 80-foot deep cutoff wall and adding a corner seepage berm at the UPRR levee crossing. This work was completed in 2006.
4.4.5 Basin Project 5 - Feather River East Levee Segments 1&3

Segment 1 extends from the Bear River north setback levee (Feather River PLM 13.3) to Star Bend (PLM 17.1) (Beginning of the Feather River Setback Levee). The levee was strengthened by constructing cutoff walls, stability berms, and relief wells. Monitoring piezometers were also installed to check the effectiveness of the constructed features and for use to monitor foundation conditions during flood stages. Both waterside and landside toe access corridors were established along Segment 1 to prevent encroachment of vegetation and development along this levee reach and improve access for O&M. The landside toe access corridor also allows for better inspection and potential flood fighting access during a large flood event.

Segment 3 extends from Feather River PLM 23.6 (End of the Feather River Setback Levee) to the junction with the Yuba River south levee (PLM 26.1) and along the Yuba River south levee from its junction with the Feather River east levee (PLM 0.0) to the UPRR crossing of the Yuba River south levee west of Highway 70 (PLM 0.3). This segment of levee was strengthened through the construction of cutoff walls, stability berms and levee crown reconstruction. Monitoring piezometers were also installed to check the effectiveness of the constructed features and for use to monitor foundation conditions during flood stages. Both waterside and landside toe access corridors were established along Segment 3 to prevent encroachment of vegetation and development along this levee reach and improve access for O&M. The landside toe access corridor also allows for better inspection and potential flood fighting access during a large flood event. Segments 1 and 3 were completed in 2009.

4.4.6 Basin Project 6 - Feather River East Levee Segment 2 – Feather Setback Levee

This levee segment extends from Star Bend (PLM 17.1) to about one mile north of Murphy Road (PLM 23.6). Remediation of this levee segment was accomplished through the construction of 5.7 miles of new setback levee. The new setback levee is approximately 0.5 miles east of the old levee which was degraded. Pump Station No. 3 was relocated to the setback levee alignment and reconstructed to modern standards. The degraded levee segment included the levee location that broke in 1997. Setting back the levee enlarged the flood plain by approximately 1,500 acres. This enlarged flood plain lowers flood stages along the Feather and Yuba Rivers and also offers opportunities of environmental restoration. About half of this area currently remains in agricultural use through leases to the original farmers. Portions of the setback area have been modified and planted to mitigate for environmental impacts of the Feather Setback Levee and other Basin Projects. A large portion of the Setback Area (500 acres) is now under design as a FESSRO Project which will provide advance mitigation for future SPFC actions. Both waterside and landside toe access corridors were established along the Feather Setback Levee to prevent encroachment of vegetation and development along this levee reach and improve access for
O&M. The landslide toe access corridor also allows for better inspection and potential flood fighting access during a large flood event. The Feather River east setback levee was completed in 2010.

4.4.7 Basin Project 7 – Upper Yuba Levee Improvement Project (UYLIP)

Basin Project 7 includes levee remediation along the Yuba River south levee and the WPIC west levee. The Yuba River south levee was strengthened from Simpson’s Lane to the Goldfields through the correction of deficiencies in levee geometry and construction of cutoff walls, seepage berms, and waterside erosion protection. Monitoring piezometers were also installed to check the effectiveness of the constructed features and for use to monitor foundation conditions during flood stages. This work was completed in 2012. Waterside slope flattening was accomplished along the Yuba River south levee from Highway 70 to the UPRR in 2009 and landside levee improvements were constructed from Highway 70 to Shad Road in 2013. Both waterside and landside toe access corridors were established along the UYLIP to prevent encroachment of vegetation and development along this levee reach and improve access for O&M. The landside toe access corridor also allows for better inspection and potential flood fighting access during a large flood event. While improvements were made to the WPIC west levee in 2006 (Basin Project 2), this levee reach was evaluated against the more stringent 2012 DWR Urban Levee Design Criteria (ULDC) in 2013. Criteria exceedences were identified and TRLIA has initiated design of remediation which is planned for implementation in 2015 and 2016. Another ULDC issue was noted at the 1986 Break Site of the Yuba River south levee and remediation has been designed and is scheduled for implementation in 2015.

Basin Projects 1-7 were all designed and constructed to provide 200-year protection. Basin Projects 1-6 were certified to FEMA by TRLIA in May 2010 for 100-year protection. FEMA accredited these levee reaches in May 2010. The Yuba River south levee from Simpson Lane to the Goldfields portion of Basin Project 7 was certified to FEMA by TRLIA in November 2013. FEMA has not yet replied to this certification submittal.

4.4.8 Basin Project 8 – Goldfields Setback Levee

The last project in the Basin Plan is Basin Project 8, the Goldfields Setback Levee. This project is the subject of this UFRR submittal and is described in more detail in Section 4.7 below.
4.5 Basin Plan Benefits

4.5.1 Improves Flood Risk Management

The TRLIA Basin Plan has planned for and constructed projects designed to provide regional and supplemental flood protection benefits whenever possible. Basin Project 3 of the TRLIA Basin Plan involved constructing a 1.8 mile setback levee north of the Bear River. The project added 340 acres of land to the floodway, converted an additional 240 acres of floodway orchard, and included environmental restoration work for all the land in the setback area that now provides habitat connection to the existing Lake of the Woods area on the Feather River. It also provided regional flood stage reduction benefits to both Olivehurst and Plumas Lake to the north, as well as Reclamation District 1001 to the south.

Basin Project 6 (the Feather River setback levee) is almost three times as large and is believed to be the largest setback levee constructed in the Sacramento and San Joaquin River systems. This project lowers water surface elevations along the Feather River and the lower Yuba River and provides regional benefits to significantly larger urban areas. Communities reaping flood damage reduction benefits from the Feather Setback Levee include Olivehurst, Linda, Plumas Lake, Marysville, and Yuba City. In particular, during a 200-year event, the setback levee lowers the water surface elevation by 1.5 feet for both Yuba City and Marysville, providing significant regional benefits to these urban areas. Additionally, it added 1,500 acres to the floodway providing further ecosystem connectivity to the existing habitat on the Feather River and the recently created setback area on the Bear River.

The Basin Plan substantially reduces the flood depths in the RD 784 urban area by 1 to 20 feet and reduces associated flood damages by millions of dollars. The Basin Plan substantially reduces the risk of flooding for approximately 40,000 people from an estimated 1:20 AEP to at least 1:200 AEP and reduces average Estimated Annual Damages (EAD) from $77,800,000 to $33,500,062. The Basin Plan provides significantly reduced flood risk to an area with approximately 25% of the population living below the poverty level which is approximately two times that of the national level. The Basin Plan has estimated benefits, per the FRLRP Alternatives Analysis, of $697,200,000 and a total cost of $392,500,000 for a Basin System Benefit to Cost ratio of 1.8:1.

Basin Projects 3 and 6 provide increased flood storage and conveyance to the flood corridors of the Feather River. This increased storage and conveyance will improve the flood system

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2 Report on Alternatives Analysis - Phase 4 Feather River Levee Repair Project, Bookman – Edmonston, A Division of GEI Consultants, December 2006 and Technical Memorandum, Adjustment to TRLIA Project Benefits ( inundation reduction) due to residual flood risk through the Yuba River Goldfields, Ford Consulting, October 2011
flexibility and resiliency by providing additional storage for flood waters and lowering water surface elevations to help address future hydrologic or climate changes in the Feather River System. The setback areas also offer areas that can be restored in a manner to address future changes in ecological conditions.

The Basin Plan does not increase State liability through urbanization of rural agricultural areas in deep floodplains. Urbanization of the RD 784 Area was underway when the need for the Basin Plan materialized. This urbanization is controlled by a series of development plans approved by Yuba County. No new plans are predicated on increased flood protection. The Basin Plan was developed to protect existing and already approved development. Recognizing that even with increased flood protection, residual risks remain, TRLIA and RD 784 have developed a Flood Safety Plan for the RD 784 Urban Area which has been adopted by RD 784 and coordinated with the Yuba County Office of Emergency Services.

4.5.2 Promotes Ecosystem Functions

The setback levees that are part of the Basin Plan improve and enhance natural dynamic geomorphic processes by providing more area for the Bear and Feather Rivers to meander naturally. An erosion site along the Feather River (RM 19.7L) that had been on the USACE critical monitoring list is no longer a threat to the levee system. The new Feather Setback Levee is now 0.5 miles from this erosion location and the natural riverine meander process can occur with no threat to urban areas. The restoration that has occurred in the Bear and Feather Setback Areas has significantly increased and improved the quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats along the Bear, Feather and Yuba Rivers. These areas include open water, emergent wetland, shaded riverine aquatic, riparian, and grass land habitats in addition to other habitats. Native, threatened, and endangered species are drawn to these environmentally restored areas which aids their recovery and stability. Valley Elderberry Longhorn Beetles have been observed in the elderberry mitigation area created in the Feather Setback Area. Other special status birds have been observed in the restored Bear Setback Area.

4.5.3 Promotes Multi-Benefit Projects

The Basin Plan provides multi-benefits through the creation of more open space along the river corridors which is being utilized for recreation. Flood emergency response has been improved through the creation of clear and adequate landslide toe access corridors. The Basin Plan also protects State Highways 70 and 65, two important State transportation facilities, from flooding.

4.5.4 Improves O&M

The Basin Plan reduces the long-term cost of SPFC O&M by flattening slopes of the SPFC levees, providing erosion protection at critical locations in the SPFC, and improving all patrol
roads of the SPFC in the RD 784 levee system. The widened and improved toe access corridors provided by the Basin Plan will reduce emergency response costs by allowing for increased visibility and accessibility during flood emergencies.

4.5.5 Improves Institutional Support

The setback area of Basin Project 6 includes a FESSRO Project which will provide a mitigation bank for future SPFC projects. This mitigation bank will improve Institutional Support through reduction of future mitigation costs. TRLIA is a participant in the coalition that assisted the DWR in preparation of the Lower Feather River Corridor Management Plan (LFRCMP). This plan establishes a long-term vision and strategy for managing the 20-mile-long, 12,000-acre Feather River corridor between the cities of Yuba City and Marysville at the north end, and the Sutter Bypass at the south end.
4.6 Basin Plan Funding

The Basin Projects have been implemented in partnership with the State. DWR has supplied grant funds for the design and construction of these projects. These grants have come from Proposition 13 and the Early Implementation Program. Table 5 provides a summary of cost sharing for the Basin Projects. Over $370 million of the nearly $447 million Basin Plan has been completed and the remainder of the initial Basin Projects will be completed in 2015.

The Local Cost Share was provided through a combination of development impacts fees bond proceeds from a Joint Financing by Yuba County and the Yuba County Water Agency, reimbursements from RD 784 for the local share of work completed by TRLIA and other miscellaneous revenues.3

Table 5 TRLIA Basin Plan Costs and Funding Sources

<table>
<thead>
<tr>
<th>Basin Plan Projects</th>
<th>Project Costs [1]</th>
<th>State Funding</th>
<th>FEMA</th>
<th>Local Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Prop 13)</td>
<td>(Prop 1E)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basin Project 1 - Yuba River South Levee</td>
<td>$4,163,512</td>
<td></td>
<td></td>
<td>$4,163,512</td>
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<td>Basin Project 2 - WPIC, Yuba, Upper Bear, OOB</td>
<td>$48,826,743</td>
<td>$20,412,017</td>
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<td>$123,701,961</td>
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<td>Basin Project 3 - Bear River North Seaback Levee</td>
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<td>$34,063,854</td>
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<td>$15,388,493</td>
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<td></td>
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<td>Basin Project 5 - Feather River East Levee Segments 1&amp;3</td>
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<td>$13,721,163</td>
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<td>Basin Project 6 - Feather River East Levee Segment 2 - Seaback levee</td>
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<td>$30,267,562</td>
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<td>Basin Project 7 - YXLP</td>
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<td>$40,930,000</td>
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<td>$14,897,325</td>
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<td>Basin Project 8 - Goldfields</td>
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<td></td>
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<td>$1,217,669</td>
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<td>Sub-Total Cost Basin Projects - In Progress</td>
<td>$405,732,179</td>
<td>$64,445,099</td>
<td>$199,660,000</td>
<td>$4,702,765</td>
</tr>
</tbody>
</table>

Basis Project 2 - Goldfields

Phase 2 - Implementation (UFRR Funding Request) [2] | $41,265,800 |  $36,726,562 | $4,539,338

Total Cost Basin Plan Projects - In Progress | $446,997,970 | $64,445,099 | $236,386,562 | $4,702,765 | $141,463,545

[1] Project costs include allocated TRLIA Overhead
[2] Prop 1E Funding for Phase 2 of the Goldfields Project is expected to come from the UFRR Program and is the Subject of this Request

The final Basin Project (Basin Project 8) is needed to ensure the integrity of the SPFC of RD 784 and could be implemented by 2025 with State assistance through an UFRR Grant.

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3 Miscellaneous revenues include interest earnings, impact fee payments and payments to TRLIA by landowners.
4.7 Potential UFRR Project – Basin Project 8 – Goldfields Setback Levee

4.7.1 Basin Project 8 Description

TRLIA is conducting a Feasibility Study to develop a 200-year flood protection project for the Goldfields. This Feasibility Study is partially funded by a State grant from the Costa-Machado Water Act of 2000 (Proposition 13 funds). Early analyses from the Feasibility Study\(^4\) show that contrary to the current assumption that the Goldfields serve as high ground for the terminus of the SPFC, there is a risk of flooding from the Goldfields for floods more frequent than the 100-year flood. This risk is a result of landform changes made by aggregate miners and a gold dredge and also from a more detailed understanding of the rate of erosion of the Yuba River south bank dredge tailings embankments. The 1953 Memorandum describes the end of the SPFC as high ground at the Goldfields. Without assurance of high ground at the Goldfields, the SPFC will be flanked and flood areas that require 200-year protection and decrease the flood inundation benefits associated with the RD 784 levee system and the SPFC.

The Feasibility Study is currently evaluating four alternative embankments in proximity to the Goldfields to provide sustainable 200-year flood protection in the Goldfields. Three of these alternatives are within the Goldfields and are strengthen in place alternatives of the existing embankments. The strengthening would consist of using the existing dredge tailings material to enlarge the embankments to a geometry to prevent large flows from traversing the Goldfields. The fourth alternative would be a standard levee clay embankment with a landslide seepage berm along an alignment just south of the Goldfields, see Figure 6. Costs for these alternatives range from $10M to $40M.

Alternative 4, the setback levee south of the Goldfields, is most supported by State agencies because it is most similar to other SPFC protection features and the real estate interests, though expensive, are the easiest to secure for the life of the project. Alternative 4 involves constructing a setback levee using standard levee material, south of the Goldfields, which would intercept flood flows from the Goldfields. The levee would follow ULDC standard geometry and include a 300-foot wide landslide seepage berm, Figure 7. The Alternative 4 footprint would be approximately 3.5 miles long, 600 feet wide, and encompass approximately 255 acres. The embankment would begin and tie into the current end of the SPFC levee system and extend directly east along the southern border of the Goldfields on property owned by Teichert Construction, then northeast along the north side of Hammonton-Smartville Road before terminating east of Doolittle Drive, see Figure 6. The eastern end of the alignment would be on private property and would require the relocation of a warehouse and a concrete batch facility.

\(^4\) Goldfields Flood Protection Feasibility Study, Initial Report, Three Rivers Levee Improvement Authority, July 2013
Teichert has an operating aggregate facility (Marysville Plant) just north of the Alternative 4 alignment. Access to this plant would be over the new levee. Teichert owns the land under the western 2.4 miles. There are aggregate deposits under this land but Teichert has not applied for a use permit at this time. The land is currently used for agriculture. The Alternative 4 alignment would extend between lands that Western Aggregates plans to mine for aggregate in about 30 years and lands that Teichert may mine for aggregate but currently has no planned time frame for extraction.

TRLIA is also actively investigating environmental restoration opportunities in the Yuba River along the Goldfields to incorporate as part of Basin Project 8. A project to modify the mid river tailings mound downstream of Daguerre Point Dam to improve fish habitat is being developed. TRLIA will assist this environmental project by obtaining the permits necessary to allow the project to occur.

4.7.2 Basin Project 8 Costs

The costs for Basin project 8 are $41,265,800 and are detailed in Table 6.
Table 6 Basin Project 8 Costs

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<thead>
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<th>Account Number</th>
<th>Item</th>
<th>Unit Price</th>
<th>Unit</th>
<th>Quantity</th>
<th>Amount</th>
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<td>Controlled SB Levee Earthwork</td>
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<td>4</td>
<td>Paved Road over SB Levee (24 ft, 6&quot;AC/15&quot;AB)</td>
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<td>LF</td>
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<td>5</td>
<td>Petrol Road (16 ft wide, 6&quot;AB)</td>
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<td>YCWA Irrigation Culvert through SB Levee</td>
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<td>Real Estate Contingency</td>
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<td>$1,880,700</td>
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<tr>
<td>24</td>
<td>Real Estate Support</td>
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<td>JOB</td>
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<td>$537,400</td>
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<tr>
<td></td>
<td><strong>Real Estate Total</strong></td>
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<td></td>
<td></td>
<td><strong>$7,791,600</strong></td>
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<tr>
<td>25</td>
<td>PROJECT MANAGEMENT</td>
<td>1</td>
<td>JOB</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Estimated Project Total Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$41,265,300</strong></td>
</tr>
</tbody>
</table>
4.7.3 Basin Project 8 Schedule

Design for the Goldfields Setback levee could begin in late 2015 and construction could be initiated in the summer of 2018.

A complete schedule for implementing Basin Project 8 is shown in Figure 8.
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Description</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basin Project 8 Goldfields Setback Levee</td>
<td>Thu 9/29/11</td>
<td>Mon 3/2/20</td>
</tr>
<tr>
<td>2</td>
<td>Feasibility Engineering</td>
<td>Thu 9/29/11</td>
<td>Thu 4/30/15</td>
</tr>
<tr>
<td>3</td>
<td>Alternative Evaluation</td>
<td>Fri 11/18/11</td>
<td>Thu 7/23/15</td>
</tr>
<tr>
<td>4</td>
<td>Obtain Project Funding</td>
<td>Thu 11/19/11</td>
<td>Wed 1/11/15</td>
</tr>
<tr>
<td>5</td>
<td>CEQA Clearance</td>
<td>Tue 4/2/12</td>
<td>Tue 9/28/15</td>
</tr>
<tr>
<td>6</td>
<td>NEPA Clearance</td>
<td>Wed 11/18/15</td>
<td>Wed 9/20/16</td>
</tr>
<tr>
<td>7</td>
<td>Project Design</td>
<td>Sun 11/18/15</td>
<td>Sat 12/17/16</td>
</tr>
<tr>
<td>8</td>
<td>Project ROW Acquisition</td>
<td>Wed 3/23/16</td>
<td>Wed 7/22/17</td>
</tr>
<tr>
<td>9</td>
<td>Project Permit</td>
<td>Tue 1/18/16</td>
<td>Fri 5/18/16</td>
</tr>
<tr>
<td>10</td>
<td>Project Construction</td>
<td>Mon 5/21/16</td>
<td>Fri 11/26/16</td>
</tr>
<tr>
<td>11</td>
<td>Project Management</td>
<td>Thu 9/29/16</td>
<td>Mon 3/2/20</td>
</tr>
</tbody>
</table>

**Legend:**
- Task: Sequential activities
- Milestone: Major milestones towards completion
- Summary: Project summary
- Work: Task-related activities
- Progress: Progress tracking
- Task Summary: Task-specific summary
- Milestone Summary: Milestone-specific summary
- Start Only: Start only
- Finish Only: Finish only
- Progress: Progress tracking
- Internal Tasks: Internal tasks
- External Tasks: External tasks
- Milestone: Milestone
- Project Completion: Project completion

**Note:** The schedule is for Basin Project 8 Goldfields Setback Levee, and it outlines the phased activities from start to completion, including feasibility engineering, alternative evaluation, obtaining project funding, CEQA clearance, NEPA clearance, project design, project ROW acquisition, project permit, project construction, and project management. Each phase is estimated with specific dates for start and end.
4.7.4 Basin Project 8 Benefits

To be complete, the SPFC must be assured that the Goldfields serve as high ground as assumed. Basin Project 8 will assure the continuation of SPFC protection that reduces the potential for flood damage to residential and business properties of the RD 784 Urban Area and prevents the interruption of major traffic corridors. Without Basin Project 8, there can be no assurance of reduced flood depths in the RD 784 urban area.

4.7.4.1 Improves Flood Risk Management

Basin Project 8 substantially reduces residual flood depths (See Figure 3) in the RD 784 urban area by 1 to 10 feet and reduces associated flood damages by millions of dollars. Basin Project 8 assures the reduction of the risk of flooding for approximately 40,000 people from an estimated AEP that is less than 1:100 to at least 1:200 AEP and reduces average EAD from $33,500,000 to 16,900,000\(^5\). Basin Project 8 provides significantly reduced flood risk to an area with approximately 25% of the population living below the poverty level which is approximately two times that of the national level. Basin Project 8 has estimated benefits of $262,400,000 and an estimated cost of $43,000,000 for a Benefit to Cost ratio of 6:1.

Basin Project 8 will set back the levee line of protection from the erosion which is occurring along the Yuba River. This will improve the flood system resiliency by eliminating the need to monitor or repair the erosion that is occurring to the existing protection embankments in the Goldfields. The setback levee offers the opportunity for future modifications to the Goldfields to widen the Yuba River floodway and thus reduce water surface elevations in the Yuba River.

Basin Project 8 does not increase State liability through urbanization of rural agricultural areas in deep floodplains. Urbanization of the RD 784 Area was underway when the need for Basin Project 8 materialized. This urbanization is controlled by a series of development plans approved by Yuba County. No new plans are predicated on increased flood protection. Basin Project 8 was developed to protect existing and already approved development. Recognizing that even with increased flood protection, residual risks remain, TR1A and RD 784 have developed a Flood Safety Plan for the RD 784 Urban Area which has been adopted by RD 784 and coordinated with the Yuba County Office of Emergency Services. Basin Project 8 reduces State liability by assuring that the Goldfields will provide the high ground function that the SPFC is predicated upon at the end of the Yuba South Levee. Ignoring the fact that the Goldfields ability to serve as high ground at the end of the SPFC has deteriorated has created a big liability

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\(^5\) Report on Alternatives Analysis - Phase 4 Feather River Levee Repair Project, Bookman – Edmonston, A Division of GEI Consultants, December 2006 and Technical Memorandum, Adjustment to TR1A Project Benefits (Inundation reductions) due to residual flood risk through the Yuba River Goldfields, Ford Consulting, October 2011
for the State in that the SPFC is now subject to flanking and urban areas assumed protected by the SPFC are subject to flooding.

4.7.4.2 Promotes Ecosystem Functions

Basin Project 8 enhances natural dynamic geomorphic processes by allowing the Yuba River to meander naturally into the Goldfields. Currently erosion is reducing the flood protection capability of the Goldfields and actions will have to be taken to protect against this erosion to maintain the Goldfields as high ground. The Goldfields Setback Levee (Basin project 8) is removed from and not threatened by this erosion and the erosion can be allowed to naturally occur as it currently is doing. Environmental restoration opportunities within the Goldfields proper are difficult to develop. However many agencies are focused on improving the fisheries habitat within the Yuba River itself. One proposal, the modification of the middle tailings mound downstream of Baguerre Point Dam, shows much promise for improving fisheries habitat and lowering flood elevations along the Yuba River as well. TRILA is interested in being a partner in this endeavor because of the beneficial impacts to Yuba River fisheries and for reducing flood elevations and has offered to lead and manage the environmental permitting process for this ecosystem restoration feature. Basin Project 8 also preserves the opportunity for others to reestablish portions of the historic Yuba River floodplain in the Goldfields which has been proposed by some organizations.

4.7.4.3 Promotes Multi-Benefit Projects

Basin Project 8 provides multi-benefits through the improvement of flood emergency response. The Goldfields are difficult to travel through in dry weather and it is almost impossible to reach eroding portions during a flood event. By moving the line of flood protection to outside of the Goldfields and placing a patrol road on top of the setback levee, it becomes much easier to travel the line of protection during a flood event and check for problems and much easier to flood fight any problems should they arise. Basin Project 8 also protects State Highways 70 and 65, two important State transportation facilities, from flooding.

4.7.4.4 Improves O&M

Basin Project 8 reduces the long-term cost of SPFC O&M by eliminating the need for erosion protection at critical locations in the Goldfields and reducing the length of embankment needed for flood protection. Embankments within the Goldfields currently provide the high ground protection that is described in the 1953 MOU. These embankments are on the average about 9 miles long and as stated are currently subject to erosion and changes caused by mining activities. The Basin Project 8 embankment is removed from these erosion actions and is only 3.5 miles long and is easily accessible for standard maintenance actions.
4.7.4.5 Improves Institutional Support

Basin Project 8 will improve institutional support by providing a clear concise facility for assuring the high ground protection assumed at the end of the SPFC. Currently the Goldfields doesn’t have institutional support. An assortment of actions are implemented by different agencies, but none of these actions are to assure the flood protection assumed from the Goldfields. No agency monitors the Goldfields to assure that the high ground function occurs. USACE refers to the Goldfields as a debris protection/navigation facility and assigns no flood protection function to it. Mining companies remove aggregate and dredge for gold with no thought given to the impacts to flood protection those actions might cause, and no agency holds them accountable for those impacts. Basin Project 8 applies ULDC criteria to an identified flood protection facility with a consistent approach that will assure the Goldfields will provide the high ground function assigned to it. Basin Project 8 will provide a facility that will provide that function and is easily identified as a flood protection facility, is out of the way of the mining companies, and can be regulated and monitored the same as other levee structures in the SPFC. TRLIA plans on either a new, or expanding its current O&M assessment district for this new levee; and adding this levee to the RD784 maintenance system.

4.7.5 Basin Project 8 CEQA/NEPA Clearance

A Draft EIR detailing the environmental impacts of Basin Project 8 and the other three alternatives has been prepared and is scheduled to be issued for public review by February 2015. This EIR will provide the CEQA clearance that Basin Project 8 requires. It is not certain that NEPA clearance will be necessary. More detailed environmental surveys need to be conducted at the east end of Basin Project 8 to determine if jurisdictional wetlands exist under the levee footprint. However TRLIA is ready to perform the additional environmental surveys required to determine if a NEPA document will be required and quickly follow up with the appropriate NEPA Document preparation and processing if needed.

4.7.6 Basin Project 8 Permits

Basin Project 8 will require the following permits:

- Encroachment Permit, Central Valley Flood Protection Board
- Section 408 Permit, Modification of a Federal Project, USACE
- Section 106 compliance for projects with Federal involvement, California State Office of Historic Preservation
- Air Quality Permit/Authority to Construct/Permit to Operate; Feather River Air Quality Maintenance District
- National Pollutant Discharge Elimination System (NPDES) permitting under CWA Section 402, Central Valley Regional Water Quality Control Board (RWQCB) Region 5
- Grading Permit, Yuba County

Basin Project 8 may require the following permits subject to more detailed environmental surveys at the east end of the Project:

- Section 404 of the Clean Water Act (CWA), USACE
- CWA Section 401 water quality certification when permitting under Section 404 of the CWA is required, Central Valley RWQCB (Region 5)
- Federal Endangered Species Act (ESA) consultation and incidental take authorization, United States Fish and Wildlife Service
- Compliance with the California Endangered Species Act (CESA), California Department of Fish and Wildlife

4.7.7 Basin Project 8 Cost Share Presentation

4.7.7.1 Base State Cost Share

Per the Cost Sharing Guidelines, the Base State Cost Share for an improvement project in an Urban Area is 50% of Eligible Project Costs.

4.7.7.2 Disadvantaged Area Cost Share

Increased State cost-share is available for areas that are economically disadvantaged. The Median Household Income for the RD 784 Basin is $42,908 (Nielsen Claritas 2013). The Median Household Income for California (1-Year ACS) is $60,190.

Based on this analysis: $80\% - \left(\frac{42,908}{60,190}\right) = 71.28\% = 8.71\%$ rounded to 9%

The Cost Sharing Afforded by the DAC Objective is 9%.

4.7.7.3 Cost Share Enhancements – Multi Benefit Features

State Facilities Objective

The Cost Share Guidelines allow up to 10% increase in State cost share for significant contributions to providing flood benefits to a State Water Supply or Transportation Facilities.
The RD 784 basin is traversed by two State highways: Highway 70 and Highway 65. TRLIA has determined that Basin Project 8 will provide substantial increased protection to Highways 70 and 65.

**Highways 70 and 65**
Basin Project 8 will increase the Level of Protection from less than 100 AEP to greater than 200 AEP through the Project. This protection increase is afforded to the 2 State Highways. Given this, TRLIA proposes an additional 10 percent cost share increase for this objective.

**Open Space Objective**
TRLIA’s Basin Plan has provided substantial Open Space benefits through the construction of 2 setback levees on the Bear and Feather Rivers. These two setback levees have provided a combined 1,900 acres of additional land to the floodway and were designed to promote native riparian habitat.

The Bear River Setback Levee (BRSL) project added 340 acres to the floodway and converted an additional 200 acres of existing floodway orchards into habitat restoration. Restoration activities included a total of 285 acres of riparian habitat, 120 acres of grasslands/savannah, and 5 acres of floodplain swale. The Bear setback area also provides connectivity to the existing Lake of the Woods area on the Feather River to promote riparian connectivity and was designed with floodplain swales to prevent fish stranding.

The Feather River Levee Repair Project (FRLRP) included a six mile setback levee that added 1,500 acres to the floodway. Of this additional land in the floodway, 100 acres will be planted with riparian vegetation parallel to and on the water side of the setback levee for wind and wave protection. There will be 20 acres of floodplain swales, 400 acres of riparian habitat, 100 acres of grasslands/savannah, and 60 acres available for mitigation of environmental impacts to special status species and vegetative cover. Remaining land in the levee setback area will be reserved for future restoration, open space, recreation, or mitigation as opportunities present themselves. These areas will be used for agricultural operations through land leases in the interim.

Because the State Cost shared in the Feather River Setback Levee under the EIP Program, TRLIA has not included the costs of the FRSBL in the cost share calculation. TRLIA has included the Bear River Setback Levee in the cost share calculations. TRLIA has calculated that 4% of the Basin Plan costs were for the Bear River Setback Levee land costs which have contributed to the Open Space objective. The Table below shows the calculation.
Cost Share Report
Open Space Cost Share Analysis

<table>
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<th>Cost Item</th>
<th>Amount</th>
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<tr>
<td>Phase 3 Bear Setback Levee Costs</td>
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</tr>
<tr>
<td>Phase 3 Land</td>
<td>$16,766,335</td>
</tr>
<tr>
<td><strong>Land Share of Phase 3</strong></td>
<td><strong>22%</strong></td>
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<tr>
<td>Total Basin Plan Project Costs</td>
<td>$446,997,970</td>
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<tr>
<td>Total Land Costs</td>
<td>$16,766,335</td>
</tr>
<tr>
<td><strong>Land Share of Total Basin Project</strong></td>
<td><strong>4%</strong></td>
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The Bear and Feather River setback restoration work in the Basin Plan includes perpetual conservation easements for all restored lands that ensure permanent open space designation for these areas. Additionally, TRLIA has also secured permanent fee title rights for a minimum of 50 feet landward of the new setback levees for future operation and maintenance activities. TRLIA is proposing additional cost share for the Open Space objective.

4.7.7.4 Setback Levee Cost Share

TRLIA is currently evaluating four alternative embankments in proximity to the Goldfields to ensure the Goldfields function of high ground for the SPFC. Three of these alternatives (Alternative 1, Alternative 2, and alternative 3) would strengthen embankments within the Goldfields themselves. These three alternatives would consist of enhancing the existing Goldfields embankments by using existing dredge tailings material to enlarge the existing embankments to a geometry that would prevent large flows from traversing the Goldfields. The fourth alternative (Basin Project 8) would be a levee setback from the existing Goldfields embankments and constructed with standard levee clay material with a landside seepage berm along an alignment located just south of the Goldfields.

Alternative 2 would follow an existing tailings embankment within the Goldfields. The costs to enlarge this existing embankment using dredge materials is currently estimated at $9,848,800. Basin Project 8, the setback levee south of the Goldfields, is most supported by State agencies because it is most similar to other flood protection features and the real estate interests are the easiest to secure for the life of the project. Basin Project 8 involves constructing a levee using standard levee material south of the Goldfields that would intercept flood flows from the Goldfields. The levee would follow ULDC standard geometry and include a 300-foot wide landside seepage berm. The current estimated cost Basin Project 8 is $41,265,800.
<table>
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<tr>
<th>Cost Share</th>
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<tr>
<td>Alternative 2 Cost</td>
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<td>73%</td>
<td>$7,165,088</td>
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<tr>
<td>Alternative 4 Setback Cost</td>
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<tr>
<td>Incremental Cost</td>
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<td>100%</td>
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<tr>
<td>Total State Share</td>
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<tr>
<td>Blended %</td>
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<tr>
<td>Cap of Cost Share</td>
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4.7.7.5 State Cost-Share Summary

When combing the total cost sharing outlined above, TRLIA caps out at the additional 39% cost share in total for Basin Project 8. This combined total is a result of the following:

- **Base Cost Share:** 50%
- **State Facilities Objective:** 10% (Cap up to 70%)
- **Open Space Objective:** 4% (Cap up to 70%)
- **Set-Back Levee (Project Specific):** 30% (Additional up to 80% Cap)
- **DAC Objective:** 9%

**Total Cost Share:** 89%
March 3, 2015

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul G. Brunner, Executive Director
SUBJECT: Approve 8th Contract Amendment with AECOM Technical Services, Inc. for Environmental Services

Recommended Action
Approve an 8th contract amendment not to exceed $382,386 with AECOM Technical Services, Inc. for completion of environmental evaluations and environmental support services during construction for a 200-year flood protection project along the Western Pacific Interceptor Canal (WPIC); environmental evaluations in support of NEPA and CEQA documentation and State and Federal permitting for the Feather River Floodway Corridor Restoration Project (FESSRO Advanced Mitigation Bank); extension of contract to December 31, 2016; and authorize the Executive Director to negotiate, sign and execute the final amendment upon review by General Counsel.

Discussion
In January 2012, the TRLIA Board approved a contract award to AECOM Technical Services, Inc. for environmental services in support efforts in the Yuba Goldfields and along the Bear and Feather Rivers. This contract has been amended on seven previous occasions up to $993,395.

Environmental review and permitting in support of the WPIC is underway pursuant to Amendment 7. However, new requirements for giant garter snake, cultural resources, and preparation of NEPA documentation require an amendment to scope and budget. The proposed amendment also expands scope and budget for environmental services during construction. These services are primarily related to ensuring compliance with permitting requirements. This work is included in our current funding agreement with DWR under the Upper Yuba Levee Improvement Program, Early Implementation Program (UYLIP EIP) Funding Agreement.

Also included in this amendment are tasks needed to be accomplished for the FESSRO Feather River Floodway Corridor Restoration Project, referred to as the Feather River Setback Mitigation Bank. Environmental review pursuant to CEQA and NEPA and permitting are required for implementation of the project. This work is included in the funding agreement with DWR for the Feather River Floodway Corridor Restoration Project under the Central Valley Flood System Conservation Framework and Strategy.

Lastly, the proposed amendment extends the termination of the contract from December 31, 2015 to December 31, 2016. The services by AECOM described above are anticipated to be complete by December 31, 2016.
Fiscal Impact
This amendment would increase the AECOM contract by an amount not to exceed $382,386 for services on a time and expenses basis, to a maximum amount not to exceed $1,375,781 (previous contract amount of $993,395). The work proposed for WPIC (i.e., $166,966) under Amendment 8 would be accomplished using 70% State funds. The work proposed of the Feather River Setback Mitigation Bank (i.e., $215,420) would be accomplished using 100% State funds.

Attachment:
Proposed Amendment 8
AMENDMENT NO. 8

AGREEMENT FOR PROFESSIONAL SERVICES
FOR
ENVIRONMENTAL SERVICES
BETWEEN
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY AND
AECOM TECHNICAL SERVICES, INC.

THIS EIGHTH AMENDATORY AGREEMENT is made effective ____________, 2015, by and between Three Rivers Levee Improvement Authority ("TRLIA") and AECOM Technical Services, Inc. ("the Consultant"), who agree as follows:

1. **Recitals.** This Amendment is made with reference to the following background recitals:

1.1. Effective February 2, 2012 the parties entered into an Agreement for Professional Services relating to Environmental Services for TRLIA’s Construction Program.

1.2. Effective August 7, 2012 the parties entered into the first Amendatory Agreement to increase the budget by $25,000 to a total of $125,000.

1.3. Effective December 18, 2012 the parties entered into a second Amendatory Agreement to increase the budget by $44,955 to a total of $169,955.

1.4. Effective April 9, 2013 the parties entered into a third Amendatory Agreement to increase the budget by $74,000 to a total of $243,955.

1.5. Effective May 7, 2013 the parties entered into a fourth Amendatory Agreement to increase the budget by $29,705 to a total of $273,660.

1.6. Effective October 1, 2013 the parties entered into a fifth Amendatory Agreement to increase the budget by $475,000 to a total of $748,660; and extend the Termination Date of the contract to December 31, 2015.

1.7. Effective May 6, 2014 the parties entered into a sixth Amendatory Agreement to increase the budget by $35,000 to a total of $783,660.

1.8. Effective September 16, 2014 the parties entered into a seventh Amendatory Agreement to increase the budget by $209,735 to a total of $993,395.

1.9. Article C.23 of the AGREEMENT, states that modifications or amendments to the terms of the AGREEMENT shall be in writing and executed by both parties;

1.10. TRLIA and the CONSULTANT desire to amend the AGREEMENT;
NOW, THEREFORE, TRLIA and the CONSULTANT agree as follows.

2. **Eighth Amendment to Agreement.** The Professional Services Agreement is hereby amended as follows:

   2.1. The scope of services (Attachment A to the Agreement for Professional Services between TRLIA and AECOM Technical Services, Inc.) is amended by the addition of effort to the original tasks as described in Exhibit 1 attached to this amendment agreement.

   2.2. The payment, budget, and not-to-exceed amounts, Condition B.1 in Attachment B to the Agreement for Professional Services between TRLIA and AECOM Technical Services, Inc. are amended to include the additional amount of $382,386 for a total contract amount of $1,375,781.

   2.3. Operative Provision 2 is amended to extend the Termination Date of the contract from December 31, 2015 to December 31, 2016.

3. **No Effect on Other Provisions.** Except for the amendments in Section 2, the remaining provisions of the Professional Services Agreement shall be unaffected and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on ________________, 2015.

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

____________________________________________
Paul G. Brunner
Executive Director

AE.COM TECHNICAL SERVICES, INC.

____________________________________________
Phil Dunn
Vice President

ATTEST:
DONNA STOTTLEMEYER
CLERK OF THE BOARD OF DIRECTORS

APPROVED AS TO FORM:

GENERAL COUNSEL

[Signature]

[Signature]
AMENDED SCOPE OF SERVICES FOR AECOM TO PERFORM ADDITIONAL ENVIRONMENTAL SERVICES

FOR THE WPIC WEST LEVEE IMPROVEMENT PROJECT

I. INTRODUCTION

This amended scope of services identifies additional work required to complete Tasks 1, 2, 4, and 6 described in the September 9, 2014 scope of services for the Three Rivers Levee Improvement Authority’s (TRLIA) proposed Western Pacific Interceptor Canal (WPIC) 200-Year Standard Project. Since the September 9, 2014 scope of services was developed, coordination with the resource agencies has identified three additional requirements to fulfill environmental compliance for the project: 1) preparing a joint document for California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) compliance (instead of the U.S. Army Corps of Engineers [USACE] developing a separate NEPA document), 2) evaluating the WPIC West Levee as a potential historical resource (a new USACE requirement), and 3) preparing a California Endangered Species Act (CESA) Section 2081 Incidental Take Permit (ITP) application (a new California Department of Fish and Wildlife [CDFW] requirement). This scope of services also includes one new task to provide biological monitoring services related to project construction.

II. SCOPE OF SERVICES

The following scope of services includes augmentation of Tasks 1, 2, 4, and 6 described in the September 9, 2014 scope of services and the addition of Task 7. There is no change to Tasks 3 or 5.

TASK 1: PREPARE EA/IS/MND

Subtask 1.2 Prepare EA/IS/MND. The September 9, 2014 scope of services assumed USACE would prepare its own Environmental Assessment and Finding of No Significant Impact (EA/FONSI) for the proposed project (and conduct all steps of the NEPA process), based on AECOM’s Initial Study and Proposed Mitigated Negative Declaration (IS/MND) that would be expanded to preliminarily address NEPA issues. However, USACE has since indicated they prefer that TRLIA prepare the EA. Therefore, AECOM will prepare a joint EA/IS/MND to satisfy both CEQA and NEPA compliance. This involves additional coordination and document reviews with USACE, re-structuring the document to focus on USACE format and content (as compared to just adding NEPA-required sections which were included in the September 9, 2014 scope of services), developing a Final EA (an IS does not need to be finalized or have responses to comments), and conducting additional NEPA process-related steps. NEPA does not require a scoping meeting or public meeting on the draft EA.

AECOM will restructure the current working administrative draft IS/MND into an administrative draft EA/IS/MND for submittal to TRLIA. After TRLIA review of the administrative draft EA/IS/MND, AECOM will submit an electronic copy of the second draft EA/IS/MND to TRLIA and USACE.
AECOM will incorporate any comments and prepare the public draft EA/IS/MND and submit to TRLIA and USACE in electronic format. AECOM will prepare a Final EA in consultation with USACE. AECOM will prepare a draft FONSI for submittal to USACE; USACE will prepare the final FONSI. AECOM will coordinate with USACE as the various drafts of the EA/IS/MND are prepared and modified.

**TASK 2:** **PREPARE CULTURAL RESOURCES REPORT**

**Subtask 2.5 Evaluate the WPIC West Levee.** The WPIC West Levee was previously evaluated in 1994 within the context of Reclamation District 784 and was recommended as not meeting National Register of Historic Resources (NRHP) criteria. However, USACE has indicated the levee is within the boundaries of the Sacramento River Control Project Levee System and therefore must be re-evaluated per the criteria recently established by USACE.

AECOM will conduct the required investigation to identify and consider the significance of and effects on the WPIC West Levee. Documentation will be prepared in accordance with Section 106 of the NHPA and its implementing regulations (36 Code of Federal Regulations Part 800). The main purpose of this reassessment will be to determine if the levee meets the criteria for listing in the NRHP or the California Register of Historical Resources, per USACE guidelines.

The analysis will focus on the inventory and evaluation of the levee and will be based on existing recordation/evaluation information (if available), primary research, fieldwork, and an evaluation. All work will be conducted by an AECOM architectural historian who meets the Secretary of the Interior' Standards for work in architectural history and history. AECOM will present the methods and results of the investigation in the cultural resources report being prepared under Subtask 2.2 of the September 9, 2014 scope of services.

**TASK 4:** **PREPARE ESA AND CESA COMPLIANCE**

**Subtask 4.4 Prepare CESA ITP Application and Facilitate Coordination with CDFW.** CDFW has indicated they no longer consider implementation of standard impact avoidance and minimization measures adequate to avoid direct take of giant garter snake and that TRLIA needs to obtain an ITP for the proposed project.

AECOM will prepare an application for a CESA Section 2081 ITP for potential direct take of giant garter snake that could result from the proposed project. The ITP application will be prepared in accordance with California Code of Regulations Section 783.2 requirements. The setting information, effects analysis, and compensatory mitigation discussion developed for the Biological Assessment will be adapted for use in the ITP application. AECOM assumes compensatory mitigation proposed in the Biological Assessment will be adequate to fully mitigate take of giant garter snake under CESA and that development of an alternative mitigation proposal will not be necessary.

AECOM will provide one draft of the ITP application to TRLIA for review, will incorporate comments sent to AECOM in one electronic file, and will submit an electronic copy and one hard copy of the final ITP application to CDFW and TRLIA.

The efforts required to complete coordination with CDFW and obtain an ITP can vary greatly, depending on a number of factors, such as the complexity of the project, potential extent of take, acceptance of the mitigation proposal, and workload of agency staff assigned to the project. Because CDFW has recently changed their approach to evaluating potential for take of giant garter snake and has
not issued an ITP for giant garter snake under this new approach, the coordination necessary to obtain an ITP for this project could be relatively extensive. Therefore, this scope of services assumes a maximum 20 hours will be needed for coordinating with CDFW staff after the application is submitted.

**TASK 6: MANAGE ENVIRONMENTAL TASKS**

The September 9, 2014 scope of services included project management costs through July 2015. With the addition of construction-related biological services, described below, the period for providing environmental services would extend through November 2016.

AECOM will attend up to five progress meetings in Sacramento from August 2015 through November 2016. This scope of services assumes an average of 0.5 hour of preparation time and 0.5 hour of travel time for each meeting, and that each meeting will last an average of 2 hours.

AECOM will manage the environmental tasks described in this scope of services and maintain close communication with TRLIA, the project engineer, and the construction contractor.

**TASK 7: CONDUCT CONSTRUCTION-RELATED BIOLOGICAL SERVICES**

AECOM will complete biological resources training, surveys, monitoring, and construction coordination activities necessary to ensure the project is implemented in compliance with all biological resource mitigation measures, permits, and other relevant authorizations. Based on the current anticipated schedule, construction would occur through November 2016. It is assumed construction would occur over a total of 12 months. This scope of services also includes coordination with resource agency staff regarding the results of the surveys and additional efforts that may be required to adapt avoidance and minimization measures based on survey results or unanticipated project needs.

**Subtask 7.1 Conduct Construction Monitoring.** AECOM will coordinate with HDR and the construction contractor regarding proper implementation of avoidance and minimization measures, including working with HDR to ensure biological resource protection is appropriately addressed in construction plans and specifications. AECOM biologists approved by the resource agencies will conduct regular monitoring visits to verify implementation of biological resource protection measures throughout the construction period. Monitoring efforts will include regular site visits on a weekly or bi-weekly basis, depending on the level of construction activity and sensitivity of areas where construction is taking place. Monitoring visits will sometimes occur concurrently with worker training, on-site meetings, and preconstruction survey activities described below.

AECOM biological monitors will attend regular meetings led by the construction contractor to remain apprised of construction activities and provide input on how biological resources issues might affect the construction process. It is assumed that on occasion additional meetings and conference calls with HDR and/or other members of the project team will also be required. This scope of services provides for attendance at up to five contractor and/or team meetings a month by one AECOM staff during the construction period.

AECOM biological monitors will conduct awareness training for construction personnel and other site workers, as anticipated to be required by the U.S. Fish and Wildlife Service (USFWS) and CDFW for valley elderberry longhorn beetle, vernal pool crustaceans, giant garter snake, and Swainson’s hawk. It is
assumed that up to four training sessions may be required in each construction season to accommodate addition of new personnel as the construction season progresses.

**Subtask 7.2 Conduct Pre-construction Surveys.** AECOM biologists approved by the resource agencies will conduct surveys for relevant species before construction activities begin, and as necessary when construction progresses into previously undisturbed areas or intensity of construction activities increases.

Surveys for giant garter snake will be conducted immediately before (within 24 hours of) construction activity within 200 feet of suitable aquatic habitat in the WPIC. It is assumed that multiple surveys will be required to accommodate initiation of various activities in different portions of the project area, at different times during the construction season, and in multiple seasons. This scope of services includes up to ten surveys.

Surveys for nesting Swainson’s hawks will be conducted before beginning project activity during the nesting season (March 15 – August 31) in any given area. These surveys will be conducted to identify locations of active Swainson’s hawk nests that could be disturbed by project activities. Methods will generally follow Swainson’s Hawk Technical Advisory Committee recommendations, and the survey area will include suitable habitat within 0.25 mile of the construction limits. It is assumed that 8 days of pre-construction surveys and up to 6 days of nest monitoring will be required to determine the location of active nest sites and ensure project activities do not result in nest disturbance.

Surveys will also be conducted for other nesting raptors and special-status birds before beginning project activity during the nesting season (February 15 – August 15) in any given area. These surveys will be conducted to identify locations of active nests of special-status and common raptor species (e.g., northern harrier, white-tailed kite, red-tailed hawk, great horned owl) and nests of other special status birds (tricolored blackbird and song sparrow) that could be disturbed by project activities. The survey area will vary from 200 to 1,000 feet from the construction limits, depending on the species. Additional cost for this effort is limited, because surveys will be combined, when possible, with the Swainson’s hawk survey and monitoring task. It is assumed that 2 days of pre-construction surveys and up to 2 days of nest monitoring will be required in each construction season to determine the location of active nest sites and ensure project activities do not result in nest disturbance of nesting birds other than Swainson’s hawk.

**Subtask 7.3 Document Surveys and Monitoring and Coordinate with Agencies.** AECOM will document pre-construction survey results and monitoring efforts in memoranda and/or letter reports prepared for TRLIA. AECOM will also coordinate with resource agency staff (USACE, USFWS, National Marine Fisheries Service, CDFW, and Central Valley Regional Water Quality Control Board), as necessary, regarding implementation of permit conditions and progress and results of survey and monitoring efforts. Reporting may include phone calls, memoranda, and/or letter reports.

**III. SCHEDULE**

Every effort will be made to complete this scope of services by November 30, 2016. However, timing of construction monitoring is dependent on the construction schedule, which is beyond AECOM’s control.
IV. COST ESTIMATE

AECOM will complete the above tasks on a time-and-materials basis for a maximum not-to-exceed cost of $166,966, with costs by task specified below. The cost estimate is based on completion of work by November 30, 2016.

TASK 1: PREPARE EA/IS/MND: $23,960

TASK 2: PREPARE CULTURAL RESOURCES REPORT: $6,575

TASK 4: PREPARE ESA AND CESA COMPLIANCE: $9,868

TASK 6: MANAGE ENVIRONMENTAL TASKS: $15,458

TASK 7: CONDUCT CONSTRUCTION-RELATED BIOLOGICAL SERVICES: $99,355

TASK 1 – 7 EXPENSES: $11,750

TOTAL COST: $166,966
FOR THE FEATHER RIVER SETBACK MITIGATION BANK

I. INTRODUCTION

This amended scope of services identifies the environmental services that AECOM will provide to the Three Rivers Levee Improvement Authority (TRLIA) for the proposed development of the Feather River Setback Advanced Mitigation Bank (mitigation bank).

TRLIA is proposing to establish the mitigation bank with funding support from the California Department of Water Resources. Development of the mitigation bank would include creation of 500 acres of perennial grassland, mixed riparian forest(500,482),(939,585), riparian scrub, and valley oak woodland. The purpose of establishing the mitigation bank is to provide advance mitigation credits to offset future compensatory mitigation requirements for impacts associated with construction and maintenance activities related to the State Plan of Flood Control.

II. PROJECT APPROACH

In 2006 and 2007, a number of environmental and biological resource permitting documents were completed for Segment 2 of the Feather River Levee Repair Project (FRLRP). The Segment 2 project area included the entire proposed mitigation bank area. Therefore, AECOM will make maximum use of information from these existing documents.

In February 2007, the TRLIA Board of Directors certified the Final Environmental Impact Report (EIR) for the FRLRP. Subsequently, TRLIA approved Addenda 1-5 to the certified EIR for various project refinements. The United States Army Corps of Engineers (USACE) completed an Environmental Assessment/Finding of No Significant Impact (EA/FONSI) on Segments 1 and 3 and an Environmental Impact Statement/Record of Decision (EIS/ROD) on Segment 2, to satisfy NEPA requirements for the FRLRP.

The proposed restoration of the mitigation bank area meets the definition of a “project” under CEQA; consequently, TRLIA as the lead agency is responsible for fulfilling CEQA requirements. AECOM has reviewed environmental documents prepared for the FRLRP in light of CEQA Guidelines and potential project impacts to determine the appropriate CEQA documentation. The recommended strategy for CEQA compliance is to prepare a new stand-alone Initial Study/proposed Mitigated Negative Declaration (IS/MND).

A preliminary assessment of the proposed project’s impacts has identified potential impacts to endangered species and cultural resources that may require mitigation. Conversion of agricultural lands, including the entire proposed project’s footprint, was addressed in the FRLRP EIR, EA, and EIS; no further analysis of this issue is necessary. Feasible mitigation measures appear available to reduce impacts to a less-than-significant level and allow TRLIA to prepare an IS/MND for the proposed project.

The proposed mitigation bank restoration will likely require USACE approval under 33 United States Code 408 (Section 408). As the responsible agency for Section 408 permission, USACE would be the lead federal agency responsible for fulfilling National Environmental Policy Act (NEPA) requirements. The NEPA document expected to be required for the proposed project is an EA/FONSI. Consequently, AECOM will prepare a joint EA/IS/MND.
III. SCOPE OF SERVICES

The following scope of services describes the tasks that AECOM will perform to obtain the following environmental approvals and permits:

- CEQA compliance (Notice of Completion [NOC], IS/MND, Notice of Determination [NOD], and Mitigation Monitoring and Reporting Program [MMRP])
- NEPA compliance (EA and draft FONSI)
- United States Fish and Wildlife Service (USFWS) Endangered Species Act (ESA) compliance
- California Department of Fish and Wildlife (CDFW) California ESA (CESA) compliance
- CDFW Streambed Alteration Agreement
- Native American Heritage Commission (NAHC) and State Office of Historic Preservation (SHPO) coordination

The following approvals and permits are not part of this scope of services and will be obtained by TRLIA and other contractors:

- Central Valley Flood Protection Board (CVFPB) approval
- USACE Section 408 approval
- RWQCB Section 402 National Pollution Discharge Elimination System (NPDES) compliance
- Reclamation District 784 Encroachment Permit
- Yuba County Grading Permit

TASK 1: PREPARE EA/IS/MND

Subtask 1.1 Prepare Project Description. River Partners will provide a detailed project description that AECOM will use to prepare the project description for the EA/IS/MND. The draft project description will be submitted to TRLIA electronically for review and comment. AECOM will make necessary changes to the draft project description based on comments received from TRLIA and River Partners. AECOM will submit a final project description to TRLIA electronically; this version will be included in the EA/IS/MND and used in all subsequent impact analyses.

Subtask 1.2 Prepare EA/IS/MND. AECOM will use as much information as possible from the FRLRP DEIR and other environmental documents prepared for Segment 2 of the FRLRP to expedite and streamline analyses in the EA/IS/MND. AECOM will address impacts identified in the environmental checklist form in Appendix G of the State CEQA Guidelines with explanations and analysis for each response, including "No Impact" responses. The level of analysis and degree of impact will vary depending upon the environmental topic. For each environmental issue, AECOM will describe existing conditions, assess potential environmental impacts, and recommend feasible mitigation measures, where applicable. Other federal, state, regional, or local agencies with permit requirements or other approval authority will be identified where appropriate. The EA/IS/MND will address NEPA requirements such as purpose and need, socioeconomics and environmental justice sections, and provide more detailed
information on wetlands, federally threatened and endangered species, and cultural resources covered
under Section 106 of the National Historic Preservation Act (NHPA). As identified in USACE EC 1165-
2-216, the EA/IS/MND will analyze the no-action alternative and the proposed action only. The
EA/IS/MND analysis will not include visual simulations, water quality modeling, or traffic modeling;
limited air quality modeling will be conducted.

AECOM will submit an electronic copy of the first draft EA/IS/MND to TRLIA for review and comment.
AECOM will incorporate and respond to one consolidated set of TRLIA comments on the administrative
draft EA/IS/MND and submit an electronic copy of the second draft EA/IS/MND to TRLIA and USACE.
AECOM will incorporate any comments and prepare the public draft EA/IS/MND and submit to TRLIA
in electronic format. AECOM will also prepare the NOC, NOD, and MMRP in a similar manner.
AECOM will prepare a draft FONSI for submittal to USACE; USACE will prepare the final FONSI.

AECOM will file 15 copies of the public EA/IS/MND and a notice of completion with the State
Clearinghouse for the 30-day public and agency review period. AECOM will deliver five bound copies,
and Microsoft Word and PDF copies, of the public EA/IS/MND to TRLIA. AECOM will distribute the
public EA/IS/MND on cd to up to 50 interested stakeholders. AECOM will prepare a notice of intent
(NOI); it is assumed that TRLIA will publish the NOI in a newspaper of general circulation in the area
affected by the proposed project.

**Subtask 1.3 Prepare Response to Comments.** Upon completion of the public review process for the
EA/IS/MND, and after discussing with TRLIA and USACE any comments received on the environmental
analysis, AECOM will prepare a draft response to comments report (RTC) for TRLIA review and Final
EA for USACE review. It is assumed that comments will be relatively minor and comments for all
responses will not be more than five pages in length. AECOM will submit the draft RTC and draft NOD
in electronic form to TRLIA for review and comment. Upon receipt of one set of consolidated TRLIA
comments, AECOM will prepare and submit the final RTC to TRLIA in electronic format. It is assumed
that TRLIA will file the NOD with the State Clearinghouse following MND adoption and pay any
necessary filing fees (e.g., CDFW). AECOM will submit the draft Final EA and draft FONSI to USACE
for review and comment. Upon receipt of one set of consolidated USACE comments, AECOM will
prepare and submit the final EA to USACE in electronic format. It is assumed that USACE will conduct
all NEPA public noticing requirements.

**TASK 2: PREPARE CULTURAL RESOURCES REPORT**

Compliance with Section 106 of the NHPA will be required for the proposed project. A cultural resources
investigation of the proposed mitigation bank area was conducted nearly 8 years ago, in support of the
FRLRP. This investigation revealed three prehistoric sites adjacent to the mitigation bank area. These
prehistoric resources have not been evaluated, but based on current information could be potentially
eligible for the National Register of Historic Places (NRHP) and California Register of Historical
Resources. USACE is anticipated to require an updated records search, Native American coordination,
and field survey because of the sensitivity of the area and length of time since the previous investigation.

Assembly Bill (AB) 52 requires Native American consultation. The notice of intent to adopt an MND will
occur prior to July 1, 2015, which is the trigger date for compliance with AB 52. Consequently,
compliance with AB 52 requirements are not needed or included in this Scope of Services.

**Subtask 2.1 Conduct Archival Research and Document Review.** AECOM will conduct a records
review and archival research of sources consulted to develop the archaeological background for
prehistory and the historic-era. Records searches will be conducted at numerous repositories, including
but not limited to the North Central Information Center and the California State Library.
Subtask 2.2 Conduct Field Survey. AECOM staff will prepare an appropriate Area of Potential Effects (APE) map. The APE will include all areas of proposed project activities. AECOM will submit the APE map to TRLIA to send to USACE for review. The map will be finalized with USACE before field work begins. Field methods for the surface identification of archaeological resources will be based upon the sensitivity of the area, and will consist of transect intervals ranging from 15 to 30 meters.

AECOM will conduct needed investigations to identify and consider the effects for archaeological resources and will prepare appropriate documentation in accordance with Section 106 of the NHPA and its implementing regulations (36 Code of Federal Regulations Part 800). Documentation of all previous and newly identified resources will include preparation of detailed California Department of Parks and Recreation (DPR) 523 forms, mapping of all features, diagnostic artifacts and site boundaries using a hand held Trimble GPS unit with submeter accuracy. This Scope of Services assumes recordation of up to four archaeological resources within the APE.

Subtask 2.3 Prepare Cultural Resources Report. AECOM will prepare a technical report that updates the cultural resources information provided in the Cultural Resources Assessment for the FRLRP (EDAW 2007). Information will be presented in accordance with Section 106 standards and USACE guidelines. The report will include a description of the current project setting; results of the previous investigations; results of archival research and consultation efforts; methods and results of the field investigation; documentation of additional consultation as required under Section 106 of the NHPA; and discussion of results and findings of the current investigation and NRHP eligibility recommendations. The report will include an APE map and locations for known cultural resources. Copies of DPR recordation forms and photographs will be included as an appendix.

AECOM will provide an electronic version of the draft cultural resources report to TRLIA for review, will incorporate comments sent to AECOM in one electronic file, and will submit an electronic copy of the final Cultural Resources Report to TRLIA and three hard copies (two for later submission to USACE).

Subtask 2.4 Facilitate NHPA Section 106 Compliance. The Section 106 process generally requires the SHPO to concur with any cultural resource findings. To facilitate SHPO review, the Cultural Resources Report will include, but will not necessarily be limited to, a description of the proposed project, results of a records search update and a finding of effect as appropriate/possible.

AECOM assumes that one hard copy of the final technical report submitted to USACE under Task 2.2 will be provided to the SHPO by USACE. AECOM assumes that USACE will conduct formal consultation with SHPO throughout the course of the proposed project. However, AECOM will coordinate with USACE and/or SHPO to facilitate completion of the consultation process. This scope of work assumes a maximum 8 hours for coordination.

**TASK 3: CONDUCT WETLAND DELINEATION**

A wetland delineation was conducted for Segment 2 of the FRLRP (EDAW 2007) and verified by USACE in 2008. The delineation study area included the proposed mitigation bank area. However, the verification expired in September 2013, and the onsite conditions have changed substantially since the delineation was verified. AECOM wetland specialists will conduct a jurisdictional delineation of the proposed mitigation bank area and adjacent areas of riparian woodland/scrub and intermittent drainage to confirm there are no jurisdictional features in the mitigation bank area and to identify the current
boundaries of adjacent jurisdictional features. The exact location and boundary of all jurisdictional waters of the United States that could be affected by the proposed project, will be determined.

Subtask 3.1 Conduct Literature Review and Field Preparation. AECOM's wetland specialists will review existing wetland data, including the 2007 wetland delineation report, USFWS National Wetland Inventory maps, U.S. Department of Agriculture Natural Resources Conservation Service soil survey information, U.S. Geological Survey 7.5-minute series topographic quadrangles, and existing topographic maps and aerial photographs of the project site.

Subtask 3.2 Conduct Wetland Delineation. AECOM's wetland specialists will conduct a field delineation of jurisdictional waters of the United States, including wetlands that could be affected by the proposed project. The study area will include the entire approximately 500-acre mitigation bank area and will extend up to approximately 200 horizontal feet beyond the mitigation area boundaries where potentially jurisdictional features are present in adjacent areas. The location and boundaries of jurisdictional areas mapped in the 2007 delineation report will be confirmed or adjusted, as necessary. The USACE multi-parameter methodology will be used to delineate any jurisdictional features that may have become established in the mitigation bank area. Field data sheets will be completed for each data point. It is assumed that field work can be completed by two biologists in 2 days.

Subtask 3.3 Prepare Wetland Map. AECOM will prepare a wetland map showing the extent and location of all jurisdictional waters of the United States, including wetlands, within the study area. This map will be prepared in accordance with USACE requirements. The preferred base map for this effort is a recent aerial photograph (minimum scale of 1 inch = 200 feet).

Subtask 3.4 Prepare Wetland Delineation Report. A jurisdictional wetland delineation report that summarizes methodology, existing conditions, and findings will be prepared. Final copies of all wetland data sheets will be included as attachments to the report. AECOM will provide one electronic copy of the draft report to TRPA for review and comment, and subsequently will prepare and submit the final report to TRPA and to USACE with a request for verification.

Subtask 3.5 Conduct USACE Field Verification Meeting. An AECOM wetland specialist will coordinate and attend a field verification meeting with USACE.

TASK 4: PREPARE ESA AND CESA COMPLIANCE

The proposed project will require Section 408 approval from USACE. Therefore, Section 7 consultation between USACE and USFWS and National Marine Fisheries Service (NMFS) will be required.

Subtask 4.1 Conduct Biological Resources Field Surveys. AECOM biologists conducted reconnaissance surveys of the proposed mitigation bank area in support of the EIR and biological permitting for the FRLRP. However, on-site conditions have changed substantially since these surveys were conducted, and updated habitat evaluations for species to be addressed in the biological assessment are required. Based on habitat likely to be present on and adjacent to the mitigation bank area, AECOM assumes focused surveys would only be required for elderberry shrubs that could provide habitat for valley elderberry longhorn beetle. AECOM biologists familiar with the natural resources of the project site will map the location of elderberry shrubs within 100 feet of the Mitigation bank area. It is assumed a protocol-level stem count will not be necessary because any elderberry shrubs present would be retained and provided a buffer adequate to avoid or minimize adverse impact. The potential presence of any additional species or habitats considered sensitive, threatened, endangered, or otherwise unique by
work assumes there would be no removal of riparian vegetation and that TRLIA will pay the CDFW-required filing fee associated with obtaining a Streambed Alteration Agreement.

AECOM will provide one draft of the Streambed Alteration Notification to TRLIA for review, will incorporate comments sent to AECOM in one electronic file, and will submit one electronic and one hard copy to CDFW and TRLIA.

AECOM assumes that one coordination meeting with CDFW may be required (typically a field visit) and that this meeting will be attended by one AECOM staff to discuss project characteristics, permit requirements, and permitting schedule. Additional telephone/e-mail coordination with CDFW will be conducted by AECOM, to ensure that the permit application materials are technically accurate and meet the needs of CDFW. For purposes of this scope of work, a maximum 15 hours of time will be allocated for AECOM to coordinate with CDFW after the application is submitted.

**TASK 6: MANAGE ENVIRONMENTAL TASKS**

AECOM will attend one project initiation meeting in Sacramento with TRLIA to review scope, schedule and communication protocols for the project; identify any additional information needs and sources, and key contacts; and identify key issues known to be of concern to agencies, interest groups, and the public and discuss level of analysis anticipated. AECOM will hold an internal kick-off meeting with staff.

AECOM will attend up to six additional project meetings in Sacramento from April 2015 through July 2016. AECOM will also participate in one public/board meeting in Marysville for the adoption of the IS/MND.

This scope of services assumes an average of 0.5 hour of preparation time and 0.5 hour of travel time for each meeting (1.5 hours for the Marysville meeting), and that each meeting will last an average of 2 hours.

AECOM will manage the environmental tasks described above and maintain close communication with TRLIA, TRLIA’s contractors, and DWR. AECOM will work with TRLIA to develop a schedule for the tasks identified in this scope of services.

**IV. SCHEDULE**

Every effort will be made to complete this scope of services by July 31, 2016. However, obtaining permits is highly dependent on the review times of the regulatory agencies, which is mostly beyond AECOM’s control. A detailed schedule will be developed with TRLIA as part of Task 6.

**V. COST ESTIMATE**

AECOM will complete the above tasks on a time-and-materials basis for a maximum not-to-exceed cost of $224,719, with costs by task specified below. The cost estimate is based on completion of work by July 31, 2016.

**TASK 1: PREPARE EA/IS/MND - $99,951**

**TASK 2: PREPARE CULTURAL RESOURCES REPORT - $27,140**
TASK 3: CONDUCT WETLAND DELINEATION - $20,390

TASK 4: PREPARE ESA AND CESA COMPLIANCE - $29,546

TASK 5: PREPARE SECTION 1602 STREAMBED ALTERATION NOTIFICATION - $9,842

TASK 6: MANAGE ENVIRONMENTAL TASKS - $23,301

TASK 1 – 6 EXPENSES: $5,250

TOTAL COST: $215,420
## MODIFIED COST ESTIMATE

**2/20/2015**

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<td>10</td>
<td>20</td>
<td>10</td>
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<td>$2,380</td>
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<td>$482</td>
<td>$340</td>
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### OTHER DIRECT COSTS

- **1.** Printing/Other Reproduction: $1,000
- **2.** Database Searches: $0
- **3.** Manage/Vehicle Rental/Fuel Per Diem: $10,000
- **4.** Postage/Delivery: $500
- **5.** Miscellaneous: $0
- **6.** Total Other Direct Costs: $11,780

**TOTAL ESTIMATED COST:** $166,988
## COST ESTIMATE

**2/28/2015**

| TASKS | Rate/Hour | Project Director | Project Manager | Sr. Env. Planner | Senior Regulatory | Senior Biologist | Senior Architect | Archaeologist | Histologist | Art/Arch | Biologist | Fishes Biologist | Air Qual. Spec. | Sr. Env. Planner | Graphic Artist | GIS Spec. | Tech. Editor | Wording Expert | Project Cost | Hours | Dollars |
|-------|-----------|------------------|-----------------|------------------|------------------|-----------------|-----------------|---------------|-------------|-----------|---------|-----------|------------------|----------------|-----------------|--------------|------------|-----------|-----------|-----------|
| Task 1 Prepare EA/SMID | 4 | 32 | | | | | | | | | | | | | | | | | | 64 | $9,648 |
| Task 2 Prepare Cultural Resources Report | 50 | 50 | 100 | 30 | 30 | 4 | 10 | 50 | 140 | 16 | 20 | 32 | 39 | 561 | $76,451 |
| Task 3 Prepare Response to Comments | 15 | 15 | 30 | 3 | 2 | 3 | 5 | 40 | 4 | 2 | 58 | $14,962 |
| Subtotal Task 1 | 44 | 26 | 162 | 0 | 0 | 0 | 32 | 32 | 0 | 4 | 12 | 50 | 100 | 140 | 16 | 20 | 32 | 39 | 561 | $76,451 |
| Task 2 Prepare Cultural Resources Report | 24 | | | | | | | | | | | | | | | | | | | 0 | 272 | $127,148 |
| Task 3 Conduct Wetland Delineation | 24 | | | | | | | | | | | | | | | | | | | 4 | 14 | $6,620 |
| Task 4 Conduct Biological Resources Field Surveys | 10 | 10 | | | | | | | | | | | | | | | | | | | 0 | $2,424 |
| Task 5 Prepare Section 1063 Streambed Alteration | 4 | 8 | 34 | 8 | 4 | 8 | 58 | | | | | | | | | | | | | 8 | $5,055 |
| Subtotal Task 5 | 2 | 2 | 0 | 0 | 8 | 76 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 32 | 0 | 5 | 5 | 156 | $20,580 |
| Task 6 Prepare ESA and CESA Compliance | 10 | 10 | | | | | | | | | | | | | | | | | | | 0 | $3,424 |
| Task 7 Prepare Section 1063 Streambed Alteration Agreement | 12 | 12 | 4 | 56 | 12 | 4 | 72 | | | | | | | | | | | | | 8 | $5,055 |
| Task 8 Manage Environmental Tasks | 83 | 217 | 162 | 17 | 135 | 87 | 128 | 100 | 47 | 75 | 81 | 191 | 25 | 106 | 83 | 78 | 30 | 156 | | $20,560 |

**Total Direct Labor Dollars** | $125,518 | $23,333 | $23,828 | $7,638 | $113,022 | $23,010 | $7,638 | $9,490 | $6,630 | $20,463 | $2,235 | $9,795 | $8,480 | $6,630 | $1,960 | $315,178 |

**OTHER DIRECT COSTS**

1. Fielding Other Reproduction | $1,500 |
2. Database Queries | $1,000 |
3. Mileage/Travel Reimbursement | $1,000 |
4. Postage/Shipping | $1,000 |
5. Miscellaneous | $750 |
6. Total Other Direct Costs | $5,250 |

**TOTAL ESTIMATED COST** | $320,428 |