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 April 7, 2015.

IV  ACTION ITEMS

A. Accept proposed RD 784/TRLIA Fiscal Year 2015-2016 Maintenance Budget for levees improved by TRLIA.

B. Approve endorsement of TRLIA as entity responsible for operation and maintenance of 100 year Goldfields project and delegate Executive Director to issue final construction bid documents.

C. Approve Amendment No. 17 with GEI Consulting Inc., in the amount of $311,270, and authorize the Executive Director to execute.

D. Approve Amendment No. 3 with Restoration Resources in the amount of $2,995 and authorize the Executive Director to execute.

V  CORRESPONDENCE

A. Letter from Max Hoseit regarding Notice of Hearing regarding Adoption of a Resolution of Necessity to Acquire Property by Eminent Doman.

VI  BOARD AND STAFF MEMBER REPORTS

1. Miscellaneous reports.

VII  ADJOURN
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

APRIL 7, 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 3:30 p.m., within the Government Center, Marysville, California, with a quorum being present as follows: Directors Sarbdeep Atwal, Rick Brown, Mary Jane Griego, and John Nicoletti. Director Crippen absent. Also present were Executive Director Paul Brunner, Counsel Andrea Clark, and Secretary/Clerk of the Board of Supervisors Donna Stotlemeyer. 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: Rick Brown  SECOND: Sarbdeep Atwal
   AYES: Sarbdeep Atwal, Rick Brown, Mary Jane Griego,
   NOES: None  ABSTAIN: None  ABSENT: Jerry Crippen, John Nicoletti

   A. Approve minutes of the meeting of March 3, 2015. Approved as written.

IV  ACTION ITEMS

   A. Approve Amendment No. 9, in the amount of $211,947, to the agreement with Handen Inc. for construction management and consulting services and authorize Executive Director to execute agreement upon review of Counsel. Executive Director Paul Brunner recapped projects and key efforts of services to be provided and responded to inquiries.

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

   B. Approve agreement with Sage Engineers Inc., in an amount not to exceed $50,000 for Dr. Faiz Makdisi to serve on the independent expert panel for WPIC 200-year standard project and ULDC evaluation and authorize Executive Director to execute agreement upon review of Counsel. Executive Director Paul Brunner recapped continued services of Dr. Faiz with his move to Sage Engineers and responded to inquiries.

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

Executive Director Paul Brunner:
- Public Meeting April 6, 2015 on 200-year Environmental Impact Report for the Goldfields project

Director Nocetti joined the meeting at 3:46 p.m.

- Funding agreement for Goldfields project
- Encroachment Permit Application for 100-year project in Goldfields
- Starbend entrance opened and closure of Broadway access to Feather river
- Western Pacific Interceptor Canal Project timeline and potential inclusion of fix for pin boil
- Potential restoration work in the Feather River setback area

VI CLOSED SESSION: The Board retired into closed session at 4:21 p.m. and returned at 4:54 p.m. with all present as indicated above. There was no report.

Conference with legal counsel regarding anticipated litigation: Significant exposure to litigation pursuant to Government Code §54956.9(d)(2)

VII ADJOURN: 4:54 p.m.

_____________________________  Chair

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

______________________________  Approved: ________________

04/15/2015  TRLD  PAGE 7
May 19, 2015

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul Bruuner, Executive Director
SUBJECT: FY 2015/16 RD 784 Levee Maintenance Budget

Recommendation:
Review and accept the proposed RD 784/TRLIA proposed FY 15/16 budget for maintenance of levees improved by TRLIA.

Background:
On June 2, 2009 the TRLIA Board adopted a resolution to form the TRLIA Benefit Assessment District to pay for long-term maintenance and operations for the TRLIA improvements on approximately 29 miles of improved levees.

On August 4, 2009 TRLIA and RD 784 signed a Memorandum of Agreement (MOA) that outlined the relationship of the organizations with regards to the use of TRLIA Assessment revenues. RD 784 is to operate and maintain improved levees and TRLIA’s formation of the Assessment District is to fund that operation and maintenance. In addition, the MOA sets forth the budget process that will take place annually. TRLIA and RD 784 will work cooperatively to prepare a budget that clarifies how the assessment district funds will be used. The TRLIA Board will then review and accept that budget. As TRLIA had informed the public throughout the assessment district formation process, the TRLIA Board will participate in the RD 784 levee maintenance budgeting process to ensure that assessment revenues are being used to achieve the operations and maintenance requirements of the many federal, State, and local agreements signed by TRLIA. In addition, TRLIA must review the budget in order to ensure that the assessment funds are used for the purposes approved by the benefited property owners. The MOA also provides for the transfer of revenues from TRLIA to RD 784. Finally, the MOA provides for an administrative fee for TRLIA’s management of the assessment in the amount of TRLIA’s actual costs or 3% of the assessment revenues, whichever is less. TRLIA estimates that its direct cost associated with administering the assessment district in FY 2015/16 to be approximately $30,000.

Discussion:
TRLIA staff has reviewed the proposed RD 784 FY 2015/2016 budget for maintenance of levees improved by TRLIA and concurs with the projected expenditures and has determined that the proposed levee maintenance budget adheres to the criteria outlined in the approved TRLIA Assessment District Engineer’s Report.
The proposed RD 784 Budget for FY 2015/16 is based on receiving $858,654.85 from TRLIA. So far in FY 2014/2015, TRLIA’s total assessment levy collected to date (through April 30th) is $635,638. It is anticipated that TRLIA will be able to transfer the full projected TRLIA amount to RD784 ($858,666.35). Revenues above the $858,654.85 will be reserved for TRLIA use (e.g., administrative costs), and emergency repairs as needed during FY 2015/2016.

**Fiscal Impact:**
Assessment revenues are collected by the County Treasurer on property tax bills and by TRLIA through direct billed assessments. These revenues are deposited into TRLIA’s Benefit Assessment District Fund No. 818, then transferred to RD 784 for FY 2014/2015 levee maintenance after TRLIA administrative expenses have been paid. Based upon this process, there will be no net fiscal impact to TRLIA’s general fund operations, and RD784 projected expenditures will be covered.

Attachment:
RD 784 Proposed FY15/16 Budget for levee maintenance
<table>
<thead>
<tr>
<th>Chart of Accounts</th>
<th>Direct Expenses: Employee Salaries and Fringe</th>
<th>70% of 2015-2016 Budget</th>
<th>30% of 2015-2016 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1498 Payroll Clearing Act.</td>
<td>Net Salary &amp; Payroll Fee (Processing Fee) Per Check Run</td>
<td>$282,907.48</td>
<td>$256,675.31</td>
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<tr>
<td>7020 Payroll Taxes</td>
<td>Payroll Taxes - All Inclusive</td>
<td>$55,825.73</td>
<td>$50,238.01</td>
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<tr>
<td>1355 Prepaid Expense</td>
<td>State Work Comp - Prepaid</td>
<td>$13,409.28</td>
<td>$12,180.92</td>
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<tr>
<td>0750 Liability Account</td>
<td>Health/DSA Metro</td>
<td>$137,952.00</td>
<td>$99,658.40</td>
</tr>
<tr>
<td>1000 Liability Account</td>
<td>Dental</td>
<td>$11,710.80</td>
<td>$9,378.24</td>
</tr>
<tr>
<td>2000 Liability Account</td>
<td>Vision</td>
<td>$1,476.00</td>
<td>$1,333.20</td>
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<tr>
<td>2066 Liability Account</td>
<td>Pension INS</td>
<td>$33,390.74</td>
<td>$27,832.55</td>
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<tr>
<td>1555 Prepaid Expense</td>
<td>Pension Contingency</td>
<td>$35,000.00</td>
<td>$29,000.00</td>
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</tbody>
</table>

**Total Budget**:
- **RD784 2015-2016 Budget**:
  - **Total Budget**: $1,781,396.03
  - **RD784 30%**: ($517,752.03)

**Expenses allocated to TRIAA Assessment**:
- **Total Budget**:
  - **TRIAA 70%**: $1,663,641.98
  - **TRIAA 30%**: ($499,092.59)

**Expenses allocated to RD784 Revenue**:
- **Total Budget**:
  - **RD784 70%**: $1,117,753.44
  - **RD784 30%**: ($339,226.44)
<table>
<thead>
<tr>
<th>Item Description</th>
<th>Amount 1</th>
<th>Amount 2</th>
<th>Amount 3</th>
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<tr>
<td>Contract Welding Services &amp; Supplies</td>
<td>$2,500.00</td>
<td>50.00</td>
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<tr>
<td>Materials and Supplies &amp; Equipment Rental</td>
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<td>$6,000.00</td>
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<tr>
<td>Chemical - Weed and Rodent</td>
<td>$5,000.00</td>
<td>0.00</td>
<td>$5,000.00</td>
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<tr>
<td>Chaparral Support - TRUJA Assessment 70% Rents/Revenues 30%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Chemical Training</td>
<td>$2,000.00</td>
<td>1,400.00</td>
<td>560.00</td>
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<tr>
<td>Training Seminars</td>
<td>$3,900.00</td>
<td>2,450.00</td>
<td>950.00</td>
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<tr>
<td>Trustee Compensation</td>
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<td>4,200.00</td>
<td>1,800.00</td>
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<td>Miscellaneous Licenses Permits</td>
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<td>2,800.00</td>
<td>1,200.00</td>
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<tr>
<td>Other Meetings Compensation - Spec Mtgs. &amp; Meeting Mileage</td>
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<td>700.00</td>
<td>300.00</td>
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<td>Miscellaneous Expenses - Mileage, Meals, Etc.</td>
<td>$1,000.00</td>
<td>700.00</td>
<td>300.00</td>
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<td>Membership Lists &amp; Associations</td>
<td>$1,000.00</td>
<td>700.00</td>
<td>300.00</td>
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<tr>
<td>C-Contract Employee Services - Shop Temp Labor (Labor Ready)</td>
<td>$4,500.00</td>
<td>3,150.00</td>
<td>1,350.00</td>
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<tr>
<td>Building Replacement</td>
<td>$5,000.00</td>
<td>1,500.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>Grant Writing Services - TRUJA Assessment 70% Rents/Revenues 30%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing Grant Writing Contract Services</td>
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<tr>
<td>Internal Grant Writing Services</td>
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<td>3,500.00</td>
<td>1,500.00</td>
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<tr>
<td>Totals</td>
<td>$1,781,396.00</td>
<td>$1,116,977.12</td>
<td>$664,418.88</td>
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</tbody>
</table>
May 19, 2015

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul G. Brunner, Executive Director
Andrea Clark, General Counsel
Ric Reinhardt, Program Manager
Larry Dacus, Design Manager

SUBJECT: Goldfields Interim 100-Year Flood Protection Project
1) Endorse CVFPB Encroachment Permit Application with TRLIA as responsible entity for operation and maintenance
2) Delegate to Executive Director Authority to Issue Final Construction Bid Documents

Recommended Actions
Endorse CVFPB Encroachment Permit Application for the 100-Year Interim Project with TRLIA as the entity responsible for operation and maintenance until the 200-year work is complete. Delegate the approval of the issuance of final construction documents for bid of the Goldfields Interim 100-Year Flood Protection Project to the Executive Director.

Background
The Three Rivers Levee Improvement Authority (TRLIA) has been evaluating the increased flood risk from the Goldfields since 2009. In 2010 TRLIA identified the potential of floods passing through the Yuba Goldfields which had been assumed to act as "High Ground" for the State Plan of Flood Control (SPFC). These flows would flank the SPFC and flood the Reclamation District (RD) 784 Urban Area. TRLIA began a process to identify immediate actions necessary to provide for 100-year protection to continue current FEMA mapping for the RD 784 Service Area. TRLIA received a Proposition 13 Grant from the California Department of Water Resources (DWR) in October 2012 to perform a Feasibility Study to identify 100-year and 200-year projects. The Goldfields Flood Protection Feasibility Study Initial Report was submitted to DWR on July 18, 2013. This Initial Report identified a preferred plan for providing 100-year protection which consisted of a continuous embankment designed to intercept and block potential breach flows from the Yuba River. This embankment would hold water long enough to allow flood peaks to pass and the blocked flows to return to the Yuba River or percolate into underlying groundwater aquifers. The embankment would begin at the end of the SPFC where it ties into the Goldfields and would terminate just west of the YCWA irrigation canal (Figure 1). The embankment would be composed of the dredge tailings that currently exist.
in the Goldfields. The embankment would have a minimum top width of 35 feet, a waterside slope of 3 horizontal to 1 vertical, and a landside slope of 5 horizontal to 1 vertical. Geotechnical evaluations have shown that this geometry is stable under design flood conditions. The crown of the embankment would be set 3 feet above the elevation of the 100-year water surface elevation in the Goldfields and include a 18 foot wide patrol road.

On September 26, 2013 the TRLIA Evaluation Team met to discuss the Administrative Draft of the CEQA Initial Study (IS) for the 100-Year Preferred Project. During discussion, it was proposed that the Preferred 100-Year Project be reduced in scope to a project that could be certified to FEMA for Goldfields 100-year protection for an interim period (10 to 15 years). This scope reduction would eliminate the need for immediate construction on USACE lands (USACE approval of a real estate license is problematic and a timely process) and reduce the amount of potentially invested funds in a 100-year solution that might not be a part of the final 200-year solution. This project would consist of similar embankment construction in the southwest portion of the Goldfields as proposed for the initially selected 100-year project, embankment enlargement at Crossing 21, and certification of existing dredge tailings embankments along the south bank of the Yuba River in other portions of potential flood risk in the Goldfields. The revised embankment would be shorter than the initially selected 100-year project and extend continuously for approximately 2.1 miles following the alignment shown in Figure 2. The embankment would be the same cross section as the initially selected 100-year project (minimum top width of 35 feet, a waterside slope of 3:1 (horizontal: vertical), and a landside slope of 5:1 (horizontal: vertical)) and built in partnership by TRLIA and Western Aggregates on land owned by Western Aggregates using the Goldfields' existing dredge tailings. The crown of the embankment would be located 3 feet above the elevation of the 100-year water surface elevation in the Goldfields (Figure 3) and include a 16 foot wide patrol road. Significant portions of this alignment already exceed the embankment geometry required for the 100-year embankment. Fill for areas that require additional material to achieve the 100-year embankment geometry would come either from the adjacent areas that exceed the required flood protection elevation of the 100-year embankment, or from portions of the surrounding embankment outside of the 100-year embankment geometry (Figure 3).

Locations of ongoing bank erosion at critical locations along the Yuba River South Bank have been identified and transects established to monitor loss of embankment section. These transects will be resurveyed every 5 years or after major (10-Year) flood events to determine if the currently stable bank embankments have been reduced to an unstable geometry. Remedial actions such as erosion protection or embankment enlargement would take place if significant erosion had occurred.

An Engineer's Report for the Interim 100-Year Flood Protection Project was prepared and is under review by the TRLIA Goldfields Board of Senior Consultants (BOSC). This Engineer's Report is included as Attachment 1. A CEQA Initial Study with a Mitigated Negative Declaration (IS/MND) was prepared and distributed for public review on February 4, 2014. The IS/MND was certified by the TRLIA Board of Directors on April 1, 2014 and the 100-year Project was approved by this board. An encroachment permit application for this Interim 100-Year Project has been prepared for submittal to the Central Valley Flood Protection Board (CVFPB) and is included as Attachment 2. Draft Grading Plans (90%) for the interim 100-Year
Project are a part of the encroachment permit application. This project has an approximate total cost of $1,000,000, which includes environmental documents, design, construction, and FEMA certification. The construction cost is estimated to be $650,000. The project can be constructed in the fall of 2015 if approved by the CVFPB (encroachment permit), and agreements are reached with Western Aggregates and Cal-Sierra for construction and maintenance of the interim line of protection.

The 100-year alignment will be located on property owned by Western Aggregates. Western Aggregates holds vested rights for surface aggregate mining for those portions of the alignment within its property. Cal-Sierra holds vested rights for precious minerals on the land where the embankment would be located. TRLIA is in negotiation with and would enter into agreements with both Western Aggregates and Cal-Sierra to facilitate construction and maintenance of the proposed embankments in the vested rights area of Western Aggregates and Cal-Sierra. It is anticipated that Agreements will be ready for Board approval at a TRLIA Board meeting in July 2015.

Maintenance for the interim 100-year embankment is minimal and consists of vegetation control on the patrol road, maintenance of the patrol road, inspection of the constructed embankment, and occasional surveys of transects at the erosion sites. Estimate annual O&M costs are $27,000. The Draft O&M Plan for the Interim 100-year Project is included as Attachment 3. The Goldfields are not part of the RD 784 District.

Discussion
The Interim 100-Year Flood Protection Project is expected to be in place for the next 10-15 years to satisfy FEMA requirements, and until a more permanent 200-year solution can be constructed.

Recently, DWR has indicated that it will support UFRP funding for the 200-year Goldfields new project (Alternative 4 in the Goldfields 200-year EIR), with the condition that prior to construction the new levee must be added to the State Plan of Flood Control (SPFC). It is estimated that the earliest the new levee could be built is from four to five years away; perhaps even longer if there are complications with adding the new levee to the SPFC. In order to minimize the risk of flooding from a 100-year event and not jeopardize the current FEMA accreditation, TRLIA staff recommends proceeding with the 100-year Interim project.

An Addendum to the certified CEQA document is being prepared to describe any additional environmental impacts from the enlargement of Crossing 21, Embankment 2. This addendum will also be brought to the Board for adoption at a Board meeting in July 2105. Construction and proposed draft bid documents for this work are under preparation and almost complete to the 99% design level and will include plans and specifications that will be issued for competitive bid.

The proposed project is outside the RD 784 District, so RD 784 does not have funding either from its own or TRLIA’s benefit assessment districts to directly provide O&M. The TRLIA joint powers agreement does not allow TRLIA to perform levee O&M responsibilities within the RD 784 Boundaries; this is not the case with the Goldfields. After consultation with General Counsel the conclusion is that TRLIA can lawfully perform the O&M responsibilities for the
100-year interim project during the anticipated 10 to 15 years. TRLIA would use local levee improvement funding (approximately $27,000/year) during the interim period to perform the embankment O&M responsibilities. Staff recommends TRLIA accepts the 100-year interim O&M responsibilities and serve as the LMA for the Interim 100-Year Project.

CVFPB and has asked that TRLIA apply for an encroachment permit for the project. An encroachment permit application has been prepared, Attachment 2, which, like all applications, requires endorsement by a local maintaining agency. Staff requests that the board endorse the attached encroachment permit application to convey TRLIA’s willingness to take on this responsibility in the short term.

The Goldfields Interim 100-Year Flood Protection Project will reduce the risk of flooding from a 100-year flood through the Goldfields and maintain the current FEMA mapping of the RD 784 Urban Area. Without this project, FEMA may choose to revise these maps and indicate large areas of residual flood prone areas in the RD 784 Urban Area. Construction documents are almost complete and the Board is asked to delegate to the Executive Director approval to issue the final bid documents for the Goldfields Interim 100-Year Flood Protection Project to allow all necessary design changes be made that result from the finalization of the minor agreements or CEQA addendum. The contract award would be brought to the Board for approval before proceeding with construction.

- **Project Cost and Funding**
  The Construction cost for the cost of this project is $650,090. While the State did provide a grant to develop the 100-year and 200-year Goldfields Flood Protection Projects, no State funds have been provided for construction of the project thus the work will be accomplished with local dollars. The “Instructions to Bidders” to be included in the bid documents will describe that an award of the project will be subject to the confirmation of funding and permitting.

- **Permits**
  No environmental or USACE permits are required for this work. A CVFPB encroachment permit for this work will be requested and is expected to be issued by August 2015.

- **Award**
  The bid documents will state that TRLIA reserves the right to award a contract based on the availability of funding and the permits. Bid results will be presented to the TRLIA Board for approval of award.

- **Anticipated schedule**
  The following are projected milestone dates and schedule for the construction of the Goldfields Interim 100-Year Flood Protection Project:

  - Approval of Minors Agreements: July 14, 2015
  - Approval of CEQA Addendum: July 14, 2015
  - Advertise for Bid: July 15, 2015
Fiscal Impact:
Construction Funding for the Goldfields Interim 100-Year Flood Protection Project will be 100% local share. Local funds are available to do this interim 100-year project, and also the projected local share needed for the later 200-year Goldfields UFRR project.

Figures:
Figure 1 – Initial 100-Year Flood Protection Project Plan
Figure 2 – Current Interim 100-Year Flood Protection Project Plan
Figure 3 – Interim 100-Year Flood Protection Project Cross Section

Attachments:
1. Interim 100-Year Flood Protection Project Engineer's Report
2. Central Valley Flood Protection Board Encroachment Permit Application
3. Draft O&M Plan for the Interim 100-year Project
Figure 2
Yuba Goldfields 100-Year Flood Protection Project Area
The Three Rivers Levee Improvement Authority (TRLIA) has been evaluating the Yuba Goldfields (Goldfields) to identify flooding potential and ways to reduce the potential for flooding of Reclamation District (RD) 784. Potential flooding of RD 784 through the Goldfields from the 100-year flood on the Yuba River has been identified due to historic and continuing erosion at identified sites along the south bank of the Yuba River and due to topographical changes within the Goldfields as a result of ongoing mining activities. In 2011, TRLIA constructed three short embankments to raise critical low areas in Goldfields and reduce the potential for flooding. TRLIA continues to pursue a long-term sustainable solution that will meet the State’s Urban Level of Flood Protection Requirements (200-year). In the interim, however, a 100-year solution is proposed as a means of reducing the flood risk in RD 784 and meeting FEMA’s requirements until the 200-year solution can be completed.

TRLIA has been evaluating the Goldfields since 2010. This report relies exclusively on these past evaluations and the information and results presented herein come from those evaluations (see References). These include a hydraulic analysis along the Yuba River through the Goldfields (MBK 2013), a geomorphic evaluation of the Yuba River through the Goldfields (ebec 2013), and geotechnical engineering evaluations of the Goldfields (ENGEIO 2013). All of these studies are included as part of this report through reference and are available for review. Through the referenced evaluations TRLIA has identified the potential for flooding from either overtopping or eventual breaching (due to erosion) at several sites along the south bank tailings mounds of the Yuba River within the Goldfields (see Exhibits 1 and 2 and Table 1 [TRLIA 2013]). All topographic information used in the referenced evaluations and presented in Exhibits in this Engineers Report is based on LiDAR gathered in March 2008 by the California Department of Water Resources. The published horizontal datum for the information is NAD83 (2007) and the vertical datum is NAVD88. The geoid model used is the Potteryfield Geoid Model. Data was compiled to meet a 0.607 feet vertical accuracy at the 95 percent confidence level and to meet a 3.5 feet horizontal accuracy at the 95 percent confidence level. The 100-year interim solution described in this report addresses the potential for flooding of RD 784 from these sites. Features of the 100-year interim flood protection solution are described below. All of these features provide a minimum of 3-foot of freeboard above the 100-year flood elevation.

Much of the following discussion was taken from a geomorphic study of the Yuba River performed for TRLIA (ebec 2013). This study evaluated historic rates of erosion at eroding sites along the South Bank of the Yuba River. The study used this erosion information and the hydrology during the eroding events to develop a method to predict erosion retreat based on an assumed hydrologic cycle. For details of this analysis see the geomorphic study (ebec 2013). Not all of the sites discussed below are active eroding sites and thus erosion evaluation and retreat prediction models were not performed or developed at each site. Erosion evaluations were performed at Sites B, C, F, and J. Exhibits showing results of the evaluations from the geomorphic study (ebec 2013) are provided in this report for these sites. Evaluations were not
<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 existing plain</th>
<th>Comments</th>
<th>Feature that Addresses Potential Flooding of RD 784</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 into the Goldfields. Plugs constructed in 2011 reduce threat of RD 784 flooding.</td>
<td>Embankment to be constructed in southwest portion of the Goldfields will block overtopping flows and prevent RD 784 flooding.</td>
</tr>
<tr>
<td>Site B</td>
<td>0</td>
<td>N/A</td>
<td>Yes, 1964-2009 Avg. retreat 335 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>
<td>Embankment to be constructed in southwest portion of the Goldfields will block overtopping flows and prevent 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>
<td>No additional work is needed. Existing ridge behind this site will contain any flows from a breach and prevent RD 784 flooding.</td>
</tr>
<tr>
<td>Site D</td>
<td>-3, Waterway 13 outlet</td>
<td>N/A</td>
<td>Yes, Sight 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 dredge cut and into RD 784. However, 2021 Crossing 21 Plug prevents this.</td>
<td>Existing ridge behind this site will contain overtopping flows and Waterway 13 flows and prevent RD 784 flooding. Crossing 21 will require further enlargement to assure containment.</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 dredge cut and into RD 784. However, 2021 Crossing 21 Plug prevents this.</td>
<td>Existing ridge behind this site will contain overtopping flows and Waterway 13 Flows and prevent RD 784 flooding. Crossing 21 will require further enlargement to assure containment.</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>
<td>A transect has been established at this site to monitor erosion. If retreat reaches 40 feet, corrective actions will be implemented. Existing ridge behind this site can contain breach flows and prevent RD 784 flooding.</td>
</tr>
<tr>
<td>Site G</td>
<td>4</td>
<td>45</td>
<td>No</td>
<td>Yes</td>
<td>Freeboard exists to prevent overtopping. No erosion is occurring. USACE arbitrarily selected as breach site.</td>
<td>No features are necessary at this site to prevent flooding. Site will be visually inspected to ensure no erosion has initiated.</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>
<td>No features are necessary at this site to prevent flooding. Site will be visually inspected to ensure no erosion has initiated.</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>
<td>No features are necessary at this site to prevent flooding. Site will be visually inspected to ensure no erosion has initiated.</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>
<td>A transect has been established at this site to monitor erosion. If retreat reaches 80 feet, corrective actions will be implemented. A small volume of dredged material would complete a redundant tailings mound embankment and prevent RD 784 flooding from a breach at this site.</td>
</tr>
</tbody>
</table>
performed for Sites, A, C, E, G, H or I and similar erosion evaluation exhibits are not available or necessary.

Site A – Site A is the furthest downstream site in the Goldfields project reach. It lies at a low point in the south bank tailings mound embankment at the furthest downstream drain of the Goldfields’ ponds. Hydraulic model simulations show that this site is overtopped by the 100-year flood. Yuba River water surface elevations were determined from a model developed for TRLIA’s evaluation of the Goldfields (MBK 2013). This document should be reviewed for details on the hydraulic models developed and used to determine water surface elevations in the Yuba River. After overtopping, an existing waterway would convey flood waters into the Goldfields which then travel through the Goldfields following a path of low topography through pools and ravines within the Goldfields and eventually exit south of the Goldfields near the Teichert Aggregate operations (see Exhibit 3 [MBK 2011]). The waterway is constricted in size and by a low level crossing and somewhat limits the amount of floodwaters which can enter the Goldfields. The actual low level crossing is approximately 850 feet from the active river channel, situated within a densely vegetated channel that is sheltered from high velocity flows. Historical aerial photo analysis of this site indicates that while the river alignment has shifted within the active river corridor in response to large events, the south bank tailings mound embankment is not undergoing active fluvial erosion under present conditions.

Site A Protection Feature. To prevent flood waters that enter at Site A from leaving the Goldfields, an embankment will be constructed in the Goldfields designed to intercept and block overtopping flows from Site A (see Exhibit 4 [AECOM 2013]) and hold them long enough to allow flood peaks to pass. The blocked flows would then return to the Yuba River or percolate into underlying groundwater aquifers. The embankment would extend continuously for approximately 2.1 miles following the alignment shown in Exhibit 4. The embankment would be built by enlarging an existing dredge tailings embankment to a minimum geometry and size using the Goldfields’ existing dredge tailings. The embankment would have a minimum top width of 35 feet, a waterside slope of 3:1 (horizontal:vertical [H:V]), and a landside slope of 5:1:H:V. The crown of the embankment would be located 3 feet above the elevation of the 100-year water surface elevation in the Goldfields (see Exhibit 5 [AECOM 2013]). The adequacy of this geometry to withstand design water surface elevations and information on construction of this embankment is given in the attached Technical Memorandum prepared by ENGEEO (ENGEEO TM).

Site B – Site B is the next site upstream and is subject to active fluvial erosion. The south bank tailings mound embankment at Site B lies on the outside of a meander bend that has been persistently migrating and eroding the Yuba River south bank tailings mound over time. A GIS analysis shows the top of cut bank at this site has retreated significantly in response to prolonged periods of elevated discharge. The Yuba River at Site B has undergone significant changes in channel course and alignment since 1964. In 1964 (pre-1964 flood) the active channel in this area was aligned against the middle river tailings mound. Sometime between 1964 and 1984 (perhaps during the 1964 or 1970 floods) the river shifted course to its current alignment, against the south bank tailings mound, where it has remained. The south bank tailings mound at this location has been incrementally retreating since 1964. Exhibit 6 (cbec 2013), shows the historical alignments of the top of cut bank at this site. From 1964 – 2009 there has been on
average 135 feet (151 feet maximum) of erosion at Site B; however it appears to be accelerating in the most recent analysis period. This can be explained by the height of the tailings mound in this location, which has eroded below its historical crest and is currently experiencing a dramatic decrease in height for each increment of lateral erosion. This indicates that a larger lateral distance of retreat is required to provide the channel with an equivalent volume of material. Conversely, the same amount of energy (or the same flood hydrograph) will likely cause a greater amount of lateral erosion at this location. Geomorphic evaluations of the Yuba River (cbee 2013) conducted a work-retreat analysis at several 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 some sites (such as Site B) 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. Table 2 was taken from the TRLIA Yuba River Geomorphic Analysis (cbee 2013). For more detail on how the retreat analysis was developed, refer to the original report which is incorporated into this report by reference. Exhibit 7 (cbee 2013) indicates the results of potential erosion over the next 10 years at Site B using a very robust historical 10-year period of record (1990-2000). This record is the most robust 10-year period during the last 60 years and includes an event close to the 100-year event. This is considered very conservative for evaluating potential erosion at these eroding sites and the actual erosion will most probably be smaller. Exhibit 7 indicates a retreat of 31 feet (see Table 2 [cbee 2013]) over the next 10 years. Retreat is measured from the current embankment crest to the predicted embankment crest. As can be seen there is a high potential for either overtopping or breaching at Site B. Flood waters from Site B would eventually follow the same paths as described for flood waters from Site A and exit south of the Goldfields near the Teichert Aggregate operations (see Exhibit 3 [MBK 2011]).

Site B Protection Feature. The same constructed embankment as described for the Site A Protection Feature would also prevent flood waters that enter at Site B from leaving the Goldfields. This embankment would provide protection from floodwater from both Sites A and B, the sites with the highest potential for flooding RD 784 along the Yuba River south bank tailings mounds. This site will be visually monitored every 5 years and after significant flood events to determine if erosion has significantly changed conditions at the site.

Site C – Site C is located at the outer bend of the second in the series of three meander sequences downstream of Daguerre Point Dam (DPD) that are eroding the south bank tailings mound. Site C is located one meander wavelength upstream of Site B where the outer bend again cuts into the south bank tailings mound. Both Site C and Site D are located on the outer bend of this meander, but Site C is located further downstream. Site C is experiencing active fluvial erosion. This bend has persisted since 1964, but like Site B, the meander wavelength has been increasing in amplitude as the tailings mound is eroded. In this area, unlike other high fluvial erosion sites, the interior linear tailings mounds left by the dredger at this site are oriented perpendicular to the south bank of the river, rather than roughly parallel as observed at the other sites. A continuous longitudinal berm does appear to be present but does not appear to have been constructed in a similar manner/pattern as at the other locations. Between 1964 and 2009 the tailings mound berm at Site C has been retreating incrementally with up to 185 feet of erosion occurring in that
## 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>
<th>Site B</th>
<th>Site C</th>
<th>Site F</th>
<th>Site J</th>
</tr>
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<tbody>
<tr>
<td><strong>Design Events</strong></td>
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<tr>
<td>10-year return period</td>
<td>93,060</td>
<td>4.6</td>
<td></td>
<td>12</td>
<td>11</td>
<td>12</td>
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<tr>
<td>25-year return period</td>
<td>128,563</td>
<td>5.5</td>
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<td>13</td>
<td>11</td>
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<td>50-year return period</td>
<td>151,602</td>
<td>6.6</td>
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<td>14</td>
<td>11</td>
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<tr>
<td>100-year return period</td>
<td>154,979</td>
<td>7.0</td>
<td></td>
<td>16</td>
<td>12</td>
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<td><strong>Historical Events</strong></td>
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<tr>
<td>12/23/1964</td>
<td>180,000</td>
<td>8</td>
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<td>5</td>
<td>18</td>
<td>46</td>
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<tr>
<td>2/19/1986</td>
<td>111,000</td>
<td>7</td>
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<td>7</td>
<td>4</td>
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<td>30</td>
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<tr>
<td>1/2/1997</td>
<td>161,000</td>
<td>10</td>
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<td>13</td>
<td>7</td>
<td>22</td>
<td>50</td>
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<td>12/31/2005</td>
<td>114,000</td>
<td>9</td>
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<td>8</td>
<td>5</td>
<td>9</td>
<td>24</td>
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<tr>
<td><strong>Historical Analysis Periods</strong></td>
<td></td>
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<tr>
<td>1964 – 1984</td>
<td>180,000</td>
<td>65</td>
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<td>61</td>
<td>65</td>
<td>123</td>
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<tr>
<td>1984 – 1993</td>
<td>111,000</td>
<td>12</td>
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<td>15</td>
<td>18</td>
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<tr>
<td>1993 – 1999</td>
<td>161,000</td>
<td>34</td>
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<td>31</td>
<td>36</td>
<td>42</td>
<td>79</td>
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<tr>
<td>1999 – 2005</td>
<td>32,237</td>
<td>3</td>
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<td>9</td>
<td>10</td>
<td>10</td>
<td>11</td>
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<tr>
<td>2005 – 2009</td>
<td>114,000</td>
<td>14</td>
<td></td>
<td>15</td>
<td>17</td>
<td>18</td>
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<tr>
<td><strong>Historical 10-year Periods</strong></td>
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<tr>
<td>1970 – 1980</td>
<td>49,450</td>
<td>9</td>
<td></td>
<td>12</td>
<td>16</td>
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<td>16</td>
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<tr>
<td>1990 – 2000</td>
<td>161,000</td>
<td>34</td>
<td></td>
<td>31</td>
<td>36</td>
<td>42</td>
<td>79</td>
</tr>
<tr>
<td>1990 – 2000 w/o 1997 event</td>
<td>56,110</td>
<td>24</td>
<td></td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>29</td>
</tr>
</tbody>
</table>

Notes:
1) Design event hydrographs obtained from MBK reflect Lower Feather River Floodplain Mapping Study (2005).
3) This Table taken from Yuba River Geomorphic Study (cbec 2013), see original study for details on how predicted retreats were determined.
45 year period (Exhibit 8, chec 2013). Downstream of Site C, two large utility transmission structures are present on the south bank tailings mound. Inspection of the 1993 and 1999 aerial images indicate that rip-rap was placed along the bank downstream of Site C, presumably to arrest lateral erosion and protect these structures. This modification and hardening of the bank has altered the local hydraulics and subsequently the rate and pattern of erosion in this bend. The top of cut bank of the tailings mound at Site C is easily identifiable in each of the aerial photos used in the historic GIS analysis allowing the total tailings mound retreat between photos to be accurately measured. Site C was included in the work-retreat regression analysis. Table 2 shows the predicted lateral retreat due to design events, historical events, and historical periods. Exhibit 9 (chec 2013) indicates the results of potential erosion over the next 10 years at Site C using a very robust historical 10-year period of record (1990-2000). This record is the most robust 10-year period during the last 60 years and includes an event close to the 100-year event. This is considered very conservative for evaluating potential erosion at these eroding sites and the actual erosion will most probably be smaller. Exhibit 9 indicates a possible retreat of 36 feet (see Table 2 [chec 2013]) over the next 10 years using a robust hydrologic cycle. Retreat is measured from the current embankment crest to the predicted embankment crest. As can be seen, there is potential for either overtopping or breaching at Site C. However existing interior tailings mounds located at some distance behind this site form a containing ridge and will prevent any overtopping or breaching flow from flowing through and exiting the Goldfields.

Site C Protection Feature. As explained above no special feature is required for flood containment at Site C. Interior tailings mounds behind this site prevent floodwaters from flowing through the Goldfields. A ridge exists behind Site C which will contain any flood waters which enter at this location. This ridge is shown on Figure 12 of the attached ENGEOTM; typical sections along this ridge are also shown on Figure 12. This site will be visually monitored every 5 years and after significant flood events to determine if erosion has significantly changed conditions at the site.

Sites D and E — Site D is located at the exit of the main drain of the Goldfields (Waterway 13) on the same outer bend as Site C. The invert of the Site D Waterway 13 outlet is below the 100 year water surface elevation which could allow high Yuba River flows to enter the Goldfields. Although the river bank has eroded somewhat at this site since 1964, fluvial erosion is not the mechanism that warrants the flood risk consideration. With the existing geometry of the Waterway 13 outlet, flood stages in the Yuba River could get high enough to allow water to flow back up the outlet drain and inundate portions of the Goldfields, increasing the chance for flood waters to enter the RD 784 levee protected area. Site D could present a serious flood threat in the event of a 100-year or larger flood through a direct hydraulic connection to Waterway 13 in the Goldfields. Therefore continued fluvial erosion (due to meander migration) does not significantly increase the threat at this site. Site E is another low elevation in the south bank tailings mounds and is located upstream of Site D. Like Site D the invert of Site E is below the 100 year water surface elevation and once served as the historic outlet for Waterway 13. Unlike the other sites below DPD, Site E is located at a point where the main channel is aligned with the opposite bank along the middle tailings embankment in the Yuba River. The river at this site has been aligned with the middle tailings embankment since 1964 and due to lateral meander migration the active river corridor is shifting away from Site E. While Site E could be
overtopped during a 100-year event, it does not represent a fluvial erosion problem. An aerial photo analysis at Site E has shown no evidence of tailings mound retreat in the period of record.

**Waterway 13** - The origin of Waterway 13 is uncertain. As a result of the high permeability of the Goldfield's dredge material, water from the Yuba River migrates into and through the Goldfields, into ponds and ravines throughout the undulating terrain. This high permeability causes water levels in the ponds and ravines to rise and fall according to the stage of the Yuba River. DPD causes a 15 foot increase in water elevation upstream of the dam even during low flows. As water from the Yuba River seeps into the Goldfields above DPD, it migrates down-gradient through the Yuba Goldfields in a southwest direction. This migrating seepage water collects in Pool 17, see Exhibit 10A. Pool 17 is a feature of the YCWA irrigation system. Water enters Pool 17 from the Yuba County Water Agency (YCWA) Diversion just upstream of DPD and through seepage from the Goldfields northeast of this pool. At the southern end of Pool 17 there is a road crossing (Hammon ton Crossing) which contains the water in Pool 17. This crossing is penetrated by 2-96 inch pipes and flow through the pipes is controlled by slide gates at the upstream end of the pipes (see Exhibit 11) which are operated by the YCWA. These pipes are also part of the YCWA irrigation conveyance facilities through the Goldfields. These gates are closed during the winter flood season and then opened in the spring when irrigation water is needed downstream. Elevations in Pool 17 are limited by a crossing at the east end of Waterway 13 just before Pool 17, Crossing E, Exhibit 10A. As seepage into Pool 17 increases during a large flood event and Pool 17 elevations rise, they will overtop and breach Crossing E, entering and flowing through Waterway 13, and return to the Yuba River at Sites D and E. Crossing E is meant to act as a relief valve for Pool 17 to limit elevations. This occurred during the 1997 Flood and the crossing was rebuilt in a way to allow the overtopping to occur in the future. Based on personal communication with the YCWA Irrigation Maintenance Manager, this crossing would be mechanically lowered if needed to ensure this overtopping and limit the elevations in Pool 17. Waterway 13 drains the seepage water out of the Upper Goldfields and returns it to the Yuba River through Sites D and E, which prevents high water levels from Pool 17 from escaping the Goldfields. As the Yuba River levels increase, the amount of flow in Waterway 13 increases and has reached quantities large enough to wash out road crossings constructed at the Site D outlet in the past.

Hammon ton Crossing at the south end of Pool 17 is structurally adequate (150 feet wide) and high enough (Elevation 130 Feet NAVD88), see cross section D-D Figures 13, 15, and 16 of the ENGEO TM, to constrain water surface elevations that would occur in Pool 17 from a 100-year Yuba River flood event. The 100-year tailings embankment template at Hammon ton Crossing can contain pool elevations up to 127 feet NAVD88.

**Sites D and E Protection Feature**. Both Sites D and E are low spots in the south bank tailings mounds of the Yuba River and could allow high river stages to flow into the Goldfields interior (see Exhibit 10B [MBK 2011]). The 100-year flood elevation at Site D is 109.5 feet NAVD88 and the 100-year river elevation at Site E is 115.7 feet NAVD88. These high river elevations are contained by an interior ridge of tailings that exist south of Waterway 13, see Figure 13 ENGEO TM. However as discussed earlier, these two site depressions serve as outlets for Waterway 13 during a large flood event and instead of water flowing into the Goldfields at these locations during a flood, upstream seepage water from the Goldfields exits the Goldfields at these two
sites. During a flood event, Waterway 13 has its own flow profile based on returning seepage flow. Flows in Waterway 13 are prevented from flowing out of the Goldfields by an interior ridge of tailings that exist south of Waterway 13. This containment line is shown on Figures 13, 15, and 16 of the attached ENGEIO TM. The containment line shown in the Technical Memorandum Figures 13, 15, and 16 continues to Pool 17 at the east end of Waterway 13 and then around the west side of Pool 17, over Hammondton Crossing, and terminates in high ground east of Pool 17.

The amount of flow in Waterway 13 during a flood event is difficult to estimate. The 1997 Yuba River flood flow of 161,000 cfs did not have any major flows leaving the Goldfields. There is no estimate of the flow in Waterway 13 during this event but it was contained. The 100-year Yuba River flood flow is 154,000 cfs. It would be reasonable to expect that 5% (7,700 cfs) to 7% (10,800 cfs) of this flow could enter the Goldfields as seepage and exit through Waterway 13. Profiles were developed along Waterway 13 for flows of 5,000 cfs and 10,000 cfs and compared to the containment ridge elevations south of Waterway 13. The ridge contains these profiles, see Figures 15 and 16 in the ENGEIO TM.

One low location in this ridge line was created in 2008 through the passage of a gold dredge to a new location in the Goldfields. This low spot is identified as Crossing 21 and is the most vulnerable location in this protective ridge. Crossing 21 was enlarged in 2011 by TR.LIA (see Exhibit 12). The 2011 modification was based on a water surface elevation of 113.5 feet NAVD88 with a freeboard of 5 feet. Based on the current understanding of the performance of Waterway 13 and the profiles developed, the water surface elevation should be 119.5 feet NAVD88 and with 3 feet of freeboard, the top of the crossing should be set at 122.5 feet NAVD88. The crossing will be modified again by raising the crown and flattening the landslide slope of the embankment to 5:1 as part of the construction of the Sites A and B flood protection feature embankment. This will be accomplished using similar embankment materials and methods as used to construct the Sites A and B flood protection embankment. As shown by the seepage and slope stability analysis for Crossing 21, the 5:1 landslide slope will ensure protection against through seepage and ensure stability.

Another section of concern is the Hammondton Crossing at the south end of Pool 17. This section has adequate freeboard to contain the flows expected in Waterway 17 and did so during the flood of 1997. The pipes installed in this crossing were not installed with flood protection as a design condition but did function adequately in 1997 and are in good shape currently. Seepage along the pipes is not evident and the inlets to these pipes is frequently submerged with no apparent problems. These pipes are expected to continue to adequately perform for a 100-Year flood Event for the next ten years.

With this ridge identified within the Goldfields and further modification of Crossing 21, flows in Waterway 13 during the 100-year flood are prevented from flowing south through the Goldfields and flooding the RD 784 service area. Figures 15 and 16 of the ENGEIO TM provide cross sections along the ridge and show ridge width and freeboard at profiles for 5,000 cfs and 10,000 cfs respectively.
Site F - The reach just below DPD is a persistent meandering pattern that includes three well-defined meander sequences with bends that cut into the tailings mounds on either side of the valley. Site F is the first meander bend along the south bank tailings mound just downstream of DPD. The meander bend at Site F has translated downstream somewhat but increased in amplitude significantly due to outer bend erosion since 1964. Throughout 1964-2009, Site F has been aligned against the south bank tailings mound and the meander bend at this site has been consistently increasing in amplitude. Site F is experiencing active erosion in response to increased shear stresses during high flow events along the outer bend. Exhibit 13 shows the historical retreat of the top of cut bank of the tailings mound from 1964 – 2009 and average retreat distances. From 1964 - 2009 the tailings mound at Site F has retreated ~146 feet on average and up to ~179 feet in select locations.

**Site F Protection Feature.** Site F is currently stable at the 100-year water surface elevation and contains high water flows in the Yuba River (see analysis and Figure 5 of the attached ENGEO TM). However it is eroding and predicted retreat (see Exhibit 14) could reduce the embankment size at Site F to an unstable condition which would be much more prone to breaching. The retreat shown on Exhibit 14 uses a very robust historical 10-year period of record (1990-2000). This record is the most robust 10-year period during the last 60 years and includes an event close to the 100-year event. This is considered very conservative for evaluating potential erosion at these eroding sites and the actual erosion will most probably be smaller. Exhibit 14 indicates a possible retreat of 42 feet (see Table 2 [ebec 2013]) over the next 10 years using a robust hydrologic cycle. Retreat is measured from the current embankment crest to the predicted embankment crest. Predicting the time it will take to erode to an unacceptable level is difficult because it is based on episodic flooding, but could be as soon as the next 10-15 years if a period of extreme flows were to occur. Should enough erosion occur to cause the Site F embankment to become unstable, a breach could occur and allow breach flows to follow a series of low topography pools and ravines and flood RD 784 (see Exhibit 15 [MBK 2011]). Exhibit 15 shows breach flows from site F flowing up Waterway 13 and entering Pond 17. At first glance it would seem that Pond 17 could flow south into and flood the RD 784 area as well. However, as explained in the protection feature for Sites D and E, the southern end of Pond 17 is constrained by a road crossing penetrated by pipes with slide gate control (see Exhibit 11). The 10-year hydrologic regime used for the prediction is a very robust series of events, so it is probable that the retreat will be much less than the prediction shown in Exhibit 14. It is impossible to predict future flood events, so the proposal at Site F is to monitor erosion at this site after each significant flood event to ensure that adequate embankment remains to contain flood flows in the Yuba River. TRLIA has established a monitoring transect at this location and surveyed baseline conditions in November 2013. This transect will be re-surveyed every 5 years and after any event which exceeds the 10-year flood event discharge of 93,000 cubic feet per second (cfs) at the Marysville Gage. If retreat of the crest of 20 feet or more is observed, then the embankment will be reevaluated and corrective actions will be initiated during the next construction season if necessary. Corrective actions could consist of enlarging the eroded embankment cross section or providing erosion protection at the toe of the eroding site. Even with a breach at Site F the high ridge within the Goldfields could contain the breached flows but with less certainty than the overtopped flows from Sites D and E.
Site G — Site G is the furthest upstream site below DPD and does not lie near the active river corridor. Site G was identified as a site of interest due to reduced thickness and potentially insufficient freeboard to contain a 100-year event. Also this site was identified as a breach site by the U.S. Army Corps of Engineers (USACE) in their evaluation of the Goldfields, even though there was no evaluation of breaching potential. The USACE did not identify the criteria that were the basis for selecting Site G as a potential breach location. Site G is far from the main channel and is sheltered from high velocities. Site G is located at the end of a dredge tailings mound and is within native ground. The tailings mound at this site has shown no evidence of systematic retreat and is not undergoing erosive forces at this time.

Site G Protection Feature. Additional evaluation of Site G concludes that adequate freeboard and embankment width exists at this site to contain the 100-year flood within the Yuba River (see Figure 14 of the attached ENGEOM TM). No erosion is occurring but this site will be visually monitored every 5 years and after significant flood events to be certain that erosion has not initiated at the site. See Exhibit 16 which shows that erosive velocities are well away from Site G. This site was exposed to near 100-year flood elevations in 1997 and no evidence of overtopping is evident. No additional features or efforts are necessary at Site G to ensure 100-year protection from the Goldfields.

Site H — Site H is the first site upstream of DPD and it lies along an outer bend of the river that is up against the south bank tailings mound. It was identified as a site of interest due to reduced thickness and to establish a monitoring point on the south bank tailings embankment upstream of DPD. The channel adjacent to this site has shifted position several times since 1964 and the geomorphic analysis showed no evidence of lateral tailings mound retreat between aerial photos. The river’s current alignment may produce erosion at Site H in the future, but no erosion has occurred at this site from recent past events.

Site H Protection Feature. Additional evaluation of Site H concludes that adequate freeboard and embankment width exists at this site to contain the 100-year flood within the Yuba River. Erosion is not currently occurring. This site will be visually monitored every 5 years and after significant flood events to qualitatively verify that erosion has not initiated at this site. Erosion would be indicated by new scarp development and/or the removal of trees at the waterside toe of the tailings mound embankment. No additional features or efforts are necessary at Site H to ensure 100-year flood protection from the Goldfields.

Site I — Site I is upstream of Site H above DPD and is just downstream of the confluence of Dry Creek with the Yuba River on the north bank. It was identified as a site of interest due to having relatively low freeboard compared to the surrounding dredge piles and to establish an additional monitoring point on the south bank tailings embankment upstream of DPD. Site I is located along the south bank tailings mound at a section where the river is aligned with the opposite bank. A historical aerial analysis showed that the channel alignment at this site has changed significantly since 1964. However, the geomorphic analysis of the top of cut bank at Site I showed very little lateral retreat over the period of photo record. Because the tailings mound at this site does not appear to be actively retreating due to erosional processes it has a very low potential for allowing flood flows to pass through the Goldfields.
Site I Protection Feature. Additional evaluation of Site I concludes that adequate freeboard and embankment width exists at this site to contain the 100-year flood within the Yuba River. Erosion is not currently occurring. This site will be visually monitored every 5 years and after significant flood events to qualitatively verify that erosion has not initiated at this site. Erosion would be indicated by new scarp development and/or the removal of trees at the waterside toe of the tailings mound embankment. No additional features or efforts are necessary at Site I to ensure 100-year flood protection from the Goldfields.

Site J – Site J is the farthest upstream site in the study reach. It was identified as a site of interest based on the erosion which is occurring at the site. Aerial photo analysis showed that Site J has always been located along the outside of a shallow meander bend on the south bank just downstream of a persistent riffle crest. Since 1964, a series of large floods have contributed to persistent erosion of the tailings mound along this outer bend. Exhibit 17 shows the history of top of cut bank alignments delineated from the aerial photographs as well as average retreat distances between photos. Between 1964 and 2009 some parts of the tailings mound upstream of Site J retreated up to 250 feet due to fluvial erosional processes. Between 1964 and 1984 an entire section of tailings mound appears to have washed out and the river's course was then constrained by the next pile of dredge tailings behind the 1964 berm, which is now the current source of lateral confinement.

Site J Protection Feature. Site J currently is stable at the 100-year water surface elevation and contains high water flows in the Yuba River (see analysis and Figure 7 of the attached ENGEO TM). It is however eroding and predicted retreat (see Exhibit 18) could reduce the embankment at Site J during the next 10 years. Should enough erosion occur to comprise this embankment, a breach could occur and breach flows would follow low topography ponds and ravines to exit into RD 784 (see Exhibit 19). The retreat shown in Exhibit 18 uses a very robust historical 10-year period of record (1990-2000). This record is the most robust 10-year period during the last 60 years and includes an event close to the 100-year event. This is considered very conservative for evaluating potential erosion at these eroding sites and the actual erosion will most probably be smaller. Exhibit 18 indicates a possible retreat of 79 feet (see Table 2 [check 2013]) over the next 10 years using a robust hydrologic cycle. Retreat is measured from the current embankment crest to the predicted embankment crest. It is impossible to predict future flood events, so the proposal at Site J is to monitor erosion at this site after each significant flood event to ensure that adequate embankment remains to contain flood flows in the Yuba River. TRLIA has established a monitoring transect at this location and surveyed baseline conditions in November 2013. This transect will be re-surveyed every 5 years and after any event which exceeds the 10-year flood event discharge of 93,000 cfs at the Marysville Gage. If crest retreat of 40 feet or more is observed, then the embankment will be reevaluated and corrective actions will be initiated during the next construction season if necessary. Corrective actions could consist of enlarging the eroded embankment cross section, providing erosion protection at the toe of the eroding site or raising a low saddle in a high ridge embankment behind Site J.

Tailing Mounds between Sites of Interest – Between the sites of interest discussed above there exist tailing mound embankments with sufficient freeboard and embankment width to contain the 100-year flood within the Yuba River. Erosion is not currently occurring along these embankments. The embankments will be monitored visually as part of a field inspection every 5
years and after significant flood events to be certain that erosion has not initiated at any location along these embankments. Erosion would be indicated by new scarp development and/or the removal of trees at the waterside toe of the tailings mound embankment. Additional explorations done in November 2013 and limited geotechnical evaluations with the new information verified the assumption of stability for these embankments. No additional features are necessary along these embankments to ensure 100-year flood protection from the Goldfields.

**Patrols During Flood Events** – The 100-year embankment will include a patrol road on the crest. During any significant flood event, patrols will occur along the top of the embankment and along the edge of the Goldfields and within the Goldfields to the extent possible. The RD 784 O&M Manual will be revised to include maintenance activities for the 100-year embankment as well as triggers for initiating flood patrols in the Goldfields. Should significant flows be observed exiting the Goldfields, appropriate actions will be initiated according to the existing RD 784 Flood Safety Plan.

**Additional Geotechnical Exploration and Evaluation** – The proposed 100-year flood protection consisting of a constructed embankment and existing tailing mounds has been evaluated by ENGEO from a geotechnical engineering perspective. The evaluation addressed slope stability, seepage, and settlement. To support the geotechnical evaluation, field explorations were conducted in November 2013 to verify the conditions in the Goldfields. The exploration program and results from the explorations as well as geotechnical evaluations of the Goldfields embankments are presented in the attached ENGEO TM.

**CONCLUSION** – The discussion above identifies where the Goldfields is vulnerable to the 100-year flood. The features identified for flood protection will serve to ensure that 100-year flood protection from the Goldfields is adequate for at least a ten year period and will meet the requirements of 44 Code of Federal Regulations (CFR) § 65.10 for 100-year protection. After ten years the sites of interest and embankment between the sites should be reevaluated before any conclusions are reached regarding 100-year protection for an additional period of time. TRLA continues to pursue a 200-year project which will permanently address both the 100-year and 200-year flood threat from the Goldfields.
REFERENCES

AECOM, 2014. Initial Study Yuba Goldfields 100-Year Flood Protection Project

cbec, inc., 2013. Preliminary Fluvial Geomorphic Assessment in Support of the 100-year Flood Risk Analysis of the Yuba Goldfields (Appendix E Goldfields Flood Protection Feasibility Study Initial Report [TRLIA 2013])


MBK Engineers, 2011. Three Rivers Levee Improvement Authority. Preliminary Analysis of the Yuba River South Training Wall (Appendix D Goldfields Flood Protection Feasibility Study Initial Report [TRLIA 2013])


Reclamation District 784, 2013. Flood Safety Plan

TRLIA 2013. Goldfields Flood Protection Feasibility Study Initial Report

EXHIBITS

Exhibit 1 – Tailings Mound Profile
Exhibit 2 – Erosion Site Location
Exhibit 3 – Sites A and B Breach Flow Path through the Goldfields
Exhibit 4 – 100-Year Embankment Alignment
Exhibit 5 – 100-Year Embankment Cross Section
Exhibit 6 – Historical Erosion Site B
Exhibit 7 – Predicted Retreat Site B
Exhibit 8 – Historical Erosion Site C
Exhibit 9 – Predicted Retreat Site C
Exhibit 10A – Pool 17
Exhibit 10B – Sites D and E Flow Path through the Goldfields
Exhibit 11 – Containment Crossing at the South End of Pond 17
Exhibit 12 – Crossing 21 Plan and Section
Exhibit 13 – Historical Erosion Site F
Exhibit 14 – Predicted Retreat Site F
Exhibit 15 – Site F Breach Flow Path through the Goldfields
Exhibit 16 – Site G Velocity Contours
Exhibit 17 – Historical Erosion Site J
Exhibit 18 – Predicted Retreat Site J
Exhibit 19 – Site J Breach Flow Path through the Goldfields

ATTACHMENT

Technical Memorandum, Yuba Goldfields 100-year Project Geotechnical Update, ENGEIO, April 18, 2014
South Bank Yuba River Tailings Mound Profile

- South Tailings Mound Thickness
- South Tailings Mound Freeboard
- Top of South Tailings Mound
- 100yr Existing Conditions WSE1

Thickness is the Width of the South Bank Tailings Mound at the 100yr WSE1.

EXHIBIT 1
Notes: Cross section shown is -200 ft downstream of the location indicated in Figure 4. Predicted line is based upon the averaged expected retreat resulting from the 1991 - 2001 water year flow hydrograph. Predicted x 1.5 gives an indication of maximum possible retreat along the segments calculated by 1.5 x average.
2009 Top of Cut Bank
2005 Top of Cut Bank
1999 Top of Cut Bank
1993 Top of Cut Bank
1984 Top of Cut Bank
1964 Top of Cut Bank

1964 - 1984 average retreat: 45 ft
1984 - 1993 average retreat: 16 ft
1993 - 1999 average retreat: 29 ft
1999 - 2005 average retreat: 16 ft
2005 - 2009 average retreat: 29 ft
1964 - 2009 total retreat: 135 ft
Notes: Cross section shown is ~50 ft upstream of the location indicated in Figure 4. Predicted line is based upon the averaged expected retreat resulting from the 1991–2001 water year flow hyetograph. Predicted x 1.5 gives an indication of maximum possible retreat along the segment calculated by 1.5 x average.
Containment Crossing at the South End of Poud 1

Upstream Pipes Entrance

Dowstream Pipes Exit

EXHIBIT 11
Notes: Cross section shown is ~400 ft upstream of the location indicated in Figure 4. Predicted line is based upon the averaged expected retreat resulting from the 1991–2001 water year flow hydrograph. Predicted +1.5 gives an indication of maximum possible retreat along the segment calculated by 1.5 x average.
2009 Top of Cut Bank
2005 Top of Cut Bank
1999 Top of Cut Bank
1993 Top of Cut Bank
1984 Top of Cut Bank
1984 Top of Cut Bank

1984 - 1984 average retreat: 72 ft
1984 - 1993 average retreat: 46 ft
1993 - 1999 average retreat: 79 ft
1999 - 2005 average retreat: 11 ft
2005 - 2009 average retreat: 17 ft
1964 - 2009 total retreat: 225 ft

Notes: Source NAP 2009

Yufo Goldfields Flood Risk Analysis - Preliminary Geomorphic Assessment
Site J Historical Top of Cut Bank and Historical Retreat
Project No. 11-1030
Created By: T.R.A.
EXHIBIT 17

C:\Work\Projects\11_1030_Yuba_Goldfields\Task 2.6_Reporting\Figures\Figure_BOSC_revisions\Figure 27_bosc.docx
9/17/2012
APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROachment PERMIT

Application No. ____________________________
(For Official Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.

Enlargement and reshaping of existing dredge tailings embankments in the Yuba Goldfields. The embankments will have a minimum 35 foot crest width with 3:1 waterside slopes and 5:1 landside slopes. The embankment will start at the eastern end of the Yuba South Levee and extend 2.1 miles into the Goldfields. One other similar enlargement will occur at Crossing 21. Approximately 200,000 CY of material will be used for enlargement.

2. Project

Location: 10 Miles northeast of Marysville in Yuba County, in Section 11 and 12

Township: 15 N

Range: 4 E

Latitude: 39° 09' 59.08" N

Longitude: 121° 28' 34.17" W

Stream: Yuba River

Levee: South Levee

Designated Floodway: Yuba

APN: 015150008000

3. Three Rivers Levee Improvement Authority

Name of Applicant / Land Owner

Marysville California 95901 530-749-7841

4. Larry Dacus

Name of Applicant’s Representative

Sacramento California 95825 (916) 437-7515

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of Three Rivers Levee Improvement Authority approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form  ☐ Conditions Attached  ☐ No Conditions

__________________________  ____________________________
Trustee  Date  Trustee  Date

__________________________  ____________________________
Trustee  Date  Trustee  Date
APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or on an attached sheet.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three Rivers Levee Improvement Authority</td>
<td>1114 Yuba Street, Suite 218, Marysville, CA</td>
<td>95901</td>
</tr>
<tr>
<td>Western Aggregates, Inc</td>
<td>PO Box 829, Marysville, CA</td>
<td>95901</td>
</tr>
<tr>
<td>Shintaifer Farms, Inc</td>
<td>PO Box 389, Marysville, CA</td>
<td>95901</td>
</tr>
<tr>
<td>Michele R. Barker</td>
<td>721 E. 22nd Street, Marysville, CA</td>
<td>95901</td>
</tr>
<tr>
<td>Triangle Properties Inc.</td>
<td>3500 American River Dr, Sacramento, CA</td>
<td>95864</td>
</tr>
<tr>
<td>Cal Sierra</td>
<td>4738 Hammonton Rd, Marysville, CA</td>
<td>95901</td>
</tr>
</tbody>
</table>

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? [ ] Yes [ ] No [ ] Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

Three Rivers Levee Improvement Authority
915 Eighth Street, Suite 115
Marysville, CA 95901-5273
SCH No. 2014022010

8. When is the project scheduled for construction? Fall 2015

9. Please check exhibits accompanying this application.

A. [ ] Regional and vicinity maps showing the location of the proposed work.

B. [ ] Drawings showing plan view(s) of the proposed work to include map scale.

C. [ ] Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain.

D. [ ] Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. [ ] A minimum of four photographs depicting the project site.

Include any additional information.

____________________________________  _________________
Signature of Applicant                Date

DWR 3615 (Rev. 10/11) Page 2 of 2
ENVIRONMENTAL ASSESSMENT QUESTIONNAIRE FOR APPLICATIONS
FOR CENTRAL VALLEY FLOOD PROTECTION BOARD ENCOACHMENT PERMITS

This environmental assessment questionnaire must be completed for all Central Valley Flood Protection Board applications. Please provide an explanation where requested. Incomplete answers may result in delays in processing permit applications. Failure to complete the questionnaire may result in rejection of the application.

1. Has an environmental assessment or initial study been made or is one being made by a local or State permitting agency in accordance with the California Environmental Quality Act? ☑ Yes ☐ No
   If yes, identify the Lead Agency, type of document prepared or which will be prepared, and the State Clearinghouse Number:
   A project IS/MND on the Yuba Goldfields 100-Year Flood Protection Project, March 2014, has been prepared on behalf of Three Rivers Levee Improvement Authority (TRLIA) in accordance with the requirements of CEQA and the State CEQA Guidelines. The State Clearinghouse # is 20140222010. The IS/MND was certified by the TRLIA Board on April 1, 2014 and a Notice of Determination was filed with the State Clearinghouse.

2. Will the project require certification, authorization or issuance of a permit by any local, State or federal environmental control agency?  ☑ Yes ☐ No
   List all other governmental permits or approvals necessary for this project or use, including U.S. Army Corps of Engineer’s 404 and Section 10 permits, State Water Quality Certification, Department of Fish and Game 1600 agreement, etc. Attach copies of all applicable permits.
   No 404 or 408 permit is required from USACE. Work will not occur along a river bank. No threatened or endangered species habitat will be impacted.

3. Give the name and address of the owner of the property on which the project or use is located. Please submit a copy of your current Title Report (Grant Deed), if your proposed project includes a private residence.
   The project will be constructed on lands owned by Western Aggregates, PO Box 829, Marysville, CA 95901.

4. Will the project or use require issuance of a variance or conditional use permit by a city or county?
   ☑ Yes ☐ No
   Explain:
   The project proposed is compatible with the existing land use at the project site.

5. Is the project or use currently operating under an existing use permit issued by a local agency?
   ☑ Yes ☐ No
   Explain:
   The proposed project does not require any use permits from local agencies for operation and maintenance.
ENVIRONMENTAL ASSESSMENT QUESTIONNAIRE FOR APPLICATIONS
FOR CENTRAL VALLEY FLOOD PROTECTION BOARD ENCOachment PERMITS

6. Describe all types of vegetation growing on the project site, including trees, brush, grass, etc. The project site is characterized by dregge tailing mounds and dregge ponds. Habitat types at the project site include riparian habitat, open water, and "developed" areas characterized by dregge tailings. The developed areas of the project site are sparsely vegetated because little soil substrate is available to support plant growth. Common annual ruderal species include wild oats, pigpug brome, yellow star thistle, and feld hedge parsley. Isolated upland trees, including grey and Ponderosa pine, and blue oak, occur in upland portions. Thin strips of riparian around dregge ponds include valley oak, Fremont cottonwood, box elder, edible fig, and willow. Understory includes tule, rushes, Himalayan blackberry, California grape, blue elderberry, poison oak, and coyote bush.

7. Describe what type of wildlife or fish may use the project site or adjoining areas for habitat, food source, nesting sites, source of water, etc. Wildlife species in the project vicinity include various birds, reptiles, amphibians; and mammals. Raptor species include Swainson's hawk, White-tailed Kite, northern harrier, American kestrel, and red-tailed hawk. Tricolored Blackbird could occur in the site. Mammals include raccoon, coyote, black-tailed jackrabbit, deer, and California ground squirrel. The project area is removed and separated from the Yuba River and there would be no impact on fish species. Valley Elderberry Longhorn Beetle and Pacific Pond Turtle could occur in the site.

8. Has the Department of Fish and Game, U.S. Fish and Wildlife Service, or National Marine Fisheries Service been consulted relative to the existence of, or impacts to, threatened or endangered species on or near the project site?
   - Yes
   - No
   Explain:
   Mitigation measures have been adopted that will eliminate impacts to threatened or endangered species, or fisheries. Consultation will occur as necessary to implement these mitigation measures.

9. Will the project or use significantly change present uses of the project area?
   - Yes
   - No
   Explain:
   The present use of the project area is aggregate production. The proposed project has been sited to minimize impacts to aggregate production in the future. TRLIA is negotiating with Western Aggregates to insure the minimization of these impacts.

10. Will the project result in changes to scenic views or existing recreational opportunities?
    - Yes
    - No
    Explain:
    The project will not have a substantial adverse effect on the scenic vistas afforded by the Goldfields. Residential properties exist to the south near the intersection of Brophy Road and Hammonton-Smartville Road. The closest residences are located approximately 2,500-3,100 feet from construction areas. Some residents could notice a change in the scenic view of the Goldfields caused by the movement of construction equipment to build the project. This change in the view would be temporary and limited to one construction season. The project site is not visible to public traveling on public roadways. Recreation does not occur in the area.

11. Will the project result in the discharge of silt or other materials into a body of water?
    - Yes
    - No
    Explain:
    Best management practices will be utilized to minimize any sediment from the project. Any sediment discharge would be into dregge ponds completely contained within the Goldfields.

3615a (Rev. 10/11)
12. Will the project involve the application, use, or disposal of hazardous materials? ☐ Yes ☐ No
   If yes, list the types of materials, proposed use, and disposal plan. Provide copies of all applicable hazardous material handling plans.
   Oil and diesel products will be used by construction equipment. The contractor will have in place an emergency spill plan to handle any accidental spill of these products while maintaining and refueling construction equipment.

13. Will construction activities or the completed project generate significant amounts of noise?
   ☐ Yes ☐ No
   Explain:
   Project-related construction noise level at the closest existing residential use, approximately 2,660 feet south of the construction area, was calculated to be 52 dBA Leq. This result represents the worst-case, conservative noise exposure because it does not consider noise attenuation associated with ground and atmospheric absorption. Therefore, actual construction noise levels could be substantially less. The project construction-related noise levels would not be expected to exceed Yuba County’s daytime limit of 60 dBA Leq at the closest residential use. Furthermore, project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction would not exceed the applicable nighttime threshold of 45 dBA Leq.

14. Will construction activities or the completed project generate significant amounts of dust, ash, smoke, fumes, or odors?
   ☐ Yes ☐ No
   Explain:
   Construction related dust will be controlled through the use of water trucks and limited velocities of construction equipment.

15. Will the project activities or uses involve the burning of brush, trees, or construction materials, etc?
   ☐ Yes ☐ No
   Explain, and identify safety and air pollution control measures:
   Construction activities would not involve burning of brush, trees, or construction materials.

16. Will the project affect existing agricultural uses or result in the loss of existing agricultural lands?
   ☐ Yes ☐ No
   Explain:
   Construction project area is not used for agriculture. Project is compatible with current land use. No loss of existing agricultural lands will occur due to this project.
17. Have any other projects similar to the proposed project been planned or completed in the same general area as the proposed project?

☐ Yes  ☐ No

Explain and identify any other similar projects.
The Yuba South Levee immediately west of the project area was improved by TRLIA through the construction of geometry corrections and a landside seepage berm in 2011 and 2012.

18. Will the project have the potential to encourage, facilitate, or allow additional or new growth or development?

☐ Yes  ☐ No

Explain:
The construction of this embankment has no impact on planned growth and development in Yuba County.

19. Will materials be excavated from the floodplain?

☐ Yes  ☐ No  If yes, please answer the remaining questions.

THE REMAINING QUESTIONS MUST ONLY BE ANSWERED IF THE ANSWER TO QUESTION NO. 19 WAS "YES". IF THE ANSWER TO QUESTION NO. 19 WAS "NO", YOU DO NOT NEED TO COMPLETE THE REMAINING QUESTIONS.

A. What is the volume of material to be excavated?
   Annually ___________________  Total ___________________

B. What types of materials will be excavated?

C. Will the project site include processing and stockpiling of material on site?

☐ Yes  ☐ No

Explain:

D. What method and equipment will be used to excavate material?
E. What is the water source for the project?

F. How will waste materials, wash water, debris, and sediment be disposed of?

G. What is the proposed end land use for the project site?

H. Has a reclamation plan been prepared for this site in accordance with the Surface Mining and Reclamation Act of 1975?
   □ Yes  □ No   If yes, please attach a copy.
Attachment A

Application to the Central Valley Flood Protection Board

Project Description

Application Item No. 1—Description of Proposed Work

Goldfields 100-Year Flood Protection Project

Three Rivers Levee Improvement Authority

April 2015
1 INTRODUCTION AND BACKGROUND

In April 2004, the Three Rivers Levee Improvement Authority (TRLIA) was established as a Joint Powers Authority by Yuba County and Reclamation District (RD) 784. TRLIA’s goal is to reduce the risk of flooding in South Yuba County through a group of projects designed to provide 200-year flood protection to the RD 784 Urban Basin by improving the State Plan of Flood Control (SPFC) Project Levees which protect the RD 784 urban area. Despite 10 year of partnership with the State and nearly $400 million in SPFC improvements, the SPFC currently operates in a diminished capacity due to being subject to flanking at its terminus at the Yuba Goldfields (Goldfields). The Goldfields encompass approximately 6,855 acres along the south side of the Yuba River near Daguerre Point Dam, approximately 10 miles northeast of Marysville (see Figure 1). The Goldfields were formed by dredging hydraulic mining debris from the Yuba River floodplain, which began in the early 1900s. The remnant mounds of sands, gravels, and cobbles were deposited along the active riverbank and interior floodplain, generating irregular gravel/cobble hills and an undulating terrain interspersed with ponds.

The RD 784 levee system is part of the SPFC which is also known as the Federal Sacramento River Flood Control Project (SRFCP). In a 1953 memorandum between the Federal Government and the State of California, the Yuba River south levee of the SRFCP was described as extending from the “Feather River to high ground” for an approximate distance of 7.2 miles. The high ground referred to in the memorandum is the Goldfields. The Goldfields has historically served the purpose of high ground. The Goldfields being considered high ground by the Federal, State, and local flood prevention community has been an essential completion facility of the SPFC in this region. Without assurance of flood protection from the Goldfields, the SPFC is incomplete at its terminus at high ground.

Research of the history of the determination of high ground indicates that the determination was made based on a SRFCP design flow of 120,000 cfs in the Yuba River. The flow was increased to 180,000 cfs in 1970 as part of the authorization for New Bullards Bar Dam. However, TRLIA was unable to locate documentation that the USACE or State reaffirmed that the Goldfields would function as high ground at this higher flow. Hydraulic and geomorphic evaluations performed in 2010-2013 by TRLIA have identified significant erosion points in the south bank tailings mounds of the Yuba River which will breach in the future and allow Yuba River flood flows to enter the Goldfields. In addition, mining activities consisting of aggregate extraction and dredging for gold, have significantly affected the landscape without an understanding of how these actions affect the flood risk in the area and have reduced the Goldfields’ ability to serve as high ground and prevent Yuba River flood flows from flanking the SPFC. If the Goldfields cannot contain Yuba River flood flows with certainty, then the SPFC is incomplete and residual flooding will occur in the RD 784 urban area for a 100-year event. TRLIA has developed a project which will improve the existing facilities of the SPFC by preventing flanking of the SPFC during a 100-year event. This is an interim project to provide flood protection while TRLIA completes a permanent separate 200-year Goldfields flood protection project. The 200-year project is not part of this application.
2 GOLDFIELDS INTERIM 100-YEAR FLOOD PROTECTION PROJECT

DESCRIPTION

The proposed project would involve constructing embankments at two locations in the Goldfields designed to intercept and block 100-year breach flows originating from the South Bank dredge tailings embankment along the Yuba River, holding them long enough to allow flood peaks to pass. The blocked flows would then return to the Yuba River or percolate into underlying groundwater aquifers. These embankments would provide 100-year protection until a permanent separate 200-year project was constructed that would also protect against the 100-year flood. The first embankment would extend continuously for approximately 2.1 miles following the alignment shown in Figure 2. The second embankment would be at Crossing 21 as shown in Figure 2. The embankments would be built in active mining areas that are regulated by the State Mining and Geology Board.

TRLIA will construct the embankments using the Goldfields’ existing dredge tailings. The embankments would have a minimum top width of 35 feet, a waterside slope of 3:1 (horizontal:vertical), and a landside slope of 5:1 (horizontal:vertical). The crown of the embankments would be located 3 feet above the elevation of the 100-year water surface elevation in the Goldfields (Figures 3 and 4).

Land rights in the Goldfields are very complicated and have been and continue to be litigated. Land is owned in fee by Federal agencies (USACE and the U.S. Bureau of Land Management [BLM]) and private entities (Western Aggregates and Teichert). Even if land is owned in fee by one entity, other entities may have rights for surface mining (Western Aggregates and Teichert) or precious metal (i.e., gold) extraction (Cal Sierra). Because these rights have been transferred through various acquisitions and the extent of the rights is the subject of ongoing litigation, vested rights in the Goldfields are not entirely clear. In addition, USACE holds easements over large tracts of private land. The purpose and conditions of USACE easements are not clear but USACE has used their easements to restrict mining near the tailings embankments along the Yuba River south bank.

The 100-year Flood Protection Project is located on mining property that is regulated by the State Mining and Geology Board. Western Aggregates holds vested rights for surface aggregate mining along the first embankment alignment. Cal-Sierra holds mineral vested rights along a portion of the first embankment alignment and over the second embankment alignment. Rather than obtaining fee or an easement for the 100-yr embankment footprint, TRLIA has (or will soon sign) signed Co-operation Agreements with Western Aggregates and Cal-Sierra. The Co-operation Agreements allow TRLIA to construct and maintain the 100-year embankments for the next 10-years (there are extension options within the Agreements). The Standard Encroachment Permit Special Condition that normally requires the permit holder to acquire an easement or fee under the embankment footprint would not be appropriate in this instance of the interim 100-year project.

Substantial portions of the proposed first embankment already exceed the embankment geometry required for the 100-year embankment. Approximately 200,000 cubic yards (CY) of fill material would be needed to construct the 100-year embankment geometry for the first embankment. See Exhibit C (Grading Plans). Approximately 10,000 cubic yards would be needed to construct the 100-year embankment geometry for the second embankment. The fill material would be taken
either from adjacent areas that exceed the required flood protection elevation for the 100-year embankment, or from portions of the surrounding embankment located outside of the 100-year embankment geometry. The areas requiring fill to achieve the 100-year embankment and the areas that would serve as fill sources are identified on the Goldfields 100-Year Project Grading Plans.

Where fill material is added to create the specified geometry requirements of the 100-year embankment, material will be sourced from nearby dredge tailings mounds. The fill will have similar properties to the existing dredge tailings embankments and therefore will not require stringent earthwork engineering controls. Fill material will be required to be primarily granular (based on USCS classification) and limited to a maximum particle size of 10 inches. Fill materials will be spread in maximum 18-inch thick lifts and compacted by the weight of the scrapers and dozers used for material movement and at least one pass of either a vibratory or other compaction roller so that the resulting mixture achieves the minimum strength requirements. Fill will be pushed into ponds and then tracked when the fill is above the water level. There are no Title 23 standards for use of dredge tailings material. The proposed standards in this paragraph will result in a stable embankment capable of holding back the design water surface elevations. Other flood protection embankments on the Feather River West Levee System, that are part of the SPFC, are being constructed with similar materials.

A 16 foot wide patrol road will be constructed on the crest of the embankment. Six (6) inches of aggregate base rock will be used to construct the patrol road. The embankment crown will be graded to allow travel along the crown of the embankment with maximum 10% grades. Western Aggregates owns the land under the embankment as well as lands on both sides of the embankment. Future aggregate mining activities will require that Western Aggregates have the ability to cross the embankment. This is easily done by constructing ramps up and over the embankment. These ramps will not harm the flood protection embankment or reduce its flood protection capability. One mining crossing is shown on Sheet G-10 of Exhibit D. Two other crossings of the embankment may be constructed by TRLIA for Western Aggregate (location to be identified later). The dredge tailings material is not conducive to vegetation growth and no attempt to plant erosion control grasses on the embankments would be made. The dredge material offers its own protection to rain erosion once the surface fines have been washed away. Gullying is not an issue in this material. The embankments would be constructed from dredge tailings at a minimum geometry and elevation to contain 100-year flood flows in the Yuba River.

TRLIA would be responsible for the regular operations and maintenance (O&M) activities, which would consist of inspections, weed abatement, and patrol road maintenance along the embankments. The patrol road that would be constructed on top of the embankment would be used to access the length of the embankment during these activities and during high-flow events for inspection and flood fighting purposes.

Inspections to verify the maintenance of embankment integrity, to remove any trash that may be dumped on the site, or to repair damage caused by vandalism along the embankment as a result of unauthorized access would be conducted periodically by one person driving the length of the embankment. To prevent potential weed establishment, herbicides would be applied occasionally along the patrol road in accordance with applicable rules and regulations. As stated previously, the dredge tailings material is not conducive to vegetation growth and herbicide application would be infrequent. Grading and replacement of patrol road aggregate would occur in areas along the embankment as needed. It is expected that periodic replacement of aggregate
would result in replacement of all of the aggregate along the entire patrol road once every 20 years.

In addition to these regular O&M activities, the embankments would be patrolled during high-flow periods, which would be expected to occur once every 10 years, to look for and address potential flooding issues. The entire length of the embankment would be traveled every 4 hours during a high-flow event, which would be expected to last 5 days on average.

3 PERMITS

The only state permit that is required for this project is the Central Valley Flood Protection Board Encroachment Permit.

No Federal permit or authorization is required for this project. This project does not impact any threatened or endangered species and the USACE has determined that the ponds and channels in the Goldfields are non-jurisdictional based on the following: 1) TRLIA’S flood risk reduction project that takes place within Western Aggregates’ area of vested mining rights (e.g., the Goldfields ponds and channels) are non-jurisdictional; and 2) With respect to a future TRLIA 200-year project, which could place a more permanent embankment through the Yuba Goldfields, USACE also confirmed that ponds and channels would likewise be non-jurisdictional even outside of the Western Aggregates area where another mining company has vested or permitted rights to mine and where USAGE has made a similar determination regarding ponds in those areas. See attached TRLIA letter to the USACE dated January 27, 2015.

4 HYDRAULIC IMPACT OF THE ENLARGED DREDGE TAILINGS EMBANKMENTS

The dredge tailings embankments that will be enlarged and reshaped are removed and separated from the Yuba River Floodway and modifications to these dredge tailings will have no impact on the Yuba River existing conveyance and water surface elevations.
Attachment B

Application to the Central Valley Flood Protection Board

Project Exhibits

Application Exhibit A—Map Showing Regional Location of the Proposed Work (Figure 1)
Application Exhibit A—Map Showing the Project Area (Figure 2)
Application Exhibit B—Map Showing a Plan View of the Project Site (Figure 2)
Application Exhibit C—Cross Sections of Proposed Embankments (Figures 3 and 4)
Application Exhibit D—Profile Elevations (90% Grading Plans, 18 Sheets)

Goldfields 100-Year Flood Protection Project

Three Rivers Levee
Improvement Authority

May 2015
Figure 1
Project Location and Vicinity

Source: TRUA 2013, adapted by AECOM in 2013
Figure 2
Yuba Goldfields 100-Year Flood Protection Project Area
Application Exhibit D

Profile Elevations (90% Grading Plans, 18 Sheets)
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### Construction Notes:

1. The alignment is defined from S800W to E1000E Line with a total project length of 1000 feet.
2. The project is divided into 500-foot sections for construction purposes.
3. The project is divided into 100-foot sections for construction purposes.
4. The project is divided into 50-foot sections for construction purposes.
5. The project is divided into 10-foot sections for construction purposes.
6. The project is divided into 1-foot sections for construction purposes.

### Preliminary - Not for Construction

**ENGEIO**

**CONSTRUCTION NOTES**

**YUBA COUNTY - 10 YEAR IMPROVEMENT**

**THREE RIVERS LIVESTOCK IMPROVEMENT AUTHORITY**

**YUBA COUNTY, CALIFORNIA**

**Sheet Number:**

**Plan Sheet G-2**
Attachment C

Application to the Central Valley Flood Protection Board

Photographs Depicting the Project Site
Application Exhibit E—Photographs depicting the project site

Goldfields 100-Year Flood Protection Project

Three Rivers Levee Improvement Authority

March 2015
OPERATIONS AND MAINTENANCE AUTHORITY

The Operations and Maintenance of the 100-yr Interim Flood Risk Reduction Project will be performed by TRLIA under the provisions specified in TRLIA Co-operation Agreements with Western Aggregate, and Cal-Sierra (Attachments 1 & 2).

EMBANKMENT MAINTENANCE

The embankment for the 100-Year Interim Project is constructed from dredge tailings at a minimum geometry and elevation to contain 100-year flood flows in the Yuba River. The embankment alignment and final grades are shown on the project as-built, Attachment 3. O&M Activities will maintain the as-built alignment and geometry. Regular operations and maintenance (O&M) activities would consist of inspections, weed abatement, and patrol road maintenance along the embankment. The patrol road constructed on top of the embankment will be used to access the length of the embankment during normal O&M activities and during high-flow events for patrol and flood fighting purposes. Any additional material needed for reestablishing the embankment geometry can come from the same borrow areas used to initially construct the embankment, see Attachment 3.

Inspections to verify embankment integrity, to remove any trash that may be dumped on the site, or to repair damage caused by vandalism along the embankment as a result of unauthorized access would be conducted approximately once a week by one person driving the length of the embankment. To prevent potential weed establishment, herbicides would be applied occasionally along the patrol road in accordance with applicable rules and regulations. Grading and replacement of patrol road aggregate would occur in areas along the embankment as needed. It is expected that periodic replacement of aggregate would result in replacement of all of the aggregate along the entire patrol road once every 10 years.

FLOOD PATROLS

In addition to these regular O&M activities, the embankment would be patroled during high-flow periods, which would be expected to occur once every 10 years, to look for and address potential flooding issues. The entire length of the embankments would be traveled once every 4 hours during a high-flow event, which would be expected to last 5 days on average.

Emergency contact numbers are shown on Attachment 4.

TRANSECT MONITORING

TRLIA established erosion monitoring transects at Site B, Site F, and Site J along the Yuba River South Bank Tailings Embankment and surveyed baseline conditions in November 2013. The locations of these transect monitoring sites is given on Attachment 5. These transects will
be re-surveyed every 5 years and after any event which exceeds the 10-year flood event discharge of 93,000 cubic feet per second (cfs) at the Marysville Gage. If retreat of the crest of 20 feet or more is observed at Site F or 40 feet or more at Site J, then the embankment will be reevaluated and corrective actions will be initiated during the next construction season if necessary. Corrective actions could consist of enlarging the eroded embankment cross section or providing erosion protection at the toe of the eroding site. Site B is monitored just to document any erosion. A breach at Site B is contained by an interior ridge of tailings mounds.

ACCESS TO THE EMBANKMENT

There is no public access to the 100-Year Interim Flood Risk Reduction Project embankments or monitoring areas. Access is limited to only authorized individuals that are directly involved in the operations, maintenance, and inspection of the embankments.

Access to the embankments and monitoring sites is limited and is shown on the attached map (Attachment 6).

FUNDING

Annual funding would be required to support O&M activities. The funding source has not yet been identified, but funding could come from one of several potential entities: RD 784, TRLIA, Yuba County, or YCWA. Future additional O&M funding would require expansion or formation of a maintenance assessment district, which would require approval in a Proposition 218 election by the population that would benefit from the flood risk reduction. The estimated annual O&M budget for the 100-Year Interim Project is $27,000.

Attachments:
1. Western Aggregates Co-Operation Agreement
2. Cal-Sierra Co-Operation Agreement
3. Embankment As-Builts Showing Alignment and Grades
4. Emergency Contacts
5. Transect Monitoring Locations
6. Embankment and Monitoring Access Locations
ATTACHMENT 1

WESTERN AGGREGATES CO-OPERATION AGREEMENT
ATTACHMENT 2

CAL-SIERRA CO-OPERATION AGREEMENT
ATTACHMENT 3

EMBANKMENT AS-BUILTS SHOWING ALIGNMENT AND GRADES
AS-BUILTS
SHOWING ALIGNMENT AND GRADE
ARE CURRENTLY THE SAME AS 90% CONSTRUCTION GRADING PLANS
AS SHOWN IN ATTACHMENT 2 OF THIS STAFF REPORT
AND ARE NOT REPEATED HERE
ATTACHMENT 4

EMERGENCY CONTACTS
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<td>Len Marino, Chief Engineer</td>
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<td>Paul Brunner, Executive Director</td>
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ATTACHMENT 5

TRANSECT MONITORING LOCATIONS
PURPOSE OF SURVEY: The purpose of this survey is to monitor the tidal influence of stream level designation.

METHOD OF SURVEY: Survey conducted 2-10-2011 using calibrated LaVision's Total Station. See control point for calibration details.

HORIZONTAL DATUM: The horizontal datum of this survey is the North American Datum of 1983 (NAD83), State Plane Coordinate System of 1983 (Zone 6, CSOS). See control point for details.

VERTICAL DATUM: The vertical datum of this survey is the North American Vertical Datum of 1988 (NAVD88).

BENCHMARK: NATIONAL GEODETIC SURVEY BENCHMARK J-26. Begins at metal survey marker on concrete at the intersection of the Mason Road and the Pond.

Legend:
- EWI: Edge of Water
- GS: Ground Shot (Spot Elevation)
- DB: Drain Break
- TO: Top of Slope
- TSW: Top of Slope

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Legend:
- EWI: Edge of Water
- GS: Ground Shot (Spot Elevation)
- DB: Drain Break
- TO: Top of Slope

Site: J
Goldfields Levee Monitoring Survey

County of Yuma
State of California

Date: 12/11/2011
Scale: 1" = 30'

Drawn by: D.J. Chock, P.E.
Certified by: P.E.
ATTACHMENT 6

EMBANKMENT AND MONITORING ACCESS LOCATIONS
May 19, 2015

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul Brunner, Executive Director
Larry Dacus, Design Manager

SUBJECT: Approve Amendment 17 to GEI Contract for Preparation of a Post-Earthquake Remediation Plan, Maintenance and Testing of Relief Wells, and Other Project Support Tasks for the Feather River Levee Repair Project

Recommended Action:
Approve Amendment 17 for $311,270 to the existing contract with GEI and authorize the executive director to sign and execute the contract amendment once General Counsel has reviewed and approved.

Discussion:
Since Amendment 14 was approved to the GEI contract in December 2012 additional items have developed that require this amendment to increase the scope and budget of the GEI Contract. Two additional Amendments to the contract have extended the contract termination date to first December 31, 2014, Amendment 15 executed January 21, 2014 and then to December 31, 2016, Amendment 16 executed February 17, 2015.

The additional work items are summarized below:

Develop Post-Earthquake Remediation Plan: Seismic evaluation of the Reclamation District (RD) 784 levee system has determined that certain reaches of the Feather River East Levee and Bear River Setback Levee could be subject to significant deformation during a seismic event. The Urban levee Design Criteria calls for this seismic evaluation and if issues are found, the preparation of a Post-Earthquake Remediation Plan. Amendment 17 provides scope and budget for this effort. The estimated cost for this task is $78,478.

Relief Well Development: As part of past remediation, many relief wells have become a part of the RD 784 levee system. These wells need to be inspected and tested every 5 years as described in the revised O&M Manual. RD 784 has been doing this testing. These tests have identified 6 wells which appear to need additional development or repair. The drought has created a bidding environment where well testing and development costs have become much higher than when the relief wells were first installed. TRLIA has agreed to provide maintenance assistance in further testing and developing of these problematic relief wells and providing some expert guidance in evaluating these additional tests. The estimated cost for this effort is $97,212.
Video-Inspection of RD 784 Pipelines: The Urban Levee Design Criteria require that levee pipe penetrations be video inspected or pressure tested every five years. The RD 784 O&M Manual also calls for this inspection. This was last done for the pipe penetrations in 2009 as part of the FEMA Certification for the RD 784 levee system. RD 784 has expressed difficulty in finding a company that can accomplish this task. This inspection needs to occur again so that TRLIA can certify the levee system for urban protection. TRLIA has decided to assist RD 784 in this maintenance task. GEI’s estimated cost for this effort is $69,044.

Project Support Tasks: As TRLIA transfers acquired property and improved levees to RD784 and the state, there are numerous support tasks that have to be done to meet commitments imposed by the CVFPB encroachment permits and by EIP Funding Agreement requirements for close out of the Agreements. In addition, TRLIA has land management tasks for the setback areas of the Bear and Feather Rivers as all documentation is completed for transfer of these areas. Examples of these tasks include:

- Support TRLIA in providing the Urban Level of Protection (UROP) Certification.
- Support to TRLIA for Feather River Setback Area land use issues, monitoring and reporting requirements, and land ownership transition.
- Support to TRLIA in complying with EIP funding requirements, including project reporting and closeout.
- Support to TRLIA in coordination with CVFPB, DWR, and Corps of Engineers.
- Historical design support for issues related to the Feather River East Levee
- Support TRLIA in assisting RD 784 with levee O&M matters
- Other miscellaneous support issues as requested

The estimated cost for these support efforts is $66,536.

Amendment 17, attached, is authorization to accomplish the efforts described above. It would increase GEI’s current contract by $311,270 for a total of $23,063,005. Greater detail on efforts and costs is described in Exhibit A of the attached Amendment 14.

Fiscal Impact:
The contract amendment would increase the existing contract by $311,270 for services on a time-and-expenses basis, to a maximum amount not exceeding a total contract of $23,063,005 for Engineering Services without prior authorization by TRLIA. The Post-Earthquake Remediation Plan and Project Support Tasks are covered by the Feather River EIP funding agreement. The Relief Well Additional Testing and Development and the Pipe Video Inspections are considered to be maintenance actions and will be covered using TRLIA Maintenance District Assessment Funds.

ATTACHMENTS
1. Amendment No. 17
2. Exhibit A to Amendment No. 17
AMENDMENT NO. 17

AGREEMENT FOR PROFESSIONAL SERVICES
FOR
PHASE 4 FEATHER RIVER LEVEE REPAIRS
BETWEEN
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY AND
BOOKMAN-EDMONSTON/GEI CONSULTANTS

THIS 17th AMENDMENT TO AGREEMENT is made effective by and between Three Rivers Levee Improvement Authority ("TRLIA") and Bookman-Edmonston/GEI Consultants, a division of GEI Consultants, Inc. ("Contractor"), who agree as follows:

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

1.1. Effective December 13, 2005, the parties entered into the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Levee project with a contract value of $1,439,400.

1.2. Effective April 25, 2006, the parties entered into Amendment No. 1 to the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Levee Repair design in the amount of $3,082,240 for a total contract value of $4,521,640.

1.3. Effective June 27, 2006, the parties entered into Amendment No. 2 to the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Levee Repair design in the amount of $32,700 for a total contract value of $4,554,340.

1.4. Effective October 30, 2006, the parties entered into Amendment No. 3 to the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Levee Repair design in the amount of $262,500 for a total contract value of $4,816,840.

1.5. Effective January 16, 2007, the parties entered into Amendment No. 4 to the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Levee Repair design in the amount of $115,000 for a total contract value of $4,931,840.

1.6. Effective April 3, 2007, the parties entered into Amendment No. 5 to the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Setback Levee design in the amount of $5,860,244 for a total contract value of $10,792,084.

1.7. Effective September 18, 2007, the parties entered into Amendment No. 6 to the Agreement for Professional Services relating to TRLIA's Phase 4 Feather River Setback Levee design in the amount of $1,963,660 for a total contract value of $12,755,744.
1.8. Effective April 15, 2008, the parties entered into Amendment No. 7 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $636,300 for a total contract value of $13,392,044.

1.9. Effective June 17, 2008, the parties entered into Amendment No. 8 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $5,671,000 for a total contract value of $19,063,044.

1.10. Effective September 8, 2008, the parties entered into Amendment No. 9 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $358,200 for a total contract value of $19,421,244.

1.11. Effective November 18, 2008, the parties entered into Amendment No. 10 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $536,764 for a total contract value of $19,958,008.

1.12. Effective July 9, 2009, the parties entered into Amendment No. 11 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $829,986 for a total contract value of $20,787,994.

1.13. Effective May 18, 2010, the parties entered into Amendment No. 12 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $860,948 for a total contract value of $21,648,942.

1.14. Effective May 17, 2011, the parties entered into Amendment No. 13 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $668,980 for a total contract value of $22,317,922 and to extend the contract termination date to December 31, 2013.

1.15. Effective December 18, 2012, the parties entered into Amendment No. 14 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Setback Levee design in the amount of $433,813 for a total contract value of $22,751,735.

1.16. Effective January 21, 2014, the parties entered into Amendment No. 15 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Levee Improvement Project to extend the contract termination date to December 31, 2014.

1.17. Effective February 17, 2015, the parties entered into Amendment No. 16 to the Agreement for Professional Services relating to TRLIA’s Phase 4 Feather River Levee Improvement Project to extend the contract termination date to December 31, 2016.

1.18. The parties now desire to amend the Professional Services Agreement to add additional tasks and increase the contract budget.
2. **Seventeenth 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 B-E/GEI, dated December 13, 2005) is amended to expand the scope of work as described by letter dated April 23, 2015 (Exhibit A) to address additional tasks for Urban Levee Certification and for complex maintenance actions as well as other potential additional/out of scope work items for the Feather River Levee Repair Project.

2.2. The payment, budget, and not-to-exceed amounts (Professional Services Agreement Attachment B) are amended by the attached Exhibit A to include the additional amount of $311,270 for a total contract of $23,063,005.

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

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY OF YUBA COUNTY

BOOKMAN-EDMONSTON, A DIVISION OF GEI CONSULTANTS, INC.

Paul G. Brunner
Executive Director

Stephen Verigin
Senior Vice President

ATTEST:
DONNA STOTTERMeyer
SECRETARY, THREE RIVERS

APPROVED AS TO FORM:
ANDREA P. CLARK
GENERAL COUNSEL, TRLIA

[Signature]

[Signature]
April 23, 2015
050115

Mr. Paul Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Re: Agreement for Professional Services on Three Rivers Levee Improvement Authority’s Phase 4 Feather River Levee Repair Project – Request for Amendment No. 17

Dear Mr. Brunner:

In follow up to recent conversations with Mr. Larry Daeus, TRLIA Design Manager, the purpose of this letter is to present scope of work and cost estimates for addressing additional work items for continued support for TRLIA’s levee repair program.

As TRLIA proceeds with the 200-year criteria determination and supports RD 784 with operation and maintenance activities, additional work items have been identified that TRLIA would like GEI to provide assistance with. The purpose of this Amendment No. 17 is to conform the project scope and budget to these current project requirements as they are now understood by the TRLIA team. The work items currently identified are described below. The cost estimates for these additional work items are included in Attachment 1. In summary, we estimate that a net budget increase of $311,270 is needed to complete the work items described below.

**Develop Post-Earthquake Remediation Plan**

GEI has been supporting TRLIA’s efforts toward making the determination that RD 784 meets the State 200-year Urban Levee Design Criteria (ULDC). As part of these efforts, GEI performed seismic vulnerability analyses of the Bear River Setback Levee, Feather River Levee Segments 1 and 3, and Feather River Setback Levee (Segment 2). These analyses indicate that portions of the levee segments noted above are potentially subject to large seismically induced deformations from 200-year-return-period ground motions. For those portions of levee that are potentially subject to large seismically induced deformations, ULDC requires that a post-earthquake remediation plan be developed as part of a flood safety plan in coordination with pertinent local, State, and federal agencies. TRLIA has requested that GEI prepare this plan for the segments of levee included in GEI’s evaluation. The proposed post-earthquake remediation plan (Plan) is described below:
• Provisions will be identified for integration into a local flood safety plan. These provisions will include:
  o Provisions specific to post-earthquake emergency preparations, mobilization, and repairs. This includes procedures for initial data gathering and immediate response actions. Follow-up procedures may also include provisions for interim and long-term repairs.
  o Provisions for public notifications.
  o Provisions for Plan coordination with pertinent local, State, and federal agencies.

• The portions of levees that were identified as potentially susceptible to seismic softening will be confirmed or updated using a more refined assessment of shear strengths. Based on the results to the refined seismic evaluation, an estimate will be performed to quantify the general magnitude of soil and other materials that would be required to restore a modest level of flood protection within 8 weeks to avoid prolonged exposure of the community during the flood season. A general set of repair procedures will also be developed for the interim remediation of cracked and slumped levee sections. These estimates and repair procedures will be coordinated with TRILIA and RD784. Specifically, the following information will be developed:
  o Develop an initial estimate of the amounts and locations of material needed to restore the levee system’s grade and dimensions (e.g., appropriate crown width – such as 20 feet along a major stream – and 3H:1V levee slopes) sufficient for protection against the 10-year flood, with 3 feet of freeboard.
  o Identify potential borrow areas and/or stockpiles that could provide the materials needed for interim repairs.
  o Identify potential haul routes for fill placement.
  o Provide general procedures for excavating and filling cracks, removing disturbed or slumped ground, and keying in new fill.
  o Identify the potential needs for and sources of slope protection for the newly placed fill.

• The Post-Earthquake Remediation Plan will present information described above, including:
  o Estimated locations and extents of seismically induced settlement and the degree of remedial response, within 8 weeks, sufficient to provide for protection against the 10-year flood, with 3 feet of freeboard.
  o Preliminary mapping of potential borrow areas and haul routes.
  o Current agencies contact criteria and procedures.
  o General provisions for initial post-earthquake mobilization, including: data gathering, immediate response actions, public notifications and agencies coordination.
  o General provisions and procedures for interim repairs.
  o General provisions for long-term repairs.
Key Assumptions:
- The Post-Earthquake Remediation Plan does not address other components of the ULDC-required general flood safety plan, including: a levee patrol element, a floodfight plan element, a floodwater removal element, and an evacuation plan.
- Preparation of the Post-Earthquake Remediation Plan is a paper study. No field explorations or laboratory analyses will be performed.

Deliverables:
- Draft and final Post-Earthquake Remediation Plan

Relief Well Development Support
Performance testing of relief wells by RD 784 is an ongoing effort, generally performed every five years in accordance with the United States Army Corps of Engineers (USACE) Engineering Manual for Design, Construction, and Maintenance of Relief Wells (EM 1110-2-1914). Performance testing by RD 784 in 2013 and 2014 indicated that six wells produced excessive sand and may require additional development. GEI evaluated the RD 784 performance testing reports and prepared a memo dated November 18, 2014 with recommendations for conducting additional development for the six identified wells. In discussions with TRLIA and RD 784, GEI was asked to perform this additional well development and testing, and provide recommendations for RD 784 future performance testing program.

Specifically, the well development program will include the following:
- Well RW-7-05: conduct redevelopment, pump development and performance testing.
- Wells RW-4-8A, 4-10A, and 4-13A: conduct additional pump development to clear the wells followed by performance testing.
- Wells RW-B09 and RW-B14: conduct additional redevelopment with monitoring and refilling of filter pack. If the wells do not stabilize, consider conducting a downhole video survey to verify the well screen is fully surrounded by the filter pack, and reevaluate the conditions based on the results of the tests and videos.

GEI has received quotations from several well drillers, and in coordination with RD 784 and TRLIA will subcontract with Cascade Drilling to perform the development and testing. All well development and testing will be supervised by a GEI geologist.

Key Assumptions:
- For budgeting purposes, we have assumed up to seven days of well development and testing.
- The budget is based on quotation received from Cascade Drilling.

Deliverables:
- Draft and final memo summarizing the well development and testing program

Video-Inspection of RD 784 Pipelines
Inspection of pipeline penetrations by RD 784 will be necessary for compliance with the Urban Levee Design Criteria (ULDC). Section 7.13.6 of the ULDC states that, at 5-year intervals, the interiors of all pipes and culvert penetrations need to be visually inspected.
and/or pressure tested. TRLIA has requested that GEI perform visual inspections of the interiors of pipeline penetrations (pump station discharge lines and box culvert drains) under the control of RD 784. Specific locations where the inspections will be performed are as follows:

- South Olivehurst Detention Basin Pump Station – Four 36" diameter steel cement mortar lined concrete pipes (each approximately 290 feet long) and one 8' wide by 5' high reinforced concrete box culvert (approximately 80 feet long).
- Pump Station No. 2 – Three 36" diameter HDPE pipes (each approximately 450 feet long) and one 7' wide by 5' high reinforced concrete box culvert (approximately 370 feet long).
- Pump Station No. 3 – Four 36" diameter HDPE pipes (each approximately 900 feet long).
- Pump Station No. 6 – Four 42" diameter HDPE pipes (each approximately 380 feet long) and one 8' wide by 6' high reinforced concrete box culvert (approximately 450 feet long).
- Pump Station No. 9 – One 36" diameter steel pipe approximately 255 feet long.
- Pump Station No. 10 – Two 36" diameter HDPE pipes approximately 320 feet long.

In addition, a level-of-effort has also been included for video inspection of the privately-owned pipelines listed below. These would only be inspected with the concurrence of the respective Owners and provided access is furnished for inspection:

- Plumas Mutual Pump Station – One 22" diameter and one 30" diameter HDPE pipe (each pipe approximately 270 feet long).
- Linda County WTP outfall – One 42" RCC / Cement mortar lined and coated steel pipe approximately 675 feet long.

The pipeline inspection surveys will include the following activities:

- Pre-survey coordination with RD 784 and pipeline Owner personnel including a coordination site visit to the eight pump station sites to confirm logistics for access to the pump station sites and pipeline facilities.

- Video inspection surveys will be performed using video camera equipment mounted to a remote operating vehicle for 21 pipeline penetrations at the pump station locations described above. The video inspection surveys will be performed using a high resolution color camera with rotating head, remote iris and light control mounted on a ROV. The ROV will have the capability to record relative travel distance along the pipeline for reference. Any noted deficiencies or other features of interest will be recorded on the video or separate record logs.

- Manned confined space entry and color video documentation will be performed at the three gravity box culvert locations associated with the pump stations. Defects or other features of interest in the box culvert structure will be recorded on the video or separate record logs.
• A memorandum will be prepared that presents findings of the inspections, including summary logs of the inspections with any noted defects or other features of interest. The memorandum will also indicate whether there are significant deficiencies observed in the pipelines that would need to be further evaluated or repaired to meet the requirements of the ULDC.

**Key Assumptions:**

• Pre-survey inspection coordination with RD 784, Plumas Mutual, and Linda County Water Treatment Plant representatives will be required. For budgetary purposes it is assumed that a one-day site visit will be performed.

• Pipelines and box culverts can be readily accessed from outfall entrances or valve vaults. RD 784, Plumas Mutual, and LCWTP will provide the personnel and equipment necessary to assist the video inspection subcontractor with access (e.g., lifting of flap gates, unlocking of and lifting of access hatches to gate vaults).

• Confined space entry permitting of the box culvert structures will be performed by the pipeline inspection subcontractor, Subtronic Corporation.

• Plumas Mutual Company and LCWTP will be able to temporarily place their pumps out of service for a minimum four hour duration, and allow access and standby assistance for GEI and RD 784 representatives.

• For budgeting purposes, we have assumed up to ten days of pipeline ROV video inspection and two days of manned video inspection of the box culvert structures.

• The budget assumes that the pipeline inspection will be scheduled concurrent with the planned construction of the Segment 1 berm so that the GEI construction inspector can also cover field coordination during pipeline inspection.

• The budget is based on quotation received from Subtronic Corporation.

**Deliverables:**

• Draft and final memorandum summarizing the video inspection surveys. A DVD of the video inspections will be included as an attachment to the final memorandum.

**Continued Project Management and O&M Support Through 2016**

TRLI A has requested GEI's continued project support in addressing as-needed project and O&M support. This support could include:

• Historical design support for issues related to the Feather River Levee and Bear River Setback levee
• Support to TRLIA for Feather River Setback Area land use issues
• Support TRLIA in assisting RD 784 with levee O&M matters
• Project management support
• Other miscellaneous support issues as requested

**Key Assumptions:**

• Miscellaneous project support through 2016
• 8 hours per month of miscellaneous project management support
• Allowance of 80 hours for as-needed O&M support
Deliverables:

- Monthly invoice and progress report.

As agreed to in previously agreed to, GEI has reduced the mark-up on subcontracts to 10%. The GEI fee schedule is included in Attachment 2.

The scope and budget adjustments contained herein represent our best estimate at this time to perform the activities discussed above. With this said, we strive to conduct our work as efficiently as possible. We will manage our efforts and strive to keep actual costs under the approved budget.

We are pleased with the opportunity to work with you and your staff during the final phase of this vitally important project. Please call me or Dan Wanket if you have any questions.

Sincerely,

GEI Consultants.

Alberto Pujol, P.E., G.E.
Project Manager

Attachments 1 and 2

C: Larry Dacus and Ric Reinhardt (TRLIA/MBK Engineers)
Steve Verigin and Dan Wanket (GEI Consultants)
Attachment 1

Cost Estimate Tables
<table>
<thead>
<tr>
<th>Work Item</th>
<th>GEI Costs (2008 rate Schedule)</th>
<th>Total</th>
<th>Comments/Assumptions</th>
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<tr>
<td>Develop Post-Earthquake Remediation Plan</td>
<td>448 76,478 2,000</td>
<td>78,478</td>
<td>see Table 2</td>
</tr>
<tr>
<td>Relief Well development</td>
<td>204 40,212 9,000</td>
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<td>66,536</td>
<td>see Table 2</td>
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</table>

Total Estimated Cost: $311,270

Notes:
1) Other Possible items not included at this time:
   - Preparation of design and construction support for replacement relief wells if needed
   - Remediation of penetrations if video inspection reveals any deficiencies
2) If TRLIA determines that these or other issues need to be addressed, GEI will prepare a scope and budget for subsequent contract amendment.
3) Environmental compliance if needed to be performed by others directly for TRLIA
4) Survey support if required to be provided by TRLIA
### Three Rivers Levee Improvement Project
#### Cost Estimate Detail for CG 17

<table>
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<tr>
<th>Item</th>
<th>CGT 225</th>
<th>CGT 222</th>
<th>CGT 224</th>
<th>CGT 190</th>
<th>CGT 117</th>
<th>CGT 147</th>
<th>CGT 126</th>
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<th>Arm SS</th>
<th>LOE</th>
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<th>Subcontract</th>
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<td>$6,350</td>
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<td>Membrane Preparation</td>
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<td>$33,440</td>
<td>total approximately 1-2 weeks per pipe line to review inspection, video and equipment installation and report written by Havelaar</td>
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<td>$60,576</td>
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<td>$98,576</td>
<td>$0</td>
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<td>$98,576</td>
<td>include 6 payments for 24 month</td>
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Attachment 2

GEI Fee Schedule
FEE SCHEDULE

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<th>Personnel Category</th>
<th>Hourly Billing Rate</th>
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<td>Senior Consultant – Grade 8</td>
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<td>Senior Consultant – Grade 9</td>
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</tr>
<tr>
<td>Senior Principal – Grade 10</td>
<td>$312</td>
</tr>
<tr>
<td>Senior CADD Drafter and Designer</td>
<td>$126</td>
</tr>
<tr>
<td>CADD Drafter / Designer and Senior Technician</td>
<td>$114</td>
</tr>
<tr>
<td>Technician, Word Processor, Administrative Staff</td>
<td>$94</td>
</tr>
<tr>
<td>Office Aide</td>
<td>$73</td>
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</tbody>
</table>

These rates are billed for both regular and overtime hours in all categories. Rates will increase up to 5% annually, at GEI’s option, for all contracts that extend beyond twelve (12) months after the date of the contract. Rates for Deposition and Testimony are increased 1.5 times.

OTHER PROJECT COSTS

Subconsultants, Subcontractors and Other Project Expenses - All costs for subconsultants, subcontractors, and other project expenses will be billed at cost plus a service charge. Examples of such expenses ordinarily charged to projects are subconsultants; subconsultants: chemical laboratory charges; rented or leased field and laboratory equipment; outside printing and reproduction; communications and mailing charges; reproduction expenses; shipping costs for samples and equipment; disposal of samples; rental vehicles; fees for travel on public carriers; special fees for insurance certificates, permits, licenses, etc.; fees for restoration of paving or land due to field exploration; etc., state sales and use taxes and state taxes on GEI fees.

Billing Rates for Specialised Technical Computer Programs – Computer usage for specialized technical programs will be billed at a flat rate of $10.00 per hour in addition to the labor required to operate the computer.

Field and Laboratory Equipment Billing Rates – GEI-owned field and laboratory equipment such as pumps, sampling equipment, monitoring equipment, field density equipment, portable gas chromatographs, etc. will be billed at a daily, weekly, or monthly rate, as needed for the project. Expendable supplies are billed at a unit rate.

Transportation and Subsistence - Automobile expenses for GEI or employee owned cars will be charged at the rate per mile set by the Internal Revenue Service for tax purposes plus tolls and parking charges or at a day rate negotiated for each project. When required for a project, four-wheel drive vehicles owned by GEI or the employees will be billed at a daily rate appropriate for those vehicles. Per diem living costs for personnel on assignment away from their home office will be negotiated for each project.

PAYMENT TERMS

Invoices will be submitted monthly or upon completion of a specified scope of service, as described in the accompanying contract (proposals, project, or agreement document that is signed and dated by GEI and CLIENT).

Payment is due upon receipt of the invoice. Interest will accrue at the rate of 1% of the invoice amount per month, for amounts that remain unpaid more than 30 days after the invoice date. All payments will be made by either check or electronic transfer to the address specified by GEI and will include reference to GEI’s invoice number.

Fee Schedule 2015
May 5, 2015

TO:  Paul Brunner, Executive Director
FROM:  Larry Dacus, Design Manager
SUBJECT:  Approve 3rd Contract Amendment with Restoration Resources for UYLIP Elderberry Shrub Transplants

Recommended Action
Approve a 3rd contract amendment with Restoration Resources for a budget increase of $2,995 for effort to repair fire damage that occurred on November 13, 2013.

Background
In July 2010, the TRLIA Board approved a contract award to Restoration Resources for the transplant of elderberry shrubs impacted by the construction of the Upper Yuba Levee Improvement Project. The TRLIA Board approved a maximum contract price of $184,340 even though the initial contract was only for $134,340. The contract has been amended two times since then, in May 2011 for $6,450 and November 2013 for $27,165.30 for a total contract price of $167,955.30, which is still under the initially approved contract amount. Amendment 2 also extended the contract termination date to December 31, 2016. On November 13, 2013 a fire occurred in the Anderson Mitigation Site which destroyed some of the installed irrigation facilities.

Discussion
A proposal was requested from Restoration Resources for repair of the fire damaged irrigation facilities. This proposal was for $2,995 and became the basis for Construction Change Order #5, attached. Since this amount was still below the approved contract amount and savings on other budget items covered this amount, Restoration Resources was directed to perform the irrigation repairs. The purpose of this amendment is to formally increase the Restoration Resources Contract by the amount of Construction Change Order #5. No other changes are proposed by this amendment.

Fiscal Impact
This amendment would increase the contract by $2,995 for services on a time and expenses basis, to a maximum amount not exceeding $170,950.30 ($167,955.30 previous contract amount + $2,995). This amount remains below the maximum amount authorized by the TRLIA Board on July 20, 2010. This work is part of the TRLIA EIP Upper Yuba funding agreement. The State cost share is 70%.

Attachments:
1. Restoration Resources Amendment 3
2. Restoration Resources Construction Change Order 5
AMENDMENT NO. 3

AGREEMENT FOR PROFESSIONAL SERVICES
FOR
ENVIRONMENTAL MITIGATION SERVICES
BETWEEN
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY AND
RESTORATION RESOURCES

THIS THIRD AMENDATORY AGREEMENT is made effective May 15, 2015, by and between Three Rivers Levee Improvement Authority ("TRLIA") and Restoration Resources ("the Consultant"), who agree as follows:

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

   1.1. Effective July 20, 2010 the parties entered into an Agreement for Professional Services relating to Environmental Mitigation Services for TRLIA's Construction Program for a total amount of $134,340.

   1.2. Effective May 24, 2011 the parties entered into the first Amendatory Agreement to increase the budget by $6,450 to a total of $140,790.

   1.3. Effective November 20, 2013 the parties entered into the second Amendatory Agreement to increase the budget by $27,165.30 for a total contract amount of $167,955.30 and to extend the termination date of the contract to December 31, 2016.

   1.4. Article C.24 of the AGREEMENT, states that modifications or amendments to the terms of the AGREEMENT shall be in writing and executed by both parties;

   1.5. TRLIA and the CONSULTANT desire to amend the AGREEMENT;

NOW, THEREFORE, TRLIA and the CONSULTANT agree as follows.

2. **Third 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 CTA.) is amended by the addition of effort to the original tasks described in Construction Change Order No. 5 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 Restoration Resources are amended to include the additional amount of $2,995.00 for a total contract amount of $170,950.30.

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

RESTORATION RESOURCES

Riley Swift
President

ATTEST:
DONNA STOTTOLEMEYER
CLERK OF THE BOARD OF DIRECTORS

APPROVED AS TO FORM:
ANDREA P. CLARK
GENERAL COUNSEL

[Signature]
December 10, 2013

Three Rivers Levee Improvement Authority
Paul Brunner
114 Yuha Street, Suite 218
Marysville, CA 95901

RE: UYLIP Elderberry Shrub Transplanting Project
Proposal - Fire inspection/report and Repairs

Dear Mr. Brunner:

At the direction of Larry Dacus, Restoration Resources is pleased to submit this proposal to repair/replace the irrigation and planting infrastructure damaged by the recent fire as described in our report dated December 3, 2013. The following tasks describe the proposed work:

Task #1 - Perform an onsite site inspection and assess the fire damage.

Task #2 - Replace damaged 2" irrigation mainline and hose bib assemblies to reestablish a functioning irrigation system. Replace damaged wood cage stakes that are no longer providing proper cage support.

Total Cost to Perform Work..................................................$2,995.00

Please note that this proposal does not include any replanting costs for fire related mortality. A complete census of survivorship of elderberry seedlings will be performed in the spring of 2014. A cost proposal for replanting (if any) will be generated and submitted to you after the spring census.

Please feel free to contact me if you have any questions. We look forward to the continued success of this project.

Sincerely,

[Signature]
Greg Martin
Project Manager
Paul Brunner  
Executive Director  
Three Rivers Levee Improvement Authority  
1114 Yuba Street, Suite 218  
Marysville, CA 95901  
Office (530) 749-7481  
Fax (530) 749-6990

RE: Notice of Hearing regarding Adoption of a Resolution of Necessity to Acquire Property by Eminent Domain.  
(California Code of Civil Procedure section 1245.235)

Assessor’s Parcel Number 020-440-017

April 8, 2015

Dear Paul:

This letter, sent via email and fax is to confirm the phone conversation regarding your approval of this letter to serve as a prompt Written Request for our Right to Appear and Be Heard.

We are in negotiations with Deryl L. Neal of Bender Rosenthal, Inc and should be close to a deal.

Thank You,

Max Hoseit