

Central Valley Flood Protection Board Meeting  
April 24, 2015

INFORMATIONAL BRIEFING

**Three Rivers Levee Improvement Agency's Levee Improvement Projects in the  
Goldfields**

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**BRIEFING SUMMARY**

**Background**

The Yuba Goldfields (Goldfields) is an area in Yuba County that is located approximately 10 miles northeast of Marysville along the south side of the Yuba River near Daguerre Point Dam (DPD). The Goldfields were created during the California Gold Rush when many of the first miners in the area panned for gold in the streambeds of the valley. Large scale industrial mining processes replaced solitary prospectors within a decade. Those mining companies blasted the hillsides with high pressure jets of water – hydraulic mining. After the miners extracted gold in long wooden sluices, they dumped the gravel (tailings) back into the mountain valleys where rivers and streams carried the flood of sediment down the river and deposited them in the valley. Beginning in the early 1900's large dredges would process these deposited floodplain sediments to remove the gold and leave behind large mounds of dredge tailings which created the Goldfields.

The Goldfields area encompasses approximately 6,855 acres. Dredge Tailings; consist of sands, gravels, and cobbles that were deposited by gold dredges along the active riverbank and interior floodplain, generating irregular gravel/cobble mounds and an undulating terrain interspersed with ponds. Most recently, the Goldfields have been used to produce aggregate and minerals (e.g. gold). Current operations in the Goldfields include gold dredging by Cal-Sierra Development, Inc. (Cal-Sierra), and aggregate production by Western Aggregates, Inc. and Teichert, Inc.

In the early 1900s, the California Debris Commission (CDC), an entity created by federal statute, contracted with the gold dredgers to construct embankments to channelize the Yuba River through the Goldfields along both sides (north and south) of the main channel to control the river's location. These embankments were built to channel the Yuba River through the Goldfields area, and keep the river from flowing into the Goldfields mining area and transporting sediment downstream impairing navigation. Mining companies built the embankments under the direction of the CDC. These historic embankments (sometimes referred to as training walls, consisted of dredge tailings deposited to substantial heights (estimated 10–20 feet of freeboard above the 100-year flood elevation), with varying top widths. The south bank training wall prevented Yuba River floodwaters from directly entering the Goldfields. No construction or as-built plans are available to document the final alignment or geometry for these embankments. The

U.S. Army Corps of Engineers (USACE) took over the responsibilities of the CDC in 1986, when the CDC was abolished by Congress in WRDA 1986. **USACE does not consider the historic CDC dredge tailing mounds to be flood protection facilities and does not actively monitor or maintain these structures.** Over the years the south embankment has eroded in several locations and has had limited maintenance.

Historically the Goldfields area has served as the “High Ground” Terminus of the Sacramento River Flood Control Project and State Plan of Flood Control. The Goldfields is described as High Ground in the 1953 Sacramento River Flood Control Project MOU between the Federal and State governments.

### **Current Status**

TRLIA was conceived in 2004 to improve the RD 784 levee system to achieve 200-yr flood protection with the belief that the Goldfields served as the upper end (high ground) of the needed improvements. Essentially, TRLIA has accomplished this original plan.

In 2009–2010, the USACE conducted a hydraulic analysis of the Goldfields area that led it to conclude that the Goldfields did not present a flood risk for the Yuba Basin during a 100-year storm event but that it did present a flood risk during a 200-year storm event by flanking the improvements TRLIA has made to the RD784 system. This USACE analysis was a coarse-level two-dimensional analysis of the Upper Yuba River conducted to conservatively estimate flood damages and costs for USACE’s Yuba Basin General Reevaluation Report. USACE also concluded that there was not a federal interest in an engineered solution to extend existing flood protection; specifically constructing a new levee south of the Goldfields area.

In 2010 TRLIA modified its original flood prevention plans and began work to solve the concerns raised by the USACE analysis. To better define residual flood risk associated with the Goldfields, TRLIA refined and expanded USACE’s hydraulic analysis to include the most recent topographic information available for the Goldfields. TRLIA also developed a comprehensive two-dimensional hydraulic model to simulate how surface water would flow through the complex Goldfields area and into the RD 784 protected area if the south bank tailings mound of the Yuba River were to breach (MBK 2011). In addition, TRLIA evaluated the south bank tailings mound to examine how this feature has performed during past flood events and determine its reliability to safely pass a 100-year flood event.

Contrary to USACE’s earlier findings, the TRLIA analysis identified a risk of flooding from the Goldfields for floods more frequent than the 100-year flood (MBK 2011). The results of the TRLIA analysis indicate that the Yuba River is attempting to meander south at several locations and is actively eroding the south bank tailings mound in several locations. Specific locations at which the Yuba River directly attacks the south bank tailings mounds were identified. The analysis also showed that landform changes within the Goldfields created through gold dredge mining operations have affected flow paths within the Goldfields and made it easier for floodwaters to flow through the Goldfields and

exit into the RD 784 and the urban areas of South Yuba County. As a result, areas that were thought to have 100-year and 200-year protection are still at risk.

Based on these findings TRLIA in 2011 worked with the mining companies and constructed plugs at three critical locations within the Goldfields as an interim step to reduce the risk of flooding.

In 2012 TRLIA obtained a \$2M State/DWR Proposition 13 Grant to Conduct a Feasibility Study to Identify an Interim 100-Year Flood Protection Project (FEMA) and a Sustainable 200-Year Flood Protection Project (SB 5) for the Goldfields area.

Based on the results of the work to date and the cost of a permanent 200-year project, TRLIA is moving forward with two separate projects. The first is for 100-year protection in order to immediately reduce flood risk and to ensure the current FEMA accreditation for the RD784 is maintained. The second project is for 200-year protection in order to achieve SB5 requirements and address the long term flood risk associated with the Goldfields.

The 100-year project consists of a 2.1 Mile long embankment in the southwest corner of the Goldfields and a slight enlargement of one of the plugs done in 2011.

- The embankments will be constructed from surrounding dredge tailings with 35 foot crest width, 3:1 waterside slopes and 5:1 landside slopes
- Negotiating Co-operative Agreements with Western Aggregates and Cal Sierra for Installation and Maintenance of the Embankment
- Preparing Application for CVFPB Encroachment Permit
- No Federal authorization or permits are needed for the 100 year project
- Construction will be Funded with Local Funds
- Begin Construction in Fall 2015
- TRLIA will be the maintaining agency
- IS/MND Adopted by TRLIA Board on April 1, 2014
  - Amendment underway for enlargement of the plug constructed in 2011

The 200-year project will be selected from one of four alternatives that are currently being evaluated in the 200-year feasibility and Draft Environmental Impact Report. Three of the alternatives are embankments within the Goldfields and the fourth alternative is a levee just south of the Goldfields.

DWR has indicated that the levee south of the Goldfields is their preferred solution; however, this solution is the most expensive (\$42 million vs. approximately \$10 to \$12 million). Without state cost sharing it would be difficult for TRLIA to implement this alternative.

TRLIA has submitted an UFRR application to accomplish the \$42 million levee south of the Goldfields. DWR is currently considering the application. DWR has indicated that for prop 1E to be used for construction of the levee it must be part of the State Plan of Flood

Control. Thus, as part of a TRLIA UFRR funding agreement, TRLIA will be requesting the new levee be incorporated into the State Plan of Flood Control.

**Next CVFPB Steps**

- CVFPB review and issue encroachment permit for TRLIA 100-year project
- CVFPB support the addition of the new 200-year Goldfields levee into the State Plan of Flood Control and DWR approving the TRLIA UFRR application.
- Recommend: CVFPB establish a sub-committee that defines the process to add projects to the State Plan of Flood Control
- CVFPB approve the addition of the new 200-year Goldfields levee into the State Plan of Flood Control.
- CVFPB issue encroachment permit for TRLIA 200-year project