

Consideration to Award a Construction Contract to K.W. Emerson for the Flume 44 Replacement Project

August 27, 2018

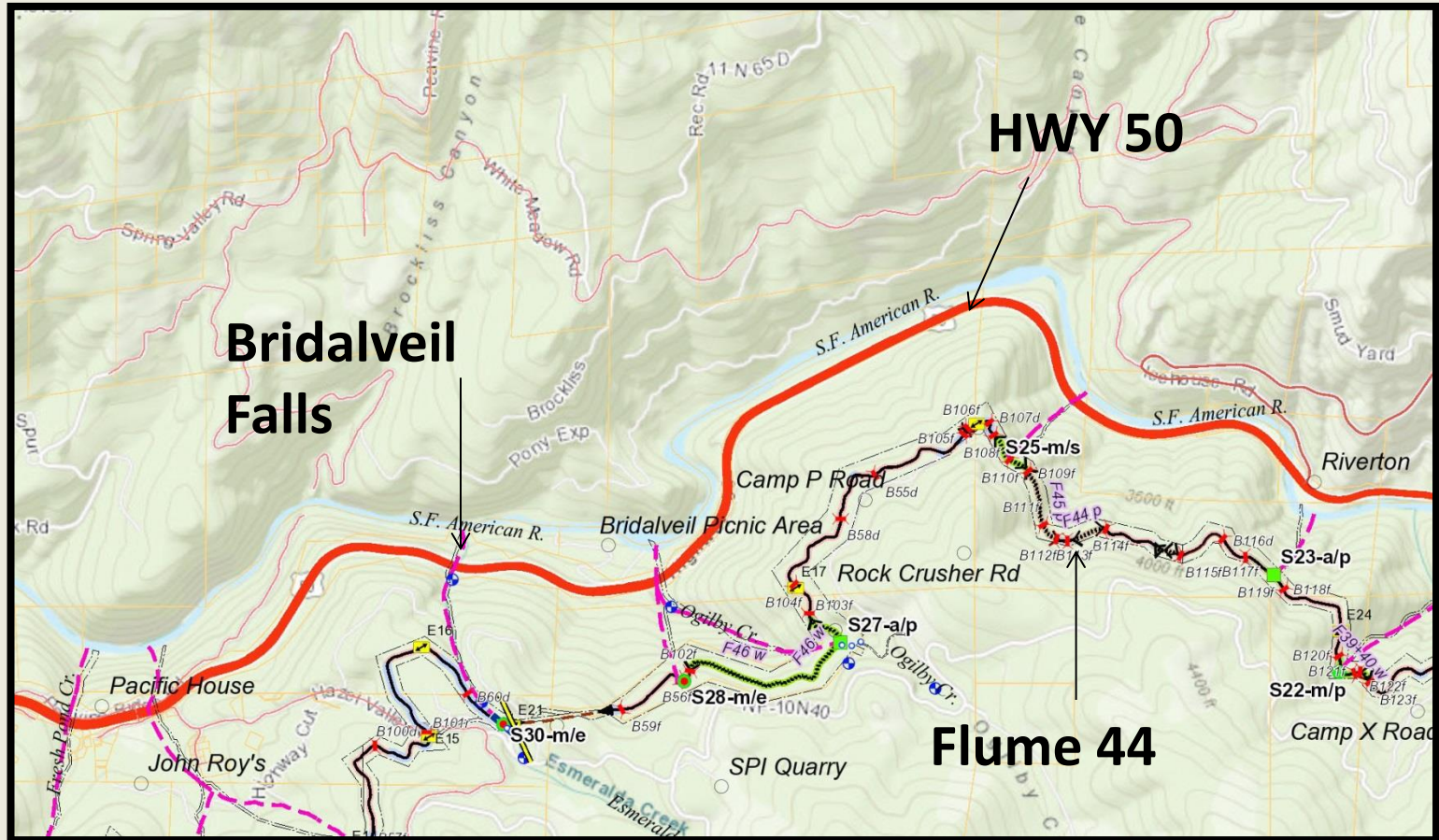
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Senior Civil Engineer**



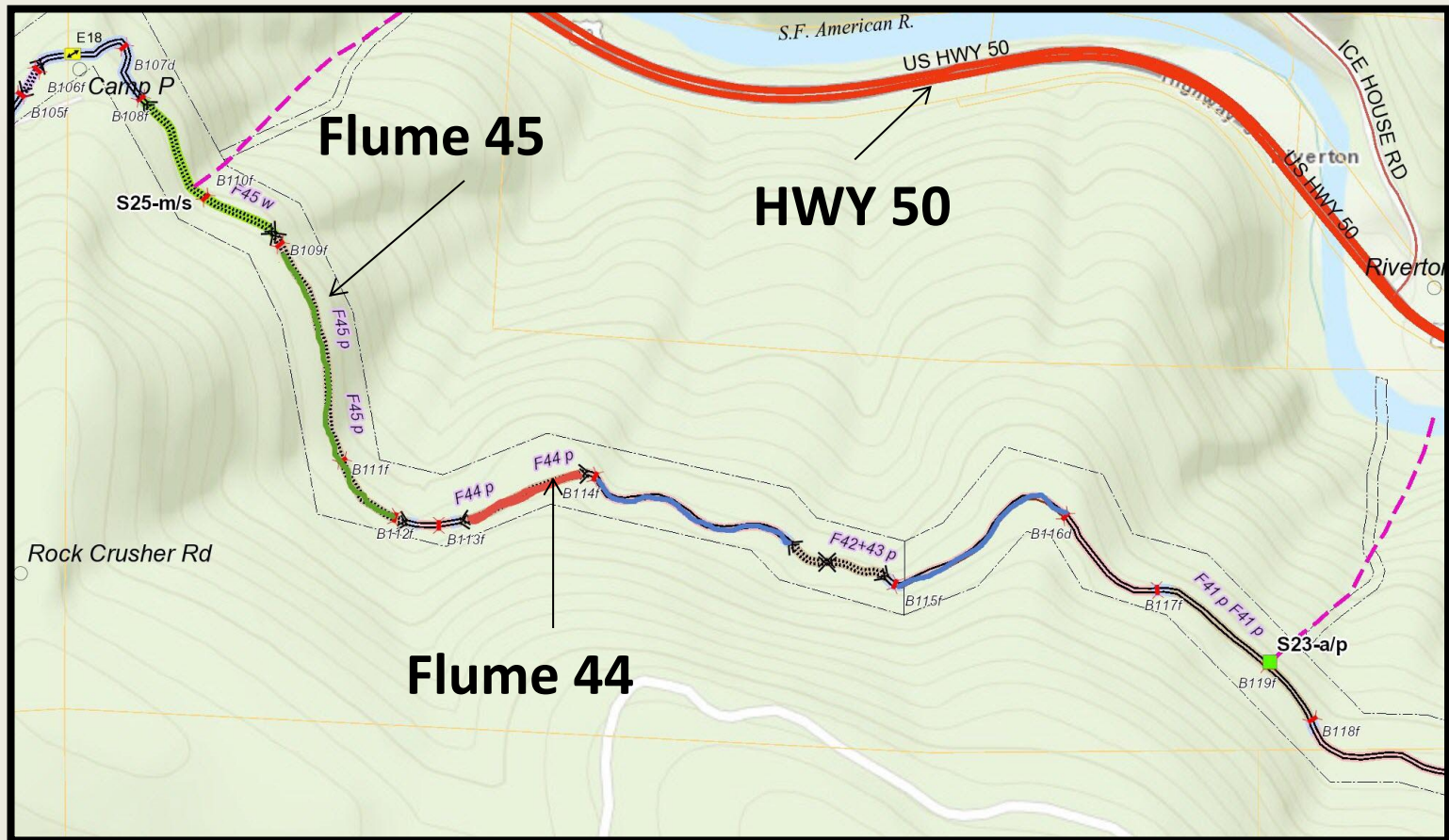
Previous Board Actions

- August 24, 2015 – The Board approved a design services contract to GHD.
- August 28, 2017 – The Board approved contract amendment to GHD design services contract.
- November 13, 2017 – The Board adopted the 2018-2022 CIP, which included this project subject to funding availability.
- June 11, 2018 – The Board adopted the proposed Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for the Project.

Project Site



Project Site



Summary of Issues

- Flume 44 is a 476 foot long flume that was last replaced in 1948
- Traverses a 34 foot deep active landslide
- Flume 44 was re-lined with plywood in 1997 and 2002
- Additional repairs were made in 2014 to allow for continued operation until replacement could be done

Canal Issues



Flume 44 Issues



Flume 44 Issues



Flume 44 Issues



Flume 44 Issues



Flume 44 Issues



Flume 44 Issues



Scope of Work

- Replace 1800 feet of half lined canal with U-shaped canal
- Replace 478 foot long Flume 44 with MSE wall and U-shaped canal
- Minor scaling and slope stabilization above Flume 44
- Replace Rock Crusher Road Bridge with box culvert

Phase 1 Construction



Phase 1 Construction



Phase 1 Construction



Phase 1 Construction



Phase 1 Construction



Phase 1 Construction



Phase 2 Construction



Phase 2 Construction



Phase 2 Construction



Challenges for Construction

- Location of Flume 44
- Access to work site
- One lane traffic for majority of project site
- Two phase/two year construction
- October 1 to mid-December construction season
- Highway 50 is located right below the construction site

Proposals

Construction Firm	Fee Proposal
K.W. Emerson	\$11,986,905
Syblon Reid Construction	\$15,595,800
Engineer's Estimate	\$7,768,000
CIP Budget	\$8,900,000

Reasons for High Costs

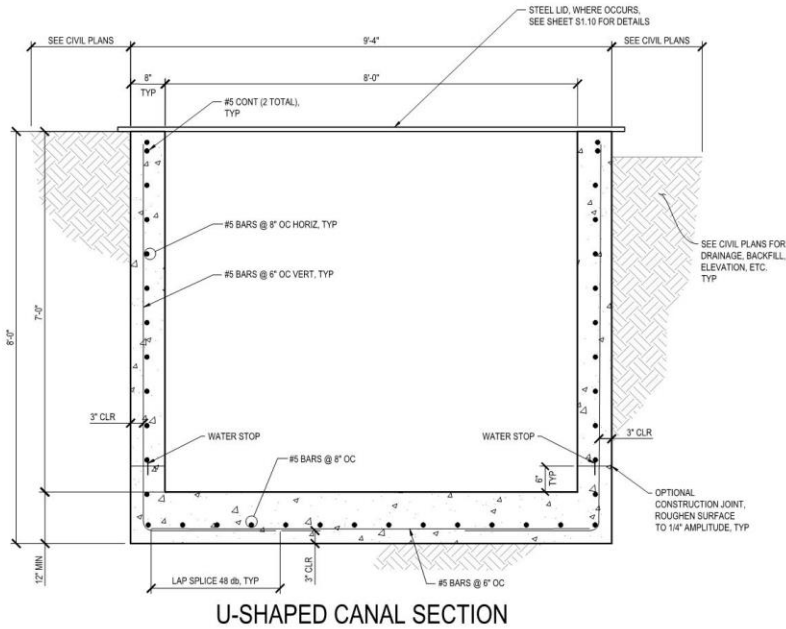
- Construction costs are up due to tariffs and high demand for materials and labor
- Eleven week construction schedule with 24/7 operations
- One way traffic for the majority of the project

Evolution of Design

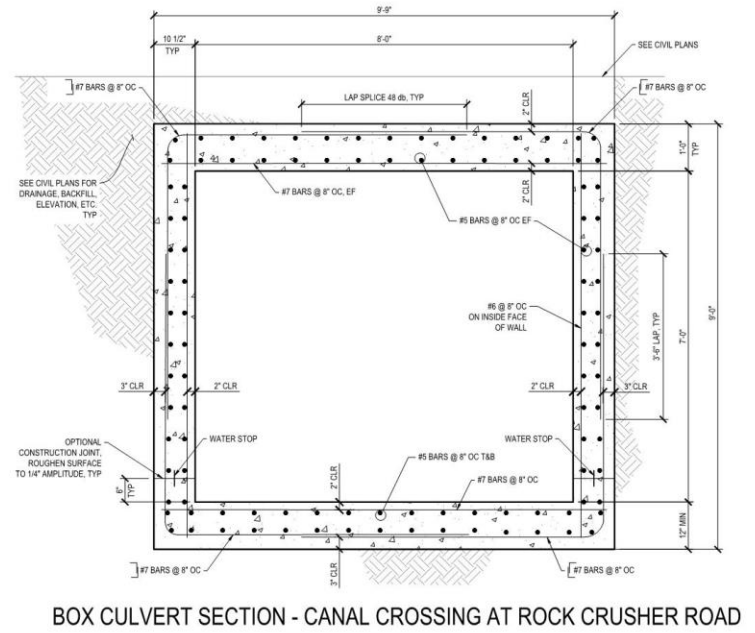
Flume 44 Design	Estimate
Extensive scaling, MSE wall along majority of the canal and trapezoidal cross section (2016)	\$9,000,000
Box culverts, MSE wall reduction, with light scaling (2017)	\$9,300,000
U-shaped canal with light scaling and MSE wall reduction (2018)	\$7,768,000

Design Alternative

U-Shaped Canal



Box Culvert



Consequences of Failure

- Highway 50 is 1500 feet away and 600 foot below the flume
- Nearest canal spillway is a little more than a half mile away
- Six months to reconstruct Flume 44 in the event of failure
- Canal provides a significant amount of the District's drinking water supply

Environmental Permits

- Initial Study – Mitigated Negative Declaration
- California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement pursuant to Section 1601 of the California Fish and Game Code – No permit issued, project may be completed without permit.
- Regional Water Quality Control Board (RWQCB) Water Quality Certification pursuant to Section 401 of the Clean Water Act – Needed for Phase 2 and has been issued.
- U.S. Army Corps of Engineers (USACE) Nationwide Permit pursuant to Section 404 of the Clean Water Act – Needed for Phase 2 of the project and is expected soon.

Cost Breakdown

Flume 44 Replacement Funding Requirements

	Amount
K.W. Emerson – Construction	\$11,986,905
GHD, Inc. (Inspection, meetings and construction services)	\$618,493
Environmental Support (preconstruction surveys and monitoring)	\$25,000
Capitalized Labor – Engineering, environmental staff support and inspections	\$530,200
TOTAL	\$13,160,598

Funding from the 2016 Bond issuance.

- \$20 million spent as of June 2018

Board Decision/Options

- **Option 1:** Award a contract to K.W. Emerson in the not-to-exceed amount of \$11,986,905 for construction; award a single source professional services contract to GHD in the not-to-exceed amount of \$618,493 for inspection and construction engineering services; and authorize total funding of \$13,160,598; Project No. 14024.
- **Option 2:** Take other action as directed by the Board.
- **Option 3:** Take no action.

Staff and General Manager Recommendation

- **Option 1**

Questions?