

**Copper Valley
Electric Association**



**Allison Creek Hydroelectric
Project
FERC Project No. P-13124**

Tailrace Cofferdam Plan

Prepared For: Copper Valley Electric
Association

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TAILRACE COFFERDAM PLAN

Introduction

On February 7, 2014, the Alaska Department of Fish and Game (ADF&G) issued to Copper Valley Electric Association, Inc. (CVEA) a Fish Habitat Permit FH 14-II-0005 to construct a hydroelectric project at Allison Creek (Stream No. 221-60-11350). Permit conditions require that prior to construction of the tailrace cofferdam, CVEA shall submit to ADF&G a final cofferdam plan and sediment control for approval to the Division of Habitat, and provide notification of the start of tailrace construction.

This Tailrace Cofferdam Plan describes CVEA's design, construction methods, and schedule for construction of the cofferdam at the tailrace. Figure 1 shows a drawing of the final tailrace cofferdam design. Figures 2 and 3 are photos of the location on 6/20/2014 with a red line indicating the approximate cofferdam placement and blue arrows showing thalweg. A cofferdam plan for the diversion structure work will be provided for review and approval separately.

Project Description

The project will consist of a 16-foot high concrete diversion structure spanning Allison Creek about 2,350 feet downstream of the outlet of Allison Lake. A 7,000 foot long penstock will extend from the structure to the powerhouse located downstream. Approximately 2 miles downstream from Allison Lake, the concrete tailrace channel will extend from the powerhouse to Allison Creek returning water used to generate power back into the creek. The tailrace channel outfall will be constructed above the ordinary high water mark of the creek and a bar grate barrier with 1-inch bar spacing will be installed across the channel to prevent fish from swimming up the tailrace channel to the turbine. During construction of the tailrace channel, the work area will be isolated using a cofferdam constructed of 1 cubic yard super sacks.

Tailrace Cofferdam Design

During construction of the powerhouse tailrace channel, a temporary cofferdam will be installed around the work area in Allison Creek to exclude construction activities from the flowing stream where fish may be present (Figure 1). The cofferdam will consist of at least two layers of 1 cubic yard super sacks. The bottom super sack will be partially filled (approximately half full); allowing the sack to conform to the rocky creek bottom and blocking water from running under the sacks. A full sack will be placed atop the partially filled sack, making the total cofferdam height approximately 4.5 feet. Sand bags may be placed at the super sacks joints and edges to control water. Plastic sheeting will be placed on the water side of the super sacks and anchored at the base with sand bags. Each sand bag and super sack will be filled with clean gravel and/or sand void of organic material from an existing borrow pit on the lower access road (see Figure 4). The cofferdam will be constructed at a minimum height of three feet and will be approximately 75 feet in total length.

In the case of an extremely high, unusual flood event, the area protected by the cofferdam will be intentionally flooded in a controlled manner prior to overtopping. This will retain the cofferdam structure and avoid the super sacks from tipping over and releasing sediment. At the end of the flood event, any fish will be salvaged and the water behind the cofferdam will be pumped to the neighboring vegetative buffer.

Temporary Fish Exclusion

Fish salvage will be performed using dipnets to remove any fish present inside the cofferdam. A trained biologist will perform the fish salvage to reduce the potential for injury to fish. In accordance with ADF&G Fish Resource Permit SF2014-087 (issued 2/24/2014, amended 6/9/2014) all fish salvaged will be placed back into the flowing stream adjacent to the work area. In the event of high water overtopping the cofferdam, fish recovery will be required before work can resume behind the cofferdam.

Dewatering

After the work area inside of the cofferdam has been isolated and fish removed, if necessary any excess water will be dewatered through mechanical means into Allison Creek and construction will commence. Although the cofferdam location will be mostly in shallow water and dewatering is not expected to be necessary, a 2-inch water pump will be available to remove any necessary water from behind the cofferdam. This water will be pumped to a neighboring vegetative buffer zone to minimize impacts on Allison Creek.

Schedule

It will take approximately one day to install the cofferdam and is scheduled to occur no later than July 15, 2014. Excavation of the tailrace will commence as soon as the cofferdam is installed and will continue until late summer/fall 2014. The cofferdam will be removed once adult salmon are no longer present in the tailrace area no sooner than September 30, 2014 and prior to winter shutdown.

Coordination and Documentation

Provision of this plan and schedule constitutes notification of the installation of the tailrace cofferdam. A diversion cofferdam plan will be provided for approval separately and in accordance with the notification requirements of Fish Habitat Permit FH 14-II-0005.

The Environmental Compliance Monitor (ECM) will be present for the tailrace cofferdam installation, fish salvage, and dewatering activities. Documentation of the installation process, downstream turbidity, and the number and type of fish salvaged from the work area will be provided by the ECM. A report describing the fish salvage process will be submitted to the agencies upon construction completion. The ECM will inspect the cofferdam weekly and after high rain events to ensure no overtopping or damage is likely.

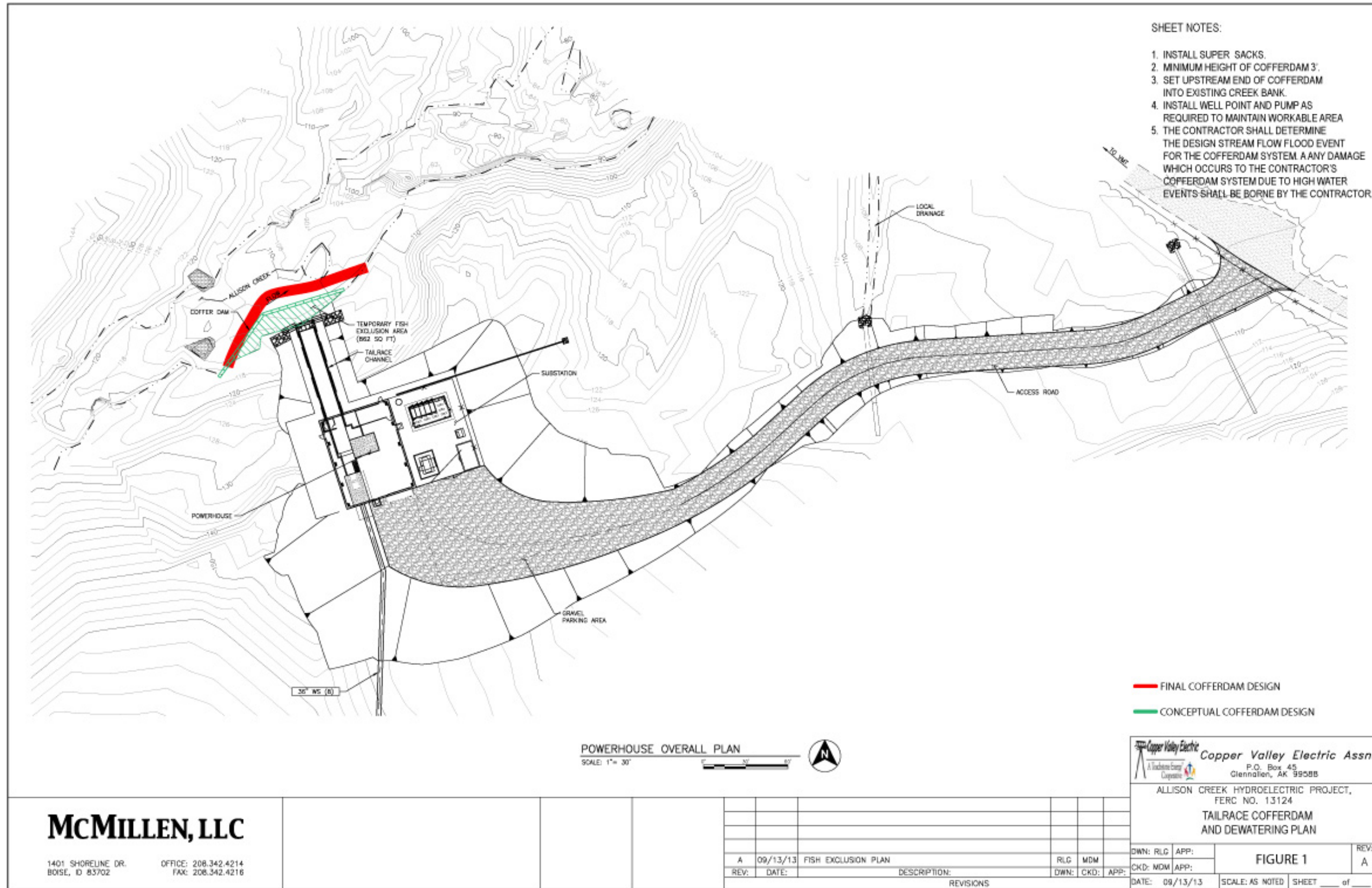




Figure 2. Photo taken 6/20/2014 looking upstream at the tailrace location.



-  Final cofferdam design
-  Thalweg



Figure 3. Photo taken 6/20/2014 looking downstream at the tailrace location.



-  Final cofferdam design
-  Thalweg



Figure 4. Project area indicating location of gravel material used to fill super sacks - Borrow Pit.