

**Walnut and Grayson Creeks Levee Rehabilitation
At CCCSD Treatment Plant Project
Contra Costa County Flood Control and Water Conservation District
Monitoring, Assessment and Performance Measures**

The primary purpose of the Contra Costa County Flood Control and Water Conservation District's (District) Walnut and Grayson Creeks Levee Rehabilitation Project is to reduce the risk of flood damage to the Central Contra Costa Sanitary District (CCCSD) treatment plant located adjacent to these two streams. The treatment plant lies within the floodplain of Walnut and Grayson Creeks, and is protected from flooding by levees built along the banks of these creeks.

The CCCSD treatment plant is a critical piece of regional infrastructure, and due to its proximity to Walnut and Grayson Creeks, is vulnerable to flooding. Given the topography, layout, and configuration of the treatment plant facilities, any overtopping of the levees along these creeks would completely disable the treatment plant, resulting in replacement costs of \$146,380,000, as well as having a significant impact to the environment and economy of central Contra Costa County. Thus, providing the treatment plant with the highest level of flood protection reasonably possible is key to maintaining sustainability of life in the region.

The District is responsible for the levees that protect the CCCSD property from flooding, and, at present, these levees provide 30-year protection with freeboard to the treatment plant. In order to reduce the risk of flood damage to said treatment plant, the District and CCCSD are jointly proposing to raise these levees or install a floodwall on top of the existing levees to provide a 500-year level of protection.

Metrics used to Evaluate Project Performance

The primary metric that will be used to assess project performance is comparison of the final height of the levees with respect to water surface level plus freeboard associated with a specific return frequency of storm. For the levees along Walnut Creek and Grayson Creek, CCCSD has requested that the District raise the levees high enough to provide protection from a 500-year storm plus freeboard.

Monitoring Systems

The metrics used to evaluate project performance will consist of a HEC-RAS model of the creeks, which will be used to determine the levee height necessary to contain the 500-year storm plus freeboard, and a final topographic survey of the levee crowns, which will then be used to confirm levee height.

Data Collection and Evaluation Process

The HEC-RAS model will be run under the Preliminary Design and Risk and Uncertainty Analysis task (Task 1.2) to determine the height that the levee will need to be constructed to. This data will be incorporated into the Risk and Uncertainty (R&U) Report for submittal to the US Army Corps of Engineers (USACE). The R&U Report will be evaluated and approved by the USACE prior to initiating the Task 4, Design.

Final levee heights will be surveyed/measured during Task 5.6, Performance Testing and Demobilization. The project will not be considered complete until the appropriate levee heights have been met.

Consistency with Basin Plan

This project will effectively eliminate the risk of flooding in an urbanized area. It will also reduce the risk of subsequent introduction of untreated wastewaters into the Delta, potentially reducing loading of bacteria, biostimulatory substances, chemical constituents, floating material, mercury, oil and grease, pesticides, salinity, sediment, settleable material, suspended material, and taste-and-odor-causing compounds. In addition, pollution from wastewaters would cause pH impacts and contribute to increased temperature, turbidity, color, and toxicity and decreased dissolved oxygen. As a result, this project is consistent with the Region 2 Basin Plan.

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Project Performance Measures Table: Walnut and Grayson Creeks Levee Rehabilitation at CCCSD Treatment Plant Project

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Reduce potential risk of flood damage to the CCCSD treatment plant	Enhanced flood protection for treatment plant from 30-year protection to 500-year level and account for climate change	Increased levee height. Exact height to be determined in Risk and Uncertainty Analysis	Higher levees as determined by post-construction surveys	Survey and determine height of rehabilitated levees, compare against values developed in Risk and Uncertainty Analysis