



Upper Las Positas Creek Restoration and Storm Water Management Project

The primary purpose of the Upper Las Positas Creek Restoration and Storm Water Management Project is to detain and treat storm water and incidental runoff at the Santa Barbara Golf Club in order to improve water quality downstream in Las Positas Creek, the Arroyo Burro Estuary, and Arroyo Burro Beach. The secondary purpose is to reduce peak storm flows in order to facilitate the installation of downstream creek restoration and/or water quality treatment projects. Additional goals are to address runoff from the San Jose neighborhood, address runoff and erosion from Adams School, and provide natural landscape elements on the golf course. Underlying the project goals is the need to maintain playability and aesthetic standards at the Golf Club.

Background

Extensive water quality monitoring of Las Positas Creek and Arroyo Burro Creek by the Creeks Division indicates concentrations of fecal indicator bacteria that exceed the recreational contact standards. As one of the few large open areas owned by the City, the Golf Club has the potential to serve as a site for detention and treatment facilities for polluted urban and storm water runoff. This facility may reduce downstream pollution in Arroyo Burro Creek and contribute to the City's long-term efforts to reduce creek pollution and improve ocean water quality at the beach.

The Santa Barbara Golf Club, located at the top of the Las Positas Creek watershed, receives storm water and urban runoff from Adams Elementary School, a portion of the Samarkand neighborhood, and Las Positas Road. Storm water and urban runoff from the San Jose Lane neighborhood to the west is conveyed via a pipe under the golf course's driving range before discharging onto Stevens Road. Storm water on the golf course is conveyed by sheet flow to 1 of 3 major drainage areas. Two of the areas lead to storm drains at the southern end of the golf course, which then pass under Earl Warren Showground and enter Las Positas Creek south of Highway 101. The third area leads into the storm drain system at Calle Real, which is then conveyed under Highway 101 to Las Positas Creek.

Status

Since May 2005 the Creeks Division has been working with design consultants to conduct a feasibility analysis and prepare construction plans for the project. In addition both Public Works Engineering and the Golf Division have been involved in project development and review. The feasibility analysis included a review of initial concept work, detailed conveyance and detention studies, construction cost estimates, landscaping palettes, and water quality performance predictions. Construction is anticipated to begin in May 2009.

Project Elements

The final design for the Upper Las Positas Creek Restoration and Storm Water Management Project includes a combination of detention and retention basins, bioswales, pocket wetlands, erosion control, runoff diversion pipes and native plant landscaping. In summary, the proposed plans would reduce peak runoff volumes during 100-year storm events by over 50%. During smaller events, i.e. up to 10-year storm events, the proposed plan will retain and treat nearly 100% of the runoff. These scenarios include the diversion of runoff from the San Jose neighborhood onto the golf course.

Detention and retention is important because storm water will be treated primarily by the settling of suspended particles and the associated pollutants, including microorganisms. Settling of particles can only occur when the water velocity is sufficiently slow, i.e. as occurs during ponding. It is estimated that up to 90% of the suspended load and associated pollutants can be removed during detention or retention. Runoff from smaller storms (~ 2-yr) and nuisance flows will be treated primarily by filtration through two types of bioswales. In the upper reaches, bioswales will consist of channels lined by emergent plants, which will slow down the flow for settling of solids and provide some filtration. In the lower reaches, which will see higher flows, the bioswales include rock aeration, gravel filtration, and emergent plants, providing increased opportunity for removal of suspended material. The bioswales are estimated to remove 20-80% of suspended pollutants.

Detention and retention are also important because by reducing peak flows off the golf course, lower flows downstream can encourage other projects in the sub-watershed. By retaining such a high proportion of the flow, potential projects at Earl Warren Showground and Modoc Road will be less constrained. Even lower in the watershed, where the concrete channel follows Las Positas Road, flows will be reduced by approximately 10% during a 100-year event. At the outflow of Arroyo Burro Creek, the project will reduce flows by 2 - 6%, depending on the size of the storm.

Additional project elements include erosion control along the perimeter of the Adams School. At present, storm water runoff from the school is eroding a channel into the edge of the golf course that threatens the stability of the slope there. Furthermore, a carefully considered plant pallet will provide natural landscaping (primarily California natives) that serves biotreatment functions and improves the aesthetic views on the golf course.

For more information contact:
Cameron Benson, Creeks Division Manager
(805) 897-2658