

**BAXTER CREEK AT POINSETT PARK:  
Steep step-pool channel created from former culvert**

EL CERRITO, CALIFORNIA



*Source: Alison Purcell (2007)*

In the 1940s, like many urban creeks in the San Francisco Bay Area, most of Baxter Creek was culverted to address flooding and sanitation concerns. However, a broken culvert in the Baxter Creek Watershed sparked interest in daylighting the stream, rather than retrofitting the existing culvert.

**What was done and why?**

In 1992, the El Cerrito City Council conducted a financial analysis of a broken culvert beneath Poinsett Park. The Council determined that it was more cost effective to “daylight” or open a 70 meter section of underground culvert at the east end of Poinsett Park than to repair it over time. The restoration involved opening the previously culverted channel, planting riparian vegetation, and adding in-stream step-pool sequences and sinuosity.

The goal of the restoration was to re-create pre-culvert conditions by restoring sinuosity and riparian vegetation to the newly opened channel. However, the designers concluded that no reference conditions upstream of the restoration site existed for developing design

criteria, as they were culverted, channelized, or highly degraded. Therefore, the new channel's cross-section, width, and depth were determined using regional hydraulic geometry relationships between channel sizes and drainage areas, and sinuosity and slope were correlated to a steep 10% valley gradient. Step pools (designed to be 30 cm high to avoid undercutting) were created with salvaged rocks from the excavation. Bank and riparian modifications included soil bioengineering approaches: fascines (bundles of willows) and willow posts (1 m long, 10–15 cm wide).

### **Who was involved?**

The City of El Cerrito and Waterways Restoration Institute collaborated on the project. Faculty and students from the University of California at Berkeley and Texas A&M University have been monitoring physical, biological, and social parameters at the site since 2000.

### **Where can I see the restoration project?**

Baxter Creek and Poinsett Park are located in the City of El Cerrito. The restoration project site is located on a 70 m reach at the east end of Poinsett Park in El Cerrito (37.9354N; -122.3169W).

### **Why is this a model project?**

Based on long-term monitoring of the site, the restored reach has seen an improvement in habitat conditions. Native willows, planted during the restoration, stabilize the creek's banks and create a more complex habitat for benthic macroinvertebrates. Benthic macroinvertebrate studies reveal that the restored reach had higher taxa and family richness than control sites.

Over 85% of neighborhood residents surveyed in 1999 and 2004 said that they enjoyed living near the newly uncovered stream, citing aesthetic properties ("pretty," "natural-looking"), sounds, and recreation as the primary values.

Finally, surveys of the restoration reach's long-profile indicate that the restoration reach is exhibiting step self-organization over time and approximating an idealized step-pool pattern sequence. Further information on this analysis is expected in 2007 from Texas A&M University and the University of California at Berkeley.

### **For more information on these projects, please contact:**

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