Update to
Natividad Creek Park Restoration Plan

Water Reuse and Flood Protection around V.R. Barton School and Laurel Lake

This is an update to the Natividad Creek Park Restoration Plan prepared for the restoration of native habitats through the Natividad Creek Park (Creative Environmental Conservation et al. 1996). The Natividad Creek Park Restoration Plan was developed within the framework of the Northern Salinas Valley Watershed Restoration Plan (Oliver et al. 1997), an adaptive management plan which can be modified (evolves) by updates such as the present plan for the wetlands around V.R. Barton School and Laurel Lake (See Overview Aerial Photograph & Map). The existing plans already consider regional and key local patterns of geology, hydrology, and ecology of the creek ecosystem; as well as restoration and monitoring methods and the Return of the Natives watershed education program. They also consider special status species, which have not been observed from the project area.

The same general restoration plan applies. The site is highly degraded by the Natividad Creek ditch which drains water from the surrounding historical wetlands. The ditch has very poor water quality and habitat values. The historical wetlands will be restored as much as possible given the existing constraints of the project area. The primary constraints are fill placed over large areas of the historical wetlands, Laurel Road and culvert, and construction of V.R. Barton School in the flood plain. The main restoration strategy is to divert creek flow from the ditch and to spread the flow over historical wetlands in the remaining low regions. The ditch habitat downstream from the diversion will remain wet. Flood storage and water quality will be significantly increased by the project.

Project Area

The project area is shown in the Aerial Photograph and Map; includes creek habitat from V.R. Barton School to Laurel Lake at Laurel Road; and has four distinct restoration units, a functional habitat area within the larger creek ecosystem. The key restoration tasks are listed separately for each restoration unit.

Restoration Unit 1

• General Description

Photographs 1 and 2 show the areas of creek bank to be stabilized by native grass and occasional trees. The native vegetation will prevent further bank erosion with an open habitat for safe public access along the existing paved way. A

section of the creek bank will be excavated to increase the channel volume, thereby increasing flood storage and the area of vegetation used to filter pollutants from drainage water. Undesirable public access along the V.R. Barton School yard fence (photograph 2) will be eliminated by the excavation and subsequent planting of low native brush with small, but irritating spines (wild blackberry).

• Landform Changes
The creek bank will be excavated along the side of the chain link fence bordering the grass play yard of V.R. Barton School (photograph 2). Channel width will increase by 10-15 feet with a 2- 4 foot cut, leaving a 3-4 foot band at present grade directly next to the fence. All soil exposed to erosion will be seeded immediately with native grasses, covered with hay, and secured with erosion control mat if necessary. Bank stabilization requires no change in landform.

• Hydrology Changes
The volume of the creek channel will increase by 20-30%, but will have no significant impact on surface water flow. There will be more surface water in the channel, increasing the potential for recharging ground water. The greater channel volume increases flood storage in the creek. The new channel will be covered with more native vegetation, increasing the area of biological filter to clean drainage water, particularly of non-point sources of pollution from agricultural drains and city streets.

• Weed Control
There are no significant weed control problems in this restoration unit. Narrow patches of poison hemlock and mustard will be mowed to discourage survival and stimulate native plant establishment.

• Native Plant Establishment
The eroding banks and excavated creek area will be planted with native grasses: meadow barley, California brome, and creeping wild rye. Grass areas will be covered with hay, and a few of the steepest erosion features need additional protection with erosion control mats. Here and there native trees will be planted on the bank top to produce an open habitat of low grasses and large trees so that the pubic access road is as safe as possible.

• Timing
The excavation should be done before the first rains, when water flow is low. Planting for bank stabilization should be done before peak rain season. Weed control is accomplished with native plant establishment and maintenance.

Restoration Unit 2

• General Description
Water flow will be redirected from the Natividad Creek ditch into a historical wetland, the V.R. Barton School Marsh (See Overview Aerial Photograph &

Map). The existing marsh is vegetated mostly with native plants but is isolated from normal creek flow and therefore abnormally dry. The re-establishment of flow here will produce a perennial wet marsh with significant improvement in flood protection, water quality filter, and public safety.

• Landform Changes
Photograph 3 shows the landform changes in this restoration unit. The main ditch channel will be closed with an ecologically engineered berm. The core of the berm will be soil excavated from the adjacent dike; the core will be covered with hay bales to prevent erosion and accelerate native plant establishment. A 25 foot section of dike bank will be excavated with a backhoe directly upstream of the berm to return water flow into the V.R. Barton School Marsh (photograph 4). The dike excavation will be 3-4 feet below the berm elevation, at 2-3 feet below the dike top. Native plants under the berm will be removed and replanted on the front and back sides of the berm and between hay bales. These are primarily bull rush, which is easily transplanted.

• Hydrology Changes
Creek hydrology will be greatly improved and restored in this restoration unit. Water will flow out of the artificial and water resource degrading Natividad Creek ditch, spreading over the entire historical marsh (photograph 4) and returning to the ditch just before Laurel Lake (see Overview Aerial Photograph & Map). At extreme creek flows water may top the berm, but most flow will still be through V.R. Barton School Marsh. The downstream ditch will remain wet from water flowing into it from the marsh, and thus will retain its key habitat value- the native vegetation.

• Weed Control
The primary weed control is poison hemlock at the edge of the marsh. It will be mowed at peak flower production to reduce survival and colonization.

• Native Plant Establishment
The historical marsh will become much wetter for most of the year. The existing smart weed will be replaced by native sedges and rushes, by natural recruitment and planted plugs. Access to the marsh will also be decreased by low blackberry bushes, with small irritating thorns. Larger native trees will be planted at 40-50 foot spacing to keep an open habitat for public safety. Although no willow removal is recommended at present, the existing forest can be gradually replaced with larger trees and blackberry understory to discourage pubic access.

• Timing
This is the most important restoration unit. Berm construction and dike excavation can be done at any time before peak rain falls. All exposed soil can be protected from erosion with natives grasses covered with hay and in critical areas with erosion control mats. Native plants can be established throughout the

year with some drip irrigation. Weed control is accomplished with native plant establishment and maintenance.

Restoration Unit 3

• General Description

Restoration unit 3 is Laurel Lake (see Overview Aerial Photograph & Map). The lake is open to the Natividad Creek ditch at the downstream end near Laurel Road. This plan redirects water flow from the ditch into the lake at the upstream end, so water flows and spreads over the entire lake area (photographs 5 and 6). In addition, more water is ponded in the lake by constructing a low ecologically engineered berm just in front of the culvert under Laurel Road (photographs 7 and 8).

• Landform Changes

The landform changes in the ditch adjacent to Laurel Lake (photograph 5) are the same as the changes described for restoration unit 2 (photograph 3), with a low berm in the ditch and a 25 foot gap excavated in the dike. The dike excavation will be 3-4 feet below the berm elevation. A second low berm will also be constructed in front of the culvert under Laurel Road (photographs 7 and 8) at an elevation defined under restoration unit 4 below.

• Hydrology Changes

Water will flow in a more natural route through Laurel Lake (photograph 6) and pond 2 feet deeper due to the berm placed before the culvert (photographs 7 and 8). Flood storage capacity will be increased.

• Weed Control

There is no significant weed control in this unit.

• Native Plant Establishment

Native plants will be used for erosion control on ditch berms and excavated dikes as described for restoration unit 2, and occasional large tress will be planted around the lake. Most native plants in the lake will colonize by natural spread from the creek and lake. There will be a significant increase in native vegetation that will filter non-point sources pollutants from drainage water.

• Timing

Berm and dike excavation should occur before peak rains, but are not as important for this year because water can enter the lake through a dike opening at the downstream end.

Restoration Unit 4

• General Description

This restoration unit is the Laurel Lake low marsh which is separated from Laurel Lake by the Natividad Creek ditch (see Overview Aerial Photograph & Map). The low berm in front of the Laurel Road culvert will be just high enough

to send water through a dike opening and into the low marsh (photograph 8). This will increase flood storage and create a dense wetland filter for cleaning drainage water.

• Landform Changes
A 25 foot opening will be excavated in the ditch dike as shown in photograph 8. This will be done in the same manner described for restoration unit 2.

• Hydrology Changes
Water flow will be restored to a large area of low marsh by ponding behind a low berm and spilling through the dike excavation. The restored wetland habitat will hold water for flood protection and water quality improvement.

• Weed Control
There is no significant weed control in this unit.

• Native Plant Establishment
Native plants will be used for erosion control in the excavated dike opening as described for restoration unit 2, and occasional large tress will be planted around the low marsh. Most native plants will colonize by natural spread from the creek and existing marsh. There will be a significant increase in native vegetation that will filter non-point sources pollutants from drainage water.

• Timing
Dike excavation should occur before peak rains.

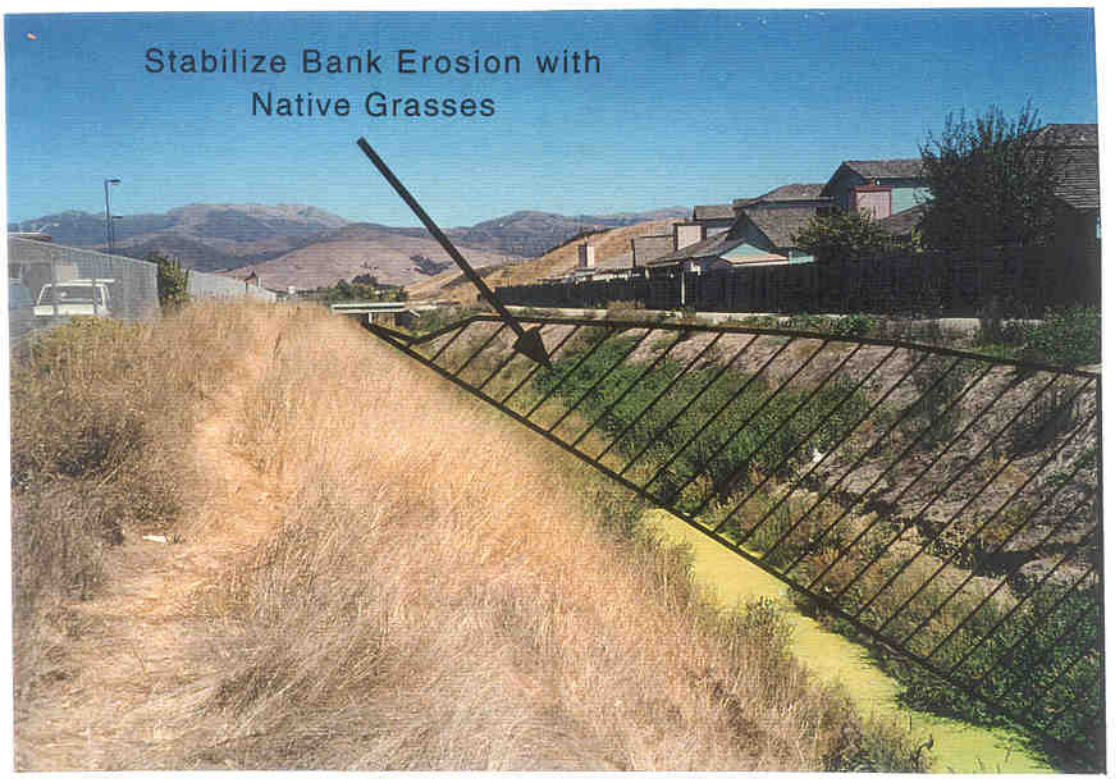
Restoration Maintenance and Monitoring

The restoration maintenance and monitoring will be the same as outlined in the Natividad Creek Park Restoration Plan. This project is a continuation of the park restoration with the Return of the Natives.

Previous Restoration Plans

Creative Environmental Conservation and the Watershed Institute, 1996. Nativdad Creek Wetland and Upland Habitat Restoration Plan.

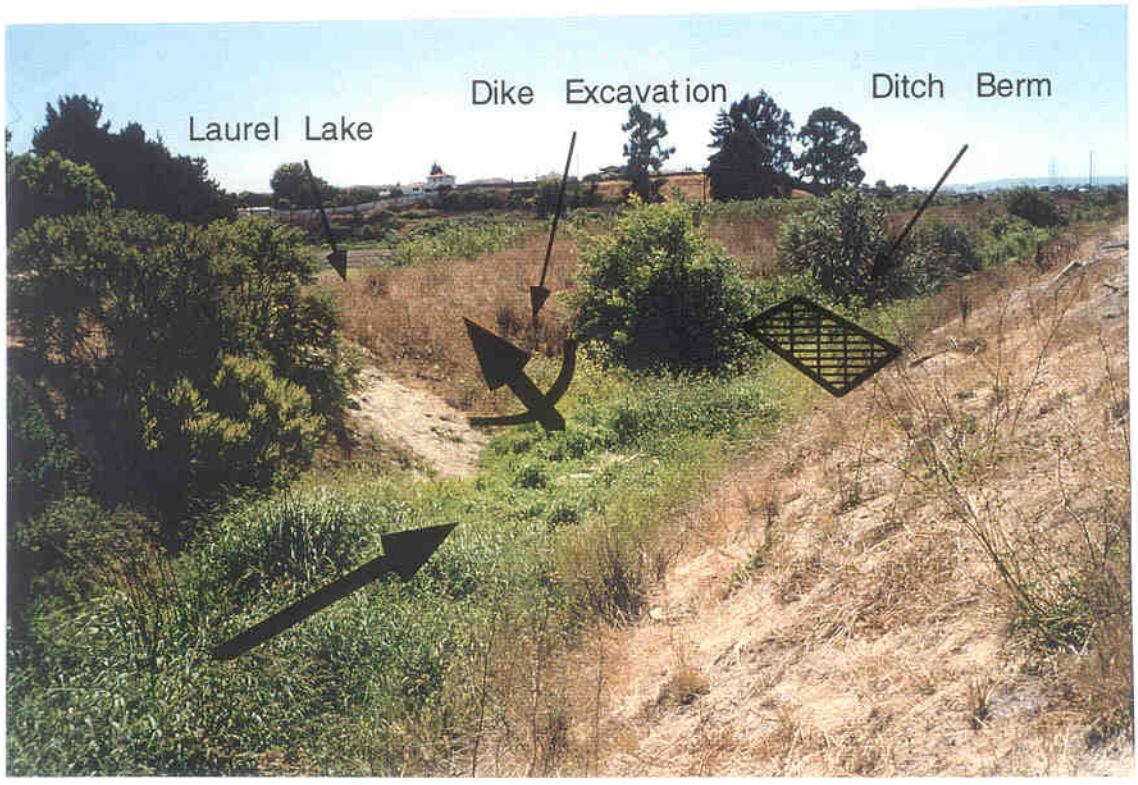
Oliver, J., Clark, R., Mulitsch M., and F. Barron. 1997. Northern Salinas Valley watershed restoration plan. Report prepared by AMBAG, the Watershed Institute and Moss Landing Marine Laboratories for the State and Regional Water Quality Control Boards and EPA.



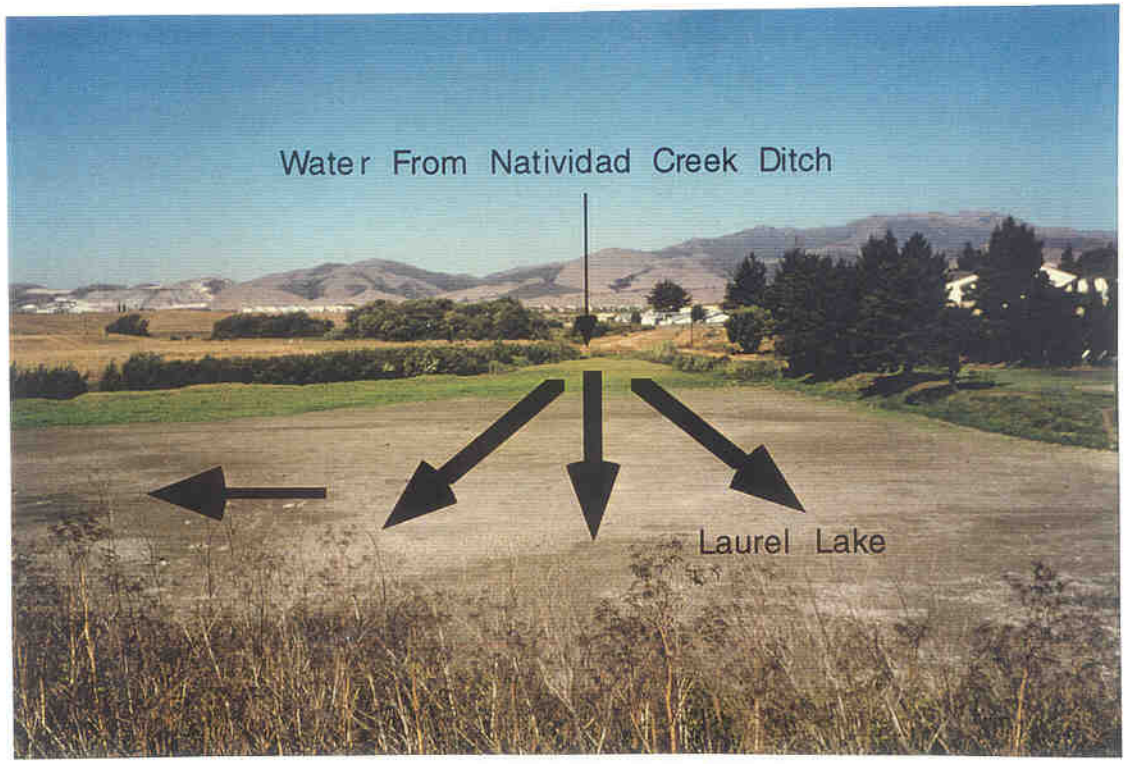
Photograph 1. Bank stabilization with native grasses and occasional large trees in the Natividad Creek ditch.

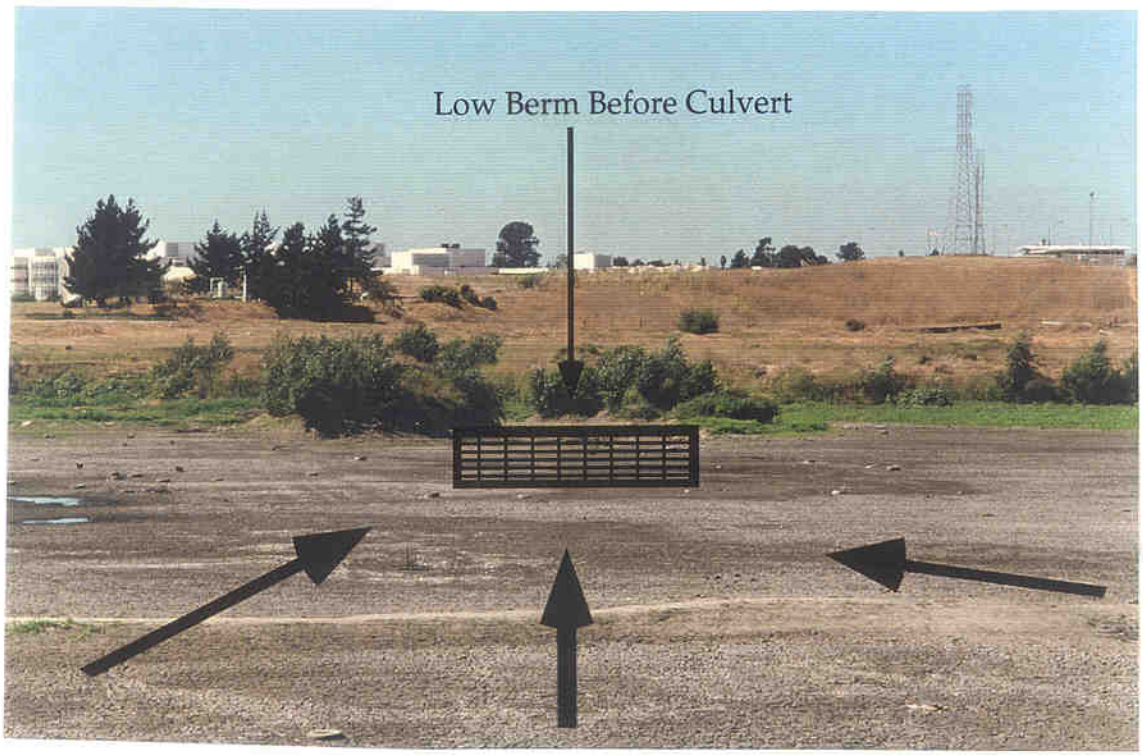
Photograph 2. Bank stabilization and increased channel width along the Barton School fence.

Photographs 3 and 4. Turning water from Natividad Creek ditch and spreading it over the historical marsh. Thick arrows indicate water flow direction.



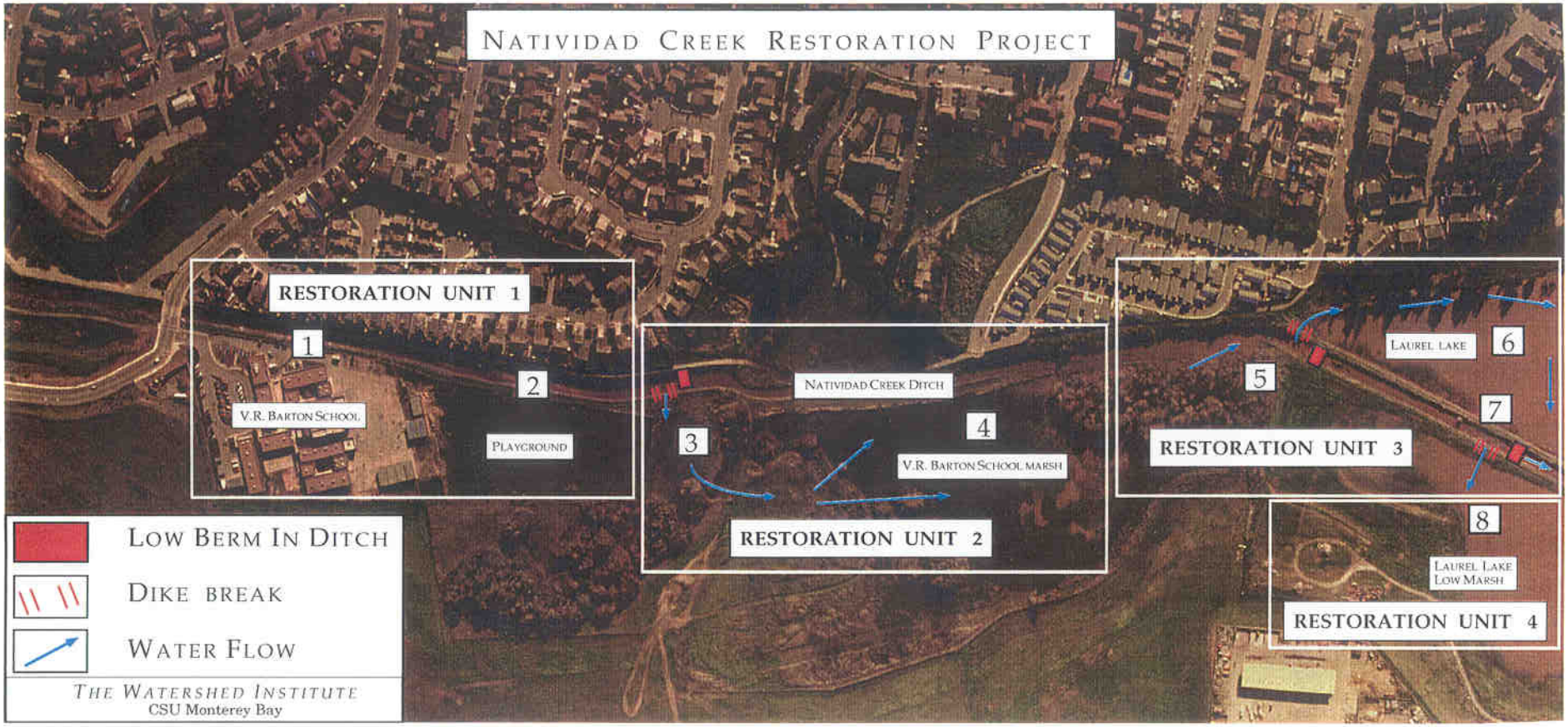
Photographs 5 and 6. Turning water from Natividad Creek ditch in Laurel Lake. Thick arrows indicate water flow.





Photograph 7. Ponding of water in Laurel Lake with a low berm in front of the culvert under Laurel Road. Thick arrows indicate water flow.

Photograph 8. Ponding also permits water to enter the low marsh next to Laurel Lake through a low area excavated in the ditch dike. Thick arrows indicate water flow.



Project overview and location of photographs 1 through 8 showing restoration details.