

PROJECT PROFILE



P550 • ShoreMax • Anchors

Permanent • Airport Stabilization • Bank Stabilizations • Flood Diversion

Santa Clara River & Coast Project



PROBLEM



SOLUTION



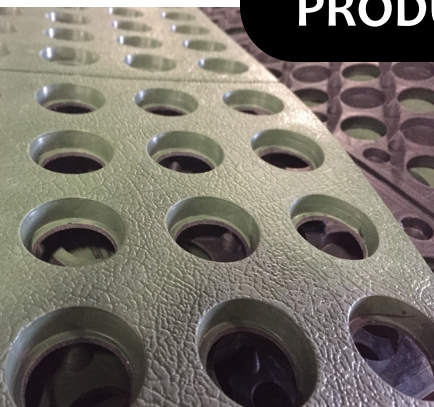
RESULT

The Santa Clara River flows from Acton, CA to the Pacific Ocean near Oxnard. The problems began in January of 2005 when the rain-soaked Santa Clara River, running parallel to an airport, eroded a jetty adjacent to the runway. Without the jetty the runway was exposed and at risk for structural failure. In February 2007, the river rose again and took with it 155 feet of the 2,650-foot runway, resulting in more than \$5 million in damage.

Officials came to the aid of the airport by helping the owners obtain a grant from the Natural Resources Conservation Service (NRCS) to pay for repairs to the riverbank. As the Santa Clara River is one of the last relatively unaltered rivers in southern California, its restoration and conservation became a high priority area. Specifically as the river hosts diverse habitats supporting 18 threatened or endangered species including riparian dependent bird species, terrestrial wildlife, anadromous fish and rare plants.

All told, this project would be under the jurisdiction of the Santa Clara River and Coast (SCRC) project area, and would need to account in its project scope the restoration of habitat for biodiversity recovery and critical ecosystem services, including floodplain connectivity, in-stream flows, groundwater recharge, carbon sequestration, wildfire risk reduction and sea level rise adaptation. Additionally, the repair needed to restore hydrological function and habitat connectivity while planning for future functionality in the face of a changing climate.

PRODUCT HIGHLIGHTS



- ShoreMax (far left) is a UV stable, flexible revetment mat designed to provide scour protection while still allowing vegetation establishment through the mat.
- Falcon Anchors provided pull-out strength and support of the systems subsoils.
- The permanent longevity of the full product system allows for continuous erosion protection, a vegetated design, while being more cost effective than most hard armor systems.

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Santa Clara River & Coast Project - cont.

Results of existing studies emphasized the need to seek opportunities for restoring the largest floodplain area possible by acquiring adjacent floodplain properties and setting back contiguous levees to a slope angle effective at minimizing flood risk. Using materials and an overarching system that would bolster vegetation and habitat establishment were also priorities. When it came to erosion control and surface habitat restoration, permanent erosion control products were analyzed to protect against the hydraulic forces. The Project Engineer contacted Triumph Geosynthetics in Anaheim, CA for an erosion control solution. A multifaceted solution was developed utilizing North American Green permanent turf reinforcement mat: VMax P550, a flexible scour protection product: ShoreMax Transition Mat, and the Falcon Anchor Systems ground anchors: F80-X-Z percussion driven anchors.

North American Green P550 was installed on the north side of the streambank slope with rebar staples to secure the matting. The ShoreMax transition mat was then placed to cover the P550 on the toe of the slope to normal water mark. The Falcon F80-X-Z anchors were then installed across the entirety of the slope driven to a 3 ft. depth that would create surface and subsurface structural slope stabilization. The channel was backfilled with soil per engineered specifications. The site was not actively vegetated, but because of the nature of the product system, will naturally vegetate with native species as the site ages.

Since installation, the completed erosion control system including the North American Green P550, ShoreMax, and Falcon F80-X-Z anchors have prevented the area from erosion events, and have set up the area for protection against future storm events. Additional phases of stabilization are expected as the 10 year mission of the SCRC project area continues.

