

Landscape Project of the Year – Bolsa Chica Lowlands Restoration Project

Getting Back to Nature with Marina Landscape, Inc.

A Truly Unique Landscape Project

When the landscaping industry comes to mind, most associate its objectives with the planting of stunning royal palm trees while artistically reshaping the surface of a grand entrance to a posh hotel or modern library somewhere here in California. Not many of us would picture a landscape contractor embarking on a grand project that includes restoring California's coastal wetlands, 90 percent of which have disappeared since the 1850s. Yet, this

is the inspiring subject of CLIC's 2007 Landscape Project of the Year.

The Bolsa Chica Lowlands Restoration Project, located in Huntington Beach, involved the restoration of over 600 acres of marine and wetland habitat, making the project the largest and most successful wetland rehabilitation in California history. The landscaping portion of the \$130 million project, a contract worth \$600,000, was awarded to CLIC President Bob Cowan's Marina Landscape, Inc. Marina was a subcontractor to Kiewit Pacific out of Vancouver, Washington, a company with which Marina has been working for over 25 years. Marina does two or three projects a year for Kiewit, one of the most notable being the San Diego Airport project.

Marina's portion of the overall Bolsa Chica project took about three years and 3,800 man-hours. It included transplanting, planting, erosion control, hydroseeding, irrigation installation and maintenance. They also installed over ten miles of walkways that the public

can use to walk along and view up close, the habitat and living conditions of the wetlands.



Robert Cowan, President of Marina Landscape, Inc. on a job site.

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How Wetlands Help Us

In order to better understand the goals and scope of the project, let's first explore some interesting facts and figures pertaining to these scarce wetlands. Today, many wetlands are in danger of experiencing continued degradation and even destruction due to landfill, pollution, dredging, diking and other human disturbances, even though they play a vital role in human and animal communities. Numerous fish species, including California killifish, bay goby, striped bass, topsmelt, and starry flounder seek refuge in wetlands and depend upon them for shelter and reproduction. Subtidal eelgrass beds shelter larval and juvenile fish; many species of invertebrates depend on



MAJOR ACHIEVEMENT – Over 90 percent of California's Coastal Wetlands have disappeared since the 1850s. This project was truly an achievement for all involved!

wetlands for some part of their life cycle as well.

The plants that thrive in the wetlands are productive; they filter toxins from the water and support various forms of life, including molds, amphibians, birds and mammals. Humans too reap rewards from wetlands as they provide flood control, help clear the water of toxic substances and other impurities, and present a diverse educational resource for the public.

Project Overview

Bolsa Chica featured the construction of a tidal inlet with an overhead bridge that allowed ocean tides to flow into the wetland habitat for the first time in over one hundred years. Oil extraction facilities were removed, and associated contaminants were cleaned from portions of the wetlands area. This healthier, more spacious, and natural environment created vast nesting and feeding areas for threatened and endangered birds, including the light-footed clapper rail, western snowy plover, Belding's savannah sparrow, and California least tern. The community enthusiastically



WELCOME HOME – Many types of birds and a variety of other animal life, have returned to their natural habitat after an absence of more than a century.

has supported this beneficial idea from its inception, and the project has been incredibly successful on many levels.

Back to School

Because of the critical and delicate nature of this project, Marina's crew, under the able direction of Project Manager Marty Johnson, was educated on the native and endangered plant and animal species and their habitats prior to construction. Foreman Pat Morrell of Pipefitters Union Local 345 and his crew did a masterful job installing the irrigation system with minimum disturbance to the delicate ecosystem.

Jose Hernandez of Operating Engineers Local #12 was in charge of transplanting all the exotic plants, a monumental task considering the size of the project. Speaking of plants, those brought in to compliment existing foliage included *Opuntia Prolifera*, *Distichlis Spicata*, *Cleome Isomeris*, *Isocoma Manziessii*, *Encelia Californica*, *Lycium Californicum*, and *Ceanothus Concha*.

Overcomers

An assortment of challenges emerged as the project got underway. For one, Pacific Coast Highway, the adjacent beach, and other surrounding areas had to remain open during the entire course of the job. Although this made construction more difficult, it was important for the many commuters who travel this main coastal corridor, and it was necessary to keep the community itself functioning



A MASSIVE PROJECT – The Bolsa Chica Project involved over 600 acres of marine and wetland habitat!

at a regular pace.

There were also obstacles involving the irrigation system. In order to keep the plants and the soil in the most natural conditions possible, the project planners did not want traditional sprinkler irrigation systems installed on certain portions of the landscape. Marina therefore planted gel packs for some of the plants, which take up water like a sponge and release it near the plant's roots when the soil becomes dry. This best emulates nature and causes no additional stress to the fragile life forms.

Another challenge facing Marina during construction was the need to relocate some delicate plant species without killing them. Marina worked under the supervision of biologists, environmentalists and inspectors to ensure that all of the rare, native plants were transplanted successfully. Marina salvaged and transplanted thousands of spiny rush and cord grass plants from on-site locations and other sites within a 78-mile radius under the direction of biologists and the U.S. Fish & Wildlife Service. It was critical that this work was done

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PRECISION OPERATION – Construction work such as grading, placing of Rip Rap and landscaping required precision operators to work next to the ocean and Pacific Coast Highway.



BREATHTAKING SIGHT – Californians are very fortunate, as they enjoy some of the most beautiful landscapes in the world. It's nice when we can give Nature a hand.

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prior to the nesting season to ensure no disturbance to migrating birds. Marina kept the transplanted material in excellent health during the

ABOUT THE COMPANY

Marina Landscape, Inc. is one of the most acclaimed and successful landscape contracting firms in the United States today, providing state-of-the-art commercial landscaping services to both public and private clients. With over 35 years of experience, the company is one of the largest landscape and site development contractors in California. It employs over 400 trained landscape professionals, and their employees have an average of 15 years tenure with the company. Attention to detail and thorough project management skills are the hallmarks of Marina Landscape's trade.

length of construction, and 120 days past the completion date.

Erosion Control

Marina was responsible for monitoring and preventing erosion control within the revegetated areas of Bolsa Chica. The knowledge and experience of Erosion Control Manager Dwight Blackburn was called upon time and again to ensure that the project would endure the tests of time, tides and storms. Nearby slopes also posed a threat for rapid erosion control. To prevent swift disintegration of the newly restored wetlands and surrounding areas, Marina installed over 35 miles of straw wattles and bonded fiber matrix to protect the slopes, while staying in compliance with Federal guidelines and Storm Water Pollution Prevention Program regulations.

Experience Matters

Over 30 acres of hydroseed were expertly sprayed by Marina's staff at various areas around the site. Due to the site's proximity to the ocean, Marina – armed with knowledge and experience – recommended another type of seed from the one

originally called for. Marina worked side-by-side with the architects to update the plans, revising the specifications with a more salt-tolerant seed mix.

Nesting Season

As the project neared completion, Marina Landscape accelerated construction to accommodate the nesting season of endangered species. Marina performed reinstallation of irrigation, planting, and landscape boulders along Pacific Coast Highway where new construction had disturbed the existing facilities at Bolsa Chica State Park. Marina also participated in landscape and irrigation restoration and

beautification on the tidal inlet bridge and at the Bolsa Chica Ecological Reserve Visitor's Center.

Species Return After 100 Years

Today, Bolsa Chica is a fantastic place to visit. The overall improvement of this area has made it more attractive for residents and visitors alike. Native animal species that abandoned this area a century ago have returned to make it their home. The critical tidal inlet is confined to a spot that doesn't intervene with the public beach or highway, and yet serves as an incoming saltwater source for the marsh, flushing the



HYDROSEEDING was one of many services that Marina Landscape performed for the Bolsa Chica Lowlands Restoration Project.



OVER 34 ACRES of various hydroseed mixes were applied to the slopes at Bolsa Chica.

life-giving water through, and keeping the Bolsa Chica Lowlands in ecological harmony.

Meeting Challenges is What Winners Do

Bolsa Chica, CLIC's Landscape Project of the Year, has also been recognized with the Constructor's Award from Associate General Contractors – further evidence of Marina's winning ways.

Reflecting on the project

and the challenges it presented, Marina's Bob Cowan remarked:

"This project was challenging, fun and fulfilling. And talk about responsibility, Bolsa Chica had us working alongside biologists and environmentalists who were literally intrusting us with a major portion of their life's work. I am proud of the way our team members responded to the challenge and excelled in every respect. They truly are winners."



EROSION CONTROL – Over 35 miles of straw wattles were installed per specifications, and within the project's demanding schedule!

Time Line on Bolsa Chica Development

1899: Duck hunters seal off the wetlands from the ocean.

1951: First oil well drilled.

1978: 306 acres become the Bolsa Chica Ecological Reserve.

1985: Coastal Commission approves plans to develop wetlands into a marina, as part of a large residential and commercial plan.

1989: The plan to build a marina is replaced with a plan that calls for restoring 775 acres of wetlands to natural habitat.

1996: Restoration plan increases to 900 acres.

1997: State of California buys 880 acres of wetlands for restoration to original wetlands environment.

2001: California Department of Transportation approves four-lane bridge as part of restoration project; California Coastal Commission approves a \$100 million plan that includes building a tidal inlet, connecting the wetlands to the ocean.

2003: State hires appraisers to place value on the mesa.

April 2004: State begins negotiations to buy a portion of the mesa from Hearthsides Homes. Wetlands talks start.

August 2004: Wildlife Conservation Board agrees to buy half of the mesa for \$65 million from California Coastal Communities.

October 2004: Kiewit Pacific and Marina Landscape mobilize personnel and construction equipment, commencing the effort to return the marsh to its pre-20th Century state. Hearthsides Homes withdraws a proposal to build 379 homes on the mesa after several commissioners say they would vote against it.

May 2005: Nest sites and some levee sections are completed. Dewatering and soil excavation continues in the full tidal basin with land-based equipment.

August 2005: Levees are completed and surrounding trails are reopened. Culverts are installed in levee to connect muted tidal area. Rock hauling to beach, jetty, and bank protection work begins.

October 2005: Both bridges are completed and PCH detour is removed. Groundwater barrier is completed; dewatering ceases. Dredge is brought into full tidal basin, water level is controlled to operate dredge. 1.7 million cubic yards of sand are pumped to the ebb shoal location at the south end of Bolsa Chica State Beach.

December 2005: Cleanup is completed on a 42-acre site of contaminated land. Hearthsides sells the land to the state as part of the restoration project. The state acquires 103 acres of the lower bench of the mesa, bringing the amount of open space to nearly 1,300 acres. Dredging in tidal basin and ebb shoal continues. Pocket culvert connection to Outer Bolsa is completed and muted tides flow in the Pocket north of the flood channel. State Beach fence, parking lot, and exit road are completed.

May 2006: Jetties are completed. Inlet sand plug is removed; sand is placed on beach, allowing daily ocean tides to ebb and flood over full tidal basin and muted tidal areas.

August 2006: Contractors demobilize and the Restoration Project is deemed complete. Marina Landscape begins maintenance, which lasts through the end of the year.