

Mirafi® HP Seafloor Capping San Diego Bay, CA, USA

Project Data

Project	: Capping of soft contaminated seabed
Products Used	: Mirafi® HP770

Overview

Since the 1880's, the Campbell Shipyard site, adjacent to the Hilton San Diego Conventional Center in downtown San Diego, was used for industrial activities including shipbuilding, the manufacturing of bulk petroleum, and gas waste disposal. As a consequence the environment surrounding the site was heavily contaminated requiring extensive environmental remedial work to clean up the site for development.

The first phase of remedial work required treatment or removal of more than 60,000m³ of contaminated soil from the upland portion of the project site. However, when the basin was tested it was determined that the dredging and proper disposal of such a huge volume of hazardous material would be too costly. As a solution, it was proposed to construct a cap over the sediment to permanently separate the contaminated sediment from the marine environment.

The largest portion of the capped area comprised an engineered cap covering an area of more than 3 hectares.

Design Solution

The engineered cap comprised Mirafi® HP770 overlaid by 600mm of sand to isolate the pollutant. A 300mm well-graded gravel aggregate filter layer was then placed over the sand. Finally a 600mm layer of armor stone was laid to protect against erosive hydraulic water action.

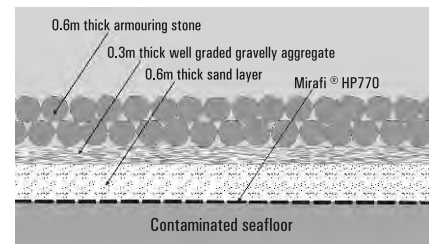
The final environmentally friendly habitat cap comprised of 6,500m² of eelgrass. The design of this portion of the habitat cap included a base layer of sand overlaid by Mirafi® and topped by a final layer of 600mm sediments with grain sizes ranging from medium to coarse sand to provide a suitable substrate to support the eelgrass. The function of the Mirafi® HP was to act as a separation layer to help isolate any underlying pollutants.

Construction

Prior to installation of the Mirafi® HP on the seabed, the contractor removed all material, including debris, rocks, and remnants of other piles exposed at subgrade that could damage the geotextile during placement or subsequent filling.

Dredging of specific areas of the site's impaired sediment was completed in the summer of 2006 in preparation for the capping procedures. The cap will isolate the site's impaired sediment from environmental receptors and allow for the site's continued use for navigation.

To aid in the accurate deployment of the Mirafi® HP on the seafloor, the contractor attached rebar encased in PVC pipe with capped ends. The rebar was attached perpendicular to the Mirafi® HP every 10m prior to being rolled off a floating sectional barge into the water. This technique allowed installation of the Mirafi® HP without the aid of divers. The project was completed within plan and budget and today the waterway is fully rehabilitated.



Typical cross-section of seafloor capping



Preparation of the Mirafi® HP770 prior to development

Mirafi® is a registered trademark of TenCate.

Further details of this application and products can be obtained by contacting your nearest TenCate Technical Support office.

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