

Harbour Seawall Rehabilitated

INDUSTRY

Infrastructure

STRUCTURE

Seawall

PROBLEM

Void Filling and Sealing

LOCATION

Sydney, Australia

DURATION / YEAR

3 days / 2003

TECHNOLOGY

Benefil

BUSINESS UNIT

Mainmark Australia

Cut-away demonstrates the void-filling action of Benefil.



Summary

In Kogarah Bay, Sydney, many years of tidal action had caused significant erosion behind the sandstone block seawall. Fines had been sucked out through the joints in the wall face, causing considerable voiding. Seepage of rainwater from the land had added to the erosion.

Injections of Mainmark's unique Benefil amino-plastic resin restored the integrity of the wall economically and quickly.

Objectives

The objective was to solidify the ground behind the wall and fill the joints in the wall itself, to make good the voiding, re-support the wall from behind and help prevent future erosion.

An integral part of this objective was to allow for the erosion-free escape of landwater.

Solution

After testing to determine the degree of voiding of the subgrade behind the wall, injection pipes were installed in a grid pattern to varying depths across the whole area.

At each low tide, when all water had receded across the mudflats and all landwater drainage had ceased, the injection process was commenced.

Through the 40mm Ø pipes, Benefil amino-plastic resin was injected by hydraulic pressure. Injection was continued until the resin emerged from the joints right across the wall face.

This indicated that all voids, including crevices and cracks had been filled. Subsequent probing confirmed that no voids remained in the areas behind the wall.

Benefil resin was selected as the injection material for several important reasons:

1. Benefil aggressively penetrates all sizes of voids.
2. It can be pumped for very long distances without setting too quickly.
3. It is an extremely economical fill material for large volumes.
4. Benefil is permeable enough for landwater to gently pass through the injected resin to escape into the waterway.

The full integrity of the Kogarah Bay seawall was restored quickly and economically, including provision for the drainage of landwater.