

WEST BAY HARBOUR WALL IMPROVEMENTS

West Dorset District Council

Bridport, Dorset, United Kingdom

Raymond Brown were awarded the contract to perform strengthening works on the Harbour Wall at West Bay in Dorset, UK. The works consisted of renewing timber piles and installing a pile supported restraint slab. Adjacent to the pile supported slab is an area of ground supported concrete pavement. Owing to the marine environment and restricted nature of the site, it was decided to utilise DURUS macro synthetic fibre reinforcement in lieu of traditional steel mesh.



Project owner
WEST DORSET DISTRICT COUNCIL

Product
DURUS S400 Synthetic Macro Fibre

Function
DURUS S400 - Replace conventional steel mesh reinforcement on a restricted site and eliminate reduced service life due to steel corrosion in a marine environment.

Contractor
Raymond Brown Construction

Background

West Bay Harbour Wall was seen to be in a poor state of repair and required remedial strengthening works to ensure it was structurally sound and safe for use.

Works consisted of a network of supporting piles, restrained by a conventionally reinforced concrete slab.

Adjacent to the pile supported restraint slab was an area of ground bearing concrete pavement. Initially, traditional steel mesh reinforcement was to be used, however, this would have caused safety issues on the site, which has a limited working area. Owing to the marine environment, there was also a high risk of reduced

service life due to surface spalling resulting from steel rebar corrosion.

Solution

- ADFIL were asked to provide a Professionally Indemnified macro synthetic fibre solution using a 200mm thick pavement with a C32/40 grade concrete.
- A ground bearing DURUS S400 solution was proposed and accepted by the Client, Contractor and Consulting Engineer.
- ADFIL consulted with the Concrete supplier to ensure batching and mixing procedures were followed.



The use of welded steel mesh reinforcement would lead to a shortened service life due to corrosion in this marine environment.

Benefits of the solution

- The risk of shortened service life associated with steel mesh corrosion has been eliminated.
- The Macro synthetic fibre reinforced concrete can be placed directly into the formwork without the risk of misplacing welded steel mesh, potentially leading to insufficient cover and reducing performance.

Installation benefits

- The Contractor was able to pour the pavement area without the need for handling, cutting and placement of welded steel mesh. Significant Health & Safety Hazards were therefore eliminated.



The confined nature of the site would make it difficult and dangerous to handle, cut and fix welded steel fabric. The DURUS S400 Macro Synthetic Fibre Reinforcement is contained within the concrete on delivery, so cannot be placed incorrectly or disturbed during installation.

- There was no requirement for storage of steel mesh on site, which had a limited working area.
- The required reinforcement is contained within the delivered concrete resulting in a more efficient installation and reduced construction time.

Result

- The new macro synthetic fibre reinforced concrete pavement will provide a durable quay side hardstanding, with no risk of reduced service life due to steel reinforcement corrosion.
- Installation in the restricted working site was straight forward and eliminated the significant health & safety hazards associated with steel mesh handling & placement.

Products used: DURUS S400 Synthetic Macro Fibre



Effective replacement of conventional steel mesh reinforcement in marine concrete applications.