

EMERGENCY TEMPORARY RETAINING WALL WEST VIRGINIA, MARYLAND

EMERGENCY WORKS

Product: FlexMac® DT

Problem

A canal wall on the C & O Canal National Park in eastern USA, had deteriorated over time and suddenly collapsed.

The mass gravity dry-stone wall also supported an access road above it. As the restoration of such a structure would take time to procure and implement, a temporary structure was required. It was anticipated that this temporary structure would be required for around 6-9 months.

The Park Service could not wait until the final repair was completed because the failure is in a flood prone area and the stability of the road at the top of the bank could be jeopardised.

Solution

A temporary mass gravity retaining structure was needed, that could be rapidly built and a number of alternatives were considered.

The Park Service selected FlexMac® DT because:

- The solution was economical
- The units are reuseable
- The fill for the FlexMac® DT was available on-site
- The installation was very rapid
- Very little installation training was necessary

FlexMac® DT elements are modular structures made from double twisted, heavily galvanized steel wire mesh panels, reinforced with vertical steel bars. The cells are connected together in the factory and then folded to reduce shipping volume and facilitate rapid deployment.

Each cell within the FlexMac® DT unit is lined with a geotextile which is fastened to the double twist wire hexagonal mesh during the manufacturing process.

The FlexMac® DT elements arrive on site in bundles wrapped in plastic for protection during freight and storage.

The transportation of the single FlexMac® DT unit is very simple and can be done manually. To deploy and assemble the single unit requires only 2-3 people and takes 20-30



Site preparation for the temporary wall



Deploying the FlexMac® DT



Installing additional lengths of FlexMac® DT

Project Engineer:

C&O CANAL NATIONAL HISTORIC PARKS

Designer:

C&O CANAL

Products used:

FLEXMAC® DT

Date of construction

1997

seconds.

Flexmac modules can be filled with many type of fill material and can be done either manually using shovels or using any suitable mechanical plant on site.

Following the deployment of the units into position, they were filled using an excavator. Three layers of FlexMac[®] DT were stacked to form a mass gravity retaining wall (the cross section was thicker at the bottom than at the top of the wall).

Following completion, the FlexMac[®] DT structure was exposed to the canal being filled. The canal water rose to a level of around 800mm up the structure. The FlexMac[®] DT structure provided a successful temporary wall until the original historic dry stone wall could be repaired.



Filling additional lengths of FlexMac[®] DT



Filling the FlexMac[®] DT



The second of three layers nearing completion



Canal filled after completion; First 1m course is submerged

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