

### WILKENS BOULEVARD EROSION REPAIRS BALTIMORE, MARYLAND, USA

#### RIVER BANK PROTECTION

#### Product: Gabions

##### Problem:

In July 1972, Hurricane Agnes dropped great quantities of rain water onto the eastern United States. The extreme rainfall quickly caused peak watercourse discharges in excess of 100 year events. Water run-off was made worse as the ground had already been saturated by rain in the weeks before the hurricane.

Wilkins Boulevard (MD Highway 1) in south-west Baltimore crosses Gwynns Falls River at S. Dukeland Street. Here, the storm surge caused by Agnes had washed out the road bridge, which needed replacing permanently.

An economic, hard wearing and free-draining retaining structure was required to retain the channel banks. Also, the structure had to train the river within a strict channel to divert the existing erosion impact away from susceptible areas. The river also has a heavy bed-load.

##### Solution:

City of Baltimore engineers appreciated the benefits of gabions and with Maccaferri Inc., designed gabion retaining structures with a maximum height of 18ft. Maccaferri double twisted woven steel wire mesh gabion baskets form permeable, monolithic and flexible structures. The woven mesh allows these gabions to accommodate large differential settlements without rupturing or unzipping.

Gabions were also detailed as anti-scour 'aprons' at the toe of each of the retaining walls to prevent erosion undermining the wall. Where gabion walls faced each other on opposite sides of the channel, gabions were used to line the entire channel between the walls.

As the wall was to be along the water course, PVC coated gabion units were specified (In 1974, the PVC offered by Maccaferri Inc was black in color).



View upstream towards drop-structures

Date: Spring 1985



View of completed structure

Date: Spring 1985



Vegetation through gabion

Date: Jan. 2004

Client:

CITY OF BALTIMORE, MD

Main contractor:

GABION CONSTRUCTION INC.

Designer:

CITY OF BALTIMORE

Products used:

GABIONS

Date of construction

FALL 1974

