PROTECTION OF ERODED RIVER BANK
TUCKER GULCH, COLORADO, USA

RIVER BANK PROTECTION
Product: Gabions and Reno Mattresses

Problem
In the Summer of 2003, the City of Golden, Colorado, suffered a 1:100 year storm event. The storm water flows were sufficiently high to wash 5000lb boulders downstream. At Tucker Gulch the erosion was severe and properties adjacent to the river were in jeopardy.

Solution
The City of Golden approached Maccaferri Inc. for assistance in designing a gabion mass gravity structure that would retain the unstable river bank and also provide erosion protection for the future. This dual function is an ideal application for gabions.

The channel was 7 ft deep prior to the storm. However, a 15 ft high retaining structure was now required - evidence of the amount of erosion caused by the storm.

An 18” thick scour protection apron was detailed at the toe of the retaining structure, protruding 9 ft into the channel. This provides scour protection and limits erosion undermining the toe of the structure.

The upstream end of the gabion retaining structure was cut back into the existing river bank to provide a smooth transition between the unprotected river bank and the new structure.

Maccaferri gabions are manufactured in accordance with ASTM 975 from double twist hexagonal galvanized steel wire mesh. The woven mesh is very robust and can accommodate large differential settlements without rupturing or ‘unzipping’. The junction strength (or weave) is at least as strong as the wire itself. Stresses in the mesh can be dissipated in two dimensions throughout the mesh.

This characteristic of the double twist woven mesh is vital in critical infrastructure applications where there is the potential for differential settlement.

Client:
CITY OF GOLDEN, COLORADO

Main contractor:
CITY OF GOLDEN CONSTRUCTION CREWS

Designer:
CITY OF GOLDEN, MACCAFERRI INC.

Products used:
GABIONS, MACTEX

Date of building:
FALL 2003
Typical details showing plan view and cross section through the gabion retaining structure.