



CASE STUDY:

HYDRAULIC STRUCTURES

Manukau Golf Course Residential Development

MANUKAU, SOUTH AUCKLAND
MAY 2017

CLIENT: FLETCHER RESIDENTIAL
CONTRACTOR: ICB CONSTRUCTION

MACCAFERRI GABIONS

Maccaferri Gabions are rectangular woven wire mesh baskets filled with rock to create flexible, permeable structures such as retaining walls for architectural, mining, industrial and road projects. They are also used for erosion protection, weirs and bank stabilisation and to create architectural and design features. Their strength comes from a double twisted hexagonal mesh of steel wire, reinforced by heavier gauge wire along the edges and internal diaphragms. Maccaferri Gabions have been widely used across Australasia for over 50 years.

A gabion lined water course / wetland flow path was required for 1 in 100-year storm events for this new residential development. The channel is designed to cope with high water flow in heavy rain events hence the need for protection of the channels side walls using genuine Maccaferri gabion baskets. Under normal site exposure Maccaferri Galmac/PVC coated double twist wire Gabions have BBA certification of up to a 120-year working life.

Approximately 400 2x1x1 m and 240 2x1x0.5 m Galmac/PVC coated double twist wire gabion baskets were installed by a six person team over a three month period. Some weather delays were experienced in the construction phase, but speed of installation was significantly increased due the use of two Geofabrics hired pneumatic lacing tools.

1,200 m² of Bidim A29 non-woven geotextile was placed under and behind the gabion structures to prevent migration of fines from backfill or excavated soil walls.

Maccaferri Gabions are a durable and adaptable option for soil erosion and bank stabilisation projects. When laced together the gabions provide a flexible monolithic mass gravity retaining structure that can accommodate differential settlements. Maccaferri Gabions can withstand high shear stresses and earth pressures and can be easily adapted to site conditions.

They offer an environmentally friendly retaining solution with low installation costs. Because of the high permeability of the rock filled gabion baskets, any potential for hydraulic pressure build up behind the retaining wall is virtually eliminated adding to the overall stability of the structure.

Careful placement of rock fill in the outer exposed faces of the gabion baskets can also provide an aesthetically pleasing finish as shown in this project.

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