

SIX LANING OF GURGAON-KOTPUTLI-JAIPUR SECTION OF NH-8 GURGAON-KOTPUTLI-JAIPUR, HARYANA AND RAJASTHAN, INDIA

Vertical Drainage Works

Problem

The Gurgaon-Kotputli-Jaipur on NH-8 is a high traffic corridor (km 42.7 to km 273.0) connecting Haryana and Rajasthan. The corridor was four laned as part of NHAI's Golden Quadrilateral project. Due to high traffic congestion, this four laned road was proposed to be developed into six lane.

It was decided to construct a masonry wall along the highway to retain the embankment. As per MORTH requirements, 600mm thick gravel filter shall be provided behind retaining wall as a drainage media to quickly drain off excess pore water which may develop behind the wall. Weep holes were provided throughout the length of the wall to drain out the seepage from the backfill.

M/s. NKC Projects Ltd. requested Maccaferri for a suitable solution to replace this 600mm thick gravel filter, as it was very difficult to maintain quality and consistency of conventional graded gravel filter. Also, time required for construction of graded gravel filter was high.

Solution

Maccaferri proposed a better alternative solution of placing a layer of MacDrain® behind the retaining wall, replacing the conventional drainage arrangement of graded gravel layer.

MacDrain® is a specifically designed geocomposite to meet the drainage and protection requirements in structurally demanding water draining applications.

NHAI requested to conduct field trial on MacDrain® for a stretch of 20m. M/s. NKC Projects, submitted a detailed plan to conduct field trial on MacDrain®. The trial was witnessed by M/s CEG (Project Management Consultant), independent consultant M/s. SNC Lavlin and NHAI officials. The trial program spanned over 20 days. The drainage composite was retrieved by removal of backfill after 20 days.

Advantages of MacDrain:

- Effective solution compared to gravel drain.
- Non-biodegradable.
- Being factory made, high quality is ensured.
- Convenient to install.
- Economical.
- Eco-friendly.

With due consideration to the above it can be concluded that the trial was successful and clearly indicate the effectiveness of MacDrain as a drainage layer.

Client: NHAI

Designer / Consultant: Maccaferri (Designer) / CEG and SNC Lavlin

Contractor: M/s. NKC Projects Ltd.

Products used (Qty.)

- MacDrain N 34,800 sqm

Date of construction: 12/2009 - 02/2010



Photo 1: Masonry retaining wall



Photo 2: Dressing of protrusions



Photo 3: Placement and joining of MacDrain®



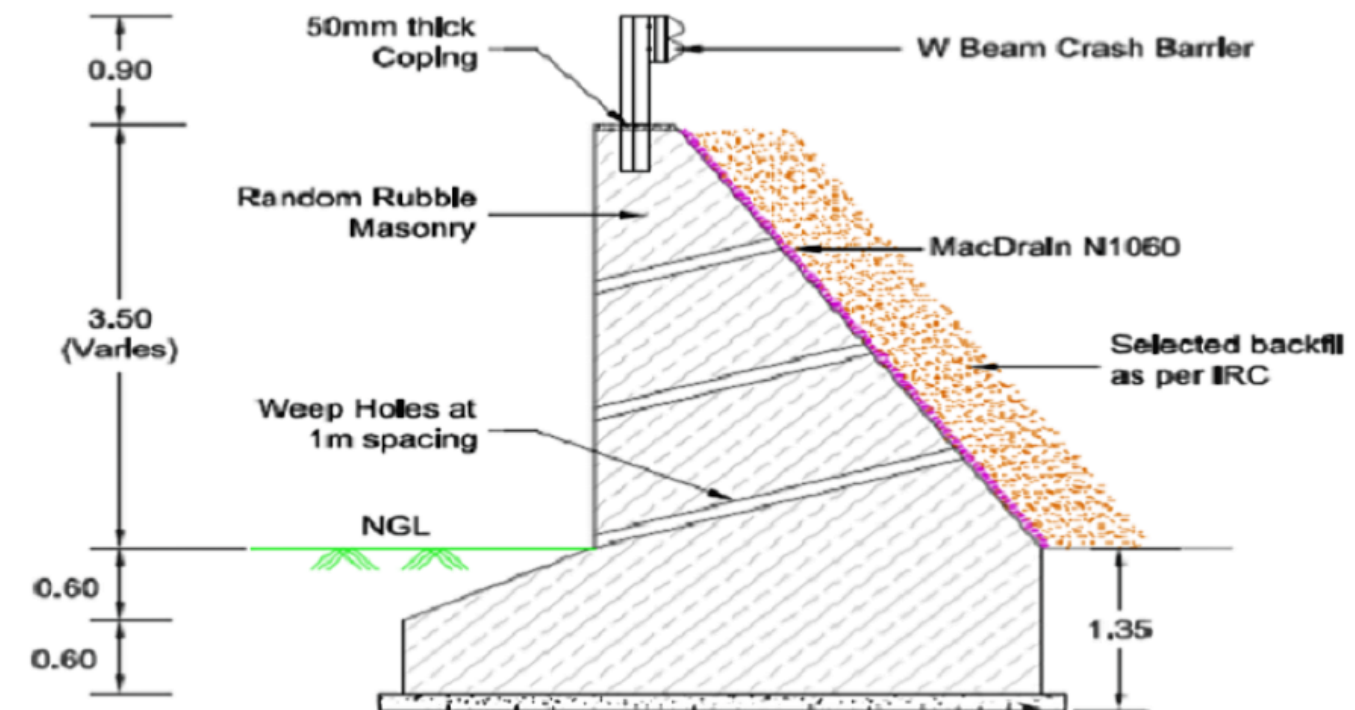
Photo 4: Placement of backfill till top of wall



Photo 5: Seepage noted from weep holes



Photo 6: MacDrain® retrieved after test



Typical project drawing section