

EROSION CONTROL MEASURES ALONG NH 39, MANIPUR, INDIA

CH: 350+000KM TO CH: 395.680KM, IMPHAL - MOREH SECTION, INDIA

Slope Protection

Problem

The slope application area from Ch: 350+000km to Ch: 395.680km along Imphal-Moreh section of NH 39 is on a mountain passage situated in the state of Manipur, India. As part of the road development works, excavations are done along the stretch and the exposed cut slope was at risk of eroding due to reasons such as heavy precipitation during the rainy season, gradient, absence of vegetation cover, drainage issues, etc. Denudation of vegetation from soil slopes or the lack of vegetative cover on cut slopes is often responsible for formation of rills and rain-cuts which eventually leads to a surficial slide that can be dangerous and pose harm to the people and infrastructure.

Hence, it is pertinent to address the need for protecting the slope in order to control the erosion by growing sustainable vegetation.

Solution

To protect the slope, hydraulically applied erosion control measures comprising of MacFlex HP FGM (HECP), MacGanics BSM (top soil alternative) and other agronomic amendments are applied on identified application area including both hillside and valley side slopes. Agronomic soil tests have been conducted to determine the soil nutrients condition to measure soil's ability to supply essential elements to seeds, to recommend the suitable solution, amendment to improve the soil and to ensure appropriate plant species selection.

The seed species are selected based on the soil type present at site, pH, climate, type of planting, availability of local seeds and discussions with a horticulturist. The quantities of various components are finalized before mixing in a hydroseeder along with seeds and water in a two step process. The mixed slurry has been sprayed over the slope surface and maintenance has been done by spraying water on the slope to avoid drying of the material. Soon after the application of erosion control measures at site, the applied systems have started showing the performance with respect to erosion control of the embankment slope (i.e. vegetation coverage). Germination has started within some days and vegetation is visible on the treated slope. Proper maintenance of the treated areas is mandatory to ensure the sustenance of the system.

Client: National Highways & Infrastructure Development Corporation Ltd. (NHIDCL)

Designer / Consultant: GR Infra Projects Limited

Contractor: Maccaferri Infrastructure Private Limited

Products used (Qty.)

- Geosynthetic Accessories 100000sq.m
(MacFlex, MacGanics)

Date of construction: 03/2021 - 12/2021



Figure-1 Pre-watering works (hill side)



Figure-2 Application of MacGanics (valley side)



Figure-3 Application of MacFlex(hill side)



Figure-4 Watering after mulch application (hill side)



Figure-5 Germination observed after some days of application



Figure-6 Watering done over vegetated slope(hill side)



Typical Cross-section

MACCAFERRI ENVIRONMENTAL SOLUTIONS PVT. LTD
D40, MIDC Ranjangaon, Tal-Shirur, Dist. Pune - 412 220
Tel: +91 2138 393000 , Email: info.in@maccaferri.com