

EROSION CONTROL MEASURES TRIAL AT HINDALCO'S RENUKOOT PLANT

RENUKOOT, SONBHADRA, UTTAR PRADESH, INDIA

Slope Protection

Problem

The trial location was identified over the area of dumped soil (over burden at the mining location) at Hindalco's Renukoot plant. The soil was getting transported via wind causing severe environmental pollution of surrounding areas. Also, the soil erosion was noticed during the monsoon season which was in the form of rain cuts.

To protect the slope from erosion, bio-engineering measures were required to be adopted. The objective of the trial was to find out the feasibility and effectiveness of using Hydraulically Applied Erosion Control solutions on the dump soil, ensuring the vegetation growth for long term erosion control.

Solution

To protect the slope, Maccaferri suggested Hydraulically Applied Erosion Control materials - MacFlex, MacGanics and other agronomic amendments such as AquapHix, Jumpstart and Bioprime. As part of the trial, project area of 2,000 sqm was selected, split into multiple bays and the products along with different combinations of seeds was applied on the slope. Agronomic soil tests had been conducted to determine the soil nutrients condition to measure soil's ability to supply essential elements to seeds. These tests are required for selecting the amendments to improve soil and ensuring appropriate plant species selection.

The seed species have been selected based on the soil type present at site, pH, climate, type of planting, availability of local seeds and discussion with horticulturist. The quantities of hydraulically applied erosion control materials, soil amendments were finalized before mixing in hydro-seeder along with seeds and water in a two step process. The slurry obtained after mixing had been sprayed over the slope surface and maintenance was done by spraying water over the same to avoid drying of the material.

Soon after the application of erosion control measures at site, the applied systems started showing the performance with respect to erosion control of the embankment slope (i.e, vegetation coverage). Germination started within few weeks and grasses were visible on the treated slope. Proper maintenance of the treated areas was mandatory to ensure the sustenance of the system.

Client: Hindalco Industries Limited (HIL)

Designer / Consultant: Maccaferri Environmental Solutions Pvt. Ltd.

Contractor: Maccaferri Environmental Solutions Pvt. Ltd.

Products used (Qty.)

- Other Biomaterials	2,000 sqm (MacFlex, MacGanics)
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Date of construction: 08/2018 - 08/2018



Photo 1: Initial condition



Photo 2: Application of MacGanics



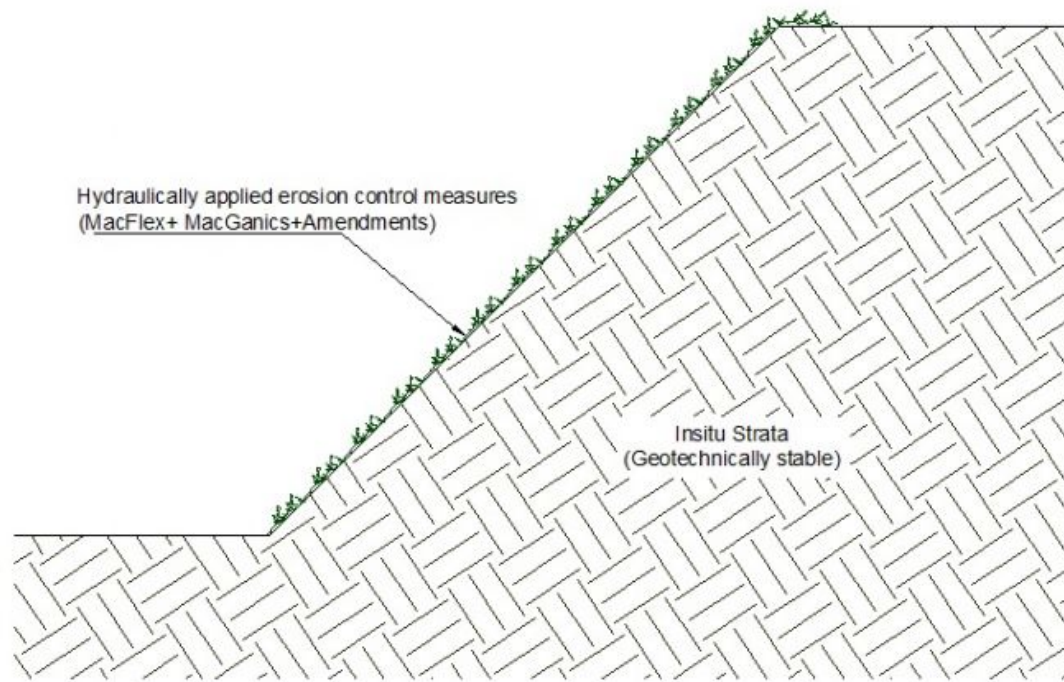
Photo 3: Application of MacFlex



Photo 4: Maintenance activities done over the application area



Photo 5: Vegetation growth over the area after 45 days of application of HECs



Typical Cross-section

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