

ROCKFALL PROTECTION EMBANKMENT-ANTAMINA ANCASH, PERU

ROCKFALL PROTECTION - ROCKFALL EMBANKMENTS

Product: Terramesh[®] System, MacGrid[®]

Problem:

The primary crusher at the Antamina mine was sited adjacent to a rock slope. Rocks detaching from the slope had caused damage to the crusher. The existing rock-fall protection system was not tall or substantial enough to absorb and retain the rock impacts. Therefore, the mining company urgently required a solution that protected the integrity of its facilities.

The project is located within the premises of Compania Minera Antamina SA, at an elevation of 4300 m in the district of San Marcos, Huari province, Ancash department, 270 km northeast of Lima.

Solution:

The mining company needed a solution that protected their staff and crusher facilities and hence the commercial operation of the mine. Consulting engineering firm, Klohn Crippen, conducted the feasibility study and managed the project design. Maccaferri Peru, proposed solutions addressing the specific characteristics of the project.

Engineers from Maccaferri Peru S.A.C. proposed the construction of a Terramesh System reinforced soil embankment with a height of 20 meters. The embankment is designed to:

- withstand repeated rockfall impacts of 4500 kJ energy and
- contain landslides / debris flows up to the height of the barrier.

The Terramesh System is a reinforced soil system for stabilising steep and near vertical slopes. A Terramesh unit consists of a continuous horizontal panel of steel wire double twisted mesh geogrid with an integral gabion fascia unit. The fascia unit is filled with hard, durable rock fill, and the geogrid tail is then sandwiched between layers of compacted backfill.

In this rockfall embankment, the Terramesh soil reinforcement was supplemented by Maccaferri MacGrid polyester geogrids. The combination of grid elements provided the necessary reinforcement function for this demanding embankment.

Client:

COMPANIA MINERA ANTAMINA

Designer:

MACCAFERRI DE PERU S.A.C./ KLOHN CRIPPEN

Rockfall consultant:

MACCAFERRI DE PERU S.A.C./ KLOHN CRIPPEN

Rockfall contractor:

TRANSLEI

Products used:

9000m² TERRAMESH[®] 41,300 m² MACGRID GEOGRID

Date of construction

JUNE - OCTOBER 2009



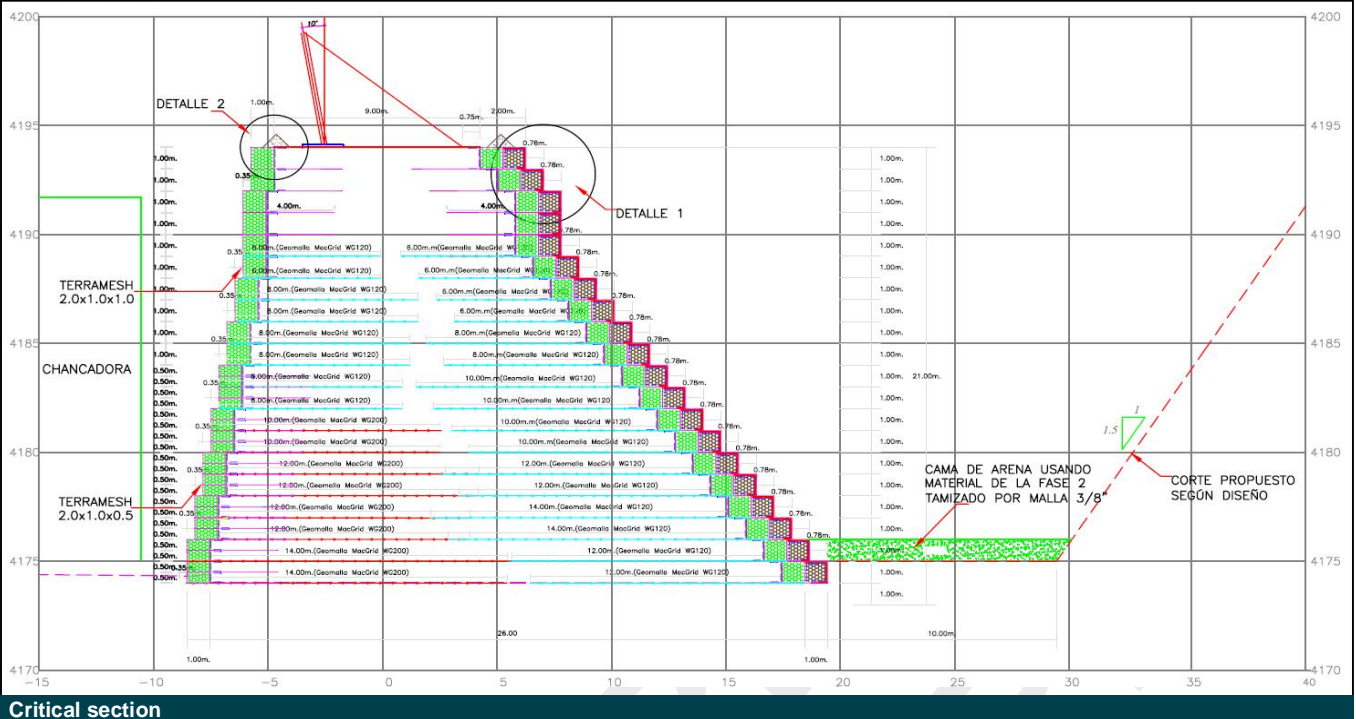
Before construction, showing the existing catch-fence



During construction, placing the Terramesh units



During construction, filling the Terramesh fascia units



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