DRAINTUBE® GEOCONDUCT® ALVEODRAIN® NOTEX C® NOTEX® GEOTER®

MINING INDUSTRY ENVIRONMENTAL ENGINEERING BUILDING CONSTRUCTION PUBLIC WORKS

Nickel Mines, NC
Dry Stack Mine Waste drainage

CONTEXT

In a context of increased needs for metals used in batteries manufacturing, such as nickel and cobalt, production has increased significantly over the years. The ore being extracted under a variable thickness of clay, the quantity of waste (laterite) increases for a relatively constant storage surface.

ISSUE

Thus, annual stacking heights have been continuously increasing for several years. Additionally, the climate change with the presence of la Nina brought an abnormally high rainfall in the region, both in the rainy and dry seasons. In order to address these two major constraints and maintain good stability of the slopes, it is necessary to provide an efficient drain for the stacks. Rock drains consisting of aggregates wrapped in a geotextile and spaced every 20 to 40 m, are one of the typical solutions. However, given the availability of rock and the low bearing capacity of the soil, especially when the laterite is saturated, this solution is technically complex and extremely costly.

RETAINED DESIGN

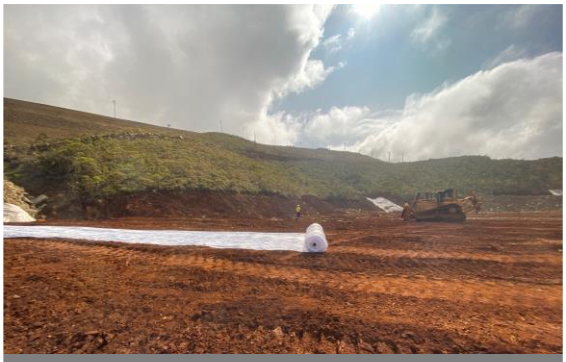
Multi-linear drainage geocomposites such as DRAINTUBE are well suited for slope drainage. Lightweight and easy to install, they are not susceptible to creep in compression even under very high loads, as per ASTM D7931. These products are recommended for mining applications, especially when slope heights exceed 10 meters (30 ft) or higher. DRAINTUBE 300P FT2 D25 and DRAINTUBE 300P FT4 D25 are used in drainage strips for the dissipation of pore pressure. Their main characteristics are:

- Two layers of non-woven geotextiles needlepunched together with perforated mini-drains of 25 mm diameter evenly spaced across the width of the product. The desired flow capacity determines the mini-pipe spacing.
- Long term transmissivity from $2x10^{-3}$ to $4x10^{-3}$ m^2/s under high loads (hydraulic gradient of 0.1, confined between 2 soil layers).

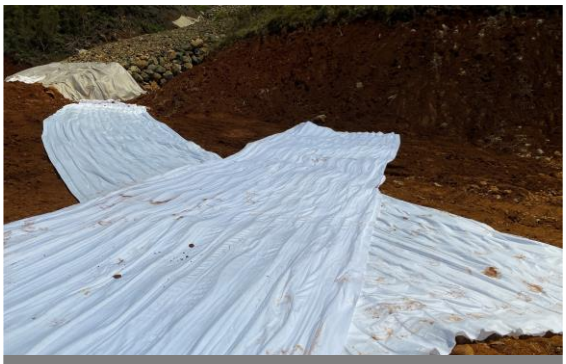
DRAINTUBE is installed in strips along the slope of the platform. To maintain a constant flow each roll is connected to the next using proprietary connectors. Then the product is covered with laterite every 5 meters (15 ft) of elevation.

AVANTAGES

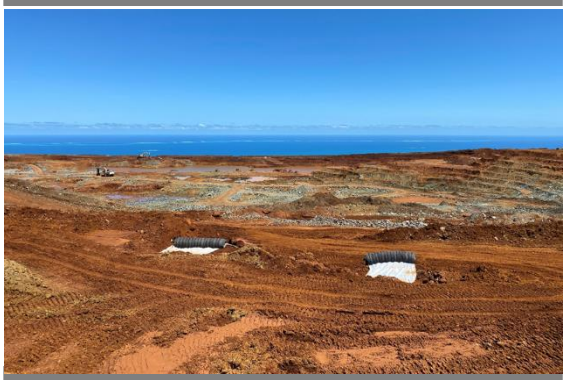
- Truck traffic is reduced by 99% vs a granular solution.
- The total cost savings is 5 time less than the granular alternative.
- Quick and efficient installation compresses construction schedules as tight as possible.
- 100% conformance testings assures a higher quality, more stable design.



Installation of DRAINTUBE 300P FT4 D25 in strips on the surface of the platform.



Strips of DRAINTUBE 300P FT4 D25 connected together



Backfill of DRAINTUBE 300P FT4 D25.

PROJECT DESCRIPTION			
Product	**DRAINTUBE 300P FT2 D25 / DRAINTUBE 300P FT4 D25**		
Quantities	**Depending on required flow capacity**	**Engineer**	**Mecater**
Application	**Dry Stack drainage**	**Installation**	**Mining company**
Owner	**Nickel mines from New Caledonia**	**Year**	**2022-**

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AFITEX-TEXEL GEOSYNTHETICS ADDED VALUE

The expertise of the AFITEX-Texel team provided the designers with all the necessary information and technical support which yielded the most suitable solution based on the project's parameters.

« What AFITEX-TEXEL has to offer »

AFITEX-Texel would be pleased to assist you in the evaluation and design of your next projects. Our approach has always been and always will be the same: the right product, in the right place, well installed with rigorous quality control.

In you need technical assistance, feel free to contact to the AFITEX-Texel team.
Expert services will be provided free of charge:

- Technical Assitance
- Assistance during Design
- Technical Training
- Technical Documentation
- Calculation Tools
- Specification & Tender documents
- Installation Guidelines

Nickel mine, NC - 2022

YOU NEED MORE INFO?

Never hesitate to contact one of our specialists in order to learn more about the benefits you can expect for your projects

1-800-463-0088

Available documentation

- Technical data sheets
- Installation guidelines
- Standards & Studies
- List of projects
- Design Software

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