

CASE HISTORY

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GEOCOMPOSITE DRAIN USED BEHIND THE ABUTMENT, WING WALL OF MAJOR AND MINOR BRIDGES AND EARTH RETAINING STRUCTURES FROM REWARI - DADRI, CTP - 14, WDFC - PHASE II
HARYANA, INDIA



Railway retaining structures vertical drainage application

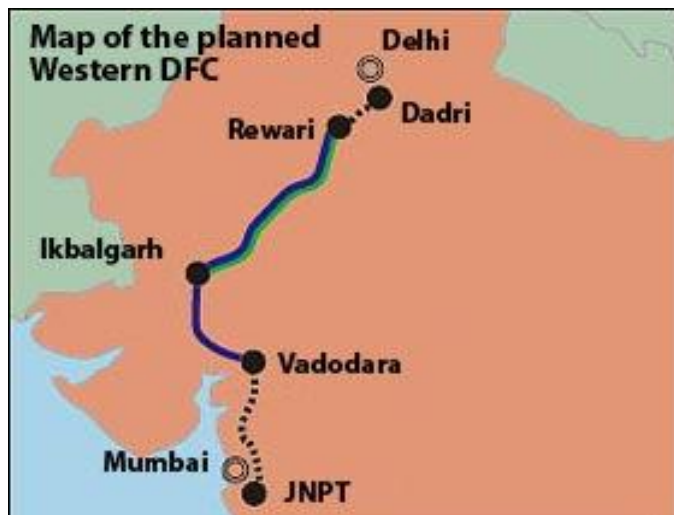
Client:	Products used:
DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD (DFCCIL)	TFI DRAINAGE COMPOSITE - TECHDRAINS
Main contractor:	Quantity supplied:
L&T SOJITZ CONSORTIUM	80,000 SQM.
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	MARCH 2020, ON GOING

Project description:

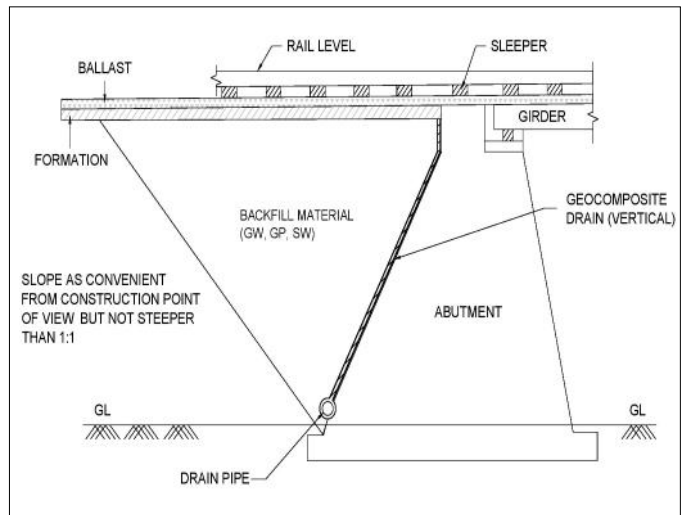
Phase-II of the Western Corridor of the Dedicated Freight Corridor consists of 550 km of double line electrified track with 2x25 kV AC, 50 Hz overhead catenary system. It consists of two sections namely Southern Section and Northern Section. Southern Section stretches from Jawaharlal Nehru Port (JNPT) to Vadodara (422km) and Northern Section stretches from Rewari to Dadri (128km) for a total length of 550km.

The work shall be carried out between Rewari to Dadri (128 km) through the regions of Rewari – Alwar – Mewat – Gurgaon – Palwal - Faridabad – GB Nagar in the state of Haryana – Rajasthan and Uttar Pradesh. This whole section of 128 km is in a detour and a green field project. This Design and Build Integrated Package involves the construction of Civil (Embankment, Structure, Tunnel), tracks, major & minor bridges, traction sub stations etc.

L&T Construction has won the project from the Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL). Innovative construction methods have been adopted to reduce the construction duration.



Map of the planned Western DFC



Cross Section drawing

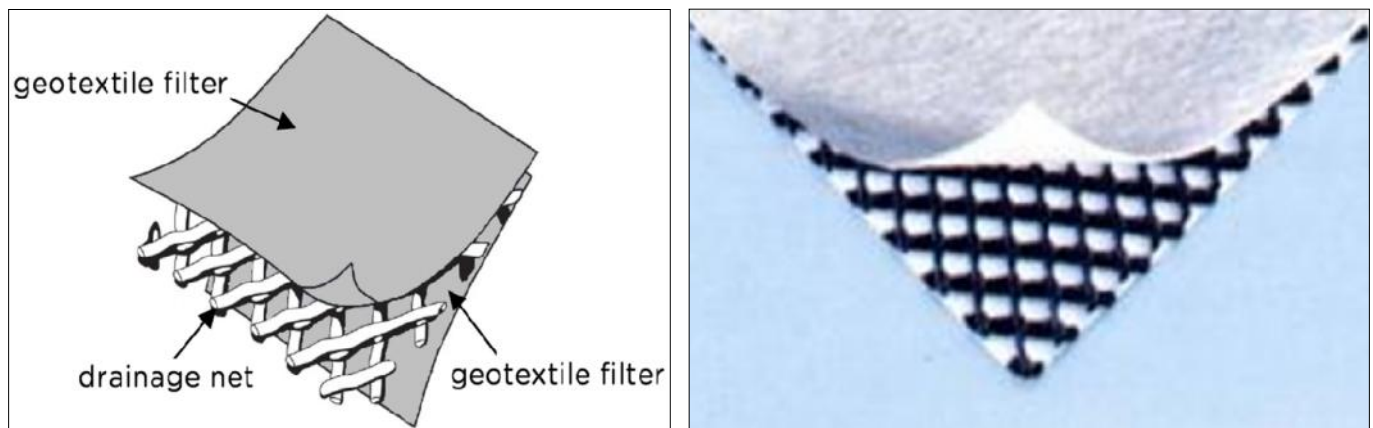
Problem:

Providing a proper drainage system behind the retaining structure is very important, as lack of proper drainage can lead to develop the pore water pressure and which lead to damage or failure of retaining structure. So it is utmost important to design a proper drainage arrangement. Conventional drainage system requires huge quantity of granular materials. Here, in this project there is scarcity of such granular materials and it is available at higher cost. Also the installation of the conventional drainage requires great skill and it is more time consuming.

Solution:

L & T Construction approached TechFab India for alternative drainage solution for this problem. To overcome this problem TechFab India has suggested to use TFI Drainage Geocomposite - Techdrain, as this product is developed based on the requirement of drainage and based on the specification suggested by Government authorities like MoRTH, IRC & RDSO. As this is the project of Railways, the product specification is conforming to RDSO Guidelines (Specification No : RDSO / 2018 / GE: IRS - 0006).

For approval compliance, it was necessary to carry out third party testing, and TechFab Drainage composite was tested for all the requisite parameters, at third party laboratory, results were satisfactory, as per RDSO standard specification. Approval granted from DFCCIL, after complying all the pre requisites as per RDSO standard requirements.



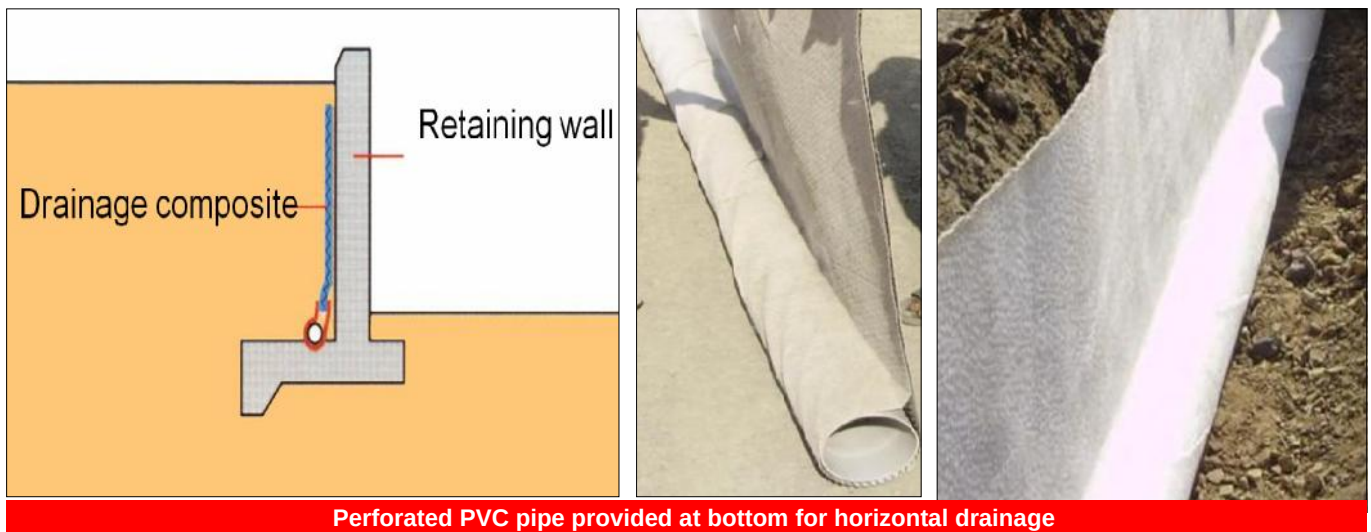
TFI Drainage Geocomposite - TechDrains

Drainage composites are formed by a combination of Nonwoven Geotextile, acting as a filter and separator on one or both sides with a core of Geonet.

These are prefabricated drainage products which directly replace the granular drainage layer completely or partially. They are normally consist of a polymer sheet core covered by a geotextile acting as a filter and separator on one or both sides. This allows water to pass through into the polymer core but prevent the soil particles to enter inside. It reduces the pore water pressure and thus increases the overall stability of earth retaining structures.

Its multi-directional flow design allows a continuous path for water discharge, eliminating the potential for hydrostatic pressure build up. It allows water to pass freely into the drainage core, where it is gravity fed into the main drainage collection system.

Drainage Geocomposite is laid behind the wall facia as shown in the cross section drawing. At the bottom end, it is connected to perforated PVC pipe (Optional) of suitable diameter to drain the water off.



Advantages of TFI Drainage Geocomposite - TechDrains

- Enhanced Drainage Performance – With high flow capacity, it will reduce pore water pressure effectively and provide engineered drainage path for water to drain out.
- Faster Construction – It is easy to install therefore allows fast construction.
- Cost Effective – Techfab Drainage Composite is Cost effective and technically superior/equivalent measure.
- Longer Service Life – It's multi-directional flow design allows a continuous path for water discharge, eliminating the potential for hydrostatic pressure build-up which increases service life.
- Increased Sustainability – It can be used to engineer efficient and economic solutions by minimizing aggregate requirement



After Installation of TFI Drainage Geocomposite - TechDrains



After Installation of TFI Drainage Geocomposite - TechDrains

Conclusion:

The project is ongoing.

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