

DREUX SOUTH DEVELOPMENT, FRANCE

Containment of polluted soil



Industry: Site development
Sub-industry: Stormwater management
Location: France
Product: OSMORIA® Geoclean®

Overview

The Dreux South Development, part of the 2015-2020 CPER (State-Region Plan Contract), addresses a 3 km section of the RN 154, extending south from the “Léo Pharma” roundabout. The North-West Interdepartmental Directorate of Roads (DIRNO) aims to reduce congestion in this area and improve safety across the entire roadway. The project was divided into two phases, with work completed between 2021 and 2022.

To contain and treat the contaminated soil, an active oil-depolluting aquatextile was installed to separate it from the underlying subgrade.

CASE STUDY

Containment of polluted soil

Challenge

During road widening, soil analysis of the excavated material revealed hydrocarbon levels exceeding the acceptable limit of 500 mg/kg of dry matter. DIRNO's goal was to reuse approximately 800 tons (around 400 m³) of this hydrocarbon- and PAH-contaminated soil on-site, rather than transporting it off-site for disposal.

Aquatextile OSMORIA Geoclean Origin was selected for its ability to treat hydrocarbon and PAH contamination effectively and sustainably.

Solution

To contain and treat the contaminated soil, an active oil-depolluting aquatextile was installed to separate it from the underlying subgrade. The polluted soil was spread over 1,200 m² of OSMORIA Geoclean Origin in a 0.35 m thick layer and then covered with a 0.10 m layer of clean topsoil.

This setup allows rainwater percolating through the contaminated soil to carry leachate loaded with hydrocarbons and PAHs to the aquatextile. The OSMORIA Geoclean aquatextile captures these pollutants and binds them irreversibly. It then stimulates their biodegradation by native microorganisms, ensuring contaminants do not spread into the surrounding environment.

Enhanced biodegradation process

The aquatextile's porous structure is enriched with mineral nutrients, encouraging rapid colonization by native microorganisms. This accelerates the degradation of hydrocarbons bound within the aquatextile, a process that is maintained for over 100 years. OSMORIA Geoclean Origin provides an optimal environment for these microorganisms, progressively decontaminating the confined soil layer without the need for ongoing maintenance.

Cost and environmental benefits

OSMORIA Geoclean Origin offers a self-sustaining solution that reduced the project's contaminated soil management budget by two-thirds. This approach, approved by the Departmental Directorate of Territories (DDT) of Eure-et-Loir, also restored soil quality, facilitating landscaping that supports biodiversity and creating a safe, environmentally-friendly site.

Tests conducted with runoff water containing C₁₀-C₄₀ hydrocarbons (30 mg/L) demonstrated OSMORIA Geoclean's efficiency, achieving a retention and/or biodegradation rate of 99.9%, with outlet concentrations below 0.7 mg/L.



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