Soil Treatment Centre for Hydrocarbon Impacted Soils

Intelligent Ground Remediation

Summary

- Hydrocarbon impacted soils treated and diverted from landfill.
- Treated soils sent for re-use, better adhering to the Waste Hierarchy.
- Major cost reduction for client for disposal of contaminanted soils.
- Soils are treated by an enchance natural process which is adaptable to different types of soil and hydrocarbon contamination.

Background

The aim of a Soil Treatment Centre is to divert hydrocarbon impacted soils from landfill, treat them with an enhanced natural process and allow the treated soils to be re-used. This process enables a site disposing of soil to better adhere to the **Waste Hierarchy and also avoid Landfill Tax** and a **landfill gate** fee, as none of the treated soil is sent to landfill void.

Geo² Remediation Ltd designed, built and installed the vacuum extraction system to run a Soil Treatment Centre for an international waste management company at one of their sites in the south of England. The design phase ensured the specifications of the client would be met for the **treatment of up to 50,000 tonnes of hydrocarbon impacted soil per annum**, and that any **requirements of the EA** for the operational site **were considered** at an early stage. The build was completed by Geo² engineers and **within the timeframe agreed** with the client. Once up and running the entire system was tested on soil inputs to site, achieving or improving on the time to treatment of 16 weeks. All **site emissions were kept below targets set by the EA** and the client during the treatment process.

Aerobic Bio-degradation

The process of aerobic bio-degradation is a processby which naturally occurring bacteria in soils break down organic contaminants. The bio-degradation process breaks down long-chain organics to volatile organics which are then drawn out by the aeration system and treated in the biofilter before being exhausted to atmosphere.

The bio-degradation process can be augmented by adding nutrients such as mature green waste to the soils undergoing treatment, breaking up soils with a mechanical excavator can also help the aeration process.

Design and Build of the Vacuum Extraction System

The Soil Treatment Centre works on the principle of **biological degradation of contaminants in soils** an entirely natural process which can be improved and sped up by **aerating** soils. To achieve aeration of soils on the scale required Geo² designed and built a bespoke **air vacuum system** capable of **drawing 300m³/hr of air** through a manifold 200m long with 56 soil aeration pipes attached. The vacuum aeration system was designed to be able to treat up to **15,000 tonnes of soil on the Soil Treatment Centre pad at any one time**.

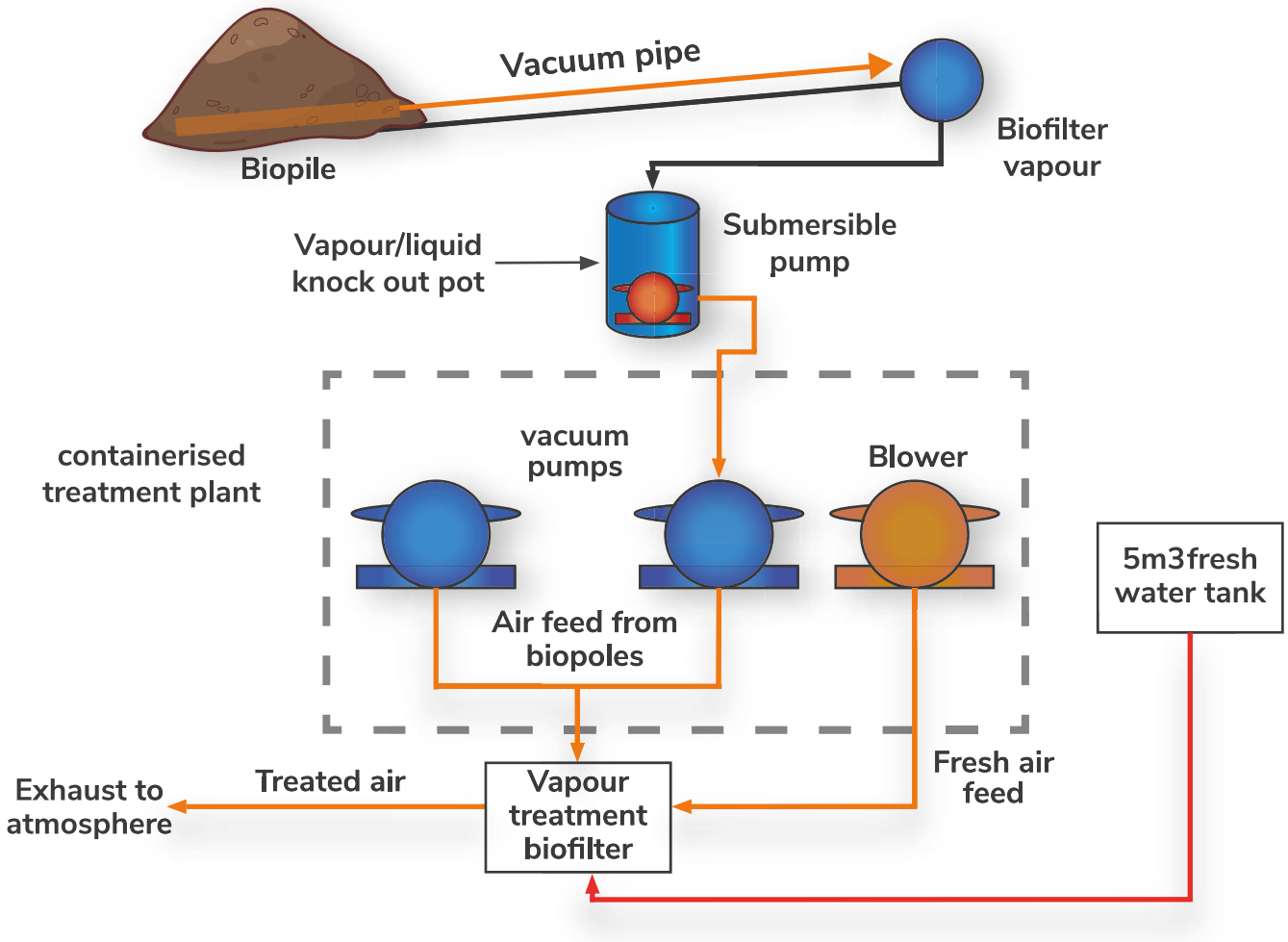
As part of the build process to ensure quality the installed **plant was CE marked**. To aid handover of the site an **extensive Operations and Maintenance manual was produced**.

Runing the Soil Treatment Centre

Once the soil treatment system was installed Geo² also provided expert advice on the running of the site from their team of **WAMITAB COTC technically competent managers**. A programme of training provided by Geo² staff with expensive experience running Soil Treatment Centres ensured that the site was up and running, treating inputs as soon as possible.

Guiding client site operatives over a period of 32 weeks Geo² demonstrated soil treatment techniques specific to soil or hydrocarbon contaminant types. The STC system was tested under high stress conditions with heavily contaminated soils and was able **to treat soils as required while keeping emissions below agreed target levels**.

The Soil Treatment Centre is now being run by the client, continuing to operate as designed by Geo².



Biopiling Treatment System

Geo2 Remediation Ltd Coniston House, Louisa Street, Idle, W. Yorks, BD10 8NE
0113 257 5397 info@geo2.co.uk geo2.co.uk