Case Study: Environmental Limits

Use of SUREGROUND™ as a sustainable alternative to stone

Where:
National Grid's Hinkley Connection Project, Mendips 400kV Cables

When:
March 2020

Who: **UKCS South & Power T&D**

On the Hinkley Connection Project we continually strive to find better ways of doing things. SUREGROUND™ by Soil Science Ltd is a more sustainable engineering solution for haul roads and laydown areas. It means fewer lorry movements, less vehicle-related emissions and a reduction in the quantity of aggregate transported onto site. Fitting the sustainability agenda, it delivers the best results for our customers, the local community and the environment and makes good business sense.

Matthew King, SHESQ Manager, National Grid

The Challenge

As part of the 400kV Cable works on National Grid's Hinkley Connection Project, a temporary compound and haul road was required to enable the construction of Sandford Substation. The initial design required stripping of topsoil and laying a stone hardstanding utilising a geosynthetic system. Poor ground conditions meant that stone thickness would be in excess of 500mm and a larger area for the storage of subsoil would be required.

The Measures

Over the course of 18 months, the Balfour Beatty project team have worked in conjunction with Soil Science Ltd to identify a sustainable alternative that would eliminate the need to import large quantities of aggregate to site and reduce the size of a soil storage area required.

This alternative came in the form of SUREGROUND™ Reversible Soil Enhancement System which mixes in-situ site soils with a proprietary binder. This stabilises the subsoil and increases the load bearing capacity of the ground.

A summary of the process for implementing SUREGROUND™ at Sandford Compound was as follows:

- Extensive testing of the subsoil confirmed the nutrient composition of the subsoil and determined the amount of binder required to stabilise the area.
- Following topsoil strip, the top 300mm of the subsoil was rotavated with SUREGROUND™ binder and compacted.
- Stabilised subsoil was then capped with an armoured layer of stone bound together with the SUREGROUND™ binder.

The Results

In comparison to traditional stone construction methods, SUREGROUND™ provides the following benefits:

- 11,000 tonnes of aggregate were designed out as no longer required;
- Overall 66% reduction in vehicle movements;
- Eliminates use of geosynthetics which would otherwise result in large volumes of plastic waste that cannot be recycled;
- Installation time was halved;
- Approximately 142 tonnes of CO_2 emissions have been prevented;
- Healthy community relationships were maintained by reducing vehicle movements on the local road network and associated noise, dust and vibration levels; and
- Area of works can be fully decommissioned with subsoils returned to their natural state in line with DEFRA pH and nutrient indices.

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