

CASE STUDY

SPL incorporates PowerCem Technology

‘innovative cement additive overcomes soft foundation and high water table making full recon a thing of the past’

Scheme: Darlington - The Fairway & Harris Street
Authority: Darlington Borough Council
Date: July 2019
Area: 2715 m² combined over 2 sites
In-Situ Process: 150mm In Situ Recycling with RoadCem Additive
Surface: 50mm SMA
CO2 Saving: 26 Tonnes



The Project involved creating a solution to an ongoing problem the client has been enduring over the past 5 years to a specific area of the network.

This area of the network is renowned for Coal Tar, high water table, surface level which has proved inconsistent over the years with many deep patched areas, along with this a poor foundation with a build-up of clay and pennant rock.

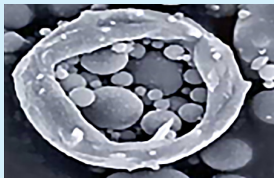
Darlington has carried out Full reconstruction repairs over the previous 5 years adapting various reconstruction methods from full depth excavation and reconstruction to the use of several types of geogrid and thinner reconstruction methods with an aim of improving the foundation.

With this in mind and the ever increasing pressure on Local Authority budgets, SPL were tasked to come up with a cost effective solution that still achieves the same design life as a full reconstruction and improves the foundation in the problem areas along with utilising the Tar bound Planings.

The PowerCem Technology

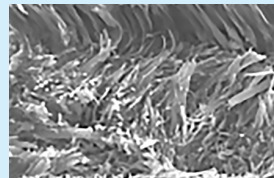
- Special composition of synthetic zeolites and alkali earth metals
- Patented • Full MSDS sheets • Produced according international ISO

Traditional Stabilisation



Cement glues the particles together - *Gluing is brittle*

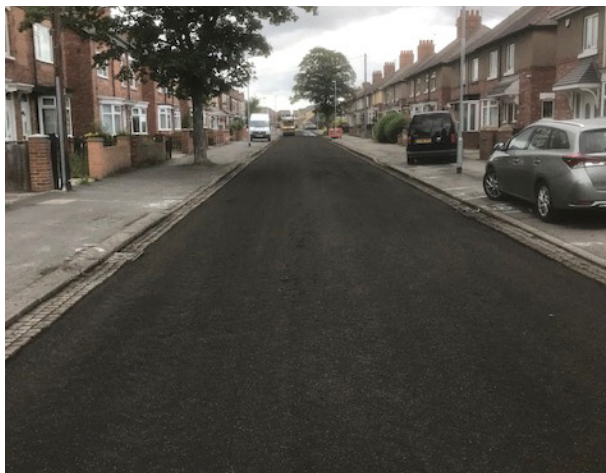
With RoadCem Additive



Formation of long strings, interlocking the particles. *Wrapping is flexible*

Once site suitability was identified SPL carried out site investigation works to gain LWD readings which will be converted to CBR values and which in turn determines how deep we would need to recycle.

The build-up of the existing carriageway construction is confirmed and sample materials are extracted for SPL to send to the lab for testing and propose a suitable design for authorisation.



Testing confirmed the characteristic poor foundation and tar contamination. LWD's were converted to an underlying 2-4% CBR value. The challenge around the foundation issues led SPL to propose the inclusion of RoadCem.

RoadCem is a product from PowerCem Technologies – it is a blend of Noble and non Noble metals, together with synthetic Zeolites, and it's inclusion within conventional deep in situ recycling modifies the standard cement hydration to allow in-situ site soils of any type to be utilised to replace imported stone as the base element for roads, compounds and piling and heavy crane platforms.

It will remain crack free and waterproof. With high visco elastic properties RoadCem has been used worldwide and uniquely it can be used without a wearing course or running surface, making it easy to recycle when used for temporary works.

In this case RoadCem was applied to the pulverised material prior to the blended cement binder thereby enhancing the performance of the HBM in terms of strength and flexibility when hydration had taken place.

Whilst there is every confidence around the performance of the RoadCem modified HBM, based on worldwide testimony, this is a trial site and will be monitored closely in order that SPL can bring this solution to many UK roads both urban and rural with similar issues of poor quality foundations impacted by shallow clays, high water tables and inconsistent make up.

On completion of the recycling a surface course of 10mm PMB Stone Mastic Asphalt was laid to a depth of 50mm.



Proud to be providing sustainable solutions.