

Project Case Study: Beacon Lane, Cramlington

Services: Remediation, Preparatory Earthworks
(concurrent Main Civil Engineering Infrastructure)



Demolition | Enabling Earthworks | Remediation | Drilling | Civil Engineering | Plant & Technology | Geotechnical | Environmental | Planning | Renewable Energy

The Sirius Group: Confidence you can build on

Client: Keepmoat Homes & Barratt Homes

Project: Former Opencast Remediation,
Beacon Lane, Cramlington

Duration: 6 months

Services: Remediation, preparatory earthworks
(concurrent Main Civils Infrastructure)

Sector: Residential

Contract value: £3.6m (+£6.5m Main Civils Infrastructure)



After excavation of soils and installation of geogrid, the placement of engineered fill and compaction is carried out

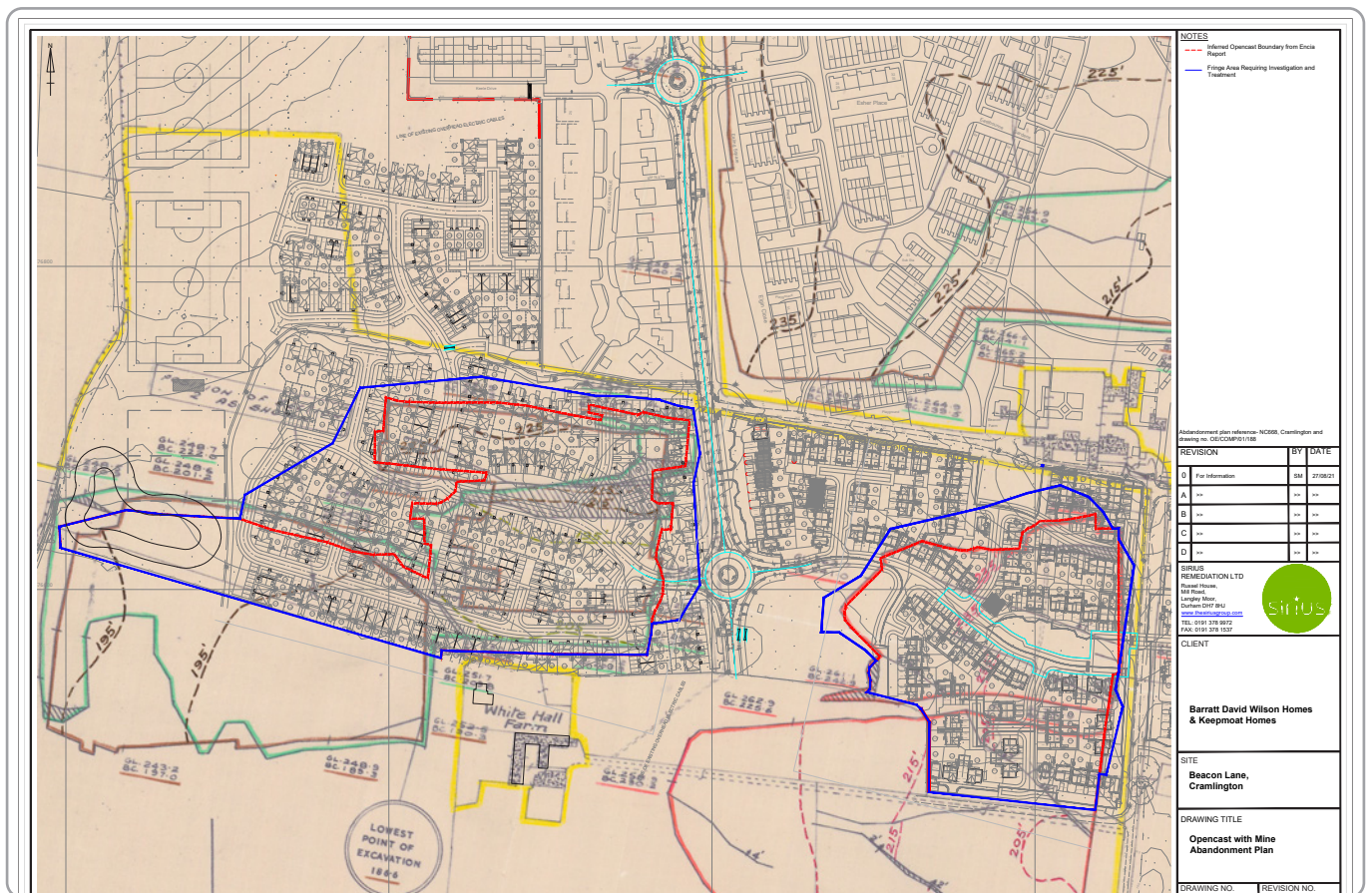
Project Description

Remediation and preparatory earthworks of historic backfilled surface mine for the development of approx. 500 residential properties and future commercial space.

Site Features

The 33 acre site consists of two separate formerly worked surface coal mines worked to depths up to 20m. The resultant overburden was subsequently replaced in the 1950s and the land used as farmland.

Opencast abandonment plan



History

The proposed scope of Remediation works required at this site was estimated to cost £12 million questioning the viability of the site for development. Sirius were approached to provide an estimate for the proposed strategy but also to review of all available historical data, Ground Investigations and Remediation Strategies to see if any value engineering could be applied.

The Sirius Project team developed a scheme of further embankment and inundation testing within the former opencasts, the results of which allowed Sirius to engage with both the NHBC and Northumberland County Council to define a scheme of remediation and ground improvement which would satisfy both parties requirements for indemnifying and adopting the development. The resultant cost saving through targeted investigation and value engineering was in the region of £8 million.



View east across KO1 to KO3 prior to remedial and preparatory earthworks

Works outline

- Eradication of Japanese Knotweed
- Historical Quarry High Wall Location and Geometry Delineation
- Earthworks including screening and crushing of circa 150,000m³ of quarry backfill
- Soil improvement
- Depth specific earthworks & reinforcement across the former quarries to support future development, proposed drainage & highways
- Monument settlement monitoring.

The soils at this site were required to achieve a high engineering specification to allow foundation betterment for our clients. Consequently the earthworks were weather/season sensitive and therefore a phased release was agreed with the client to deliver critical areas starting in August before the winter months arrived.



Topsoil strip within area KO1 undertaken by the Sirius Scrapper Team



Excavation works expose 'colliery spoil' beneath 'capping clay'. Material relocated for quarantine and tested for any residual contamination



Hydrocarbon staining identified within opencast backfill



Base of excavation civilised and proof rolled prior to placement of geogrid



Geogrid placed with 0.5m minimum overlap on base of excavation prior to placement of engineered fill

The agreed works were completed on-time allowing the Sirius Civils team to commence with infrastructure works as scheduled. The Sirius Remediation team returned to site the following Spring to complete the remainder of the earthworks quickly and efficiently. The contract was completed at a previously agreed lump-sum, fixed price. The works were tested and validated to the satisfaction of regulatory authorities supported by early involvement and liaison.

All ground investigation, geotechnical design, preparatory earthworks and main civils infrastructure were undertaken by Sirius' technical and operational teams using Sirius plant & equipment.



Placement of geogrid with minimum 0.3m overlap, at base of excavation



Placement of engineered fill in 0.2m thick layers over geogrid within road box cut



Placement of initial layer of engineered fill over geogrid within KO1



Compaction of engineered fill by pad foot and smooth drum rollers working in tandem



Finished remediated formation of BO3 looking north

Demolition, earthworks, remediation, drilling and civil engineering contractors.
Geotechnical, environmental and planning consultants. Renewable Energy.

Sirius Offices:

North Tel: 0191 378 9972

North West Tel: 01942 718 551

Central Tel: 0113 264 9960

Wales Tel: 01554 780 544

Email: info@thesiriusgroup.com

Website: www.thesiriusgroup.com

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