

Green Lane, Eccles — Mineshaft Stabilisation

Client: Bellway Homes (Manchester) Limited

Designer: Coopers Consulting Engineers

Value: £93k

Period: Oct — Nov 2015

Stabilisation and capping of a deep mineshaft on a proposed development of 140 houses on land adjacent to Green Lane, Eccles, Greater Manchester for Bellway Homes. The site was originally known as the Patricroft Colliery from the mid 1800's and the shaft, known as the Lancaster Pit, was sunk by John Lancaster in 1841. Records indicate the shaft was abandoned circa 1883, and infilled with variable uncontrolled materials.

We resourced one of our 20 tonne Casagrande M9 drilling rigs to site to ensure sufficient drilling torque and pull back was available to drill the shaft to full depth.

Due to the potential of shaft collapse at any time and particularly during treatment, the drilling rig was set up on one of our fully designed 13m long steel framed drilling platforms which are designed to span the shaft and support the drilling rig and crew in the event of a collapse. During treatment works the drilling crew are also harnessed to a fixed point established outside the potential collapse zone.

Preparation of the working area was completed by Bellway Homes and included installation of drill flush collection trenches and creation of a mixing compound. All drilling and grouting plant and equipment was resourced from our specialist in-house plant fleet.

- Initial rotary percussive probing to determine the exact shaft location and diameter (3.40m dia)
- Drilling to full depth to determine mineshaft depth (395m) and nature of filling
- Water flush was used in accordance with Coal Authority requirements
- Treatment of the upper 100m depth of the shaft was then carried out
- 3 no 100mm dia holes were drilled with grout injected in 2m ascending stages
- 467 tonnes grout injected (10:1 PFA:OPC)
- Following treatment a reinforced concrete cap was constructed founded on competent strata
- Works co-ordinated and phased carefully with Client and remediation contractor to ensure that there was no impact upon bulk earthworks, drainage and foundation operations.
- Continuous monitoring and recording of injected quantity and pressure was carried out together with extensive quality control and testing of mixed grout.

