

Sandside Quarry Entrance

Client :
Tarmac Northern

Consultant :
Key GS

Main Contractor :
Metcalfes

Location :
Milnthorpe, Cumbria

Date :
2007



BAM Ritchies undertook pre-split and bulk blasting of rock at the new entrance to Sandside Quarry, one of several stages in the development of the site. The work involved drilling and blasting in order to loosen the bedrock limestone so that it could be excavated, leaving the faces in a stable and safe condition.

Several hazards had also been identified and these were risk assessed separately and incorporated into the drilling and blast design:

- Overhead power lines running to and from sub-station
- Close proximity of public highways (15m) and footpaths
- Close proximity of residential property (40m)
- Close proximity of plant within the quarry (30m)

The sequence of the work was:

1. Trial blasts were carried out within the quarry workings in order to determine pre-split blast ratios, stemming depths and anticipated vibration readings

2. The pre-split holes were 90mm diameter at 1.0 to 1.2 metre centres with 1.0 metre of sub-drill, drilled at 15° in panels to ensure that the pre-split was in advance of the bulk blasting and that the maximum instantaneous charge (MIC) kept the peak particle velocity (ppv) within site limits.
3. The bulk holes were also 90mm diameter and drilled to a pattern to achieve a blast ratio of between 5.5 and 6.5 tonnes/kg. The distance from the pre-split holes being no less than 1.5metres.
4. When all holes had been drilled they were re-surveyed and a blast specification drawn up to comply with the site "Use of Explosives Rules".
5. For the bulk blasting, the explosives used were a slurry type in conjunction with ANFO and initiation by non-electric shock tube and/or electronic detonators.
6. The pre-split holes were charged with Detonating Cord, Eurodyn and Trimclip at a ratio to suit the hole condition and a stemming depth as determined by the trial blasts.

BAM Ritchies
Glasgow Road, Kilsyth
Glasgow G65 9BL

Tel: 01236 467000
E-mail: ritchies@bamnuttall.co.uk
www.bamritchies.org.uk