

Major upgrade for Blackhead Quarry

By Dave MacIntyre



The upgraded Blackhead Quarry site – quarrying operations are carried out in a manner as natural as practicable to fit into the surrounding environment

Dunedin's Blackhead Quarry has secured about 50 years' worth of future production with the upgrade and replanning of its site on the coast at Green Island, just south of Dunedin.

The upgraded site was opened in February and is the first major upgrade in 25 years. Physical site works started in March last year and work was completed in November, only

slightly behind schedule but on budget at \$3 million.

Blackhead Quarry has been in production at the Green Island site since 1947, producing a hard basalt suitable for a wide variety of aggregate

from basecourse through to high-quality sealing chips and concrete aggregate. Aggregate is mainly for the local market, although the rail ballast produced at the quarry is used in the greater Otago region.

As the rock is a dark grey to black in colour, it is also used throughout the South Island for specialty concrete panels where a dark finish is required.

Prominent site

The quarry is located on a headland that protrudes into the Pacific Ocean, therefore screening the operation is not an option. A conservation covenant was signed in 1991 to preserve the headland and rock features at sea level. Quarrying operations are carried out in a manner to be as natural as practicable to fit into the surrounding environment.

Fulton Hogan and Palmer & Son took over the operation of the quarry in 1986 and upgraded the existing plant, so the new upgrade is the first significant improvement since then.

Originally, the plant was built using the technology available at the time and for the production required, using gravity as much as possible within the crushing and screening process. Rock was fed at the top of the site, and gradually worked its way downhill where it was made into many different grades of aggregate, then carted back up the hill into the stockpile.

Quarry manager Gavin Hartley says one of the main reasons for the upgrade was rust, as the plant is located a stone's throw from the ocean. "Corrosion was a major problem, and over the 25 years it had taken its toll on all steel work. Over the last five years

many conveyor frames and walkways were replaced for safety and operational reasons. This led to downtime and high costs for repairs and maintenance," he says.

"Another reason was the primary jaw crusher was located near the top of the hill close to where the rock was. Over time the cart distance had increased, and with the single rock truck it was becoming marginal to keep up with aggregate production."

Meeting operational needs

The upgrade project planning started in 2010 and it soon became clear that replacing sections of the existing plant was not an option as it would have created operational delays and not improved aspects of the plant that required attention. Blackhead managers visited sites throughout the country to ensure the new design would be state-of-the-art and fully meet the Green Island needs.

Improvements were therefore looked at to the plant layout, ease of maintenance, flexibility for the future, reducing power supply from three to one transformer, and potential disruption to production and sales during the upgrade. The option of mobile crushing was investigated and discounted after preliminary budget work. The footprint of the plant was then reduced with the moving of 130,000 cu m of bank material.

Rust prevention

As the quarry is a scheduled permitted activity in the Dunedin City District Plan, no additional permits were required other than building consent for the relocation of the plant.

Mr Hartley says the new plant uses most of the crushers and screens from the old set-up. "As rust was one of the primary concerns, the amount of steel was kept to a minimum. This was done by using precast concrete for bins, and reducing the length of conveyors by over half, going from 23 conveyors to 11," he explains. "The steel that was used was painted with an Altex System Carboguard 504 as primer and two Carbomastic 615 coats."

Concrete placing and precast erection was done by Lund South. Precast was supplied by Stahlton in Balclutha. Drawings and certification were by Hadley & Robinson along with Bob Tyley. Engineering was done by Blackhead's two parent companies, Fulton Hogan Engineering and Palmers Mechanical. Electrical work and plant automation were carried out by Pace Electrical using a Rockwell package.

Community relationships

Mr Hartley, who is also president of the NZ Institute of Quarrying, says Blackhead has gone to some lengths to boost its relationship with neighbours and the community. "The quarrying industry has an ongoing image problem. Quarrying is not 'sexy' and we are perceived by the public as a noisy, dusty industry that is ruining the countryside. This is far from the truth," he emphasises.

"We see ourselves as part of the community. We don't want to hide away behind bunds and shelter belts. We want to engage with our neighbours and interest groups, and many quarries do this very successfully.

"Blackhead Quarries is an active member of the Aggregate and Quarry Association, and staff are members of the Institute of Quarrying. Both are professional bodies working to ensure New Zealanders are at the forefront of technology and knowledge when it comes to producing aggregate safely in an environmentally friendly way, and hopefully making a couple of dollars along the way.

"All we would like is for the general public to realise that, if they want to drive on roads, live in houses and for their children to go to schools and university and have great hospitals, they all require aggregate in one form or another. Quarrying is an essential industry."

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Employer support for Reserves rewarded



At the National Employer of the Year Awards (L-R): Sergeant Daniel Bristow, Peter Townsend, Nigel Hodge, Warrant Officer Gerry Costello

The support shown by Blackhead Quarries for its employees Warrant Officer Gerry Costello and Sergeant Dan Bristow has earned the company the Territorial Forces Employer Support Council (TFESC) National Employer of the Year Award.

The award recognises employers who are committed to supporting Reserve Forces personnel in their workplace, and was presented to the winner by the Minister of Defence, Dr Jonathan Coleman, and chairman of the TFESC, Peter Townsend, at a special function at Parliament in early April.

Blackhead Quarries was chosen as the supreme winner as it had shown the greatest support for employees in their military duties. "It's been very beneficial for us as a company," says Blackhead Quarries business manager, Nigel Hodge. "We see it as a two-way thing. In

our experience you get fantastic employees. They have great discipline and a very good attitude to work, and that rubs off well on the other staff. It's one of the key benefits we see of employing people from the Reserve Forces."

During the response to the Christchurch earthquake, both Sergeant Bristow and Warrant Officer Costello, who are members of the Otago Southland Battalion Group, deployed for 28 days and 15 days respectively. Over these periods Blackhead Quarries continued to support both soldiers financially and managed other staff to cover their workload.

The private sector award was won by Brian Sullivan Construction of Hawera for its support of Senior Sergeant Rangi Abraham who serves with the 5th Wellington, West Coast, Taranaki Battalion. SSGT Abraham has deployed overseas twice in the time he has been employed by the construction company. In

2000 he deployed to East Timor and in 2011 to Sinai, each time for six months. On both occasions his employer allowed him the necessary leave to attend pre-deployment training and deploy on operations, kept his job open for him on his return and included his family in work-related events while he was away.

TFESC chairman Peter Townsend is encouraged and delighted to see employers supporting their staff members' involvement in the Reserve Forces. "Employers can only gain from encouraging their employee's involvement in the Reserve Forces," he says. "In return for their support they get highly motivated and energised employees that are self-assured team players with problem solving and excellent communication skills."

For further information, visit www.reserves.mil.nz/default.htm



Bill Bayliss, chairman of Blackhead Quarries' executive board, and Tony Hunter, general manager (in the high-vis gear), address the gathering of staff, customers, suppliers and neighbours at the official opening of the upgraded Blackhead Quarry site