The Lafarge Tarmac-Blashford Conveyor System

Owned and operated by Lafarge Tarmac, current extraction operations at Blashford are centred on 'Nea Farm' which supplies processed material to local concrete plants, builders' merchants and local contractors in the Ringwood and Bournemouth area.

When Lafarge Tarmac made the decision to upgrade the current 2.5 kilometre conveyor system to harmonise the drives on the 14 conveyors and to increase the handling capacity from 150tph to 350tph, with the additional benefits of improved reliability and reduced maintenance costs, Canning Conveyor who have been responsible for all the design, manufacturing and installation work since 2006/7 (ahead of the more recent plant developments) were awarded the contract.

Upgrading the original conveyor system

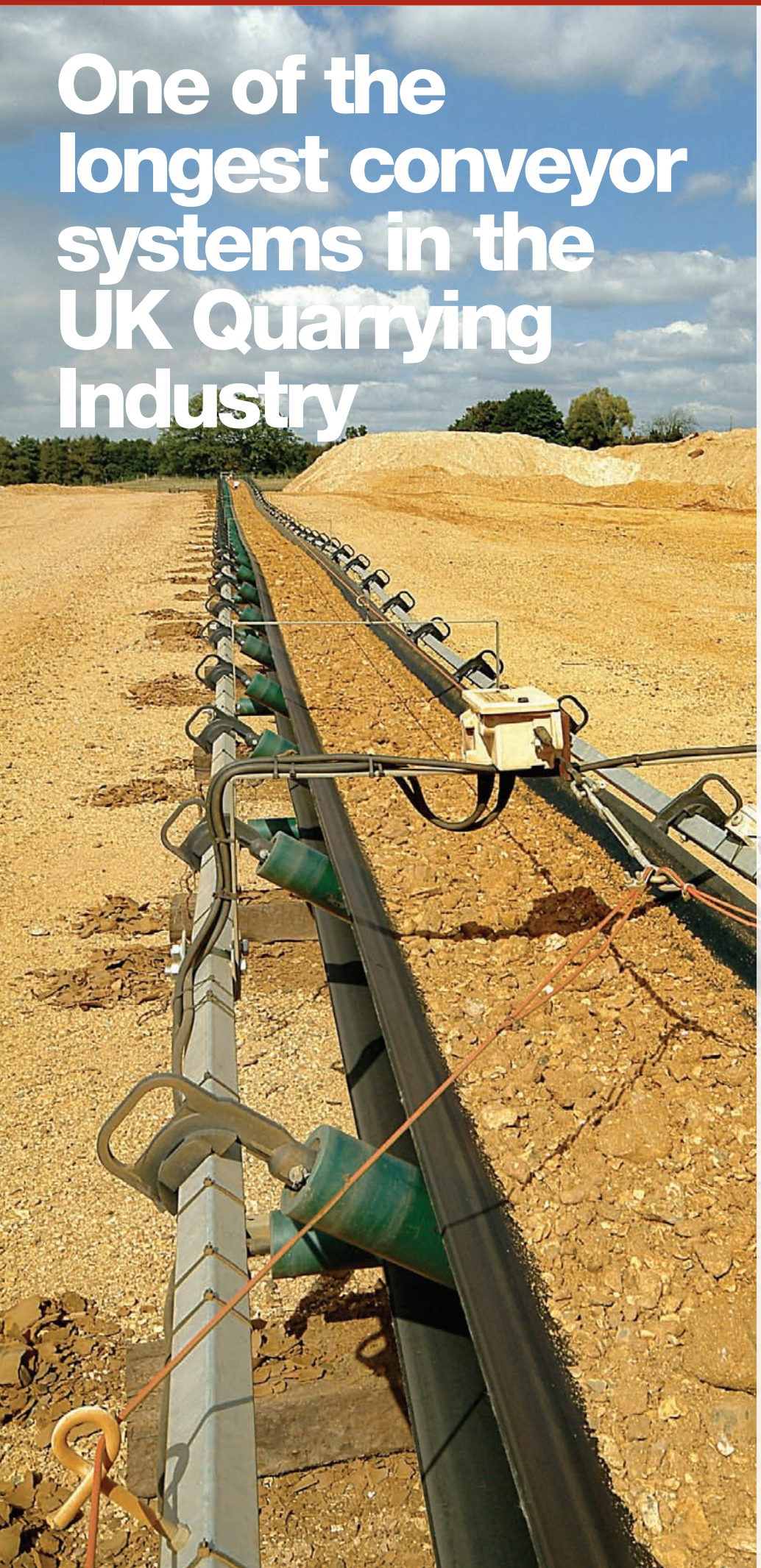
This involved extending the conveyor system at the face with a new 120m long field conveyor. Canning then made further modifications by splitting an existing conveyor and interfacing a new 20m long elevated lattice section with walkway which is powered by a ceramic lagged SuperDrive™ motorized drive drum. Further modifications of an existing horizontal conveyor entailed a new 22m long, elevated transfer conveyor complete with a tail end loading section, again powered by a SuperDrive™ motorized drive drum. This section of the plant was then completed with the supply of a new 22m long troughed belt radial stockpile conveyor.

Further improvements involved a complete retro-fit of ten ceramic lagged Canning SuperDrive™ units to the whole of the existing conveyor system along with replacement jib discharge and high and low tension bend drums. One conveyor is driven by two double SuperDrive™ units due to the length of the conveyor and previous problems with belt slipping. New belt scrapers were supplied throughout the system as necessary, along with new heavy duty mesh guards where appropriate.

In a final stage, 34 non-drive drums were supplied to complete the upgrade, as the existing non-drive drums would not be capable of handling the upgrade to the system.

This upgraded 2.5km field conveyor system now delivers material to the new sand and gravel plant which was commissioned in June 2011.

One of the longest conveyor systems in the UK Quarrying Industry



Plumley Wood Extension

Having successfully secured planning permission in 2008 for the extraction of a further 6 million tonnes of reserve at 'Plumley Wood', Lafarge Tarmac ensured the continuation of operations at Blashford for a period of up to 25 years. At their furthest extent in around 10 years' time, extraction operations at 'Plumley Wood' will reach a point 2.5km beyond the current dig at 'Nea Farm' and approximately 5km (around one hour's conveyor travel) from the processing plant.

With the extension to 'Plumley Wood' approved Canning Conveyor were again appointed to commence work in 2011 to design, manufacture and install the further additions and modifications to the already extensive field conveyor system.

Divided into two phases the first part of the extension involved the incorporation of two new conveyors designed to accept up to 350tph of -150mm of sand and gravel. Running over generally level ground (with a maximum rise of 5m) a 225m long field conveyor was installed. Driven by a single drum motorised SuperDrive™ unit and supplied on a substantial skid mounted frame with cantilevered jib discharge, this conveyor extends over the 'Plumley Wood' dig to feed a new 460m long field conveyor.

Again, running over generally level ground (maximum rise of 10m) this second conveyor is driven by a double drum, motorised SuperDrive™ unit and supplied on a substantial skid mounted frame with cantilevered jib discharge. The discharge section of this conveyor is extended and lifted to feed the radial stockpile conveyor in any of its intended positions. The jib discharge of this unit was also extended to cantilever over the rotating tail section of the radial stockpile conveyor onto to which it is designed to feed.

A second field conveyor which runs from 'Plumley Wood' to the 'Burnt Hill' area includes a 30m length of lattice frame gantry. Designed by Canning to span the boggy area of the ground prior to elevating up hill to the 'Burnt Hill' area this lattice bridge is fabricated from rolled steel sections braced and stiffened and is set on concrete foundation bases (by others). Fully galvanised it is fitted with full length spill trays and a 1m wide open mesh walkway and handrails.

Second phase

The second phase involved the installation of a new 160m long field conveyor. Driven by a single drum motorised SuperDrive™ unit this conveyor features a 12m long loading section designed to accept loads from the repositioned radial stockpile conveyor via a discharge chute delivering vertically via a series of crash boxes through a 10m high cascade chute from the future 'Burnt Hill' screen discharge conveyor and from a future reload hopper/feeder belt.

Running over generally level ground (maximum rise of 5m) from 'Burnt Hill', over a road bridge to the 'Nea Farm' side of 'Harbridge Drove' this conveyor feeds a second field conveyor. Driven by a double drum motorised SuperDrive™ unit this 530m long field conveyor feeds a third, 390m long field conveyor driven by a single drum motorised SuperDrive™ unit which subsequently feeds onto a new extended tail end loading section. This new loading section has replaced the existing tail unit on C11 which has been utilised on one of the new field conveyors. The new tail unit was then repositioned, with the existing C12 shortened and the head repositioned to enable the new C11 tail unit to accept the feed from both the existing C12 and the new 390m long conveyor.

Specification

Canning Conveyor supplied a standard specification throughout, consisting of the following:

- Cannoflex troughed conveyor belts, 750mm wide EP300/3 ply belting with 5mm + 1.5mm covers were supplied throughout
- SuperDrive™ units, ceramic lagged drive drums with internal backstop
- High tension bend pulley, Jib discharge and loop bend drum
- Primary and secondary belt scraper
- Discharge chute with integral crash box and hinged inspection hatch
- Loop take up unit
- Heavy duty tail end loading section c/w troughed impact idlers and tail drum
- Standard intermediate bays - 750mm wide x 3.048m long
- Emergency stop pull wire system
- Full length polycarbonate belt covers

The next 25 years

The complete installation now fully installed and operational will provide the processing operation with immediate benefits, providing significant energy efficiency, quality and reliability for the immediate future.

Electrical installation

In addition to the design, supply and installation of the conveyor system Canning Conveyor also designed and installed a bespoke control panel positioned next to the head end of each conveyor. Each panel contains a soft starter capable of starting the conveyor under load conditions, with circuit and overload protection. Designed to start in sequence the system only allows a conveyor to start if the succeeding conveyor is running, this being indicated by a rotation sensor fitted on the tail of each conveyor. A design feature also interlocks C5 with the current conveyor feeding onto C12, so that either the new conveyor system, or the existing conveyor can run; but not together, thus preventing C12 overloading. Each conveyor is also fitted with a pre-start alarm and a halide light located at the head of each conveyor. A bespoke control panel was also supplied and installed for the radial stacker with traverse buttons to enable the material to be stacked around the head section with provision for three position sensors for positioning the stacker over the washing plant (future installation).