NZ TRANSPORT AGENCY WAKA KOTAHI / Christchurch City Council

Christchurch Northern Corridor

Work Notice

December 2016

Guthries Road

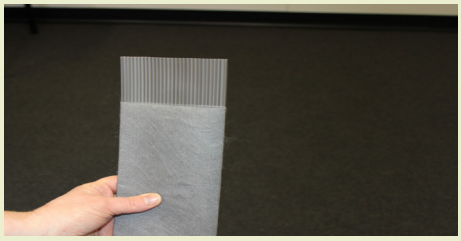
Road Closure Guthries Road

Construction of the Belfast Road Interchange

Wick Drains

When a structure or embankment is built on soft ground, the load on the soft soil is initially partially supported by the incompressible water in the soil. Over time water slowly drains out from under the load, the load is then transferred to the soil, the soil consolidates and settlement occurs. The process of settlement takes a long time.

To reduce the settlement time a temporary extra fill load (stone and gravel) is put on the site called preload. The time required for this preload to achieve the required compression can be shortened by installing wick drains. The drains give the water a shorter drainage path and allow for the consolidation to take place in months instead of years. Wick drains are made of synthetic band-shaped material that is installed vertically into soft ground. The drains are around 10cm wide by 5mm thick consisting of a corrugated plastic strip wrapped in a filter fabric.



A closer look at a piece of wick drain.

Illustration of the urban design of what the Belfast Road Bridge may look like

Road closure on Guthries Rd

From Monday 9 January 2017 Guthries Road will be closed from Factory Road to Belfast Road. The road is being closed so we can start construction on the Belfast Bridge embankments and the Guthries Road permanent diversion.

OVERVIEW OF WHAT WE ARE DOING

Step 1 Working Platform

We will start by building a working platform. This will involve bringing in gravel fill to create a 0.5m thick layer.

Step 2 Ground Improvements

We will be installing wick drains and timber piles. Wick drains relieve groundwater pressure that increases when you put more fill (weight) on top of the ground. These drains are pushed vertically into the ground to a depth of about 8 metre. In total we will be installing 137km of wick drain material at the Guthries Road/Belfast Road location.

For the foundation of the bridge abutment, we are installing around 400 timber piles; 200 on each side of the new bridge. These piles will support the bridge and minimise settlement.

Step 3 Embankment construction

We will start building the embankments for the Belfast Rd new bridge and interchange.

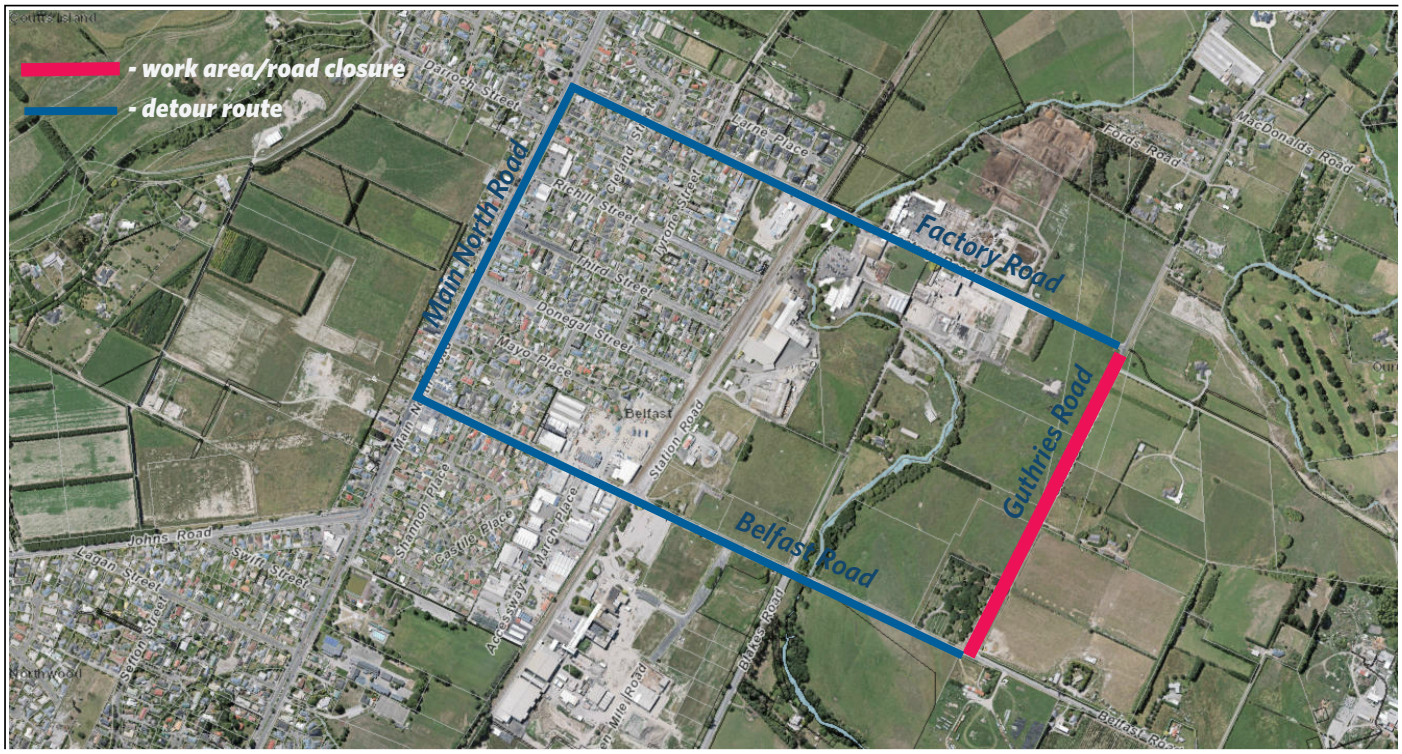
Traffic Impact

Guthries Road, between Factory Road and Belfast Road, will be closed to all public traffic for around two years to enable the construction of the Belfast Interchange. There will be a detour in place via Belfast Road, Main North Road and Factory Road. Residents (house numbers 34 up to 62) on Guthries Road will have vehicle access to their homes.

CONSTRUCTION IMPACTS

Building the Belfast Road bridge and interchange will include many truck movements to bring in fill and other materials. It will also involve diggers and cranes with a rig to install the drains and the piles. This work will take around two years to complete.

New Zealand Government



Earthworks - why are we not digging?

We will have earthworks crews working in many locations along the project, this will mean you will generally see more trucks coming to and from the project site; they will be bringing in material for the motorway embankments. The new motorway needs around 1.2 million cubic metres of fill. We will not be excavating for the new road, rather we will build it on top of the existing ground. This will make the motorway slightly raised above ground level. Fill material for the embankments will be delivered using accesses at: Main North Road, Belfast Road, Prestons Road, Radcliffe Road, QEII Drive, Winters Road and Cranford Street. The raised embankments to carry the new road will be between two and eight metres high.

137 kilometers

In total at this site we are installing 137km of wick drain material: several pieces per work site are pushed in a vertical position into the ground.

2 years

The work to build the working platform, improve the ground and construct the embankment, new bridge and interchange will take around two years to complete.

The wick drains will be installed using a crane mounted rig.

400 piles

For the Belfast Bridge structure we will install 400 timber piles, for the whole project we are using around 4000 timber piles.

8 metre

The wick drains are pushed into the ground to a depth of about 8 metres.

GENERAL INFORMATION AND OUR CONTACT DETAILS

Our standard construction work hours are Monday to Saturday between the hours of 7.00am to 7.00pm.

There will be increased noise, dust and vibration levels associated with most of the construction work. We will do everything we can to lessen this.

Keep yourself and your children, plus pets and stock at a safe distance from the work site: please stay behind the construction fences at all time.

All works are subject to weather and on-site construction conditions; some things will be finishing early other jobs may be rescheduled.

Sign up to receive email updates and newsletters by emailing us or online at www.nzta.govt.nz/cnc

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