



From overhead Te Atatu Peninsula, looking southeast.  
Photo: Greg Kempthorne

## Surveying the scene

Tucked away in a busy corner of the Causeway Alliance office are some of our best kept secrets – our three surveyors, Ken, Arthur and Mick who genuinely plot and plan. Words like ‘base station’ (and more colourful phrases at times!) pop out of their area and send a few of us off to scratch our heads for the meaning of the technical terms.

We’d like to share some of our new-found word gems with you this week to give you a simple insight to the complex working world of the surveyors.

## GPS and base station

The advent of global positioning system (GPS) technology and use of it by private vehicle owners means that it’s familiar to many people. We know that a GPS system helps us to find out how to navigate where we’re going and similarly it helps the Causeway Alliance site team do their jobs. How?

Surveyors use GPS to help operators of heavy machinery including diggers, bulldozers and graders to fine-tune exactly where and where not to dig. That way they can be sure that the causeway will be raised and widened in the right location, and services will remain intact, too.

Ken and his team of surveyors create a topographical digital terrain model (DTM) for the machine operators, out on site, similar to the one on the right. They also make sure that the main GPS unit (or base station) sends accurate information to the machine operators’ individual GPS units (or rovers). By following the GPS details and the DTM model the operators know exactly where to work.

## Motorway layout changes

We are working together with the NZ Transport Agency, Auckland Council, public transport operators and other key industry groups to resolve how to minimise congestion, particularly at peak travel times, while the Western Ring Route upgrade work is in progress. We know that the issue is pressing and we’re working hard together to deliver a solution.

We will keep you informed ahead of changes to traffic flow, bus shoulder lanes and motorway lanes as the project progresses.



Digital terrain model of part of the Great North Road area

## Project notes

The orange rig on the eastbound side beyond the Rosebank on-ramp is installing wick drains, which work like straws, to drain the area. There are 27,000 wick drains to place in the ground and 2017 of them have been completed, leaving 24,983 to go during the next six months.

If you use the shared path to cycle or walk, keep an eye out for new fencing parallel to the path while our team work in the area to clear vegetation.

## Contractor magazine

The project features in the August issue of *Contractor* magazine, which you may be interested to read. If you would like a copy of it, including a selection of Greg Kempthorne's photos, please email us (see More information box below). Thanks to Kevin Lawrence and his team at *Contractor* magazine for allowing us to share the article with you.

Enjoy your weekend, with best wishes from all of us.

Elizabeth Collins



Wick drain rig



The SH16 Causeway Upgrade is essential to the completion of Auckland's nationally important Western Ring Route. Because the upgrade involves the raising and widening of a busy motorway on soft soils, it poses a formidable challenge for the six-member Causeway Alliance. BY GAVIN RILEY.

Such is the high profile of the \$1.4 billion Waterview Connection tunnel-boring project in Auckland that it has tended to overshadow other elements essential to the completion by 2017 of the city's 47 kilometre Western Ring Route, one of the seven Roads of National Significance.

Waterview will link SH20 to SH16, where in late May construction began on the \$220 million Causeway Upgrade project, the importance of which was emphasised by Prime Minister John Key turning the first spade of soil, accompanied by Transport Minister Gerry Brownlee.

The 4.8 kilometre upgrade will raise and widen the existing six-lane motorway and add extra lanes between the Great North Road (Waterview) and Te Atatu interchanges.

There will be four lanes city-bound and four-five lanes west-bound. Bus shoulder lanes will be extended and there will be improved facilities for walkers and cyclists on a shared path alongside the motorway. The raising of about two-thirds of the causeway by 1.5 metres will prevent flooding onto the motorway during extremely high tides and adverse weather. Stormwater will be treated before it is discharged into the Waitemata Harbour.

Carrying out this SH16 upgrade, scheduled to be completed by the end of 2016, is the Causeway Alliance – the NZ Transport Agency, Fulton Hogan, Leighton Contractors, AECOM, Coffey, and Sinclair Knight Merz.

The alliance will "rub shoulders" with Waterview's Well-Connected Alliance on the upgrade of the Great North Road interchange, which will have four levels.

### WEST BOUND ↑

Heading west along the causeway with the Waterview Connection project to the lower left.



EXISTING CAUSEWAY CONFIGURATION



FINAL CAUSEWAY CONFIGURATION: COMPLETE MEDIAN, FINAL PAVEMENT AND STORMWATER

PHOTOGRAPHY: GAVIN RILEY

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### More information

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