

Hamilton Section

Beams of steel for our longest bridge

The project's longest bridge is also our only bridge with steel beams.

The Mangaonua Stream Bridge is 150m long from the abutment on one stream bank to the abutment on the opposite bank. Beams will extend from one abutment across two sets of supporting columns to the opposite abutment.

Each span from the abutment to the nearest supporting columns is 46m. Steel beams are more suitable for these longer spans. (The reinforced concrete beams on the other bridges are typically up to 30m long.)

The steel beams at Mangaonua are manufactured in sections, then lifted into place and bolted together.

First, eight 24m-long beams will be installed on top of the central columns. They're the blue beams in the diagram.

Then, four 34m-long beams will be attached to the 24m beams to extend to each abutment. They are the red and orange beams at each end of the bridge.

To complete the centre span, four 32m beams (all orange in the diagram) will be lifted into place and bolted to the 24m beams on top of the columns.

Each steel beam is 2.7 metres deep, with the heaviest weighing 40 tonnes. Horizontal bracing (transom beams) will be installed between the beams as they are installed. More than 5000 bolts will hold the steel structure together. Once all the beams are in place, 600 pre-cast concrete slabs will be placed on top of the steel structure to form the bridge deck.

The structures team expect to have the steel work completed by the end of July 2019, and the bridge completed by mid-2020.



An electronic view showing how the bridge beams fit together.



The first bridge beam is lifted into place on the Mangaonua Bridge.

Building a stream bed inside a culvert

The floor of our biggest culvert – the 5m-wide BL2 culvert in the East West Gully – is being transformed into a meandering stream bed.

The culvert has been constructed from 553 curved, galvanised metal plates and 13,000 bolts to form a 75m-long channel for the gully stream. A meandering rock channel is now being created on the bottom of the culvert to create habitat suitable for native koura and fish.

Next, the culvert will be gradually buried in compacted sand which will form the embankment for the East West Link Road connecting Cherry Lane with Birchwood Lane.



Construction of a stream bed inside the culvert has begun.



Project update: What's happened since our last newsletter?

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Doing their bit for bats

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Project Update: What's happened since February?

1 Lake Road



Hi-Lab road rock now extends 2km south to Osborne Road in Horsham Downs as our roading crews build the road on top of embankments made from compacted sand.

2 Resolution Drive Interchange and extension to Borman Road



The embankments for on-ramps and off-ramps are now complete. The interchange bridge is also nearing completion. The extension from the interchange to the Resolution Drive/Borman Road roundabout is taking shape and a large wetland formed to treat stormwater is in place. Near Rototuna High School, an underpass for walkers and cyclists is under construction.

4 Puketaha Road/Greenhill Interchange



The approaches on either side of the Puketaha Road Bridge are now complete. The bridge is also nearing completion. At the Greenhill Interchange, construction of the new road layout for Greenhill Road and Pardo Boulevard is now advanced. Greenhill Road traffic will be diverted soon so fill can be placed over an old section of the road to complete the bridge approaches.

5 Powells Road Underpass



Fill is being placed on either side of this underpass to form the approaches that will take the expressway up and over Powells Road. This will be left to settle over winter. A diversion is being constructed around the bridge site for Powell's Road traffic.

3 Horsham Downs Road



Piling is complete and the centre columns are taking shape for the Horsham Downs Road Bridge. This bridge will take the local road over the expressway. It is expected to open to traffic later this year.

6 Ruakura Interchange



Construction of the Ruakura East connection is well advanced. Design for the Ruakura West connection is being finalised.

7 SH26 Morrinsville Road /Ruakura Road



New directional signs have been installed, and permanent lighting will follow. Finishing work along the road verges is almost complete.

8 Mangaonua Gully Bridge



Steel bridge beams are being fixed on the concrete columns. (See Page 1 for full details.)

9 Matangi Road



Excavation north and south of the bridge is almost complete. Waste material has been formed into bunds or embankments on either side of the expressway. These bunds provide a visual barrier and noise protection for neighbours. These bunds have been top-soiled ready for planting.

10 Mangaone Gully/Mangaharakeke Gully

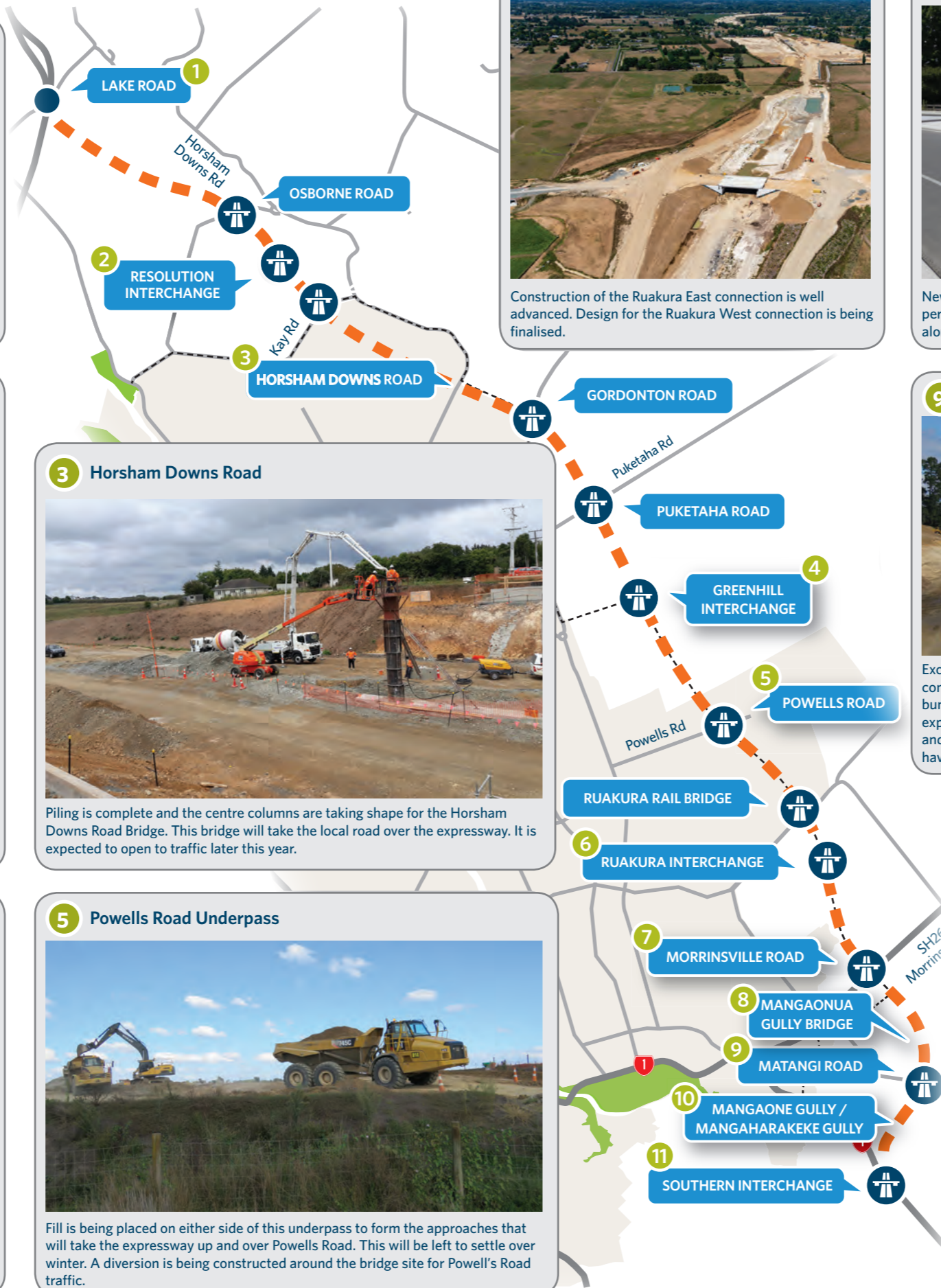


Bridge beams are in place on the Mangaharakeke Gully Bridge. These were placed by a 600 tonne crawler crane. Crews are now preparing the bridge for the concrete deck pour.

11 Southern Interchange



A large 5m-wide culvert has been constructed in the East West Gully. Two new sealed lanes that extend under the new East West Link Bridge are nearing completion. SH1 traffic will soon be switched off Cambridge Road into these new lanes.



Doing our bit for bats

Project staff are doing their bit to provide new roost sites for longtail bats in Hamilton's southern gullies.

Indigenous long tail bats use the gullies around Hamilton as aerial highways, and roost in large trees.

Alliance staff have made wooden bat roosts to be installed in large trees to provide additional roosting opportunities for this declining species.

The long tail bat is roughly the size and weight of two Fruit Bursts, and is one of only two surviving species of bat in New Zealand. A bat management plan was created to protect the species during and after construction of the expressway.

Staff helped build 20 roosts on a day when rain kept them away from their normal work. These roosts have now all been installed in the gullies, with pest-proof aluminum bands 1 metre above and below each roost.



Roosts are positioned and protected from predators.



Bat roost builders - environmental advisor Stephanie Kirk and environmental intern Teri Wathen-Smith.

Monster crane at work in gully

One of the country's largest crawler cranes has been at work lifting bridge beams on to the Mangaharakeke Stream Bridge at Tamahere.

The 600-tonne crane was delivered in pieces on 30 trucks. Assembly began on site four days before the first lift. The big crane's extra reach beams were required to lift 26 beams weighing up to 68 tonnes each, and place them up to 65m away.

Once the crane's work was completed, the machine was disassembled and transported to its next job.



Switching traffic at Tamahere

Before you receive your next project newsletter, SH1 traffic at Tamahere will be using two new lanes. These new lanes will later become the expressway's two-lane off-ramp into Hamilton - part of the Southern Interchange.

The traffic switch will enable excavation of the expressway route through Cambridge Road north of Cherry Lane.

The local road network will be redeveloped and new shared walking and cycling paths constructed.



Visitor Centre Open - groups welcome

Our Visitor Centre at 72a Ryburn Road is open each week day from 9am to 3pm.

Drop in to see our big floor map, our model and our latest videos. We provide presentations for groups on request. Phone 0800 322 044 to find out more...



Any questions?



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