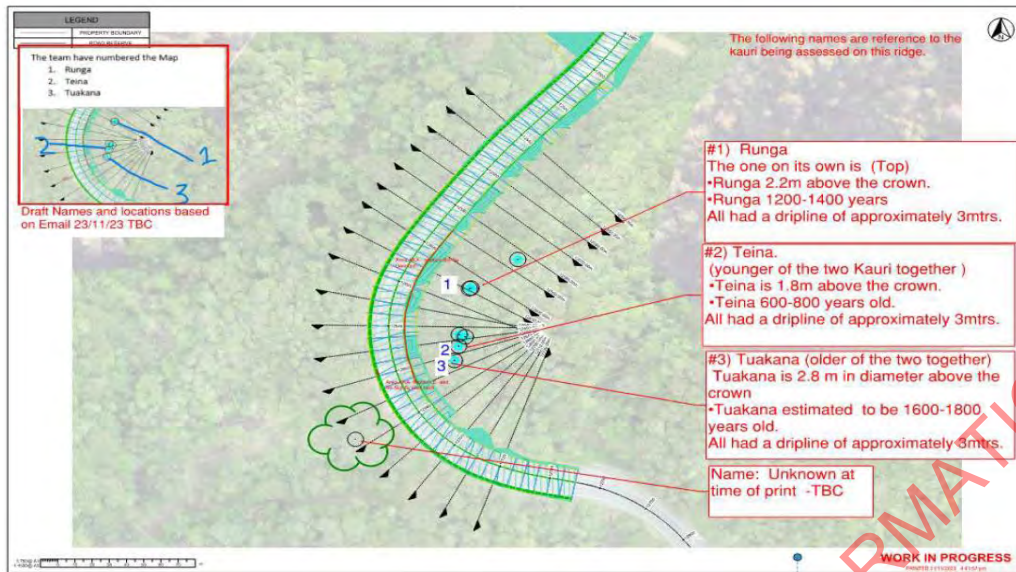


DRAFT Chronology for the works along area E and F



The two Kauri trees that were removed

This means we can estimate the age of:

- Tuakana to be 1600-1800 years old.
- Teina 600-800 years old.
- Runga 1200-1400 years old.

Kauri Tree info from the Hapu Tree Expert

And then the revised report read:

Significance: All had a dripline of approximately 3.0 metres. Estimates of the ages are: a. Tuakana to be 30 – 40 years old.

b. Teina 20 – 30 years old.

c. Runga 30 – 35 years old.

The revised age evaluation made a significant difference in the approach to the importance of the trees.

Up until November 10th we had been designing the Kauri Corner to be a cut slope. On that date the report was sighted and a decision to avoid the Kauri trees was mandated by section 9(2)(a). This meant that WSP had to switch to designing downslope walls for the Area F work which included 2 major walls. These walls would have created a bottle neck in the site and would likely not be completed within the road closure period allotted due to their size and complexity.

After a long process, we were able to finally get approval to remove the Kauri trees on 16 February 2024, just 10 days prior to starting onsite works. We then reverted to the earthworks option in this area.

It should be noted that our agreement to remove the trees only extended to the 2 trees directly in the path of the earthworks. The remaining Kauri trees on the slope were to remain in place, with one precariously perched on the down slope

In October, an emerging slip was found above the central portion of Area E:



It was determined that we needed to remove this area or risk that it would come down on the road in the near future. It was mapped and sampled and a Helicopter supported drill hole was placed on the ridge just to the west of this area. Plans were hatched about how to get the 2-3000M3 of material down hill, finally landing on the plan to use an excavator and dozer to accomplish this. One hurdle was the access..initially it was planned to access from Artillery road ...this was scrapped when it was discovered in November that this area did not fall within the jurisdiction of the OIA that we had just received so we would need to wait 8 months or more to get DoC consent approvals in line. We then persued the plan to bring the equipment up the hill from F corner as soon as we were able to start work, passing directly underneath the two Kauri trees. We worked with Hapu to get that approved and then that plan was executed just at the start of the closure, which started 26 February, 2024. By 1 March, the works can be seen on the cameras. This cut was not in the original plan but we accommodated it into the schedule and added another 20,000 M3 of material to be handled.



1 March 2024.



23 February 2024



28 February 2024



5 March 2024



14 March 2024



15 March @ 12:45 as he toe of the cut was getting cleaned up the excavator operator had a bit of a fright as he started to see movement in the rock. His training kicked in and he backed away from the slope and a significant slip came down. The decision was made to cut a track up the face and remove this issue in the geology.



18 March @ 2pm a couple of days later, while benching this track in the face, another drop out occurred, also with a bit of warning. The operator backed away with no harm. After these two issues it was agreed that this slope would also need to be cut back to remove these geologic issues. This happened just before Easter so this was the reason that we had geotechnical monitors in place over the Easter break to allow traffic to cross the Brynderwyns.



10 April @12:30 The only way to get this equipment into this site was to use that once thought about access track. Time was of the essence as we only had the 6 weeks after Easter to the reopening of the road. The access track works started just after Easter and the works started as soon as they got to the site. Here you can see them a few days into the cutting of the slope.....removing another 20,000 M3 of material. This cut was wrapped up by 22 April, 2024



21 April 2024. The team had now completed the F corner (Kauri Corner) cut and were smoothing the edges and making the box cut. A significant area was identified that needed additional ground support prior to opening the road. It held up fine when it was cut but was not the solid rock material that surrounded it.



21 April Area F cut trimming, cut complete



Above, Picture taken Thursday 25 April (day before the slip) notice the holes layed out on the wall in pink and the bottom row drilled, works for the ground support were starting. Notice the soft material surrounding the weathered rock in red. Green shows the approx. layout of the ground support. Area F is to the right in the picture



Notice the pink marks next to the slip which show the Northern extreme of the lay out of the holes.



Picture from the relocated Timescapes camera that picks up a variety of cracks currently showing in the hillside of Area F. Noting that there was no way to perform any ground support after the hillside had come down, and with the continued cracking and slumping of the hillside, the site leadership team decided on Monday 30 April, that there was no way to fix this issue without laying the slope back at a 45 degree angle. The Kauri trees were already at risk and one had come down. We had to cut the remaining hillside back from the central E cut all the way to the F Corner cut. At that time, it

was estimated that we would need to remove 30,000 M3. We made the call to Goodmans and told them to hold on the demobilization of their equipment and also made the call to DoC (Whangarei) and let them know that we would be traversing the access road again.



By Monday, 29 April, at 11:00, the two excavators and dozer were in place and ready to start on making this next cut at E...this would be our third unplanned cut in this area. They got straight into the cut after the access controls were in place and spotters all set to watch and monitor the works from below.



By Tuesday, they had started making good progress with the excavator to the West starting a good pad on solid ground while the dozer was clearing the ridge and then starting to cut their normal trench to hard ground, as they have done over the last 9 or so cuts, same process. At 12:25 the spotter noticed some slippage starting to develop in the grassy area and contacted the equipment to move away to a safe area. The yellow excavator went towards the access track while the dozer and blue excavator went to their hard rock area.



The slip progressed over the next 30 minutes, eventually letting loose down the hill with the top 3-5 meters of organics and the dry loamy material below it. The slip happened between 12:55 and 1:00 on Tuesday 30 April. All safety protocols to protect the operators were in place and worked. No equipment went down the hill and no person was injured.



Over the ensuing 10 days the team worked through a design for the cut and a plan on how to get the equipment back to work. By mid day on 10 May, the excavation works resumed to move the remaining material down the slope for carting to disposal. To be noted, all of the material that came down in the uncontrolled slide, was planned to come down the hill when we made the decision to remove the material in this area.