

02/09/2020

Submission regarding RESOURCE CONSENT HEARING REQ. 596 300 – AUPOURI AQUIFER
WATER USER GROUP – 24 RESOURCE CONSENT APPLICATIONS FOR GROUNDWATER TAKES
FROM THE AUPOURI AQUIFER FOR HORTICULTURAL IRRIGATION

Summary Position

I seek the council to refuse the resource consent, because of the uncertainties and risk involved.

Kia Ora

My name is Gabriele Pfaender and I am living and working on our dry stock farm and accommodation business on the West Coast at Hukatere, Waiharara since over 20 years.

We are self-employed and run a sustainable business operation depending on the fresh drinking water from the aquifer for people and animals.

Common Sense

We live in a fast-changing world with covid 19 in our mind.

Remember it was only on 11 February 2020, at beginning of this year, only 7 month ago, that all Kaitaia businesses and household connected to council water supply had experienced a "level 4 water restriction", see copy of original letter of FNDC.
"Severe water shortage in Kaitaia."

There are about 5,871 people (2018 census, Kaitaia, the second-largest town in the Far North District), these people and well over hundred local businesses were depending on fresh drinking water over this "water crisis".
They did depend on fresh water from this very aquifer we are talking about today.

The people and businesses over the entire region from Kaitaia to Te Hapua are affected of what happens to the Aupouri Aquifer.

I therefore like to make use of my rights to suggest to the council to consider the change of notification as
"limited notification" needs to be changed to "public notification".

because the entire region of the Aupouri Peninsula needs this drinking water resource from the aquifer. The Aupouri Peninsula is classified as one of the driest part in NZ. At present we have the warmest winter month since 1908, according the news from 31.08.2020.

Last summer during the severer drought there were reports of manuka tree dying because of no rainfall for months.

The water from the aquifer is currently of best drinking water quality. I strongly believe it is our duty to protect the quality and the quantity of the Aupouri Aquifer- as water rescues fit and available for drinking water. For now, and for future generation.

A turning point has arrived with the freshwater reform and the National Policy Statement for Freshwater Management into force on 3 September 2020. This is from tomorrow onwards, however

Forest & Bird issued on 5. August 2020 a media release saying:

"Most of our rivers, lakes and wetlands have better protection from new freshwater rules, announces today, but a few key omissions leave our freshwater at risk,"

"exemptions for horticulture in some key regions have created an incomplete picture in improving our water quality"

"Our rivers, lakes, and wetlands are at breaking point. This piecemeal approach to clean up does not go far enough fast enough." Says Forest & Bird Freshwater Advocate Tom Kay.

I am of the opinion, to be successful in improving water quality, we all need to be involved as a community in the process.

A change from "limited notification" to

"public notification" for water take from the Aupouri Aquifer is more than overdue.

Further a sustainable aquifer management is crucial to maintain the water resource into the future. There are many instances around the world where aquifer have been depleted due to inadequate management, unreliable modelling and poor management in a short timeframe. Northland should aim to avoid similar mistakes.

Basement Rock / West Coast

The Williamson Water & Land Advisory Limited, shown at page 6, Figure 4.

The Model base elevation contours (m) derived from bore log interpolation and Lidar DEM data.

It shows the basement rock at up to 100 meters below sea level at Hukatere, that's where I live. This model appears to be misleading.

If you read up on the Interpretation of the data from the Northland airborne magnetic survey (Stagepoole et al. 2012) it provides insight into the basement structure.

It shows basement rock depths is actually up to 200 meters.

This would mean a difference of more than 100 meters where the basement rock actually is.

The accurate measurements are very very very important.

The "Ghyben-Herzberg relation" is a standard formula to calculate the risk of saltwater intrusion.

The deeper the basement rock is located, the higher the fresh water level above the basement rock has to remain to prevent saltwater intrusion.

Williamson's is obviously guessing where the basement rock is located at Hukatere, because the nearest bore to the basement rock is 6 km away.

His model is inconsistent with other investigations. (see Fig. 5.5, page 37, McIntosh, 1988 and Stagpoole et al. 2012)

There is NO bore log to support Williamson's model anywhere on the west coast and it has also NO allowance for the accepted regional fault line.

Until the depths to the basement rock at Hukatere and North of Hukatere are confirmed, the existing report of Fig. 5.5 Mc Intosh 1988 and Stagepulle 2012 has to be followed and used for modelling to determine salt water intrusion.

Possible effects of saltwater intrusion are including forestry, wetland, swamps and rivers along the west coast and all the people living along the west coast, along Ninety Mile Beach.

In other words, there needs to be a multiples of monitoring bore holes from Ahipara to North of Hukatere along and parallel to Ninety Mile Beach to observe and prevent a disaster of saltwater intrusion from happening.

I seek the council to refuse the block recourse consent, because of the risk and uncertainty involved. I cannot agree to the process of limited notification nor do I trust in the here presented modelling. Land owners do not own the aquifer, it is a privilege to get water.

Any saltwater intrusion would first appear at the deepest point. For every 40 meters depths to the basement rock you need one meter of freshwater above sea-level to prevent saltwater intrusion.

This would possibly start on the west coast, if we do not stop now.

The entire population of this Peninsula inclusive Kaitia are affected today and in future.

Public notification for all water related REQ. At the end it is the communities and rates payers who clean up water ways.

RC cannot do it alone. The natural environment needs our support.

Thank you for listening.

Additional Reference 3 pages:

-Map showing basement contours from WWLA AAGWM Recalibration Summary page 6

-transect C to C , at WWLA Aupouri Aquifer Groundwater Model Development Report fig. 19 page 19

-transect location WWLA fig. 16

All available on the NRC website.

Further two references below showing the depths to basement rock, bore distance to Hukatere and fault line.

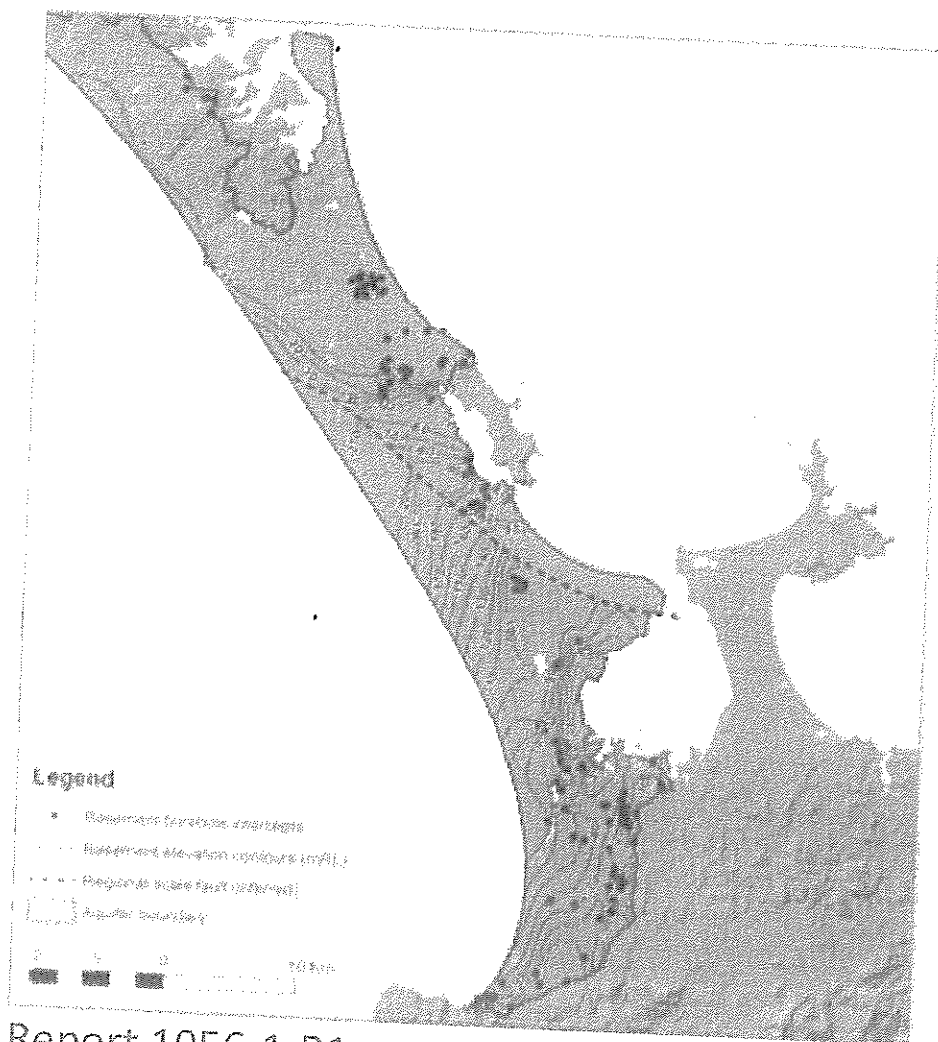
For every 40-meter depth to the basement rock, you need one meter above sea-level of freshwater to prevent saltwater intrusion.

Interpretation of data from the Northland airborne magnetic survey (Stagpoole et al. 2012) provides insight into the basement structure. In particular, a regional-scale fault can be inferred from the Bouguer anomaly maps. The fault is shown on Figure 2 together with structure contours on the aquifer-base. This follows a bearing of around 280° from Waihuahua swamp and turns towards a bearing of 300° near the start of Hukatere Road, and eventually goes offshore at Ninety Mile Beach about 20km northwest of Hukatere. This structure was interpreted by Stagpoole et al. 2012 to represent the northern boundary of Permian Caples Terrane basement rocks, and is therefore a major crustal feature.

The interpolation of basement intercepts on either side of this feature shows that the basement dips in different directions (Figure 2). In the southern domain, the basement dips quite steeply to the west-northwest, parallel to the strike of the fault. In the northern domain, the basement dip is considerably more shallow, and to the south-southwest. This means that the Aupouri Aquifer is thickest along Ninety Mile Beach to the north of Hukatere, where the basement may be over 200 m deep as the fault is approached. In the northern domain, the aquifer is much thinner, and is expected to be less than 40m along Ninety mile beach. The northern domain is thickest along the eastern edge of the fault at Waihuahua swamp, where the basement may be over 100m deep.

The fault is expected to pre-date deposition of the Quaternary sand sequence. From a water resources perspective, the main implications of the fault and its bearing on aquifer structure are the depth to the basal shellbeds for drilling purposes, and the spatial variability of storage in the aquifer.

Figure 2 Map showing the structure of the Aupouri Aquifer base.



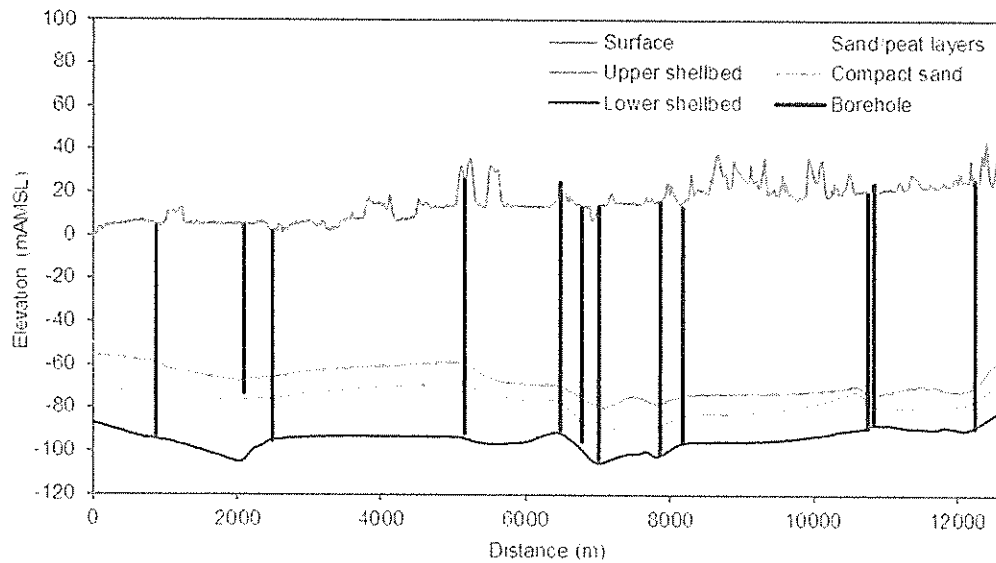


Figure 18. Interpolated cross-section B to B' showing bore locations (refer to Figure 16 for location).

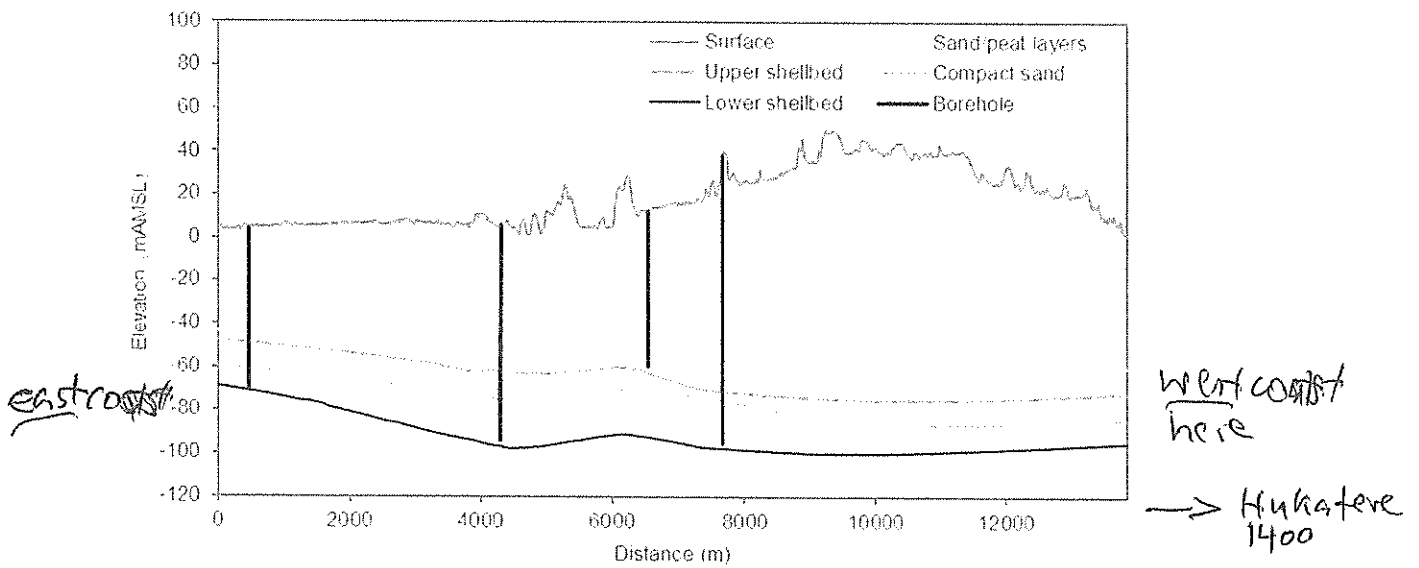


Figure 19. Interpolated cross-section C to C' showing bore locations (refer to Figure 16 for location).



Figure 4. Model base elevation contours derived from bore log interpolation and LIDAR DEM data.

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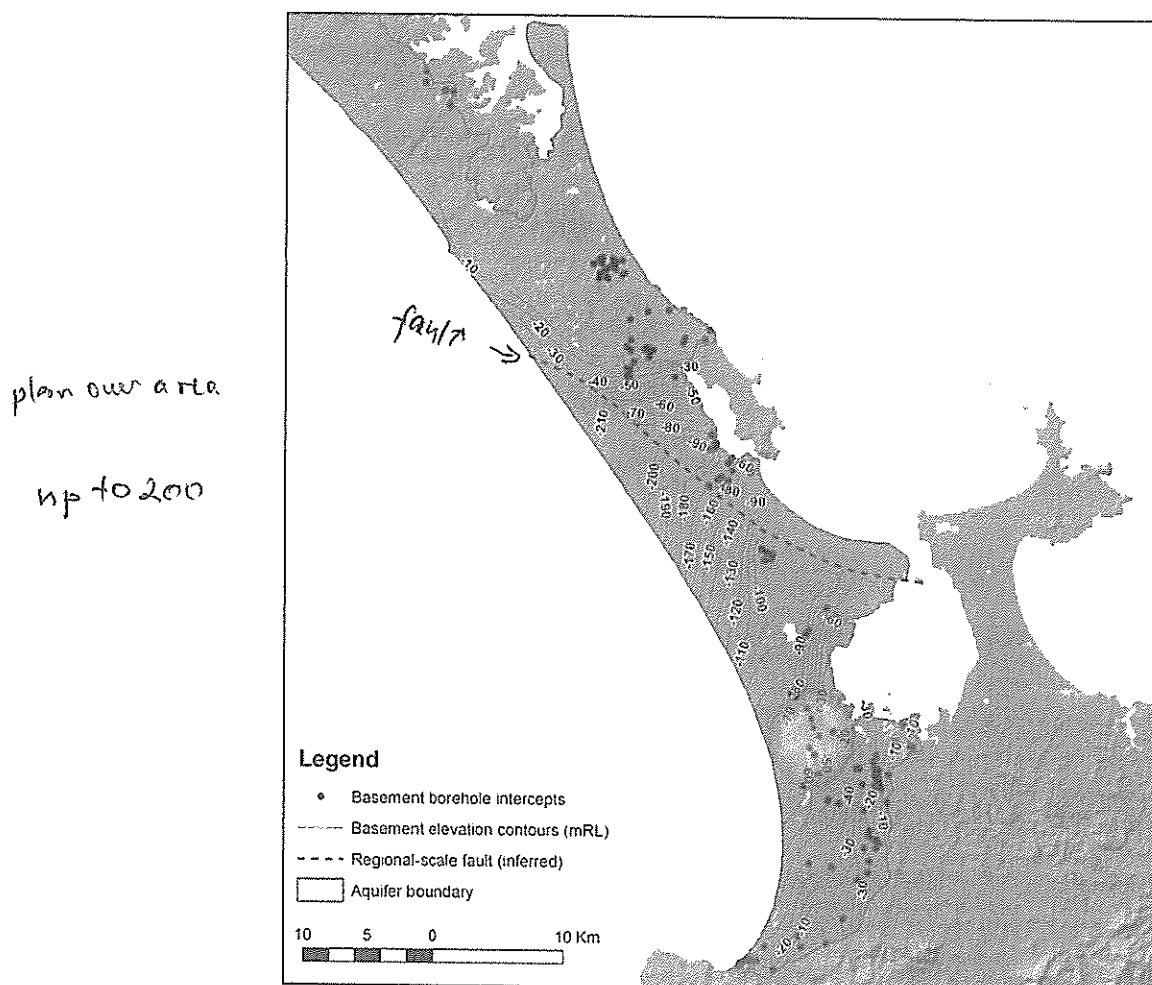


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Shore measurement

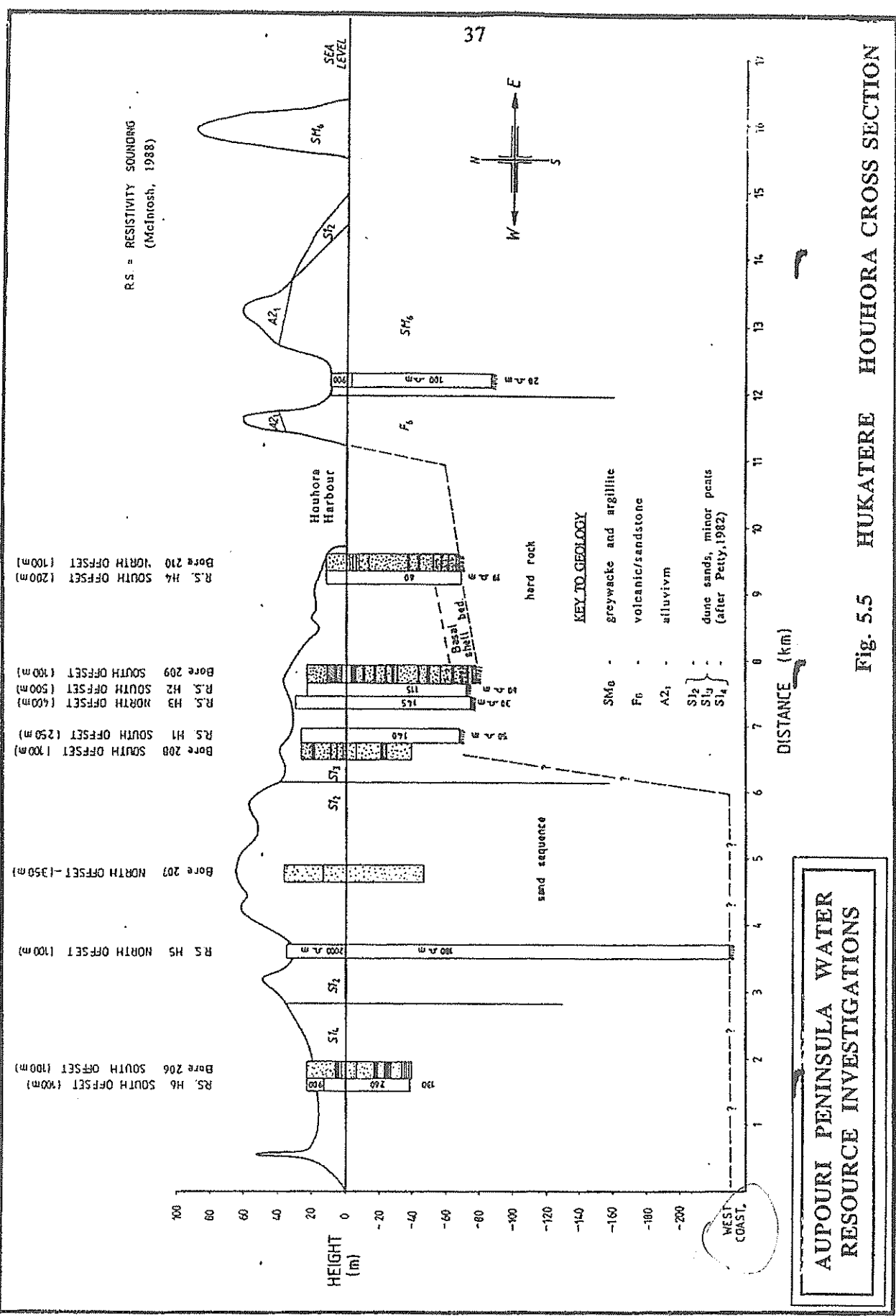


Fig. 5.5 HUKATERI HOUGHRA CROSS SECTION

11 February 2020

Kia ora,

Severe water shortage in Kaitiāia

We are in a water shortage crisis in Kaitiāia and we need your help.

Northland has experienced one of the driest 12-month periods on record and is nearing drought conditions. Many of our waterways, including the Awanui River, have been hit hard and we are fast running out of water.

We applied Level 3 water restrictions to Kaitiāia in mid-January to reduce demand on the Awanui River. Unfortunately, flows have continued to drop and we have now breached low-flow limits set by the Northland Regional Council. We must now apply Level 4 water restrictions to all Kaitiāia businesses and households connected to Council water supplies.

Level 4 restrictions mean water is for essential use only and can only be used for drinking, cooking and washing. All outdoor use is banned.

The MetService is predicting little chance of rain in coming weeks and no significant falls likely until May or even later. If correct, we face a very real prospect of taps running dry in Kaitiāia – possibly within weeks.

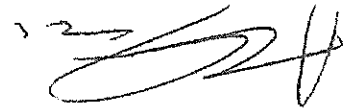
To help avoid this scenario, we are asking everyone in the Far North to reduce water consumption by 25 per cent from today. There are simple changes you can make to achieve this, some of which are included on the reverse side of this letter.

Our 25 per cent reduction plea includes people on rain water supplies. With no significant rain forecast, we know many water tanks will soon run dry. Town supplies are often used to refill private water tanks, placing an extra burden on our dangerously stretched resources.

We are now testing our contingency plans for the current severe conditions. These include the provision of tanks of drinking water for residents of Kaitiāia if water saving efforts prove to be inadequate.

If you see breaches to water restrictions, please report them by calling 0800 920 029 or go to www.findc.govt.nz/Contact. We are stepping up checks when unusual water use is detected. Anyone who repeatedly ignores water restrictions can be fined up to \$20,000.

Yours sincerely



Andy Finch

GENERAL MANAGER - INFRASTRUCTURE & ASSET MANAGEMENT

