Hororata
Community Response Team's Proposals

for SDC/ECan/DoC action regarding resolving flooding in Hororata

Aug 22nd 2022

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Hororata Community Response team

Happy Jacks – the start of key problems for Hororata?

Table of Contents

Table of Images

Table of Maps

A tough reality at the heart of the village – days after flood – and this is eminently fixable!

Introduction

This community lead[1] set off proposals for immediate and medium term action focuses on the need for resolution of regular flooding in Hororata and the heightened risk due to climate changed increased flood intensity and frequency.

The need for resolution increases as →

- ECan and DoC related controls on what can be done limit options while at the same time,
- **we know we must expect more frequent, more severe storms**.

This is deeply upsetting for those directly affected by flooding that has persisted for many years.

In earlier times communities acted to manage their issues. We are not supposed to act unilaterally. There are varied limits on community actions – diggers, chainsaws that practically minded people can see would greatly assist in reducing the number of homes that suffer flooding in homes and garages/businesses.

Therefore the community request that →

- **SDC,**
- **DOC,**
- **ECan work together to provide required permissions/consents, then act to manage the agreed solutions so that our residents can sleep easily when it rains heavily.**

We believe the issues can be resolved by focusing on **three core elements** →

1. Reduce flood water **arriving** in Hororata – focusing on Happy Jacks overflow, Aitkens Road overflow and Hororata River/Thornes creeks overflow;
2. Ease restrictions to **flows** on **West** of village in Hororata River/Thornes creek by removing excess willows, and shingle and on **East** – increase / create new channels to ensure water bypasses village;
3. Expedite the **removal** of water from township when water does get into township.

We furthermore believe that some of the issues – particularly those relating to Cordys Stream/Hororata River and the possibility of a flood induced breakout pouring dangerous and severely damaging.

We want to **acknowledge SDC's engineering works which are helping**. We believe that a careful consideration of flooding – during flood events shows that much more needs to be done which would dramatically change the flood problems for our community.

We believe a priority setting exercise will be best done on site, with representation by DoC, ECan, SDS and community leaders, referring to this document as a starting point.

A word regarding sand-bags.

The community is grateful for the assistance of an 'ambulance at the bottom of a cliff'…sandbags and sand provided to help reduce pain during floods.

But, sandbags are not a solution, they are at very best an inadequate Band-aid.

Increased storm intensities are what we see happening and are told to expect.

These issues are therefore more important than ever.

[1] The team who have contributed to this set of proposals for actions – we don't like it to be called a report – it is a proposal for urgent proactive responses, … the team have at least 400 years of cumulative experience in the floods affecting our township and district.

We appreciate that the authorities must balance many factors and sometimes conflicting desires.

We hope that discussion, careful evaluation, and plans, with a commitment to obtaining required consents will lead to a substantial set of changes and resolution of Hororata's flood problems.

Before the end of 2022. Is that a reasonable starting point?

The next part of this discussion/request document discusses, point by point – successes regarding SDC and other agencies engagement, then areas that we believe require further work.

Hororata – resolving long term flooding

1.1. Elevations – Why water goes towards the village

Elevations are a critical first step to wise planning. We haven't got Engineering level maps.

The elevations shown have been taken by a Garmin GPS 62s – using inbuilt barometric altimeter. It is not engineer standard elevations.

We request, please a copy of the maps that the engineers have for our district, that show accurate elevations.

Meanwhile, the elevations shown on any map, in this report, have been taken on one day, and acknowledge that week by week variation mean that comparison among maps may be a bother because of variation in readings.

In plain English – each map's elevations have been taken on one day and provide a useful comparison of elevation, indicating where opportunities lie to reduce flooding in Hororata.

Map 1 Happy Jacks and Aitkens Roads – key contributors to flood water arriving in Hororata.

Map 2 Hororata Township elevations – (link to previous map).

Please note, when Happy Jacks is breaching at 229 / 227 m asl – on Hororata Rd and Plantation Road ford respectively, the water is going to naturally follow elevations towards the township roundabout at 190 m asl.

Bottom of Downs Road at 204 m asl clearly is going to attract water! That means special attention must be placed there, with a suggested culvert to take water into the drain on east side of Hororata Road. (Requires on-site discussion).

1.2. Engineering works completed – Thankyou

The community is grateful for the many works that have been done – some not entirely seen or understood by the general Hororata Community.

These include -

Drain alongside Bealey Road to Cotons road and beyond

Some locals mentioned that this drain had low flow in recent flood. However the primary intake was blocked and needed some basic community level maintenance clearing.

Image 1 Bealey Road grate blocked, and drain's 400 mm culvert at Cotons Road full, but the drain has potential for greatly increased flows (over Cotons Road)

This drain can carry more water. There's a need for community maintenance to ensure water on Bealey Road can get into the drain, where it runs alongside Bealey road – near Fire Station, south side of Bealey Road.

Hawkins Road culverts

Clearing culverts helps increase flow to the centre of village and if the 'birdnest culvert at roundabout had the pipe extended – a good option exists to enhance flows away from the village's most at risk properties.

Other works completed

There's room here for input from SDC Engineers.

1.3. Towards Resolution – Community Priorities

Happy Jacks/Aitkens Road overflow to Hororata.

Overland flow from Happy Jacks and Aitkens Road and hill slopes near the bottom of Downs Road are massive contributors to flooding in Hororata township.

For as long as people can remember →

- Happy Jacks has breached its man-managed water course at both Hororata Road (above Hororata Road, left side on way to Coalgate) and again at the Plantation Road ford. Breaches send water towards the bottom of Downs Rd /and out into the domain and all that heads naturally towards the township. (Refer map and elevations above) AND
- Diggers have been used to improve flood protection – and those diggers don't seem to have ended mudfish populations… Perhaps trout are more dangerous to mudfish?

Recent land-use change has caused new issues to the ecology of Happy Jacks, up stream of Hororata Road particularly. Forest cover has given way to intensive dairying, with considerable increase in sedimentation. Further planting would help to capture sediment before it gets into Happy Jacks. This is something for CRT/community to discuss with the landowner by way of assisting in planting more natives.

Given all of this, what is absolutely clear is that out of channel flows can be very damaging. Some of the flows are across farmland and end in a dip in Scots Road, and then towards Scots/Thwaites intersection).

We are very pleased to hear that SDC's water engineer, Mr D. Meehan has achieved a 10 year ECan consent to allow management of the Happy Jacks Creek.

We request a digger and driver be given permission to create greater capacity channels→

- **Happy Jacks ford on Plantation road needs to be wider, so that large trucks can still negotiate the ford, while allowing water to stay in its channel.**
- **Above the Happy Jacks bridge on Hororata Road – the homes there are in the 'firing line' for water overtopping a too narrow bed. Digger work is needed that is sufficient for present floods (it isn't currently) and planned for greater intensity floods…**

Image 2 Upstream of Happy Jacks / Hororata River – fence issues, overland flow, after main flood, which was overtopping left hand in photo bank, sending water to Hororata.

The Hororata community realise we are one of the communities across wider Canterbury, from Waitaki to Ashley river that host New Zealand's most endangered fresh water fish species – Canterbury mudfish.

We accept the need to do our best to balance both →

- the need for people to have, during flood events - dry carpets[2], and muddy water free floors and businesses AND
- healthy, sustainable mudfish populations.

We believe that the skills and knowledge of DoC's Biodiversity Ranger and team can guide the decisions made – so long as both human and fish needs are balanced carefully.

We contend that evidence over generations speak to the damaging effect of trout predation, wetland drainage/conversion to intensive agriculture and the seeming minimal impact of diggers clearing in the areas we believe are crucial to the health and well-being of our residents.

There has been over 100 years of diggers and bull dozers in Happy Jacks and Hororata River… It seems the mudfish have been resilient in the face of that work, or in the context of Happy Jacks, perhaps the seeding/repopulating population lives above the zone where diggers are required to protect homes and lives and health and well being!

So, the CRT, as those who speak on behalf of the residents who experience water through their homes, businesses and garages – we beg for a reasonable approach that accepts some transient harm to mudfish while homes and families and children are protected.

We ask that the science relating to climate change and increased frequency and severity of storm events guides each step of planning and action, to resolve todays floods and cope with tomorrows worse floods.

Let's state that again. In case you missed it.

We know, if we accept evidence, and we do that

Map 3 ECan's map showing known mudfish populations.

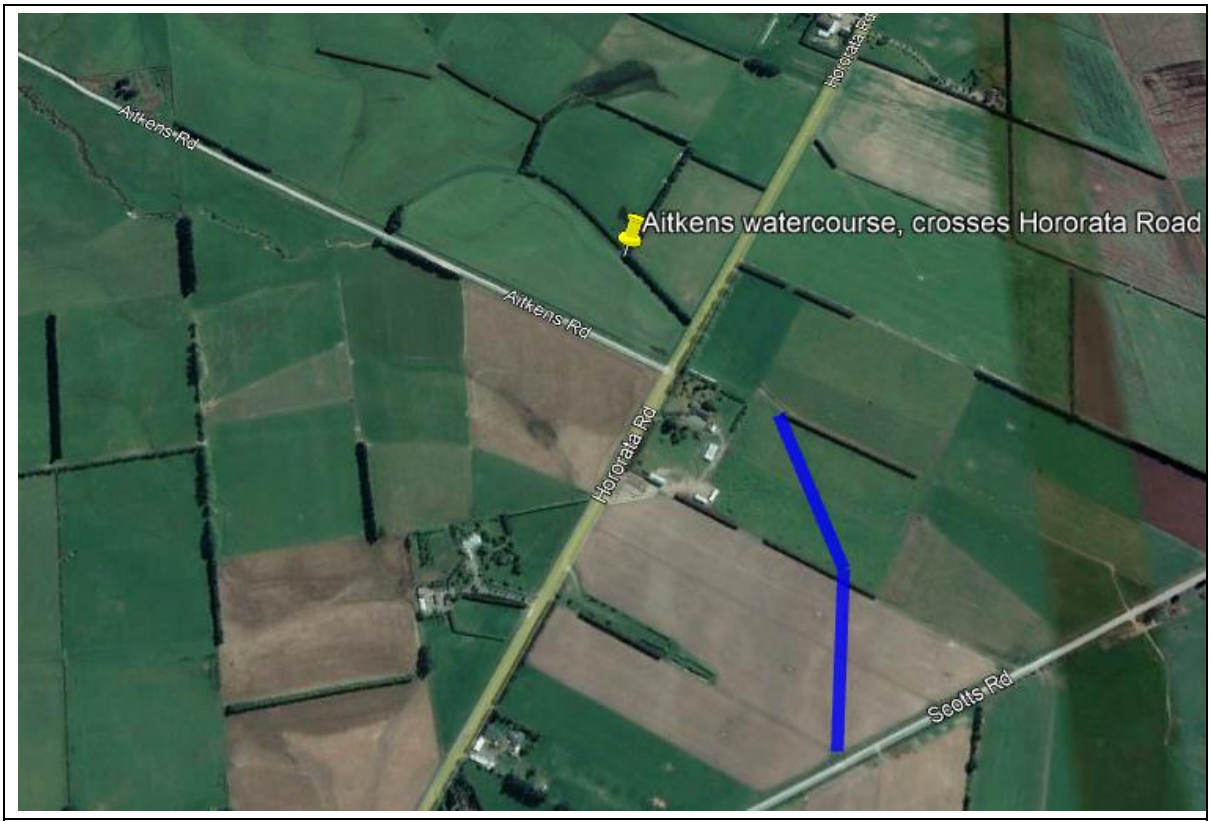
Ref. https://www.ecan.govt.nz/your-region/your-environment/our-natural-environment/nature-in-your-area/selwyn-waihora-zone-biodiversity/canterbury-mudfish/

[2] There's an important foot note to add – Government mandates certain minimum standards for rental properties. These include dry, warmable, insulated… Water flowing through homes rather messes with that Government requirement?!

bigger storms and floods are on the way. Preparation via appropriate action is a must. Please.

Aitkens Road / Scotts Road

Aitkens road culvert drainage is the next pressure point causing flooding at the bottom of Downs Road and further into village.



Map 4 Aitkens Road/Hororata Road - land-use change means increased flows to threaten the village – via the Scotts Road to bottom of Downs Road intersection, via the Domain and via Hororata Road directly.

The open drain running from Aitkins rd across Nicki Halleys (ex Richard Perkins) does not have the capacity it used to have, which meant water hit Scotts road closer to Plantation rd and then flowed across to Thwaites rd thence onto the Domain. Once water is in the domain, natural flows means residents are at risk of flooding.

We request action

- **Increase water flow capacity at bridge/culvert on Hororata Road/Aitkens culvert,**
- **And increase flow in old swale on the Haley property to keep water heading in a planned direction – to the large shingle pit that will have sediment/soil/fill removed to allow maximum drainage.**

The swale old shingle pit at junction of Thwaites and Scotts Road was larger in the past, before it was partially filled in some years ago.

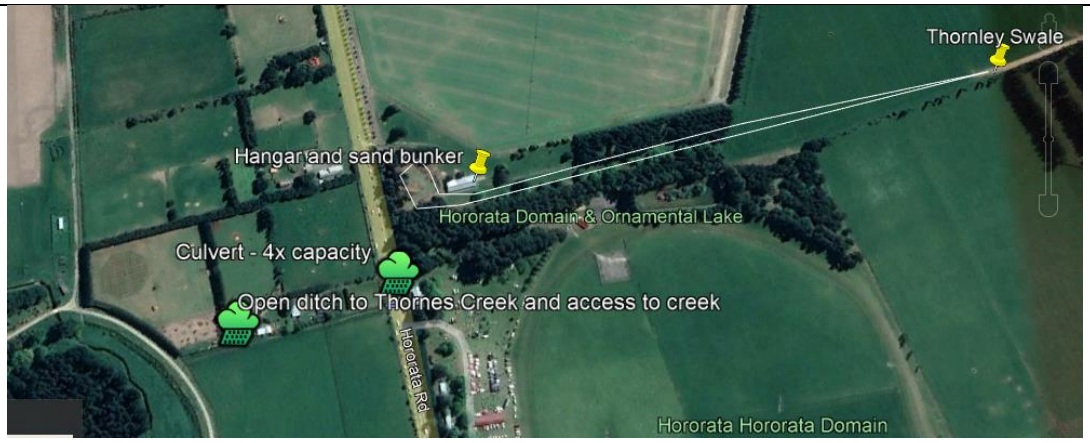
We request that the shingle pit have sediment/soil removed and the pit be left with a free running shingle base.

Image 3 Scotts Road flow when in very minor rain event – significant flow going into shingle pit at Thwaites/Scotts intersection, keeping water away from Hororata

The water above originates in the downland to the west of Hororata Road – Aitkens Road culvert is a major contributor to this flow.

‘Scout Den Culvert’ on Hororata Road – increased capacity needed, with associated open drain to Thornes Creek.

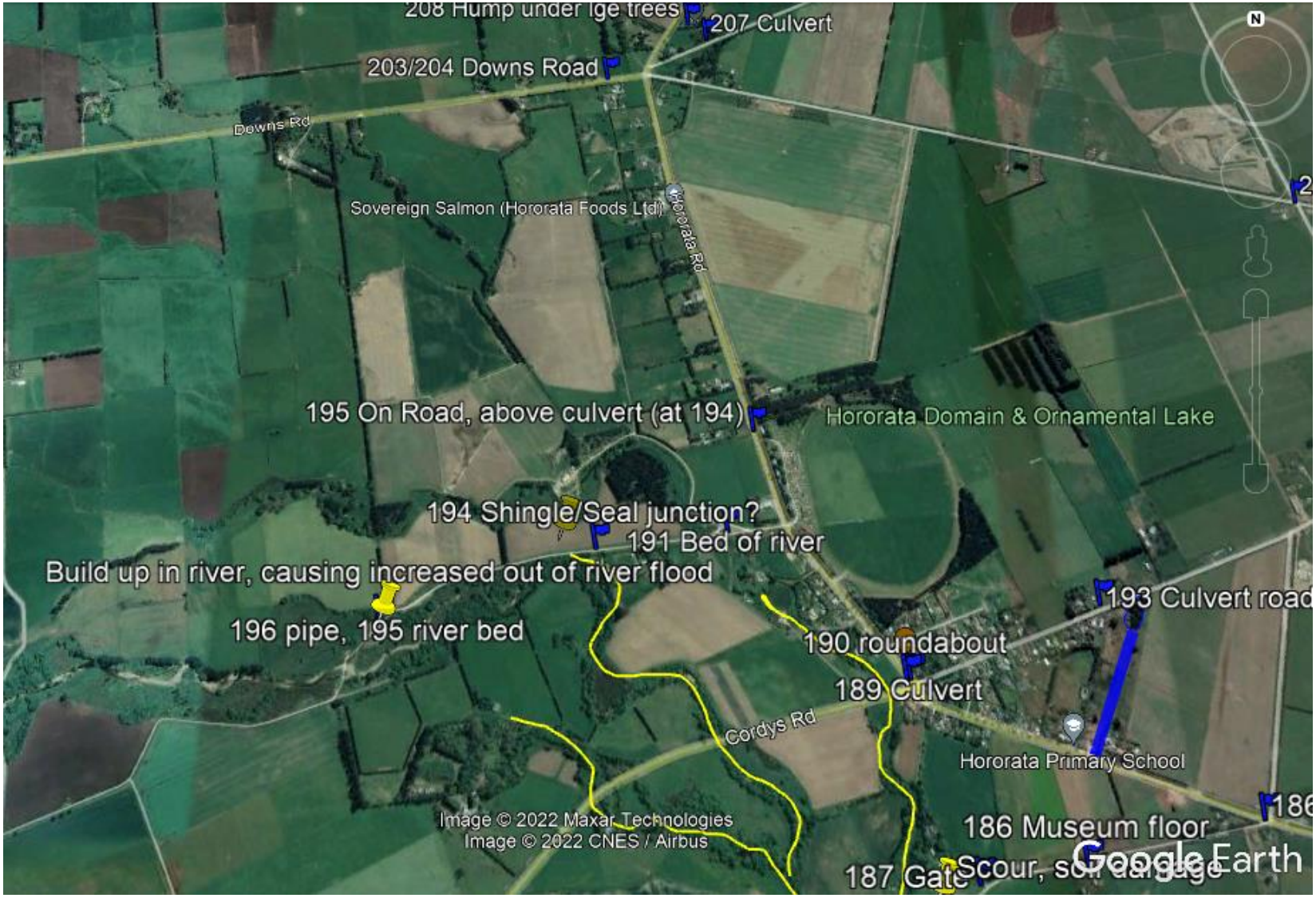
The regular flood problems at bottom of Downs Road may be alleviated by a culvert under Hororata Road, taking water to the under used drain on east of Hororata Road, then by increasing capacity of the culvert by scout den – water can be sent into Thornes Creek.
For discussion please.



Map 5 Rescuing the village from Happy Jacks and Aitkens Road over flows – Culvert and drain to Thornes Creek

We request actions to increase flow in scout den culvert, under Hororata Road – maybe 4x capacity, with the two associated necessary actions – improved, wider/deeper drain in council/hall land and Thornes Creek able to cope with flow without overtopping bank. Refer Map 5**.**

Hororata River and associated channels – beside Hororata township



Map 6 Thornes Creek/Hororata River channels have too much shingle and too many willows impeding water flow – leading to out of river flooding.

We are grateful for river works already completed.

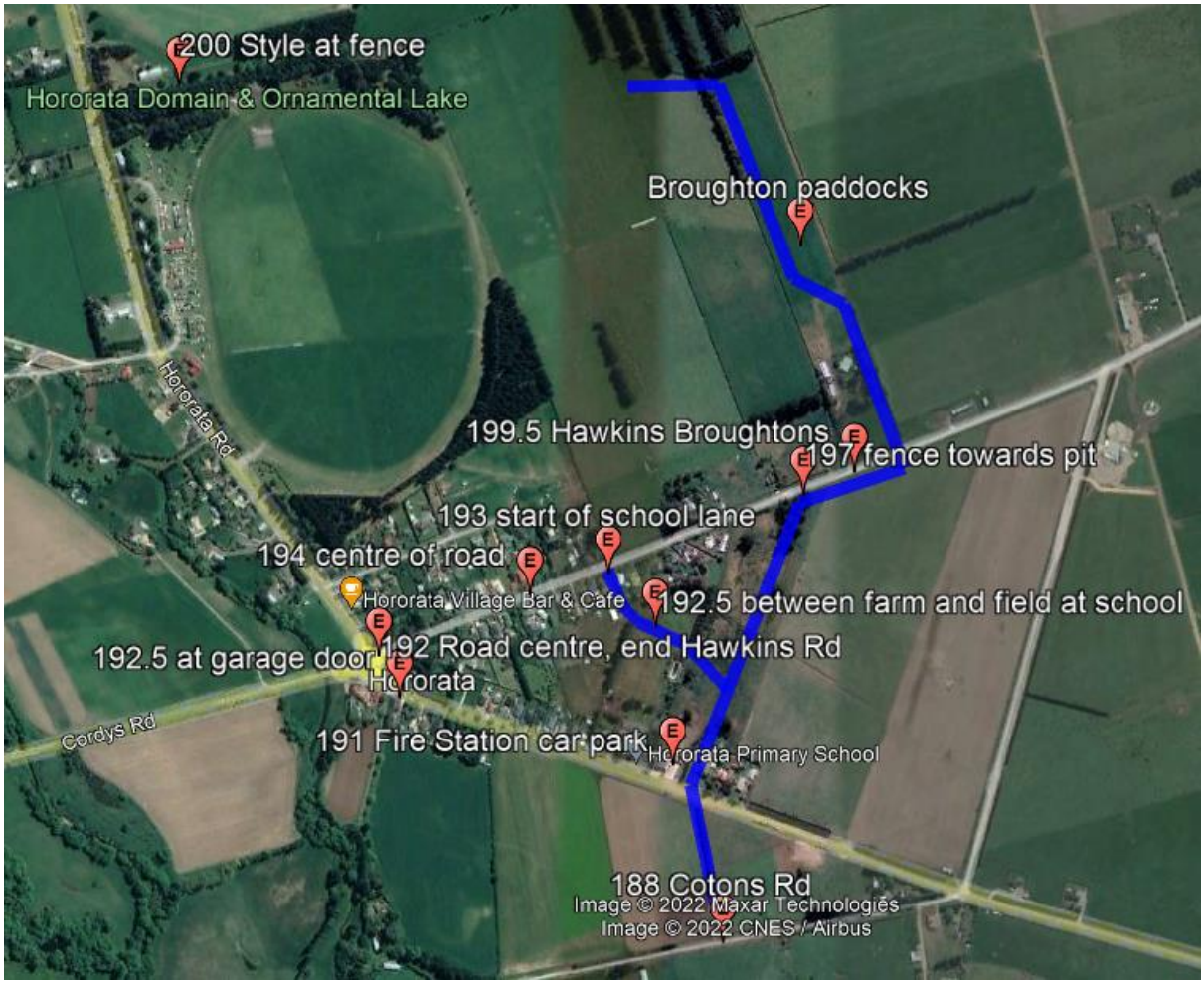
However, our most experienced locals believe there is a very real/probable risk of a blow out with extreme risk to many homes in Hororata, given current excess shingle load and willow restrictions in these rivers/creeks.

We request SDC and ECan and DOC work together to do what we as community members are not allowed to do – continue to sort flow issues and extreme flood risk in Thornes Creek and Hororata River where too much shingle and too many obstructions/willows impeded flow and reduce ability to drain water at township centre.

Open drain / Swale to assist in keeping water out of township– Hawkins to fire station

Given the likelihood that high intensity rainfall will mean that overland flow will cause flood water to reach Hawkins Road one option is to take some of the overland flow in an open swale/ditch to a large culvert under Hawkins road, than into existing pit with overflow in open drain/swale between the Patch and Hororata Fire Station, to a new culvert linking with recently completed drain – towards Cotons road and then towards Hororata River.

An opportunity exists to lower the lane from Hawkins Rd to School Farm/Field and create wide open drain to connect (between school farm and school playing field) with the 'main' drain proposed below.



Map 7 For discussion, open swale drain removing water from east side and sending to new drain near Fire Station above and below Cotons Road.

We request SDC work with landowners to develop a wide channel, and needed culverts (Hawkins/Bealey Roads) to reduce pressure of water heading to township centre.

Image 4 Hawkins Road looking over SDC land towards fire station. Propose water into old pit, then excess to open drain towards Cotons Rd, using new SDC drain opposite fire station.

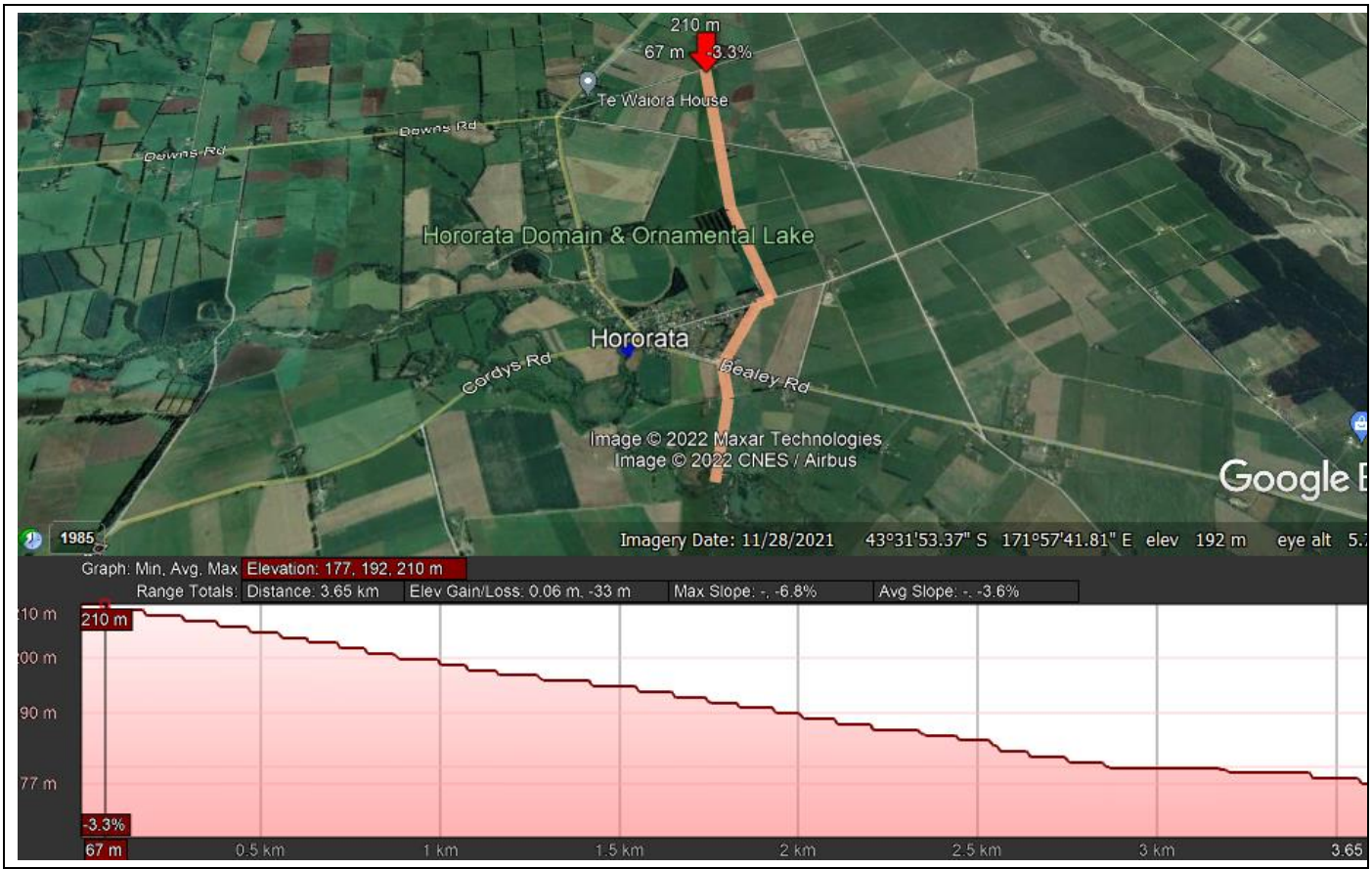
Is there sufficient fall for an open swale to be effective?

The CRT are not river engineers… but the figure below shows elevations on the proposed route. Yes, there's a useable fall for water to be taken away from township centre and reduce / eliminate need for sandbagging in Hawkins Road.

There's more to do, with this plan given the photo below, taken 6 August 2022.

A culvert with no-where to go… Homeowner permissions may be the biggest impediment here?

Image 5 Hawkins Road, an important culvert, heading towards fire station, but currently blocked – urgent work required to complete this partial solution.



Map 8 Elevations above Broughtons to below Cotons

South of Cotons Road – Work needed – flood water heads SE and should head South

B. Oliver, M. Davies and D. Askin met at end of July on site and subsequently a phone discussion was helpful with land-owner affected directly – S and P Oliver.

There's a need for further digger work to ensure flood water goes south, not south east towards chicken operation.

We request SDC work with landowners to develop a wide, effective channel that ensures increased flows of water crossing Cotons Road – either over or in culvert go directly to Hororata River – effectively.

On site engineer discussion required – we believe.

Might work be completed within a two month timeframe – please? By mid-October. Is that a reasonable request?

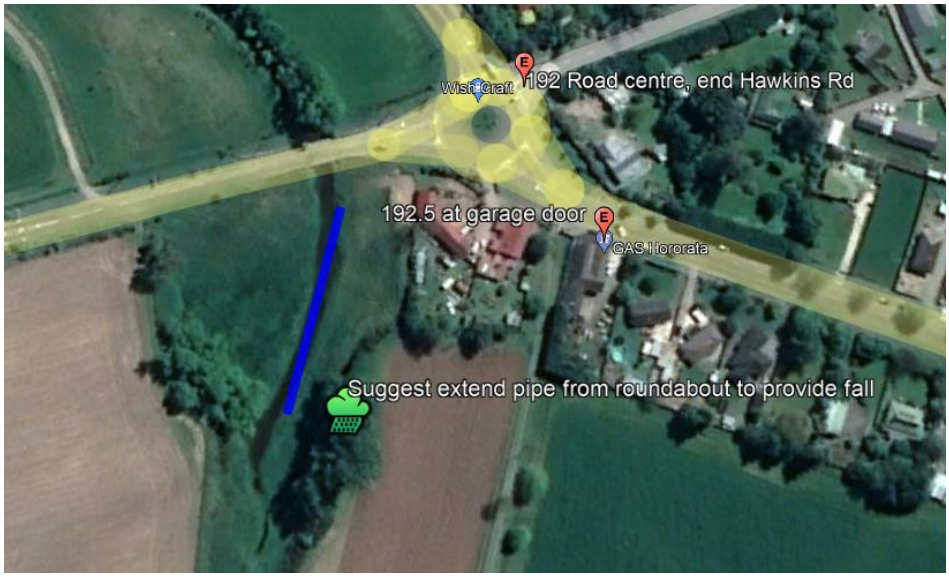
At the heart of the village – extend main pipe in Cotons Creek or Install expensive pump?

Might it be possible to reduce pump requirements by simply

1. extending the pipe at Thornes creek or
2. a whole new pipe from roundabout (NE) to 100 m down Thorne creek.

Gravity might dramatically help AND provide safety during power outages that we are told to expect with storms/AF8?

Hororata Community Response Team are not convinced of the value of an expensive pump – we believe there are better, gravity related solutions.



Map 9 An 80-100 m extension proposed to the pipe from NE corner of roundabout to SE side – exiting into Thornes creek.

Image 6 The very heart of the village – a flooded property, long after flood and outside the property a culvert that seems to do nothing?

The culvert above might be linked to a renewed drain for the centre of the village. Business and homes are at risk, and there are options to take this low lying water away. For discussion, please.

Selwyn River and Waianiwaniwa bridges on Bealey Road

The Bealey road is Hororata's lifeline to the city. Floods have damaged abutments on both the Selwyn River and Waianiwaniwa River.

The Selwyn is of particular concern because of damage to Western abutments and potential high flows during abnormal storm events.

(The Selwyn breached its bank just up river of the Bealey Road bridge in May 2021 flood).

Image 7 Selwyn River from the road, Hororata side, looking upstream – in minor flood, July 2022

The image above shows the recent very minor flood in the Selwyn. It is currently bouncing hard left and right, so that this bounce is hitting upstream, Western (Hororata side) abutments which have been degraded in last few floods. Trees and many large boulders have been washed away. Fine gravel may likely be inadequate protection – shown in photo.