Folder [20231105 Island View stormwater detention basin alternate design]

Alternate Stormwater Proposal for Island View

Ian Holyoake. 8 November 2023

Reviewed by Rob

Eric and our stormwater group have not had time to review this nor have they seen the Pinnacle proposal

The purpose of this project is to deal with the stormwater discharges from the Pipi Rd and Rangi Rd pipes.

This design will become part of the the Stormwater assets of Whangamata resource consent 105667.

Pinnacle has presented a proposal for comment. This is an alternate proposal presented by the stakeholders group. This proposal has not been to the greater community under consultation.

Background:

The Rangi stormwater pipe has a very limited catchment. Smartmaps needs upgrading as it does not show its extension to the existing detention basin. The Rangi catchment is via a single sump (not 2 as shown) on the opposite side of the Reserve. Rangi has kerb and channel. The sump design includes a sediment catchpit and pipe to the existing pond.

The Pipi stormwater pipe has a limited catchment area and likewise is feed into sumps either side of Pipi and Island View intersection and have sediment catchpits one piped to the other and then to the existing pond as drawn.

Both these pipes discharge into a formed detention basin that is reliant on soakage into the sand soils. The Rangi pipe invert is about 300mm-500mm higher than the Pipi one. The Pipi one being lower is not helpful. It would be good if Pipi was decommissioned so the detention basin could be built to the invert of Rangi discharge pipe so it is higher above the water table.

The gallery below gives a time lapse of the water storage and soakage of the detention basin. In summary, the pond holds water for two reasons - following heavy rainstorms when the kerb and channel flows and when the water table level rises above the base of the pond ie breaches. The pond does not drain until the water table reduces below the pond base. Until then water remains permanent.

The detention basin has no formal overflow pipes or pathways. It is designed purely as a open soakage basin.

The detention basin has a formed wooden walkway suspended above the invert pipe levels but below the water table when it is higher than normal. Generally the walkway is about 1m above the dry ground. The photos show the walkway is submerged when the water table rises. The walkway is an alternative adventure route through sand dunes and scrub to the beach.

There are no fences. Warning signs only recently went up.

The detention basin backs onto a flying fox on the edge of the playground. This is a popular activity for children and parents.

Three side of the detention basin have low scrub and vegetation that is difficult to maintain so has a

negative value

The front side facing Rangi borders a large open and flat playground used for Markets, Beach Hop, Truck shows and is a popular playground for kites, balls and frisbies.

Because the water table takes a long time to drain down the base of the detention basin gets muddy with sludge. It grows slime and as it dries out grows weeds which cannot be maintained because mowers cannot get down to it and the soil is decomposed organics.

None of this part of the reserve is maintained. It is not planted in anything that contributes to coastal protection or aesthetics. It is a lost wasteland.

The depth of the water can get to over 1m when it rises above the soffit of Rangi pipe.

The water table at that height is likely to be close to the kerbing along Rangi. At this point Rangi Rd and Pipi Rd can become flooded.

The detention basin coincidentally corresponds to where the coastal sand dunes have retreated. Whether it is the cause of the erosion is debatable.

The Whangamata resource consent 105667 was lodged 2002 under urgency. The purpose of 'under urgency' is to allow a rapid 'decision' that is not held up with consultation bickering. 22 years later the certificate is still a partial and awaiting clear descriptions, lists and maintenance requirements. It can no longer be under urgency.

What do we know about history of flooding in the area?

The Opus 2005 report is the only document provided to me. I do not have access to the Fire Service call outs or the RFS council has.

The Opus report included a survey of home owners responses. These are the responses in proximity to the stormwater catchments that discharge into Island View pond. The 'Yes' is the respondent stating they have stormwater problems

104 Hinemoa St Yes Ponding on property Up to 5 cm Once per year only minor

102a Hinemoa St Yes Ponding on property Greater than 5 cm More than once per year Ponding occurs on road frontage due to poor council road alignment. Lack of footpaths & kerb & channelling in this area lead to this ponding

112a Hinemoa St Yes

112b Hinemoa St Yes Ponding on property Greater than 5 cm More than once per year Road runoff ponds on road onto property for several hours after heavy rain

101 Pipi Rd Yes There is stormwater flooding after heavy rain adjacent to the property

102 Pipi Rd Yes Ponding on property Greater than 5 cm More than once per year After heavy rain

103 Pipi Rd Yes Ponding on property Up to 5 cm More than once per year Flooding on roadside

105 Pipi Rd Yes There have been no problems on my property, but there is a lot of ponding on the carpark and the street corner of Pipi and Island View rd

Others on Pipi but these fall to a sump further along Pipi

The Opus 2005 report listed this schedule of options for Pipi Stormwater upgrade work:

Option 1 - Construct Overland Flow Path $12,600.00

Option 2 - Construct Bund $15,000.00

Option 3 - Install Pipe 60,600.00

What has been done since the Opus report to reduce the risk of flooding in this area?

TCDC SmartMaps show the Rangi and Pipi sumps as Stormwater Main (other) with construction date 1985. The sheet shows a Manhole on the Reserve side opposite the sump. I have not inspected this.

SmartMaps date the Island View car park sump construction date 2006.

There are no other assets in this catchment.

I have active LGOIMA with council for information on all stormwater improvements since the Opus 2005 report.

The condition of the pipes would support the 1985 construction date.

This means nothing has been done since the 2003 survey results to reduce the risk of flooding in this area.

What and why should something be done to this asset?

To satisfy the 8 owners who responded to the Opus 2003 survey with problems with stormwater

To satisfy the Whangamata resource consent 105667 so it can move forward.

To remove a safety concern

To remove an eyesore

To reduce maintenance issues of dumping sludge and the cost of cleaning the pond basin

To allow backed up water to drain. When the water table rises it prevents soakage and the pipes get full but stormwater is not flowing which backs up and overwhelms the sumps and causes street and property flooding

To introduce overland flow path off Hinemoa

To incorporate 'self draining' into the detention basin

To comply with the District Plan ordinates - detention basins cannot retain water and must self drain

To improve the Reserve

To utilise the Reserve by providing more facilities for the community

Alternative proposal:

The basis of this alternative proposal is to provide:

1. Move the soakage devices to the road so road services can maintain them
2. Provide a detention basin to temporarily hold water for larger events that is self draining
3. Th self draining to be a combination of ground soakage and an overland flow path to the Ocean when soakage rates into the ground are inadequate to manage the stormwater volume
4. Create an overland flow path from Hinemoa into the detention basin
5. Provide developed land for community use.
6. Provide a space to expand the playground

The gallery below includes photographs of the existing pond since cyclone Gabrielle depicting its issues and how it drains.

It is not up to us to provide our preferred option. The reason we have promoted 'a basic plan' and options A and B is so these can be promoted in consultation with the community.

There needs to be a better understanding of the Whangamata stormwater management system.

We don't need to re-examine the benefits we have of the sand base. What we do need though is the Whangamata resource consent 105667 to correctly incorporate the fundamental difference we have compared to conventional 10%, 25 and 1%AEP requirements. Almost all of Whangamata stormwater piped or not is being feed into the aquifer. The aquifer is being affected by the Wentworth and Otahu Rivers where the piped discharges we do have discharge.

The logic is the sand and aquifer are our detention device. This needs to be drained to a level that it can successfully receive the next precipitation. When it can't we need overland flow paths to detention basins or to waterways. Whilst pipes may be of assistance no pip design can ever meet a 2% or 1%AEP.

It is therefore essential that our stormwater systems must be capable of reducing the water table before it crests and breaches causing surface flooding in the lower lying ground and natural basins.

This means every improvement we make must include systems that can reduce rising water tables so they don't breach and raising the low lying ground to above the breach crests.

This needs debating now.

The LVL of the bottom of the detention basin must be 1m (our arbitrary figure to debate) below the low lying ground.That way the detention basins will be where crests breach so the detention basin must be self draining either back into the water table which will be slow when it crests or to waterways once it reached a depth of 200mm.

We cannot afford to 'over drain' the aquifer as low water table levels will kill vegetation and starve birds and animals. Dry ground becomes arid and not useful to humans.

We are having trends of cyclones then droughts. Therefore we cannot over drain the aquifer, or divert rainwater away that is needed to top up the aquifer. This is a balance we need to consider as the number one issue in any stormwater design/specification.

Compliance considerations:

The design must comply with the COP and E1/AS1, or have adequate independent verification to be an alternate solution.

The COP aligns to E1/AS1. The predominate design features need to be:

1. The base of the soakage device must remain above the 'winter' water table
2. The 10%AEP is acceptable up to the point where if soakage rate is exceeded there must be adequate storage to manage the excess to avoid surface flooding causing nuisance
3. The soakage pits must be maintainable

The reference to 'winter' is taken as 'wet season' where rainfall would b expected to cause water tables to rise above drier 'summer' periods. This is a very important consideration because it is during the 'wet season' ie 'during the 10%AEP' that soakage devices design must contribute to managing stormwater from flooding to nuisance level. If the soakage device becomes flooded by the rising water table then it is NOT a soakage device and fails E1/VM1 test. The second consideration is the 'excess' rain above the soakage device is on the assumption the soakage device remains well maintained, and continues to be functional to its design capacity during up to 10%AEP. In these circumstances excess rainwater must be stored and not allowed to surface to cause nuisance.

Here lies the problem. The storage system we have is the sand that surrounds the soakage device. Its NOT 100% by volume but around 50% (Opus 2012 Groundwater study). But to get into the sand the rain must pass through the soakage device walls. Can't if overwhelmed and flooded.

Next issue is when the rain slows the rain water stored in the surrounding sand now re-enters the soakage device preventing it from operating at design capacity for the next rain event. The soakage device is basically compromised and does not contribute to managing stormwater.

The sludge that is present in the existing 'pond' is more likely coming from the surrounding vegetation and batter of the pond banks than the road. ie to maintain an open pond the exercise and management brings more issues as the organic wash prevents/slows absorption into the water table.

To me the solution that is more practical is to move the sumps to the roadside which limits the sediment/sludge to just the road and verges and then run the pipe as an overflow that manages excess rainwater when the soakage device is flooded.

Why are the soakage devices flooded in rain?

This is answered in the Opus 2012 Groundwater study. 500mm of rain lifts the water table 1M. The Opus 2012 Groundwater report included BH05 Rangi Ave borehole test site. measured water table levels 2011 between 1.1M and 2.5M below ground high/low. This corresponded to -0.3M at soakage device ie flooded. It also means that at 1.1M deep rainfall above 550mm will cause surface flooding and rain of 300mm will totally flood the soakage device - however being close to the Ocean will mean the water table will drain faster.

The bore test sites are in open terrain. The soakage devices are the disposal of catchment areas off impermeable surfaces. What this means is instead of the catchment area soaking evenly into grass it is all collected and discharged into the soakage device. ie at 10%AEP thee 19mm of rain in the 10 minute flush

that would normally be just 19mm over say 2000sqm (38cubicM) of ground is now a 'head of water' dropping into say a 4sqm soakage device storage with a 9.5M high column of water. Sand cannot absorb this much. What does get absorbed forms a crown as it soaks in (like a cone) soaking downwards and laterally. After 1.1M high the cone is stopped at the water table. Th base of the cone spreads and the weight of the cone will cause hydraulic pressure and speed up infiltration to the Ocean. This is really slow - months not minutes. Hence the soakage devices are overloaded and remain full. Surface water then accelerates and becomes trespass water to low lying surrounding properties. This does not abate quickly because the soakage device surrounding sand is saturated so until the water table of the crest around each soakage devices plateaus down remains ponding.

The principle that needs consideration is to pipe off excess water rather than let it tresspass and become nuisance.

Shortfalls and issues we have with the Pinnacle proposal:

The reservations we have with the Pinnacle design include:

1. The Cirtex will not assist storm-water disposal as they will be below the water table when its raining so will serve little purpose. The investment is wasted.

2. When the water table has dropped and soakage away is possible, the amount of soakage required will be much less than the number of Cirtex specified in the proposal. ie needless over engineering and costs.

3. The design does not allow for an overland flow path when the soakage device is overwhelmed.

4. When the Rangi and Pipi discharge pipes become submerged the water will back up the pipes and flood the sumps and surrounding low lying depressions.

5. The design has no means to remove the water from the detention pond - relying on soakaway as it does now - so will not comply with COP section 6

6. The proposal does not include improvements to reduce the risk of known flooding to the properties that responded to the Opus questionnaire. For example 112a and 112b Hinemoa are included in the survey results but are not included in the proposal

7. The proposal does not include how to deal with surface flooding to 110 and 108 Hinemoa Rd even though they are lower lying than 112B. The recent storm last week blew sand and water onto these properties again.

8. The proposal failed to include discussions with residents on Hinnemoa and Tangaroa Rd - to see how bad it gets.

9. The proposal failed to deal with the sumps at the end of Hinemoa Rd that get regularly filled with sand every time a strong onshore breeze picks up dry sand.

10. The design will not provide for an overland flow path - from any roads around the reserve to drain off surface ponding

11. The proposal does not include how it will benefit community users of the reserve.

What should be done now is workshop this proposal into something more useful for the Master Plan.

Conclusion:

This is the first engagement we have had with TCDC involving proposed stormwater improvements to create a Master Plan for implementation over the next few years. It is disappointing we did not receive an induction kit of prior knowledge council has. This would include existing information and reports, RFS, properties that flood, previous attempts at reducing flooding of at risk properties, actions council has already undertaken and how these reduced flooding and what was already in the Master Plan. These would have helped us enormously to get up to speed and develop a sound understanding of the fundamental issues we have. We could have engaged positively if council had an open mind. Instead our learning's focus on reliance by way of LGOIMA. This ties up unnecessary council resources, delays learning and often we get irrelevant information because staff are not clear on what council has in its possession and whether Risk and Assurance will allow it to be released.

This is why I had to resort to getting information and be challenged as being persistent. It also means 'new council staff' may not have been adequately inducted into their jobs and will be in the same vacuum as us. What this means is terms of engagement become unclear because the staff writing them don't have sufficient background information - like Opus has already done a huge amount of work council should have assimilated before they engage new consultants. By not taking the existing stormwater reports into consideration the future direction becomes disjointed and runs away on paths of its own. What should be happening is the Opus recommendations should have been further advanced and if still relevant and important be the workshop discussions. Failing to add to existing knowledge also brings the concern of over engineering because we missed valuable information we should have taken into consideration - to an extent we waste needless money - like the scope instruction for Pinnacle in this proposal. Pinnacle is in business to generate sales. They will draw up anything they are told to, needed or relevant or not.

I appreciate engagement could now be starting, but don't know whether that is because I have a 'final LGOIMA request and reconsideration of decisions' before council, or whether council now accept we 'are getting up to speed so we can contribute something useful'. I give council a 1/10 for engagement at this stage.

We accept the pond must be upgraded but we seek this is discussed in workshop with an open mind and only after we have all the information and accept this proposal must solve the greater issues surrounding it. We do not have all the information yet. Council are still processing many LGOIMA. I have given this my best shot with what I have assimilated to date.

Each project needs to be tested for what it can contribute to reduce the risk of flooding. This is important to owners that do flood and others that are affected by well being issues and adverse commercial effects on businesses. This schedule is our suggestion to be used to test each project:

1. What were the options for each project?
2. Were these options tested and debated on merit?
3. What were the alternate costs for the preferred option versus other options?
4. How much does each proposed improvement project cost?
5. How many properties with flooded floors will the project stop from future flooding?
6. How many flood hazard tags will each project remove from properties that flood?
7. What impact (adverse or other) will this project cause or affect another asset (including other types of assets eg land being lost or used)?
8. How long will each project take to complete?
9. Will owners be expected to contribute financially to the project? That is via more rates or individual contributions? Are these voluntary?
10. What significance does this project carry ie priority over others?

11. Is the purpose of the project for regulatory compliance eg getting the resource consent finalised rather than improving stormwater infrastructure?

12. Does the project fix up a safety issue?

13. Does the project make Whangamata a better place to live in?

14. How many residents are going to be better off with this project?

Until all the proposed improvement projects have been through the priority test we don't have a Master Plan that can be presented to governance.

Gallery:

The following images are a selection of photos of Island View with explanations and includes images with explanations on the Pinnacle proposal.

20230211_174026.jpg

11 February 2023 Just been cleaned

This was between Hale (10 January 2023) and Gabrielle (20 February 2023)

Before the clean out the bracken was so thick it was difficult to push through the walkway.

Pipi pipe about water level

Rangi pipe abov water level

20230307_084333.jpg

7 March 2023

Pond view digger still on bank

Rangi pipe about 300mm above water level

Around pond embankment can see water table and water rings as pond level drops

The water level will be the water table level

20230307_084348.jpg

7 March 2023

Showing Pipi pipe submerged so must be around 300mm below Rangi pipe

20230307_084433.jpg

7 March 2023

Rangi pipe above water table by about 300mm

20230307_084459.jpg

7 March 2023

Showing depth of lake 2 weeks after Gabrielle

20230420 Date uncertain.jpeg

April 2023

Can't exactly date image extracted from video

Likely around April as grass is returning around the edges.

Kids have carried timber to create a walkway.

Accept the lake must go for safety reasons alone.

Often see dogs wading into it getting sludge all over them.

No-one can police safety - even parents won't have realised kids have done this.

20230420 Date uncertain.jpg

April 2023

Uncertain date extracted from video

No water discharging from either pipe.

The pond is close to the Ocean so likely can filter through

More likely this is the water table

Not from pipe discharge

20230420 Date uncertain.jpg

April 2023

Taken from undated video

Pipi Pipe below playground

No discharge

9

20230420 Date uncertain.jpg

April 2023

Taken from video

Rangi pipe

Unknown invert LVL

Appears to b approximately 1m below ground level which is likely 1m below Rangi crown.

10

20230508_163801.jpg

8 May 2023

Shows Island View pond empty

Means water table has dropped

No discharges from either pipe

20230618_093121.jpg

18 June 2023

Island View pond water level above the boardwalk and both Rangi and Pipi discharge pipes

20230624_103419.jpg

24 June 2023

6 days later Rangi pipe now above the water table

Boardwalk now partly visible

Raining

Depth of lake 24 June 2023 - had a major event during the night. Level about 400mm below Rangi pipe invert

13

20230713_082551.jpg

13 July 2023

Pond has water in bottom

Likely this is the water table level

14

20231010_085711.jpg

10 October 2023

Pond empty

Nothing exiting the pipes

Vegetation starting which means been dry for a while

15

20231031_081627.jpg

31 October 2023

Following about 200mm of rain the pond was close to empty

No discharging water from either Rangi or Pipi

16

20231102_084521.jpg

2 November 2023

Water all but gone - 3 days after 200mm rain event

20231103_165203 pipe layout _SC_.jpg

Catchment calculation:

Rangi:

The Rangi/Island View intersection is piped to Williamson Pond

The Rangi/Hinemoa has a soak pit not connected to pipes

The Island View Reserve side of the road does not have a sump. All this water falls to the Rangi/Island View sump which is piped to Williamson Pond

Th drawing is incorrect there is no Tee set of sumps either side of Rangi Rd

The catchment is about 60m of road only on the opposite side of the road so is probably in the region of 300sqm

Pipi:

The Pipi/Island View has sumps on either side of Pipi catching part of Island View and part way back Pipi to the fall of the next sump.

No sump on the Reserve side of Island View so any water on this side of the crown goes to the car

park.

We have noticed a significant wash out off the car park, between the Norfolk Pines and the Toilet block then eroded the shore line.

Noted the sump in the car park is regularly blocked - recently targeted and opened the sumps and cleaned out the sand - but likely the stormwater is being supplied when the pond water level is submerged the Pipi discharge pipe so it does not flow so overwhelms the sumps and becomes surface water into the car park.

The catchment area could be about 300sqm as from the Pipi intersection the fall is down to the carpark at Island View

Total catchment area likely around 500-700sqm

This would mean a catchment area per pipe of less than 20% of the Kiwi Rd designs which has about 4m soakage device.

When the water table is low the first flush from rain onto the properties will soak into the sand as it can absorb it. ie during most of the year the only water entering the sumps is off the opposite kerb and channel collected from just the road.

When the water table rises and the surface ground becomes saturated there will be runoff from the properties and verges into the kerb and channel. The area of this runoff is normally discounted by 50%.

The soakage devices for both Pipi and Rangi should be designed to manage minor rainfall only. This won't be much as the discharge pipes don't bleed after the kerb and channel stops running. That means the detention basin becomes a temporary storage of excess rain and needs a large enough area of grass to absorb most of the water and an overland flow path to the Ocean for the extreme events.

20231103_231554 _SC_.jpg

Basic concept design:

Rangi:

Install a second sump/cesspit on the Reserve side kerb and channel - this sump to manage any sediment and organic collected and a soakage device through the verge. The existing pipe then becomes an overflow from the soakage device. Positioning them on the road side means maintenance is easier and possible in winter.

The discharge pipes get cut back to align with the playground end of the flying fox.

The yellow areas are discharge platforms made of pavers about 1m by 2m in size to form a hard ground to prevent ground erosion when grass burns off through droughts and discharging water from the overflow pipes would erode the soil.

Pipi:

Exactly the same - sump and soakage device on the road side verge along Island View Rd.

Detention basins: The large green area

TCDC COP section 6 states

6.2.1.6. Stormwater Detention Basins are to be self-draining without the use of pumping equipment and are not permitted to permanently hold water or be used as a water feature. Detention basins are to be adequately landscaped and constructed to be economically maintained unless specifically approved otherwise.

The detention basin to be formed level (green area) at 100mm below Pipi pipe invert. Noted the 100mm is to comply with road maximum allowable depth to overland flow path.

The detention basin can max out the available land to the blue shading which is elevated 400mm to 2M high to form a buffer against King Tide surges.

The sand dunes to be made good down to the black dotted shore line.

The area from high tide to the crest of the blue batter can be planted out.

The pink line at the corner towards the toilets is the overflow path to the existing overflow path off the car park when the car park is overwhelmed

The smaller pink line to the side is a cut in the walkway to allow an overland flow path from Rangaroa and Hinemoa. Noted the end of Hinemoa is ramped up to prevent tidal surges.

This is approximate and NOT a calculation but based on what looks best and works best for the Reserve area.

Community use:

The kayak company could be relocated to the detention basin and form the overland flow path into an access for them to the beach. The area could have limited car parking for their paddlers. This would clear them from the Island View car park and allow car parking along 100 Pipi Rd property.

The area could have other uses - see options A and B below as ideas.

20231103_231615 _SC_.jpg

Option A:

There will be surplus sand. This could be humped to form nice relaxing picnic and viewing areas.

The detention basin can track through and around them.

The size and slopes must be suitable for mowing and maintenance.

Gardens could be planted.

It could have a central feature.

This could become a useful play center for the South beach that is slightly remote from the main area

The detention basin to have minor slope batter so could be used for the Island View Markets and Beach hop parking by the beach.

This is a rough sketch needs some artists touch.

20

20231103_231618 _SC_.jpg

Option B:

Bike or BMX track.

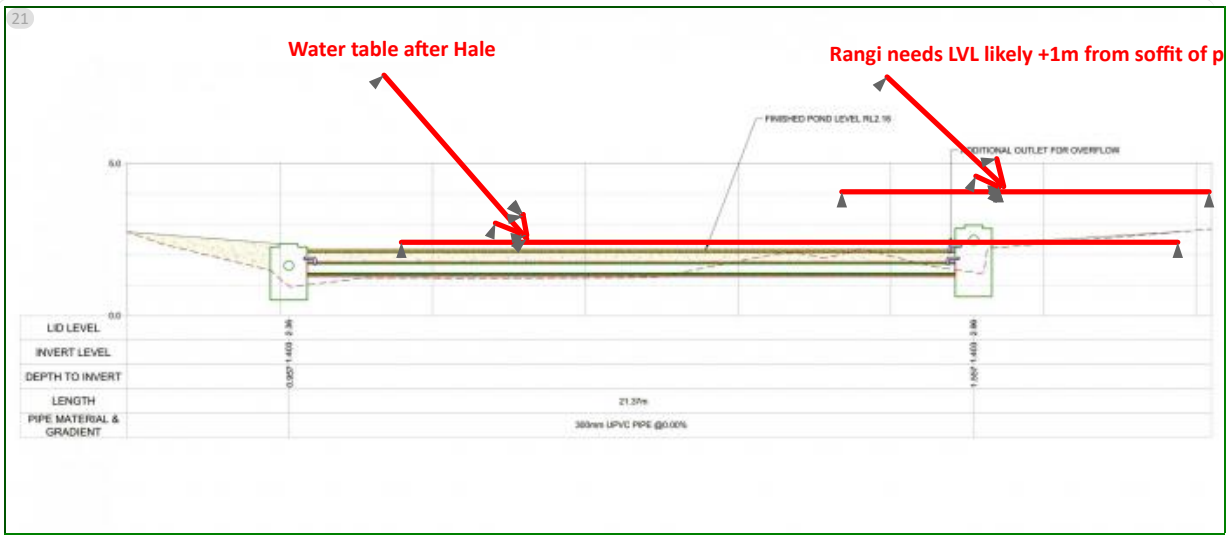
The kids use Island View park a lot, mainly younger kids with parental supervision.

A low skill track suitable for 4-10 years could be an ideal addition to the Reserve.

There may be enough room to have a higher skill subtrack.

The benefit of this is parents will be onsite supervising so maybe in part can be BMX low level challenge track and picnic areas

The track design is not to interfere with the general detention basin requirement or block off the overland flow path to the Ocean.

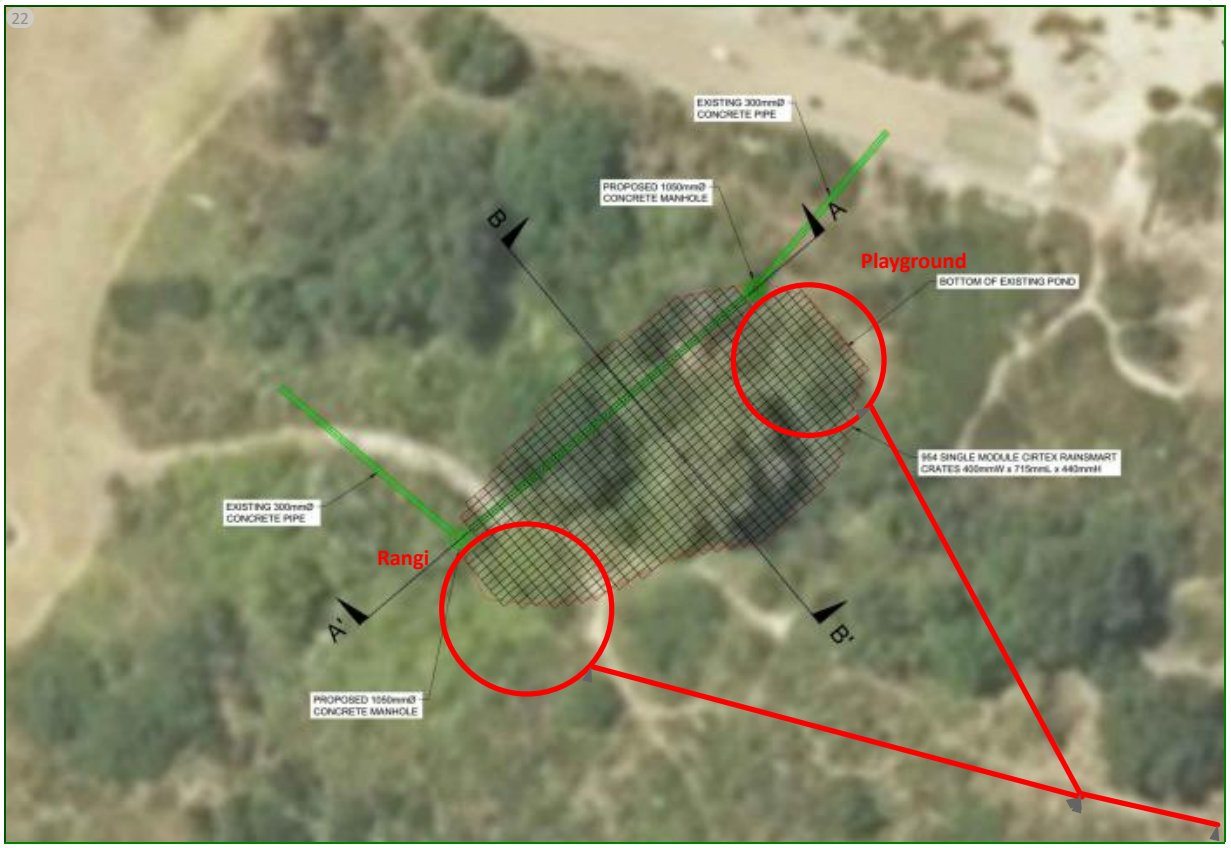


320231027 TCDC Pinnacle cross section showing drainage.jpg

Pinnacle proposal overlaid with water table levels.

Photos show watertable in February after Hale to be about invert. Having Cirtex below this (the red line) is not useful for storm-water management as they will be flooded and working in reverse. They will provide NO soaking away so the reasoning for having them is faulty.

Soakaway is only possible once the water table has fallen and by then surface flooding has gone away.



320231027 TCDC Pinnacle plan view Cirtex.jpg

Pinnacle design proposal to fill the pond with Cirtex

I don't accept that the entire basin needs to be Cirtex.

Cirtex is not useful in wild open spaces that have tree roots and uncontrolled sand movement.

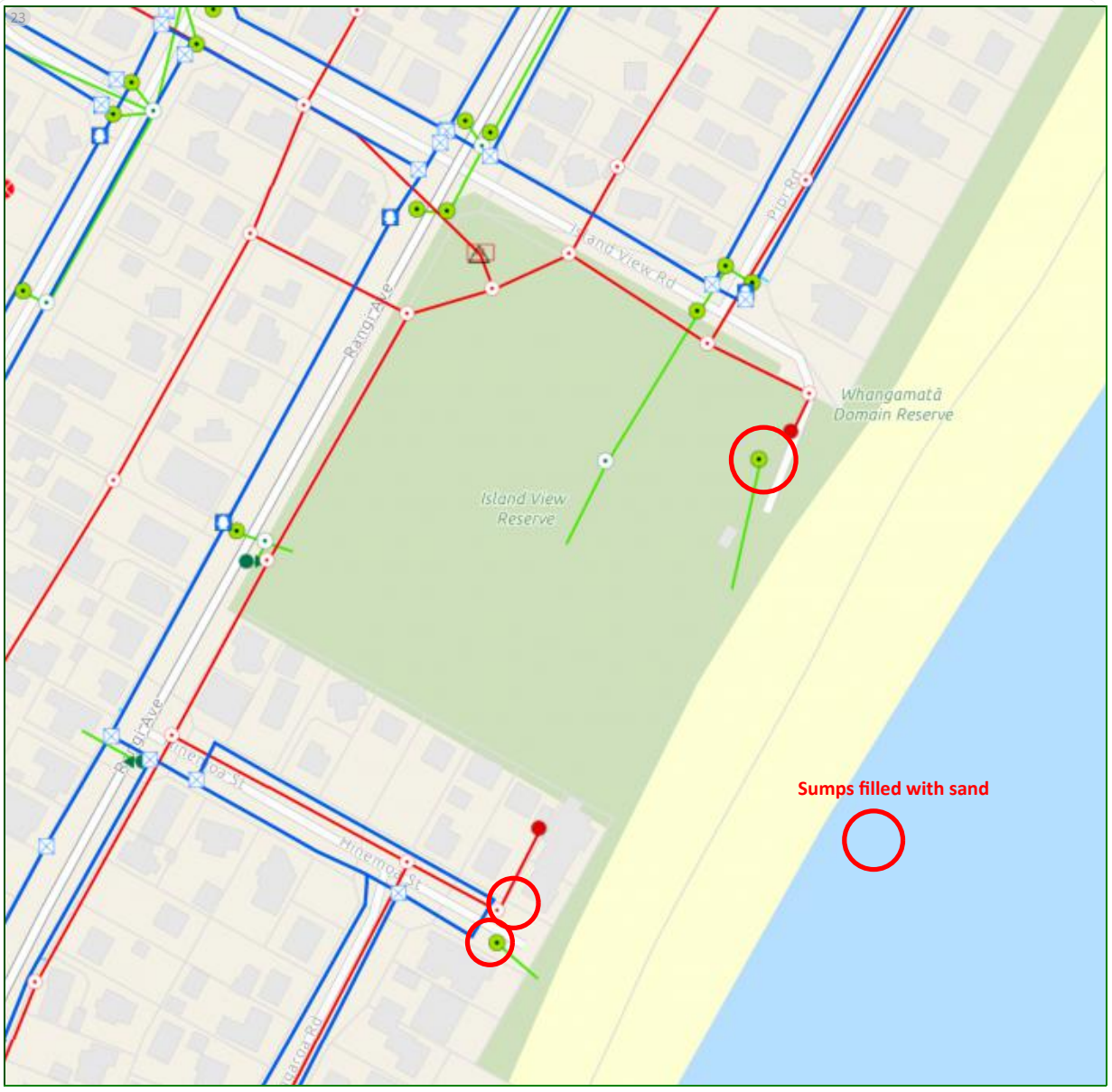
I agree with the manholes as the catchpit for solid particulates but not located in the Reserve.

The Cirtex can be minor because soakage devices are NOT part of a 10%AEP. The soakage devices can be small to cater for minor rainfall events and then overflow into the basin as a short term detention pond and piped out (or overflows) once the depth reaches say 100mm.

The circles represent the pond sizes and the red lines could be pipes into the Ocean. This is NOT our desired outcome.

NOTE: I do not want pipes discharging into the Ocean BUT if we have no choice because we cannot get all pipes to Otahu river then we may have to live with it - but last resort and after all options turn out useless. We need a better system than this. This still means discharge somewhere or the Cirtex and land above will still get flooded and have no escape route except waiting for the water table to drop.

There can be no objection to 10%AEP being discharged directly into the Ocean or river especially in a small township like Whangamata and especially a road as little used by trucks as Rangi



320231029 TCDC SmartMaps Island View stormwater assets.jpg

From 3 Waters Smart Maps looks like the playground entry is Pipi Rd and the other is an unmarked extension from Rangi Rd.

Be useful to check that the Pipi one is clear as the carpark often gets flooded from Pipi and Island View Rd.

The circled sumps were filled with sand after last weekends big blow. Sumps cannot b installed within the sand dune areas. They fill with sand and then cannot function so causes low lying nearby properties to flood. This is why Hinemoa and Pipi properties flood. The sand dunes build up when lighter sand is blown up the coastal boundary and drops on ventury effect. This raises the batters around the coastline and protects against sea surges. Roads like Hinemoa should NOT be extended into the sand dunes as this stops the natural defence to coastal erosion. Stormwater assets cannot function during events because the natural event brings sand with it. These need moving back out of range of the sand.

Likewise properties - another story.