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Report on first rain event during construction of Drybasin

This is an initial report following the first reasonable rainfall event after the weir pipe has been installed at Williamson.

On 23 June 2024 a 86mm overnight rainfall event (taken by resident by Titoki Golf Course)

The progress of the Drybasin at the time was the weir pipe had been installed but the basin middle was still an open drain about 2m wide.

The rain peaked around 7am.

I did not investigate until around 9:30am. There was no evidence that the weir was over topped but the sand was wet above the 850mm outlet pipe so it must have got close.

Outcomes:

1. Residents at the Williamson Rd end of Mary and Sylvia reported that surface water on the road drained quicker than previously.
2. I viewed Bellona at the Williamson end outside 221 at around 9am - had water right across the crown of the road with a reasonable flow rate down to Williamson. By about 10:30 this had practically gone - apart from the properties where the verge swales had been disrupted. If these driveways had been properly formed to allow flow this may have removed the remaining puddles
3. I viewed Mary and Sylvia at 9:00am and found them to be flooded right across the road. By around 10:30 this had drained off the roads but these don't have well formed swales so many puddles remained.
4. The golf course outside 221 had extreme puddles even over the 4th green which is not far from the Gabrielle images (I can dig these out if you wish). By lunchtime these had all but gone.
5. The discharge pipe into Williamson basin had dropped to a mere trickle by late in the day.

What can be taken from this is the pipe through the weir has allowed the upper pipe network to discharge which has allowed surface water to enter the pipe network and drain the surface flooding.

The conclusion is the 850mm diameter pipe is sufficient - to drain the entire lake within a few hours - even if it does not cope with the initial AEP it will catch up as long as rainfall stops periodically.

File:Picture of a dry pond 1.jpg

[Types of stormwater ponds](#) > [File:Pdf image.png](#) > [File:Types of stormwater ponds - Minnesota Stormwater Manua](#)

[File](#) [File history](#) [File usage](#)



No higher resolution available.

[Picture_of_a_dry_pond_1.jpg](#) (745 × 376 pixels, file size: 61 KB, MIME type: image/jpeg)

[010 drybasin example.jpg](#)



Example of clean, neat and easily accessible to maintain dry basin. Mowers can reach down to the spillway.

When fall between discharge and outlet is less than 1:20 gradient the ground will turn to mush so concrete is required.

At Williamson it has a lot of bikes and walkers so the spillway needs to be shallow formation as kids will want to ride through it.



020 Existing plan of proposed drybasin.jpg

Navigation icons: list, add, document, tag.

Plan as provided.



3



20240623_082922.jpg

Navigation icons: list, add, document, tag.

Sunday 23 June 2024 rain event showing basin up to soffit of discharge pipe in background.

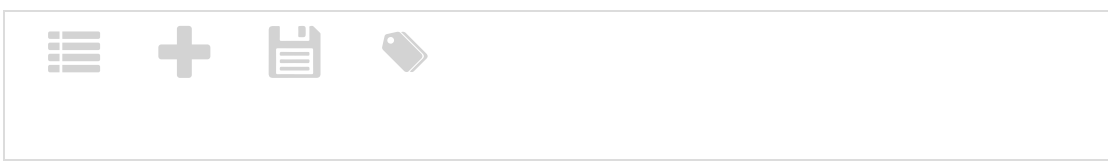
The water level was slightly higher earlier in the morning see wet sand level around the sides.



4



20240623_092923.jpg



Water level at outlet to weir. Water level did reach higher and had started running into the sand swale but did not appear to have over topped the weir.

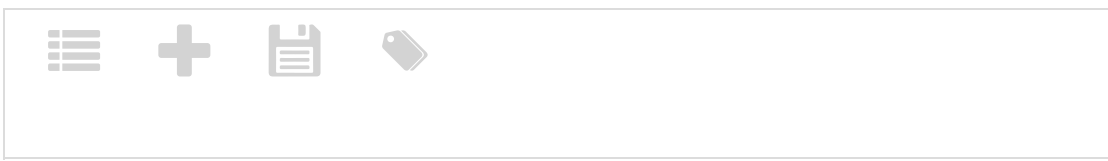
This would confirm the discharge pipe is correctly sized - and it would not matter if water did rise and over top the weir. The surrounding properties are above the weir Rml



5



20240623_093023.jpg



23 June 2024 channel formed in sand.

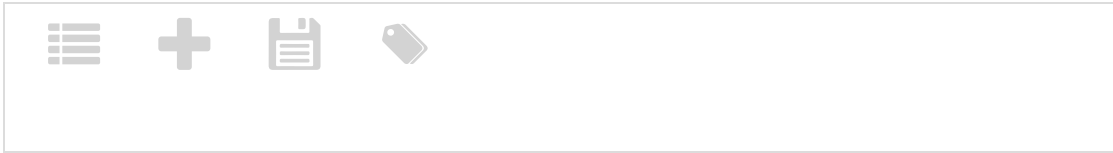
Had washed away sides of swale - now has some rocks at the end of the new baskets.



6



20240626_085431.jpg



On 26 June 2024 3 days after the rain the central basin now being filled.



7



20240627_091127.jpg



27 June 2024 basin filled about level from discharge pipe to weir outlet.

Water table now breaching the fill in places.

NB: Water table would have risen as a result of the 86mm rainfall - but initially rain is absorbed by the surface sand and eventually after a day or so by gravity descends into the water table thus rising it.



8



20240627_091304.jpg



A row of rocks has been laid across the basin.

What is the purpose of this - the sand will still be compacting as the water table fully wets it so more sand will be needed to lift the basin - so are these rocks part of a method to drain the surrounding water table. If so they will be below the concrete spillway so too deep to work.



9



20240630_084922.jpg



Rocks have been laid to the bank down from the swale at the end of Seaview. What is the purpose of this? Seaview rarely has the overland flow path and rocks will be difficult to maintain and mow around. The swale was cut after Gabrielle and has not eroded since then.

The stand of Pines remains - these were to be removed whilst the big machinery was on site and whilst the grass was being damaged.

A steep batter has been formed. This will be difficult to mow.

The water table continues to breach as at 30 June 2024 now quite extensive.



10



20240630_085017.jpg



Water table extending 30 June 2024.

NB: seepage through the batter around the edges.



11

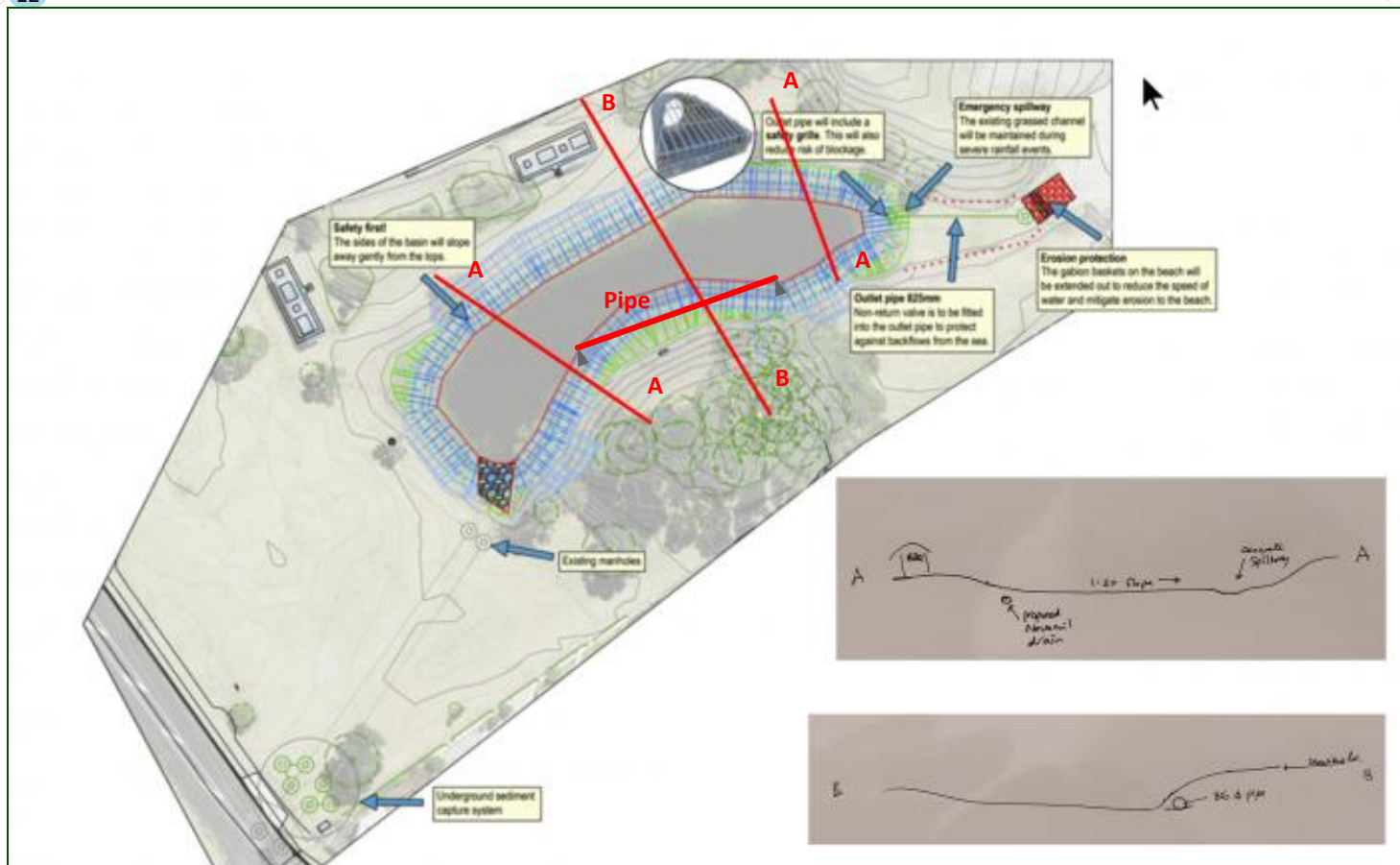


20240630_085241_001.jpg



Water table now above the line of rocks.

12



20240630_088000.jpg



Original drawing of proposed Drybasin.

It would be my preference to:

1. Lay a pipe along the line through the mound by the Pines. See cross section B-B. This pipe could be minimal fall to allow more fall on the concrete spillway.
2. Lay an open concrete spillway between the discharge pipe to the pipe and from the pipe to the outlet pipe. This to have minor shaped sides so kids could bike through it when dry.

Noted: the discharge of road storm water ceases within a few hours of rain stopping - so the concrete spillway would predominantly be dry.

This will allow access across from Seaview and reduce the extent of the open spillway.

Removal of Pines will reduce further cleaning up as these fall over

Clearing the mound will allow room to plant Natives.

In flood the central pipe won't cope so water will fill the basin by bypassing the pipe - the basin would be sloped 1:20 across so after rain stops water would drain away either to the weir end or the Ocean Rd end - doesn't matter.

