

Liam Wang

From: Andre Magdich <andrem@hdc.govt.nz>
Sent: Monday, 29 April 2024 1:46 PM
To: Simon Gabrielle
Cc: Philip McKay
Subject: RE: J6008 147 Napier Road

Hi Simon,
We have requested a copy of the report from Barnett & MacMurray.

I can confirm that your statement will be sufficient for the freeboard assessment for 147 Napier Rd.

Andre

From: Simon Gabrielle <simon@sgl.nz>
Sent: Monday, April 22, 2024 9:10 AM
To: Andre Magdich <andrem@hdc.govt.nz>
Cc: Philip McKay <Philip.McKay@mitchelldaysh.co.nz>
Subject: RE: J6008 147 Napier Road

Hi Andre

See report snips below. I do not have a copy of the report that this report eludes to (Karamu Stream), which was what I was hoping you would be able to provide. However, as per my previous email, the report referenced below does give modelled levels, the final snip below indicating a 100-year flood level at the Karituwhenua Stream confluence (upstream of our site) of 16.9m in terms of Hawkes Bay Datum, which converts to R.L 6.7 at our site.

It would be good to see this other report if you could double check at your end. The report references below do seem to indicate it was completed? However, regardless of this, I am confident that the 3.2m of freeboard from the levels referenced below provides an allowable factor of safety with the site residing well above any anticipated future 100 year flood level.



After starting the project, it was decided in consultation with HDC that the area shown in the Structure Plan as “Future Stage as Identified in HPUDS” would not be included in the present assessment. The main reason was that when that area is developed, the reach of Crombie Drain which it contains will be widened into a drainage reserve, and there will also be a further stormwater management area. Thus it was considered that the stormwater works within the Structure Plan need not be designed to attenuate the runoff from the HPUDS area in its future developed state.

A separate investigation into Karamu Stream flood levels was carried out for HDC, and was the subject of a separate report. The study found that a Karamu Stream flood level of 16.9m (Hawkes Bay Datum) was appropriately conservative. With that lower Karamu Stream flood level (compared with 17.5m as used in the first set of simulations), the stormwater systems in the Structure Plan area would be more effective in mitigating the effects of development, and a reduced set of mitigation measures might be sufficient. Therefore additional flood simulations with the lower Karamu Stream flood level were carried out under a new consulting agreement signed by Matthew Kneebone for HDC on 11 May 2020. The agreed scope of work was as follows:

- *Simulate 100 year ARI RCP6 flood with Karamu Stream level 16.9m in drainage system Versions 1 and 2. Versions 1 and 2 both have Crombie drainage reserve 28m wide. Versions 1 and 2 have respectively half and all of the stormwater management area as a detention basin.*
- *Assess performance of Versions 1 and 2 against results of the base case simulations carried out earlier in this project. Satisfactory performance means less than minor increase in flood level outside the development area. Changes in outflow to the Karamu Stream to be quantified in addition. Discuss results with HDC and peer reviewer.*
- *If necessary, develop a new drainage system version to optimise the land use in the development area, and simulate the 100 year ARI RCP 6 storm event. Assess performance as above.*
- *As a sensitivity test on the main drainage system components, simulate 100 year ARI RCP 8.5 storm event and quantify the increases in flood levels relative to 100 year ARI RCP 6 event.*
- *Using optimised drainage system, simulate 10 year ARI RCP6 event to check performance in more frequent event.*
- *Produce flood maps and reporting for all simulated drainage system scenarios.*



increased peak flow of runoff from the development area. It proved relatively simple to meet the requirement of no increase in flood level outside of the Structure Plan area, but to satisfy the 80% outflow rule, it was necessary to design bunds to separate the conveyance and flood detention functions of the stormwater system.

In the final part of the investigation, the Karamu Stream flood level was further adjusted. The 16.9m peak level was retained, but the level was made to vary with time as in the flood event of July 2006, as recommended by the Karamu Stream report (BM April 2020). The peak flood level in the Karamu was made to coincide with the peak runoff from the Structure Plan area. The lower initial water level meant that the detention basin ground levels could be made lower than in the previous designs.

4.2 Karamu Stream levels for flood simulations

Three sets of design flood simulations were carried out, with different Karamu Stream flood levels as downstream boundary condition. In the first series of simulations, the Karamu Stream was assumed to remain at 17.5m throughout the Brookvale area flood event.

It was found that a substantial part of the Structure Plan area would need to be devoted to stormwater management, as in drainage system Version 3 described in 3.3.2. Therefore, it was considered justified to undertake an investigation of the Karamu Stream flood level. This is described in a separate report (BM April 2020), which found that a Karamu Stream design flood level of 16.9m at the Karituwheua Stream confluence would be an appropriately conservative boundary for a 100 year ARI design event in the Te Mata streams catchment, taking into account expected climate change up to 2090.

Thanks

Ngā mihi

Simon Gabrielle
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From: Andre Magdich <andrem@hdc.govt.nz>
Sent: Friday, April 19, 2024 12:31 PM
To: Simon Gabrielle <simon@sgl.nz>
Cc: Philip McKay <Philip.McKay@mitchelldaysh.co.nz>
Subject: RE: J6008 147 Napier Road

Hih Simon,

I questioned our modeller and stormwater manager about the flood report; they are unaware of such reports.

The work might have been commissioned by the HBRC rather than HDC.

Regards
Andre

From: Simon Gabrielle <simon@sgl.nz>
Sent: Tuesday, April 16, 2024 2:34 PM
To: Andre Magdich <andrem@hdc.govt.nz>
Cc: Philip McKay <Philip.McKay@mitchelldaysh.co.nz>
Subject: J6008 147 Napier Road

Hi Andre

Good to meet you this morning and thank you for the constructive conversation.

Regarding the flood risk, I realised after leaving the meeting that there has already been some flood modelling undertaken for HDC by Christensen Consulting Ltd (2020). After a quick look I see they have reported the 100 year ARI design event flood level at 16.9m at the Karituwhenua Stream confluence with the Karamu (upstream of the development). This converts to R.L 6.7 in terms of NZVD 2016, taking into account Climate change and is 3.2m below our proposed platform levels.

The report also discusses a separate report to be undertaken for HDC specifically on the Karamu as commissioned by Matt Kneebone in 2020. Is this report publicly available?

Thanks

Ngā mihi

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