

Private Plan Change – Whisper Creek Residential Proposal, Spencerville

Response to stormwater Request for Information (RFI) from Brian Norton.

Five RFI's were received from Brian Norton, Senior Stormwater Planning Engineer at Christchurch City Council. Following the receipt of the RFI a meeting with Brian was convened and a way forward was agreed.

Requests for Information:

1. Our latest Styx flood modelling is old and therefore has not been modelled with the best advice in terms of SLR, climate change and tidal influence. New flood modelling is expected in late 2025, although we are seeking interim results from our consultant which may be useful. In the meantime, we are likely to impose the below water levels by the time this site lodges for subdivision.

Styx Tidal Gauge HKV levels

	10ARI	50ARI	200ARI
CDD	11.04	11.18	11.29
NZVD (-9.406)	1.63	1.77	1.88
Expected SLR	0	0.45m	1.2m
HKV + SLR	1.63	2.22	3.08
FFL	1.63	2.62	3.48 <i>CRITICAL</i>

2. The development should be working to protect from a 200-year peak flood water level of 3.08m NZVD (12.49m CDD) and minimum finished floors of new dwellings will be set to 3.48m NZVD (12.89m CDD) which are around 400mm higher than the levels discussed in the infrastructure report.
3. The applicant will need to estimate high groundwater levels considering SLR in high conductivity sands and what measures will be required to mitigate the effects of saltwater intrusion of stormwater facilities proposed.
4. There is an error in their calculations for the stormwater facility sizing. First Flush basin volume is correct, and overall storage volume looks OK, but the wetland area is off by a factor of 2. For some reason they are working to a 0.5m operating water depth of the wetland which simply will not be accepted, because it will be too deep for plants to survive.

$$A = FF/4 * 2 / 0.25 * 0.75$$

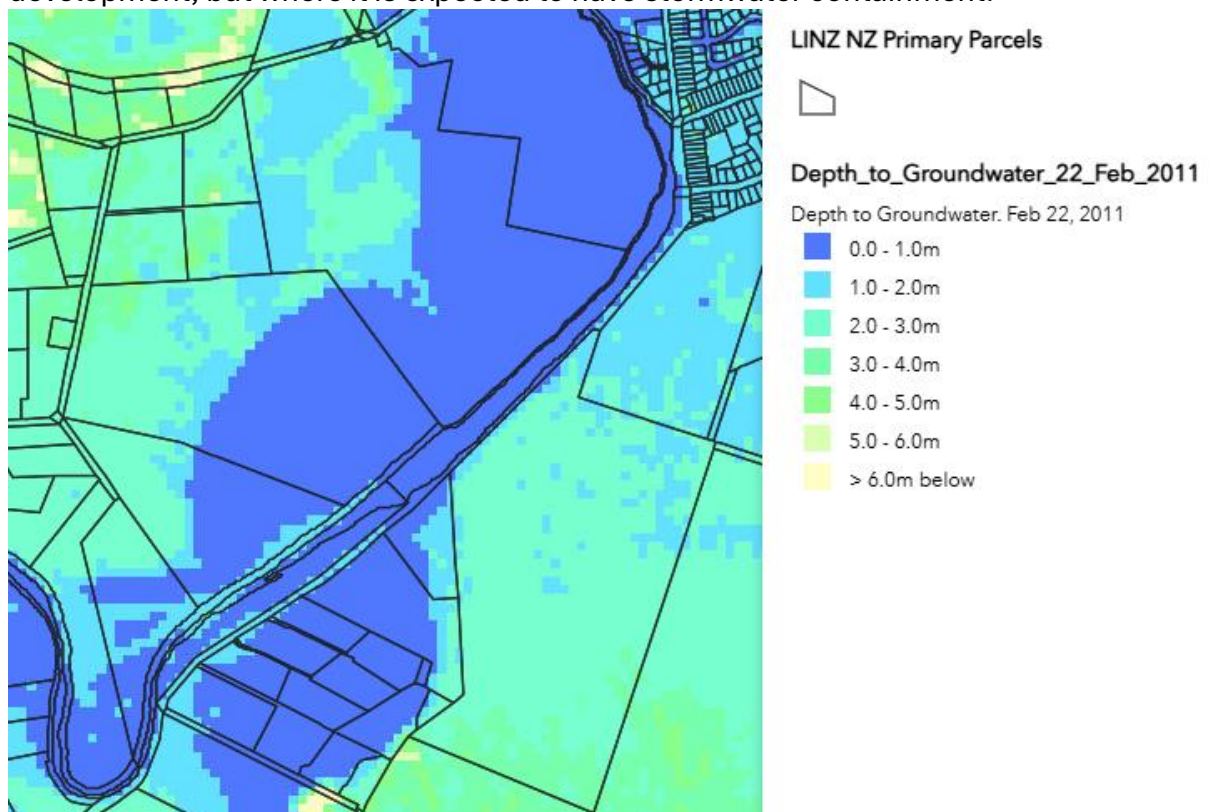
$$A = 13,080/4 * 2 / 0.1875$$

$$A = 6,540 / 0.1875 = 34,880m^2 \text{ (NOT } 17,440m^2)$$

5. The applicant will need to consider the displacement effects of filling below 3.08m NZVD. It may be best that this is tested in the Styx model (once it becomes available) unless the developer plans to generate 1:1 compensatory storage volume below RL 3.08m.

Responses to the Requests for information:

1. It is accepted that the flood modelling is not yet complete but that the interim results are to be expected. Subject to the final modelling results the site can be maintained in its current format but with some filling. The filling may be considerable and has been included in the feasibility costs for the project. It is confirmed that the cost of filling the site will not deter from its construction.
2. Subject to the final flood modelling, it is accepted that the minimum finished floor level for the proposal will be approximately 3.48m NZVD (12.89m CDD). From this it is expected that finished site levels will be a minimum of 3.35 NZVD. The site is to be filled where necessary.
3. The applicant accepts that the site is wet and that any excavations for facilities such as stormwater basins will require peak groundwater monitoring as well as investigations into saltwater intrusion. Monitoring will commence in earnest following rezoning but indications from existing groundwater monitoring are not surprising. The map of the site below from Canterbury Maps describes high groundwater areas in the lower terrace where there is not expected to be development, but where it is expected to have stormwater containment.



4. The error in the sizing of the wetland is accepted. The expectation is that the wetlands will be designed in accordance with the Waterways, Wetlands and Drainage Guidelines.
5. It is accepted that some consideration may be required into the filling of the site and its displacement of storage volumes. At this stage it would be too finer detail to determine this and the further discussion will be required into the application of the correct storm event and the actual effects of filling when the catchment is affected by tides. As mentioned by BN, this can be tested in the flood model once it has been completed.

In consideration of all five RFI's, the applicant accepts Brians concerns and is confident that these can be addressed.

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