

Before an Independent Hearings Panel
Appointed by Christchurch City Council

under: the Resource Management Act 1991

in the matter of: proposed Plan Change 14 to the Christchurch District
Plan

and: **LMM Investments 2012 Limited**
(Submitter 826)

Statement of evidence of Andrew Hall (infrastructure) on behalf of
LMM Investments 2012 Limited

Dated: 20 September 2023

Reference: Jo Appleyard (jo.appleyard@chapmantripp.com)
Annabel Hawkins (Annabel.hawkinsr@chapmantripp.com)

chapmantripp.com
T +64 3 353 4130
F +64 4 472 7111

PO Box 2510
Christchurch 8140
New Zealand

Auckland
Wellington
Christchurch



STATEMENT OF EVIDENCE OF ANDREW HALL ON BEHALF OF LMM INVESTMENTS 2012 LIMITED

INTRODUCTION

- 1 My full name is Andrew James Emil Hall.
- 2 I am a Chartered Professional Engineer and a director of Davie Lovell-Smith Ltd, an engineering firm based in Christchurch.
- 3 I hold a Bachelor of Surveying from Otago University and a Bachelor of Engineering (Honours 1st Class) from Coventry University (UK). I am also a member of the New Zealand Institute of Surveyors and a Chartered Professional Engineer and member of Engineering New Zealand.
- 4 My area of expertise is consulting in civil engineering relating to the development of land. I have over 33 years' experience in this field including 20 years' experience in Christchurch. A portion of my experience is in the development of Golf Resorts.
- 5 I am currently involved as a consultant in land development throughout Canterbury. This includes LMM Investments 2012 Limited's Whisper Creek land in Spencerville.

CODE OF CONDUCT

- 6 Although this is not an Environment Court hearing, in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where I state that I am relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

- 7 My evidence will address:
 - a. the number of equivalent housing units envisaged by the underlying Golf Resort zoning;
 - b. water supply demands and methods for servicing the proposed development;
 - c. wastewater demands and methods for servicing the proposed development; and
 - d. stormwater storage and treatment including flooding potential for the proposed development.

- 8 In preparing my evidence, I have reviewed:
- a. the submission and further submission by LMM Investments 2012 Limited (*LMM Investments*); and
 - b. the relevant part of the Council's Section 42A Report by Ike Kleynbos (page 58 and Appendix D, page 1) which addresses LMM Investments' submission;
 - c. the relevant parts of the Council's Statement of Primary Evidence Report by Michele McDonald relating to Water and Wastewater; and
 - d. the relevant parts of the Council's Statement of Primary Evidence by Brian Norton relating to Stormwater.
 - e. The joint memo from Michele McDonald and Brian Norton to Council Planning Officers dated 10th February 2023.

SUMMARY OF EVIDENCE

- 9 The underlying Golf Resort Land-use has the equivalent effect of 350 homes.
- 10 Water supply for this development would be either from connection to the reticulated system in Spencerville or installing a new bore. Council have confirmed that there is capacity for the zoned demands for the site.
- 11 Wastewater flows will be pumped to the sewers in Spencerville. It is proposed that a Local Pressure System be used that can be programmed to attenuate flows. Council have confirmed that there is capacity for the zoned demands for the site.
- 12 Development will only occur in areas that are either outside of the Flood Management Area or in the Fixed Floor Level Overlay. The Fixed Floor Level is expected to rise. There is sufficient land available for development on the site that is located outside of the Flood Management Area.
- 13 Stormwater discharge can be authorised under the Council Global Stormwater Discharge Consent. There will be ample capacity within the wider site to manage stormwater onsite, alongside the proposed recreation facilities.

LMM INVESTMENTS' REFINED POSITION

- 14 I understand that since filing its submission, LMM Investments has refined its position. The planning evidence of **Mr Jonathan Clease** outlines in detail the refined relief LMM Investments now seeks.

- 15 In essence, the refined relief involves:
- a. the application of the Medium Density Residential Standards to the areas shown as "Resort Community" and "Activity Areas A, A1 and A2" on the existing Development Plan for the Specific Purpose (Golf Resort) Zone – Whisper Creek Golf Resort; and
 - b. the amendment to the permitted residential activity for the Golf Resort to amend number of residential sites for the purposes of establishing the limits of three waters servicing, increasing from 150 to 250 units, with a proportionate reduction in student accommodation and resort apartment beds.

POPULATION DETERMINATION

- 16 The original Golf Resort provided for the following:
- a. 150 houses;
 - b. 160 bed student accommodation; and
 - c. 380 hotel or serviced resort apartment beds.
- 17 From these numbers we can establish an estimate of the water supply and wastewater demands for the anticipated development. The intention is to not exceed those currently acceptable demands but to determine what an equivalent number of homes may effectively replicate the flows.
- 18 The 150 houses are clearly the equivalent of a home.
- 19 From the 160 bed student accommodation and 380 hotel or serviced apartment beds, we can make the assumption that this will be at least 540 inhabitants. This is a little conservative as these facilities would expect to have staff also.
- 20 In reference to the Christchurch City Councils Infrastructure Design Standard(IDS), clause 6.4.4, the average sewage flow for a known

number of lots is determined from the formula:

Equation 5 Maximum flow calculation example based on number of lots

$$\begin{aligned} \text{ASF} &= \text{number of lots} \times 220 \text{ } \ell/\text{person/day} \times 2.7 \text{ persons/lot} \\ &= 200 \text{ lots} \times 220 \text{ } \ell/\text{person/day} \times 2.7 \text{ persons/lot} \\ &= 118,800 \text{ } \ell/\text{day} \\ &= 1.38 \text{ } \ell/\text{s} \\ \\ \text{MF} &= 1.8 \times 2.78 \times 1.38 \text{ } \ell/\text{s} \\ &= 6.88 \text{ } \ell/\text{s} \end{aligned}$$

- 21 Having a known number of inhabitants, we can work backwards to determine the equivalent number of homes. $540 / 2.7 = 200$ homes.
- 22 150 houses + 200 equivalent homes = 350. It is my opinion that any residential development of this land with 350 lots, would be the equivalent of the pre-existing water supply and wastewater demands of the Golf Resort. By limiting the maximum number of residential units to 250, the capacity for the remaining 100 equivalent homes as 270 student or hotel accommodation beds could be accommodated within the original wastewater demand for the site or alternatively, the additional 100 houses may be adopted in the future, subject to land availability for residential use across the site. 250 lots can be easily accommodated within the resort community area.

WATER SUPPLY

- 23 The water supply demand for 350 homes can be determined in reference to the IDS clause 7.5.1, where the following table is

provided:

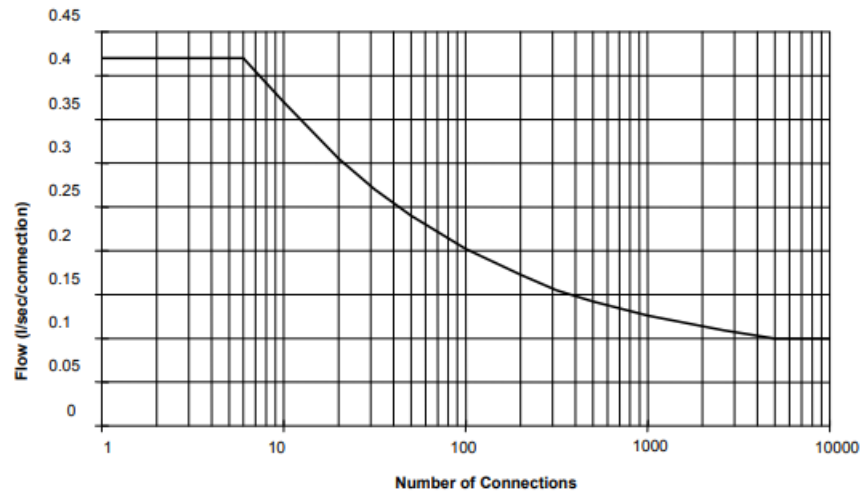


Chart 1 Peak residential design flow rates

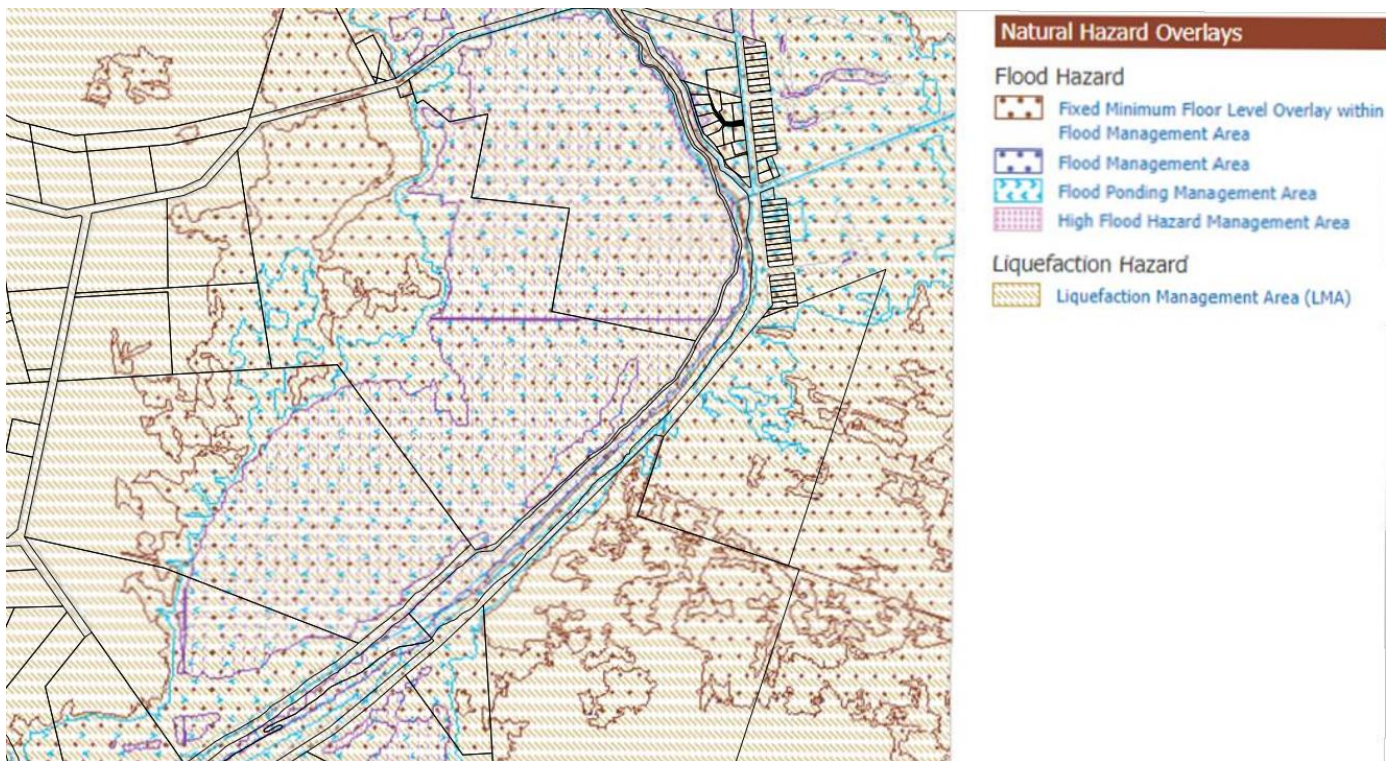
- 24 From this table, we determine that the peak residential demand flow for 350 homes is approximately 0.15l/s/connection. A total flow of 52.5l/s.
- 25 I have confirmed with Council that the expected level of water supply is as zoned for the Golf Resort.
- 26 The most likely water servicing would be via a pipe laid from the development area to Spencerville. The details of the connection will be concluded during the subdivision process.
- 27 Alternatively, a new bore may be installed on site. There are existing wells on the property.

WASTEWATER

- 28 The wastewater demand for 350 equivalent houses can be determined from the IDS equation in clause 16. The Average Sewer Flow(ASF) equates to 2.4l/s with a Maximum Flow(MF) of 12.04l/s.
- 29 The proposed development will most likely connect to the existing sewers in Spencerville. This connection is expected to be via a Local Pressure Sewer system where each proposed new house has a small pump unit that feeds into a common rising main in the street. The power of multiple small pump units is sufficient for the flows to be pumped all the way to the gravity system in Spencerville. This system has the added benefit of providing storage and an ability to only pump out when down stream flows have capacity.
- 30 To my knowledge, there are no vacuum systems downstream of the Spencerville wastewater network.
- 31 I have confirmed with Council that the expected level of wastewater discharge is as zoned for the Golf Resort.

STORMWATER

- 32 The site is located along the banks of the Styx River and a large portion of the property is considered flood plain. This is explained on the District Plans Natural Hazard Overlay.
- 33 In Mr Norton's Statement of Primary Evidence, he has proposed a series of Qualifying Matter for the application of PC14 in flood prone areas. Mr Norton suggests that development should not occur within:
- High Flood Hazard Management Areas
 - Flood Ponding Management Areas.
 - Waterbody Setbacks
 - Coastal Hazard Zones



- 34 The development would either occur within areas that are not affected by flooding, or within the Fixed Minimum Floor Level Overlay only.
- 35 Following consultation with Council Stormwater Planning Engineer, Mr Brian Norton, the determination of that floor level is under review. The current Fixed Floor Level overlay is currently 12.3m RL in the District Plan. LMM Investments understands that this is likely to increase. This is yet to be determined but the applicant

recognises that earthworks will be required to ensure that finished floor levels are elevated to a safe height.

- 36 The Finished Floor Level requirements would be applied to the Golf Resort in exactly the same way as what would be applied to the proposed housing. There is no difference between the outcomes in this regard.
- 37 It is also recognised that roading needs to be considered in terms of flooding and that road access should not be affected by over-inundation of flood waters. Once again, this can be addressed through earthworks.
- 38 The storage and treatment of stormwater is expected to be authorised under the Council Global Stormwater Discharge Consent for the Styx catchment. A series of basins and wetlands will be incorporated into the current drainage channels on the land. There is land available for suitable stormwater attenuation for a development comprising 350 equivalent residential units.
- 39 No works are expected within the High Flood Hazard Management Area outside of naturalisation of wetlands and drainage.

CONCLUSION

- 40 It is my opinion that the extent of this proposal has been tailored to ensure that infrastructure demands for water and wastewater are no greater than the underlying consented Golf Resort zoned land-use and do not exceed system capacity in the area.
- 41 The effects of flooding have been considered and the stormwater qualifying matters have been addressed.
- 42 The stormwater from the proposal is expected to comply with the Council Global Consent for the Styx Catchment.

Andrew Hall

20 September 2023