

**BEFORE A HEARING PANEL
CONSTITUTED BY NELSON CITY COUNCIL**

IN THE MATTER

of an application by **CCKV Maitahi Development Co LP** and **Bayview Nelson Limited** for a change to the Nelson Resource Management Plan (Plan Change 28)

IN THE MATTER

of Part 5 and Schedule 1 of the Resource Management Act 1991

STATEMENT OF REBUTTAL EVIDENCE OF MARK FOLEY

Applicants' Consultant:

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Name, qualifications and experience and code of conduct

[1] My name is Mark Foley. My qualifications and experience are set out in my statement of evidence. I confirm I continue to abide by the Code of Conduct for Expert Witnesses.

Reference documents

[2] I prepared a Statement of Evidence with respect to geology and geotechnical aspects of the Maitahi Bayview application. I have since been provided with and read the following document:

- (a) Addendum evidence of Mr. Dali Suljic for Save the Maitai Inc – Stormwater, dated 7 July 2022.

Rebuttal Evidence

[3] In his addendum evidence, Mr Suljic, in paragraph 15, suggests that there has been no assessments carried out on the permeability of the floodplain soils or the presence of groundwater and that earthworks that include placement of fill, fundamentally change the existing hydrological system and will undermine the positive WSD outcomes of the realignment.

[4] Mr Suljic is incorrect in his assumptions. Consideration of geohydrology is an integral part of good geotechnical site review and has been undertaken to support the Maitahi Bayview application. Soil permeability has been considered and conceptual models for groundwater have been developed as part of supporting judgement but not been formally documented.

[5] In summary, the floodplain soils consist of moderate permeability silt and sand overlying high permeability gravel. Groundwater recharge occurs as a result of groundwater movement around the margin of the floodplain from bedrock into the gravel that forms the bulk of the floodplain sediments. Groundwater is also recharged from Kākā Stream as it passes from the incised section of stream onto and across the floodplain. Due to the permeable nature of the gravel and anisotropic permeability characteristics (high horizontal permeability with respect to vertical permeability), the ground water gradient is very flat and is significantly

influenced by the water level in the adjacent Maitahi River. When the Maitahi River is low, groundwater level in the floodplain is low and surface flow in the Kaka Stream is lost to ground. When the Maitahi River and Kākā Stream rise in flood the groundwater shows a slightly delayed yet corresponding rise in level.

[6] The nature of engineered fill placed over a portion of the flood plain will impact on direct infiltration rates into the within the filled portion of the flood plane. Fill specifications can be developed to allow WSD to be incorporated successfully into development.

[7] There is a large range of fill sources available for use in earthworks construction, from alluvial gravels which will mimic the permeability of the underlying gravel to tighter more cohesive soils that may reduce direct infiltration, to high permeability rockfill, which can be used to aid infiltration and treatment as part of WSD and allow direct infiltration through the fill at a similar or greater rate than can occur through the existing topsoil. The engineering parameters of the fill can be designed to achieve desired positive WSD outcomes.

Dated 11 July 2022



[Mark Foley]