

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

IN THE MATTER of the Resource Management Act 1991

IN THE MATTER of an application by CCKV Maitahi/Mahitahi Development Co LP and Bayview Nelson Limited for a change to the Nelson Resource Management Plan (Private Plan Change 28)

**SUMMARY OF EVIDENCE OF ROGER YOUNG FOR FRIENDS OF THE
MAITAI
20 JULY 2022**

INTRODUCTION

1. My full name is Roger Graeme Young.
2. I prepared evidence in chief dated 27 June 2022.
3. My qualifications and experience are provided in my evidence in chief. I confirm I will continue to comply with the Code of Conduct for Expert Witnesses in giving this summary.
4. I have been asked by Friends of the Maitai to prepare evidence on water quality and aquatic ecology issues associated with the proposed private plan change request sought for the Maitahi Bayview development.

THE EXISTING ENVIRONMENT

5. The Maitai River is highly valued by the Nelson community and supports a variety of aquatic life. However, a detailed review of water quality, hydrology and ecological information from the Maitai River catchment (Crowe et al. 2004) identified some specific concerns about the lower river where there are increased inputs of fine sediment, decreased water clarity, warm water temperatures, higher nitrate nitrogen concentrations, higher periphyton biomass, regular blooms of toxic cyanobacteria, and higher concentrations of faecal indicator bacteria compared to the upper river. Sensitive macroinvertebrates like mayflies, stoneflies and caddisflies are absent or rare in the lower river and macroinvertebrate community index scores are indicative of impacted ecosystem health.
6. Water quality and stream health appears to be poor in the small streams along the Atawhai hills that are monitored, with high concentrations of faecal bacteria and nutrients and the macroinvertebrate communities present in these streams are indicative of poor ecological health.
7. The Maitai River and small Atawhai streams drain into Nelson Haven and eventually Tasman Bay. These coastal areas are highly valued for their aesthetic appeal, rich biodiversity, shellfish collection, aquaculture, swimming, fishing, boating and scientific appeal. Key threats to the Nelson Haven are elevated muddiness caused by sediment runoff from urban and rural catchment areas, and localised sediment toxicity and eutrophication (nutrient over-enrichment) at urban stream mouths

entering the Haven (Stevens & Robertson 2017). These threats are also relevant to Tasman Bay, which is affected by fine sediment deposited near the river mouths (Gillespie et al 2011).

8. In summary, the proposed development drains into highly valued and sensitive waterways that are already experiencing the effects of sedimentation, contaminants and warm water temperatures. Any development needs to be done with extreme care to avoid exacerbating these stressors.
9. I agree with Mr Parsonson that fine sediment resulting from erosion and runoff from the Kaka Stream catchment will eventually be flushed downstream and is unlikely to fill in Dennes Hole. However, that sediment will add to the sediment issues already faced within the lower reaches of the Maitai River, Nelson Haven and Tasman Bay.

TYPICAL ISSUES ASSOCIATED WITH THE HEALTH OF URBAN STREAMS

10. Throughout the world, urban streams are often associated with what's been described as an 'urban-stream syndrome' with symptoms typically including an unnaturally variable flow regime (bigger floods and extreme low flows), high concentrations of nutrients and contaminants, elevated water temperatures, altered channel morphology, and a reduced diversity of aquatic life (Walsh et al. 2005).
11. This international pattern is consistent with what is seen in New Zealand, and Nelson, with streams draining urban areas typically having issues with sediment, nutrients, pathogens and other contaminants, such as heavy metals. Macroinvertebrate communities in these urban waterways are typically indicative of poor ecosystem health (MFE 2020; www.lawa.org.nz).
12. In summary, urban development has a consistent set of effects globally on waterways draining these urban areas. Considerable mitigation efforts and careful management will be required to avoid the symptoms of urban stream syndrome becoming apparent in the Kaka Stream and other waterways influenced by the development.

POTENTIAL EFFECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT

13. Reports prepared on behalf of the Applicants provide a good summary of the potential aquatic ecological effects of the proposed Maitahi Bayview development.
14. In my opinion key potential effects include:
 - (a) Erosion and sediment input to downstream waterways
 - (b) Runoff of urban contaminants and input to downstream waterways
 - (c) Change to flow regime
 - (d) Loss of stream habitat
 - (e) Degradation of habitat quality

ADEQUACY OF INFORMATION PROVIDED

15. I understand that there is a two-stage process (Plan Change request followed by specific resource consent applications) before any development can proceed. I also recognise that detailed specifications and assessments of effects will be required during the resource consent process, but I consider that sufficient information is needed now at the Plan Change stage to determine whether the size and scope of proposed mitigation tools can be implemented and if they will be sufficient to address the potential effects. At this stage, the likely effectiveness of the proposed mitigation efforts is unclear to me.

ESPLANADE RESERVE IS NOT A SILVER BULLET

16. Schedule X.7 of the application requires that an esplanade reserve with a minimum total width of 40 m shall be vested in stages as subdivision progresses.
17. I am concerned that this esplanade reserve (also called the blue-green spine) is considered a 'silver bullet' that will address most of the concerns associated with the development, as well as provide a walking/cycling

track. I think this is unrealistic. In my opinion it is not appropriate to locate the proposed stormwater treatment wetlands within the esplanade reserve. Additional areas would need to be set aside for this purpose.

SCHEDULE X.9 – BEST PRACTICE PRINCIPLES

18. Schedule X.9 of the application lists a series of best practice principles that shall be used to avoid or reduce the effects of the development on ecological values in Kaka Stream and downstream waterways. I agree with the aims of these high-level principles, although as noted in the Ecology JWS I consider that X.9 should also:
- (a) Apply to the entirety of the Structure Plan area
 - (b) Refer to the mandatory fish passage requirements of the NPS-FM and NES-F
 - (c) Avoid impervious surfaces and structures within 5 m of Kaka Stream
 - (d) Avoid or minimise adverse effects of urbanisation and stream loss
 - (e) Allow for an alternative to the realignment of Kaka Stream as an enhancement opportunity
 - (f) Include erosion and sediment control management and vegetation clearance
 - (g) Ensure there is a link to Stormwater Management Plans.
19. I note that there is now specific reference to the need for a Stormwater Management Plan in an updated version of Schedule X that was appended to Mr Lile's further evidence.

REALIGNMENT OF THE LOWER REACHES OF KAKA STREAM

20. The proposed realignment of the lower reaches of Kaka Stream is described as an ecological enhancement activity, but it is also integrated with requirements to accommodate peak flows and protect the proposed adjacent development areas from potential flooding.
21. The lower reach of Kaka Stream is heavily modified and provides low quality habitat to stream life currently. As discussed in the Ecology JWS, ecological enhancement of Kaka Stream may be achieved without needing to realign the lower reaches of the waterway.

ADDITIONAL INFORMATION PROVIDED BY THE APPLICANT

22. The Structure Plan provided with the Plan change application included very little detail, so it was impossible to determine the location of roading and housing, where earthworks will occur, the likely scale of issues like erosion and sediment export, where the biggest risk areas were likely to be located, and if proposed mitigation options like wetlands and stormwater retention ponds were large enough or in the right location to address the risks.
23. A more detailed Structure Plan has been developed in response to concerns raised at the expert witness conferencing. This addresses some of the issues raised, but the scale and location of earthworks is still unclear.
24. A Stormwater Management Plan (SMP) has also now been prepared. The SMP provides further discussion of high-level best practice principles but there is no specific information on where earthworks are likely to occur or the likely effectiveness of proposed mitigation measures for controlling sediment loss and discharges to downstream waterways. After reviewing the plan I'm still left wondering if 'best practice' mitigation is sufficient to address the increased risk of sediment discharges to downstream waterways.
25. In addition, the SMP does not appear to include any monitoring requirements (both pre- and post-development), any water quality or other standards that need to be met and does not highlight consequences of any breaches to such limits/standards if they were to occur.



Roger Graeme Young

20th July 2022

References

- Crowe A, Hayes J, Stark J, Strickland R, Hewitt T, Kemp C 2004. The current state of the Maitai River: a review of existing information. Cawthron Report No. 857. Prepared for Nelson City Council. 146 p.
- Gillespie PA, Forrest RW, Peake BM, Basher LR, Clement DM, Dunmore RA, Hicks DM 2011. Spatial delineation of the depositional footprint of the Motueka River outwelling plume in Tasman Bay, New Zealand. *New Zealand Journal of Marine and Freshwater Research* 45: 455-475.
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- Stevens LM, Robertson BP 2017. Nelson Region estuaries: vulnerability assessment and monitoring recommendations. Prepared by Wriggle Coastal Management for Nelson City Council. 36p + appendices.
- Walsh CJ, Roy AH, Feminella JW, Cottingham PD, Groffman PM, Morgan RP 2005. The urban stream syndrome: current knowledge and the search for a cure. *Journal of the North American Benthological Society* 24: 706-723.