

Before the Porirua City Council and Greater Regional Council

In the matter Of Resource Management Act 1991

And applications for resource consent under part 6

Between Wellington Regional Council

And Porirua City Council

And Jagger NZ Limited

SUPPLEMENTARY STATEMENT OF EVIDENCE OF DAMIAN YOUNG ON BEHALF OF LOCAL COUNCIL

1. Bank Profiling and Erosion Treatments

Without detailed design details of the finished surface it is difficult to determine likely impacts and impacts associated with bank reprofiling for protection works. However the main concern would be unnatural littoral and riparian edge treatments, with the potential to have reduced stream functions of shading, floodplain engagement and interaction with terrestrial vegetation.

There are numerous erosion management techniques available in the market place. The applicant and the presented drawing details indicate the use of riprap or "rock protection" to manage erosion on the existing and earth worked batters. In my opinion alternative Bio-engineering techniques should be considered such as e.g. mass stabilised earth walls which can be planted to reduce the impact of upper bank lining with rock.

2. Landscape vs ECP vs Stormwater management vs Riparian Reserve

Mr Lowes evidence indicated it was not clear what the post development footprint of the proposal has demonstrated that the landscaping, pathways and required stormwater infrastructure will be allowed for without reducing the required riparian mitigation area of 20m.

3. Policy 32 and 41 PNRP

The draft proposed natural resources plan indicates under policy 32 that:

Significant adverse effects on aquatic ecosystem health and mahinga kai shall be managed by: A) avoiding significant adverse effects, and...

In Mr Lowes evidence 9.7 he highlights if all efforts to avoid adverse impacts have been investigated particularly in the case of stream reclamation.

4. Boulder Cascades

The inclusion of boulder cascades would appear to not be representative of the existing stream morphology and substrate composition and would not be required. Also has the impact of creating fish passage issues.

5. Ecological Compensation Management Plan

In my opinion an ECP would be a key tool in the delivery of the outlined and required mitigation works to ensure the design and ecological objectives associated with the watercourse are achieved.

6. Rip rap "topping up" and Management Access

In my opinion alternative to the use of rock protection should be considered where ever feasible such as mass stabilised earth structures that can be planted directly into and reduce negative effects of rock lining.

However, when rock is used and placed in situ in an appropriate manner to protect exposed soil services from erosion that the sizing of the rocks must take into account velocity's associated with flood events and in general terms should not require "topping up" with any regularity. Maintenance of the post development channel-way is required. The level of service for open channels is in general reflective of flood risk and existing ecological values. The City Council will be responsible for this maintenance and in my opinion an environmentally sensitive approach seems to be favoured by

most parties and as such providing vehicle access, (beyond what can be accommodated down the walkway), would not be required. This additionally is based on the fact that limited "topping up" would be required and if it was it would need to be achieved manually.

7. Cumulative Erosion Effects

In my opinion and as generally understood by industry, as development occurs within a catchment there is a consequential increase in the volume and frequency of runoff occurring from rainfall. The existing subject reaches within the development site show signs of bank erosion and that this would tend to be exacerbated by the recent changes in upstream catchment runoff.

Frequent flow events tend to result of reducing overall stream water quality and effecting instream biota through an increase in the frequency and duration of higher than baseflow water velocity.

The discharges from the proposed development unmitigated would increase these outlined impacts. The extent to which these have been mitigated is not known as no examination of the proposed system performance has been conducted.

8. Impervious Cover Percentages

In my opinion if stormwater design takes into account increase in flow volume, rates and water quality then on lot coverage can be mitigated by of lot treatment. This does tend to result in treatment train management of stormwater to reduce a key step being on lot treatment. However this can be ameliorated by well-designed off lot treatment.

In regards to the proposed lot coverage I do not see these as being overly high. My concern would be if other hard surface such as driveways and landscaping hard stand areas are not taken into account the ultimate built form ends up being more like 45%.

