

## By email

17 June 2015

File Ref: N/50/06/01

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Dear Michelle

### **Response to further information request under section 92(1) of the RMA 91 - WGN140054 [32483], [32484], [32485], [32486], [32487] and [32488] – Otaki River and specified tributaries Resource Consent Application**

Thank you for your letter dated 22 May 2015 regarding the above.

I have reviewed your request for further information and, as already discussed with you at our meeting on the 10 June 2015, we will need additional time to provide all the requested information. Due to the potential complexity and detail required the following dates are the earliest in which I believe that we can provide, to an appropriate standard, the further information requested.

- Mapping of flood protection structures and other features by the 3 July 2015
- Additional information associated with the Otaki River and specified tributaries and noted in the table below to be provided by the 19 September 2015.

A comparison between river communities in the ‘application area’ and in ‘unaffected reference areas’ has not been undertaken in any detail as in our view it will not provide information specifically relating to the effects of flood protection activities.

Flood Protection activities are undertaken in parts of the catchment which have been impacted by agricultural and/or urban development. The ‘unaffected reference areas’ referred to by EOS are almost invariably located in undeveloped parts of the catchment. The comparison requested would be between the urbanised main stem of the Hutt River and the relatively pristine upper reaches which is a smaller watercourse and mostly in forested catchments. There will certainly be differences in the aquatic ecology, but these will be primarily related to deforestation, loss of riparian vegetation, agricultural land use, urban development, inputs of nutrients and other contaminants, introduced pest species, as well as flood protection activities.

OTAKI FURTHER INFORMATION REQUEST - MAY 2015 [1495956]



The approach taken, as described in the AEE, is to undertake a series of targeted before-after-upstream and downstream investigations of flood protection activities which are specifically designed to separate out the effects of those activities. These studies have been undertaken on the Hutt River for fish and invertebrate re-colonisation (Perrie, 2013) habitat quality (Cameron, 2013), and in northern Wairarapa Rivers for sediment deposition, periphyton, invertebrates and fish (Death and Death, 2013). A further study is currently underway on the Hutt River in relation to habitat quality, water quality and fish re-colonisation (Cameron 2015, in progress).

Having said this we intend to provide the following additional information outlined below:

#### Estuary

The existing half page description can be expanded from the existing information (Boffa Miskell 1992, Boffa Miskell 2001, Stevens and Robertson 2006, Robertson and Stevens 2007, Thompson 2012, and Groundtruth 2013, McArthur et al 2015). A site visit may be required to confirm the extent of saltmarsh habitat.

Aquatic Plants/Macrophytes A site visit will be undertaken to map the existing vegetation.

#### Macroinvertebrates

A more detailed description on the macroinvertebrate communities for the two SOE sites, including trends reported in Perrie (2012) and data for the lower river in Boffa Miskell, 2001 can be provided. However we have no data for the tributary water ways so additional surveys in the Ngatoko, Rangiuru, Paikio and Katihiku stream will be undertaken. It is unlikely that invertebrate data will be available for the hyporheic zone or deep water habitats. At this stage we are not proposing to undertake this kind of survey work to complete the current state description. In the event that a large scale disturbance is proposed, i.e. gravel extraction from the middle/lower reach, site specific investigations of invertebrate communities would be required under the EMP.

#### Fish

The existing information will be updated to show where each fish species has been found in relation to the application area, which is likely to be of most concern, and which fish spawn in these reaches. We can show abundance data (where available and can compare reference and impact data, but as noted above, this is unlikely to provide useful information of the effects of flood protection activities because of landuse differences.

We can show drift dive survey reaches and can request an update on drift dive data for these reaches (we currently have data for 2014 only).

We can comment on customary, recreational and commercial fishing for eels.

Water quality

Data from 2004 and trend analysis from the SOE report can be provided but this will not provide any additional trend analyses.

Gravel bar and beach flora and fauna

This is dynamic and constantly changing, therefore not viable to map. A generalised description can be provided.

Birds

The results of the 2012 survey by McArthur are included in the ecology AEE. We can provide an expanded description.

Herpetofauna

We will undertake a search of the lizard database.

**Riparian Vegetation** refer to the COP timetable at section 3.2.1. It is intended that these surveys will be completed within three years of the consents being granted and at 9 year intervals thereafter.

**Options for integration of native trees with willows** for bank edge protection by the 30 November 2015, including potential retirement of willow stands.

**Inanga Spawning** – refer to the COP refer section 3.2.4, Currently, it is intended that Flood Protection (FP) undertake an Inanga Spawning habitat survey in the affected watercourses within 3 years of the consents being granted. The need for further surveys after 3 years will be addressed.

However, given the scale of this exercise, further discussions are required with Environmental Science GWRC, as we believe it is more appropriate to replicate the work undertaken by Niwa in 2001 and Environmental Science are best placed to co-ordinate and progress this.

Included below is a table indicating what further information will be lodged and when.

Further Information Request – WGN140054 [32483], [32484], [32485], [32486], [32487] and [32488]	Date to be provided by
3. <b>Maps</b> - Please provide an overview map or maps at a suitable scale, showing the areas covered by the application, the affected tributaries, the main existing flood protection features (e.g. willow plantings, rip-rap rock linings, groynes), and any ecological site survey locations referred to in the application (please refer to Fish at point 5 below).	Mapping of flood protection structures and other features by the 3 July 2015



<p><b>Estuary</b> – Please provide full details and a description of the Otaki River estuary and the potential effects of flood protection activities may have on it. Given the proposed works include activities in the estuary and coastal marine area, a more thorough description of the receiving environment is required. This must be based on actual data or recently cited information of the Otaki River estuary.</p> <p>Please include a full description and data in relation to the composition of fish, resident and migratory shorebirds, invertebrate (marine and freshwater) communities, plant species, and any associated biodiversity values of the estuary. Please also state when resident and migratory shorebird species make use of the estuary.</p> <p>Please confirm if salt marsh habitat remains, and if so, the location in relation to flood protection activities. Please note whether it may be adversely affected by these activities. If flood protection activities are proposed within salt marsh habitat please provide a detailed description of the potential adverse effects and how it will be avoided, remedied and mitigated.</p> <p>With regard to section 3.1.7 of the AEE report, please provide the reference for the recreational fisheries details provided which refer to kahawai, snapper, dogfish, red cod, gurnard and yellow eyed mullet.</p> <p>With regard to section 3.1.1 of the AEE report, please clarify what is meant by low productivity and biodiversity values. Please provide references and data to support this statement, and provide comment with regard to the rearing and habitat spawning for a range fish noted in section 3.1.7.</p>	<p>19 September 2015</p> <p>Note comments above</p>
<p><b>Aquatic Plants/Macrophytes</b> – Please provide full details and a description of the macrophyte communities that are present where mechanical instream vegetation removal is proposed, or where macrophyte communities will be affected by other flood protection activities.</p> <p>Please provide full details if there are native species or noxious exotic species present, and the location of any significant patches (in terms of areal extent) of these species.</p> <p><b>Macroinvertebrates</b> – Please provide full details and a description of the invertebrate communities, including habitats affected by new structures, gravel extraction and bed/beach recontouring, the hyporheic zone and deeper, non-wadeable habitats.</p> <p>Please provide information on macroinvertebrates within the tributary waterways. If MCI surveys of the affected tributaries are not possible, please provide prediction data from the Freshwater Ecosystems of New Zealand (Leathwick et al, 2010)<sup>1</sup> Please provide details of whether any crayfish/koura are present in the tributary waterways.</p> <p>What are the most common species/taxa in the sections to undergo gravel extraction/bed contouring? How does the community composition compare to that found outside of the area? Are there threatened or at risk invertebrates present according to the listing of Grainger et al (2014)<sup>2</sup>? Which EPT taxa are present in the river?</p> <p>In the AEE report, it is stated in the text that the lower river site is rated 'good' however, Table 3-3 indicates all sites are rate 'excellent' according to the QMCI.</p>	<p>19 September 2015</p> <p>Additional information to be provided on Fish, Macroinvertebrates and Birds, noting comments above.</p>

<sup>1</sup> Leathwick, J.R., West, D., Gerbeaux, P., Kelly, D., Robertson, H., Brown, D., Chaddertson, W.L., and Ausseil, A.-G. 2010. Freshwater Ecosystems of New Zealand (FENZ) Geodatabase Version One – August 2010 – User Guide. Department of Conservation. 57 p.

<sup>2</sup> Grainger, N., Collier, K., Hitchmough, R., Harding, J., Smith, B., Sutherland, D. 2014. Conservation status of New Zealand freshwater invertebrates, 2013. New Zealand Threat Classification Series 8. Department of Conservation, Wellington. 28pp.



<p><i>Table 11 (application) and Table 3-3 (AEE report) present means. Please provide some measure of variability e.g. ranges, standard errors.</i></p> <p><i>SOE invertebrate monitoring data has been presented only for the period 2009-2011. Please provide data for the full period for which data is available and an analysis of the trends.</i></p> <p><b>Fish</b> – <i>Please provide further information on fish species that are of most concern, such as those that are most abundant and spawn in the area covered by the application, and especially in habitats that are affected by gravel extraction and beach contouring. Please compare data for impacted and reference reaches of the Otaki River.</i></p> <p><i>Please provide full details and a description of the fish fauna of tributary waterways in the area covered by the application and compare this information with tributaries outside of the subject area.</i></p> <p><i>Tables of NZFFD records provided in the application and the AEE report give no indication of where each species has been found in relation to the area covered by the consent application. Please split the records into those from within the application area and those outside. Please provide a map of site locations.</i></p> <p><i>While distribution maps of five fish species are provided in the AEE report (figs 3.1 - 3.5) the consent application area has not been included on the maps. This information would be useful to determine those species most likely to be affected by the works.</i></p> <p><i>Please provide abundance data (relative abundance, rank abundance) rather than just presence/absence, so that which species are more abundant and the general community composition can be determined.</i></p> <p><i>There is very limited information on fish fauna of the lower Otaki River and the 2001 Boffa Miskell study is based on limited fish trapping which is unlikely to adequately sample the fish community, and would not capture small cryptic species such as bluegill bully. Please provide additional information on fish fauna including that from FENZ (Leathwick et al 2010).</i></p> <p><i>Please provide the source of the data in Table 3-6 of the AEE report.</i></p> <p><i>Please provide a map of the inanga spawning locations, and information on any other species that may spawn in the reaches affected by gravel extraction and bed recontouring (e.g. torrentfish or bully species).</i></p> <p><i>At Section 8, Monitoring, of the AEE report, it is implied that annual drift dive monitoring of trout abundance is undertaken at two sites in the Otaki River. Please confirm if this is the case and provide the data from this monitoring.</i></p> <p><i>Please provide details of the level of customary, recreational and commercial fishing for eels in the Otaki River and affected tributaries.</i></p> <p><b>Water quality</b> – <i>Please provide the water quality data that exists from 2004 and an analysis of the trends.</i></p> <p><b>Gravel bar and beach flora and fauna</b> - <i>Please provide additional information on the flora and fauna of gravel bars and beaches that might be affected by gravel extraction and beach recontouring. <b>Riparian vegetation</b> – Please provide additional information</i></p>	<p>Refer to the COP section 3.2.4, Currently, it is intended that Flood Protection (FP) undertake an Inanga Spawning habitat survey in the affected watercourses within 3 years of the consents being granted.</p> <p>However, given the scale of this exercise, further discussions are required with Environmental Science GWRC, as we believe it is more appropriate to replicate the work</p>
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<p><i>on riparian vegetation in the application area, including the tributary waterways. Please describe in detail and shown on maps any remnant native vegetation in the area or significant areas of native vegetation.</i></p> <p><b>Birds</b> – <i>Please provide more detailed information on the bird species of most concern, such as those native or endemic species that roost, feed, nest or rest in the area covered by the application. Please provide details of which species feed and rest on gravel bars and which species may be nesting and roosting among the riparian vegetation (including willows) and when. Please include information for the tributary waterways also.</i></p> <p><i>From the 2012 survey it appears that there is higher resolution bird distribution data available than what has been presented in the AEE report. Please provide this data.</i></p> <p><b>Herpetofauna</b> – <i>Please provide full details in relation to herpetofauna that could be present in the areas potentially affected by flood protection works.</i></p>	<p>undertaken by Niwa in 2001 and Environmental Science are best placed to co-ordinate and progress this.</p> <p>Refer to the COP timetable at section 3.2.1. It is intended that these surveys will be completed within three years of the consents being granted</p>
<p><b>Code of Practice</b> <i>Please provide comment on whether a free-draining bucket is the most appropriate method for removing silt from the Otaki River.</i></p>	<p>19 September 2015 - with information also to be included in an updated COP.</p>
<p><b>Environmental Monitoring Plan</b></p> <ul style="list-style-type: none"> <li>• <i>Please provide further details in relation to the proposed bird monitoring and its workability including details of the justification for the proposed percentage triggers.</i></li> <li>• <i>Please provide further details on the proposed pool and riffle counts using aerial photography. Please discuss how features obscured by vegetation are accounted for, and discuss whether the variability of habitats (depth, area, ecological value) would be noted or whether the proposed methodology simply counts features.</i></li> <li>• <i>Please provide further justification on how the Natural Character Index (NCI) will be useful in the context of ecological monitoring.</i></li> <li>• <i>Please provide any information available on the optimal width of willow plantings to achieve the objective of vegetative bank protection. Please identify any areas where willow planting can be retired over time and natives planted instead</i></li> </ul>	<p>19 September 2015 - with information also to be included in an updated EMP</p> <p>30 November 2015</p>

Please feel free to contact me on 04 830 4045 if you have any questions or concerns

Yours sincerely

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