
MINUTES
of the
COMMISSIONER (RESOURCE CONSENT) HEARING MEETING
held
9.30 am, Monday, 1 December to
Thursday, 9 December 2014
at
Oak Room, Headingly Centre, 452 Lower Queen Street,
Richmond

COMMISSIONERS: Rob van Voorthuysen (Chair)
John Lumsden

IN ATTENDANCE: Hearing Advisor
Michael Croxford – Principal Resource Consents Advisor (TDC)
Reporting Officers
Rob Loeffering (MWH)
Leif Pigott – Co-ordinator Natural Resource Consents (TDC)
David Cameron (MWH)
Mike van Enter (MWH)
Simon Beale (MWH)

APPLICANTS: Counsel: Jen Crawford
Sarah Eveleigh
Applicant Chair: Murray King
Experts: Mark Foley
Simon Croft
Ed Beese
Roger Young
David Leong
Graham Ussher
Gary Rae
Dave Petrie
TDC: Joseph Thomas (did not present)

SUBMITTERS: Forest & Bird [55]:
Counsel: Sally Gepp
Branch Member: Deborah Martin
Expert: Kelvin Lloyd

Department of Conservation [53]:

Counsel: Victoria Tumai

Experts: Martin Rutledge (Freshwater Ecology)
Simon Moore (Terrestrial Habitats)
Shannel Courtney (Threatened Plants)
Rachel Penney (Planning)
Lionel Solly (Assisting Planner)

Mitch Irvine [61] and Matt Stuart [59]:

Counsel: Fiona McLeod

Waimea East Irrigation Company Limited [45]

Counsel: Shoshona Galbreath

Representatives: Christopher Maling
Gavin Williams
Andrew Kininmonth
Richard Hoddy
Simon Harris

Ian MacLennan [27]

Mary O`Connor [48]

Ian Willets for JWJ Forestry Ltd [65]

Lawson Davies for Fish & Game [101]

David Irvine [60]

Alan Eskrick [32]

Linda McClintock for Waimea Inlet Forum [43]

Maxwell Clark for Maxwell Clark & Shona McBride [93]

Patricia Palmer [57]

Trevor Riley [90]

John Moorhead for Tasman Bay Forests Ltd [37]

Bill Findlater for The Nelson Regional Economic Development
Agency [21]

Alister Morison for Cold Storage Nelson Ltd [76]

Brian Halsted for Waimea Irrigators and Water Users Inc [39]

Chris Keenan for Horticulture NZ [63]

Max Rogers [31]

Barry Thompson for Mahua Orchard Partnership [74]

John Kuipers [79]

Alastair Patterson for Waiwest Horticulture Ltd [72]

Catherine Bacon [25]

Helen Campbell for Friends of Nelson Haven & Tasman Bay Inc
[38]

OPENING, WELCOME

Commissioner Rob van Voorthuysen introduced himself as did Commissioner John Lumsden.

Cr van Voorthuysen outlined the process that the Hearing would follow and he emphasised that no cross questioning between parties would be permitted. Submitters with questions were advised to put the questions to the Chair who would determine if they would be asked of the Applicant.

Cr van Voorthuysen advised further that a site visit would be undertaken on the afternoon of Tuesday, 2 December by both Commissioners with Mr Leif Pigott.

The Commissioners proceeded to hear the application, presentation of submissions and staff reports as detailed in the following report and decision.

DECISION

The Panel has **GRANTED** resource consents as sought by Waimea Community Dam Limited (as listed in Appendix 1), subject to conditions, to construct and operate the proposed Lee Dam subject to the conditions set out in Appendix 4 of the Decision.

**Decision of Independent Commissioners
Rob van Voorthuysen (Chair)
John Lumsden
Appointed by Tasman District Council**

**On an application for resource consents by Waimea Community Dam
Limited**

Decision dated 26 February 2015

1 Appointments

The Tasman District Council (TDC), acting under s34A of the Resource Management Act 1991 (RMA), appointed the following independent hearing commissioners to conduct a hearing into the applications for resource consents lodged by Waimea Community Dam Limited (Applicant) for the Waimea Community Dam¹ (Lee Dam):

- Rob van Voorthuysen (Chair); and
- John Lumsden.

2 Description of Application

The nature of the proposal is well described in the application documents², the Applicant's evidence and the Section 42A Report³ (officer's report). While we do not repeat those detailed descriptions here, we note by way of overview that the Lee River is a tributary of the Wairoa River, which becomes the Waimea River (below its confluence with the Wai-iti River) and ultimately flows into the Waimea Inlet. The dam site is located within the Richmond Ranges and on the Lee River approximately 12 km upstream from the confluence of the Lee and Wairoa Rivers, just upstream of the confluence of Anslow Creek and the Lee River. A location map is included overleaf. The proposal includes the construction of a concrete faced rock fill dam approximately 53 m high with

¹ Also called the Lee Valley Community Dam amongst other things

² Section 4.3 and the AEE

³ Sections 2, 3 and 4

a crest length of 220 m. The dam will impound around 13 million cubic metres of water which will be released into the Lee River to augment river flows in order to satisfy instream needs (primarily in the Wairoa and Waimea Rivers) and recharge the Waimea Plains groundwater system. This will provide additional water for urban supply and irrigation purposes.

Section 2.3 of the officer's report succinctly sets out the relevant background to the Lee Dam flow augmentation proposal and the benefits it is intended to generate. It states:

- The water resources (surface and ground water) of the Waimea Plains are over-allocated, with no new water permits having been issued by the Tasman District Council (the Council) since 2001 and existing water users are subject to water restrictions during dry periods.
- Water abstraction results in low flows within the Waimea River that does not provide protection for in-stream values (in severe cases the river dries up at Appleby Bridge).
- Water augmentation would address the current over-allocation issues thereby providing existing water permit holders increased security (certainty) of supply and would also make additional water available for other users.
- The Waimea Water Augmentation Committee (WWAC) was set up to investigate options to address the water issues of the Waimea Plains and includes representatives of water user committees, the Department of Conservation, Fish and Game, iwi, Tasman District Council, and Nelson City Council.
- The project aims to provide a 60-year security of supply for water users (including current and future water demand).
- A continuation flow of 0.51 m³/s (the natural 7-day MALF) downstream of the dam is considered appropriate to protect instream values within the Lee River.
- The project aims to ensure sufficient water is released from the dam to achieve a residual flow of 1.1 m³/s (calculated as being the natural 1-day MALF) within the Waimea River at the Appleby Bridge to protect instream values.
- To achieve the aims of the project the dam is required to hold 13 million cubic metres of water

Importantly, we note that the proposal before us does not include any consent applications relating to the subsequent downstream take and use of water released from the dam.

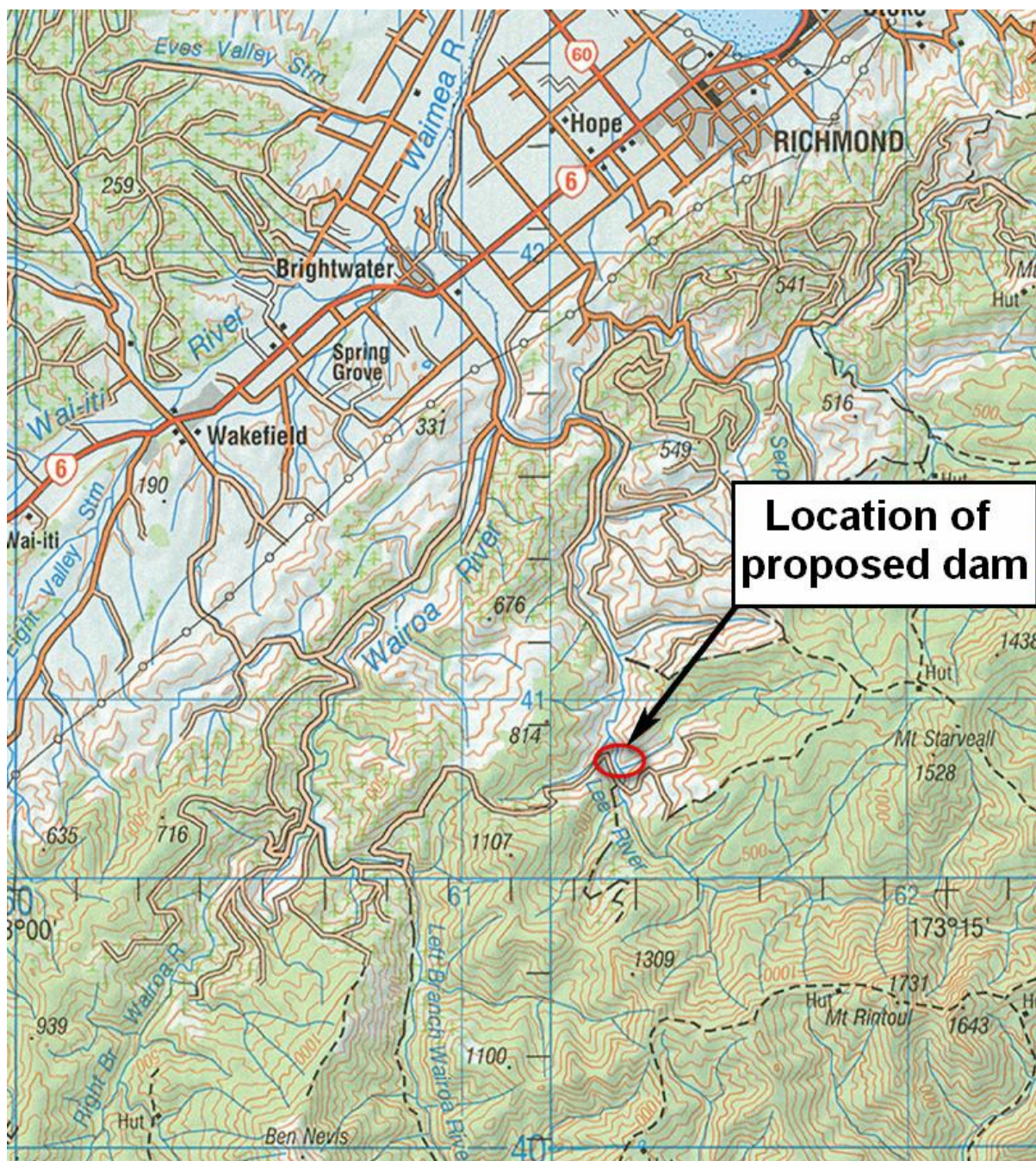


Figure 1: Lee Valley Dam location map

3 Notification, Submissions and Written Approvals

The applications were publicly notified on 19 July 2014 and the submission period closed on 15 August 2014 during which 101 submissions were received. The submissions were summarised in detail in the officer's report.⁴ We adopt that summary but do not repeat it here. However, we record that we read each of the submissions in full.

A numbered list of the submitters is attached to this Decision in Appendix 2. Throughout this Decision we generally refer to submitters by their respective submitter number, although we occasionally name them as well.

⁴ Officer's report, section 6, pages 10 to 16

No written approvals were obtained by the Applicant.

4 Process Issues

4.1 Section 113 of the RMA

Section 113(3) of the Resource Management Act (RMA) states:

A decision prepared under subsection (1) may, -

- (a) instead of repeating material, cross-refer to all or a part of -
 - (i) the assessment of environmental effects provided by the applicant concerned;
 - (ii) any report prepared under section 41 C, 42A, or 92; or
- (b) adopt all or a part of the assessment or report, and cross-refer to the material accordingly.

In this case the application documents and the Applicant's submissions and evidence were comprehensive and of a high quality. The same can be said of the officer's report. Accordingly, in the interests of brevity and economy, we intend to make extensive use of s113 of the RMA and additionally we will not dwell on matters that were not in contention before us.

4.2 Consultation

Under s36A of the RMA there was no obligation on the Applicant to undertake consultation. Notwithstanding that, the Applicant completed what in our view was a very comprehensive consultative process that was well-described in the application documentation.⁵ Nevertheless, several submitters appeared to be critical of the Applicant's consultation process.⁶ In response we are satisfied that all of the matters relevant to the applications are adequately canvassed in the submissions, reports, and evidence before us.

4.3 Consent class

The application documents⁷ and the officer's report⁸ tabulated the consents sought, the relevant rules under the TRMP and the resultant consent class. We have included a list of the consents applied for in Appendix 1 of this Decision.

We agree with the reporting officer that the dam structure itself is a discretionary activity under s87B of the RMA.⁹ We note that the Applicant's planner, Mr Rae, concurs.¹⁰

We also agree with the reporting officer that the proposed extraction of gravel is not provided for in Section 28.1.6 of the TRMP and consequently the rules in Section 28.5 of the TRMP apply to that activity. That results in the extraction of gravel being a non-complying activity under Rule 28.5.2.6 of the TRMP. We note that Mr Rae agrees.¹¹ All other activities are either controlled, restricted discretionary, or discretionary.

We are satisfied that the gravel extraction consent is separable from the other consents (namely the proposal does not rely on that consent as gravel could be sourced from elsewhere). Consequently, while the extraction of gravel from the Lee River for dam construction purposes is a non-complying activity, the remainder of the applications should be bundled so that in overall

⁵ AEE, section 5, pages 31 to 38

⁶ Submitters 12, 17, 31 and 52 amongst others

⁷ AEE, Table 8.1, page 61

⁸ Officer's report, Table 1, page 7

⁹ Officer's report, section 5.6, page 8

¹⁰ Evidence, Rae, para 3.5, page 6

¹¹ Rae, Evidence, para 4.3, page 5

terms the proposal falls to be assessed as a discretionary activity. We note that Mr Rae reached the same conclusion in his planning assessment.¹²

Returning to the non-complying activity status for the gravel extraction and the requirement for that activity to pass one of the s104D RMA 'gateway tests', we accept the reporting officer's advice that.¹³

"... in the case of the Lee Dam the proposal is to utilise the river gravels from upstream of the dam for dam construction. This gravel could be brought to the site and that would mean that the gravels that exist upstream would end up in the reservoir behind the dam. Using the gravels for dam construction constitutes an efficient use of this resource and the adverse effects are minor. Therefore, whilst the extraction of gravel is generally contrary to the relevant objectives and policies of the TRMP, in this case the adverse effects are minor, meaning that the second gateway test is met and consent can be granted for this activity."

We note that Mr Rae considered that the gravel extraction component met both 'gateway tests' in s104D RMA.¹⁴

5 Hearing and Appearances

The hearing was held in the Oak Room of the Headingly Centre in Richmond over the period 1 December 2014 to 9 December 2014.¹⁵ The commissioners undertook a site visit on 2 December 2014 accompanied by Mr Leif Pigott and guided by Mr Dougal Stuart. The site visit involved an inspection of the dam site and the Lee River valley above and below it.

We received a Supplementary Section 42A Report on 19 December 2014. That Supplementary Report was very helpful as in it Dr Lieffering addressed the questions that we posed to the officers at the end of the hearing. The Applicant's closing submissions in Reply were delivered to us in writing on 27 January 2015. We subsequently closed the hearing on 9 February 2015, having satisfied ourselves that we did not require any further information from the reporting officers, submitters or Applicant.

A list of the parties who appeared at the hearing is provided in Appendix 3 of this Decision. We have not attempted to summarise the written and verbal submissions, statements or evidence received during the course of the hearing. Copies of the written material are held by the TDC. We took our own notes of the verbal statements and verbal evidence presented to us and any answers to our questions. We have, however, referred to relevant elements of the submissions, statements, and evidence in the balance of this Decision.

6 Statutory Evaluation

Our evaluation of the proposal is to proceed in accordance with s104 of the RMA, noting that our consideration under this section is subject to Part 2 of the RMA. We are to have regard to relevant statutory instruments (national and regional policy statements and plans) and to any actual and potential effects on the environment of allowing the activity. We must not have regard to trade competition or the effects of trade competition. We must also not have regard to any effects on a person who has given written approval to the applications (noting no written approvals

¹² Rae, Evidence, para 1.8(c), page 2

¹³ Officer's report, section 10.2.2, page 28

¹⁴ Rae, Evidence, para 1.8(g), page 2

¹⁵ We adjourned the Hearing on 9 December 2014 pending the receipt of a further Supplementary officer's report and the Applicant's written closing submissions

were given in this case). Sections 105 and 107 of the RMA are also relevant and we deal with those below (see Section 6.2 of this Decision).

Under s104B of the RMA, after considering the applications we may grant or refuse them. If we grant the applications, we may impose conditions under s108 of the RMA.

We now proceed to consider these statutory matters. We consider the actual and potential effects of the proposal in Section 7 of this Decision.

6.1 Policy statements and plans

The policy and planning instruments that provide the framework for our consideration of the applications are as follows:

- National Policy Statement for Freshwater Management 2014 (NPSFM)
- Resource Management (National Environmental Standard for Sources of Human Drinking Water) Regulations 2007
- Resource Management (Measurement and Reporting of Water Takes) Regulations 2010
- Tasman Regional Policy Statement 2001 (RPS)
- Tasman Resource Management Plan 2014 (TRMP)

Some submitters suggested to us that the New Zealand Coastal Policy Statement 2010 (NZCPS) was also relevant.¹⁶ In that regard we note that the proposed dam site is clearly located outside the coastal environment and the application of the NZCPS is limited to the coastal environment.¹⁷ We do not discuss the NZCPS further.

The application was evaluated against the above statutory instruments and plans in the officer's report¹⁸ and the evidence of the applicant's planner, Mr Rae.¹⁹

Dr Lieffering's (the reporting officer) advice to us was that the application was entirely consistent with the outcomes sought to be achieved by the NPSFM. Mr Rae also concluded that the proposal was consistent with the outcomes sought to be achieved by the NPSFM and the outcomes contemplated by the NPSREG. The Director General of Conservation²⁰ helpfully submitted:

"I submit the proposed Lee Dam will result in a flow regime that will help to safeguard the life-supporting capacity, ecosystems and indigenous species in the Waimea River. Subject to appropriate standards for water quality during construction and operation of the dam (and controls to ensure that those standards are achieved), I submit the water quality objectives in the NPSFM can also be met."²¹

We concur with those assessments and submissions.

¹⁶ Including Helen Campbell for Friends of Nelson Haven and Tasman Bay Inc. [38]

¹⁷ The Preamble to the NZCPS states (first paragraph, page 5): "The purpose of the NZCPS is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand."

¹⁸ Officer's report, sections 11 and 12, pages 29 to 50

¹⁹ Rae, Evidence, paras 5.8 to 5.18, pages 10 and 11

²⁰ We also received planning evidence from Rachel Penny for the Director General of Conservation, but she did not address the NPSFM.

²¹ Counsel for the Director general of Conservation, legal submissions, para 70, page 16

With regard to the National Environmental Standard for Sources of Human Drinking Water the reporting officer advised that existing municipal water supply takes on the Waimea Plains were sufficiently remote from the dam site such that any discharges from the Lee Dam would not adversely affect the quality of water taken. The Measurement and Reporting of Water Takes Regulations will also be complied with, reinforced by the imposition of conditions of consent requiring water measurement devices to be installed.

In terms of the local statutory instruments we are satisfied that the TRMP gives effect to the RPS as it is required to do, and so we have focused our attention on the TRMP. As noted by the reporting officer, there are a large number of TRMP provisions that are relevant to the proposal.

We received qualified planning evidence from three experts. Dr Lieffering's officer's report helpfully provided a synthesis of the overall thrust of the more relevant TRMP provisions, together with a detailed assessment of specific objectives and policies.²² Mr Rae for the Applicant assessed the proposal against the TRMP provisions,²³ as did Rachel Penney for the Director General of Conservation.²⁴ We are grateful for that assistance.

Reflecting on the TRMP provisions, we note that Chapter 15 of the TRMP titled "Strategic Infrastructure and Network Utilities" contains Policy 15.1.3.4, which sets out matters that we are 'have particular regard to' when assessing the Lee Dam applications. Mr Rae helpfully paraphrased that policy as follows:

"... [Policy 15.1.3.4] recognises that there are specific effects arising from the construction, operation and maintenance of the dam and associated facilities that need to be managed appropriately. The policy recognises that some effects may not be able to be avoided, and therefore some form of remediation, mitigation or off-set may be appropriate. This includes ensuring that best industry practice is adopted wherever necessary, especially in relation to the design, construction, operation and maintenance of the dam and managing land disturbance effects."

We have reviewed the relevant provisions of the TRMP ourselves and have had regard to those provisions as we are required to do under s104(1)(b) of the RMA. Unsurprisingly, given the nature of this proposal (the damming of the full flow of a river) there are some provisions of the TRMP that the proposal is inconsistent with. This includes TRMP provisions relating to public access up the Lee River, the biodiversity and natural character of the area to be occupied by the dam and reservoir, the reduction of sediment transported down the Lee River, gravel extraction, and construction activities undertaken in the bed of the Lee River.

However, we note (and discuss further in the sections of this Decision that follow) that the adverse effects that offend the TRMP provisions are either minor, temporary, or able to be adequately avoided, remedied, mitigated, offset, or otherwise compensated for.

We also note in particular that, importantly in our view, Chapter 15 of the TRMP explicitly provides for²⁵ the "establishment and continued operation and maintenance of the Lee Valley Community Dam and associated activities while managing the adverse environmental effects of such activities".

²² Officer's report, section 12.3, page 31 and Table 2 commencing on page 33

²³ Rae, Evidence, paras 5.19 to 5.34, pages 12 to 14

²⁴ Penney, Evidence, paras 24 to 31, pages 6 to 8

²⁵ Issue 15.1.12, Objective 15.1.2.1 and Policy 15.1.3.1 amongst others

We are satisfied that there are no policy provisions that should cause us to find that the applications should be declined. However, a number of the issue-specific policies highlighted by the expert planning witnesses have usefully informed our consideration of appropriate conditions of consent.

6.2 Sections 105 and 107 of the RMA

As the application involves the discharges of water and contaminants therein we must have regard to s105 and apply s107 of the RMA. We have had regard to the s105 matters (particularly the nature of the discharges and the sensitivity of the receiving environments), and note that these matters were addressed in the application documents, the officer's report, and the evidence before us. We find that in terms of discharges from the Lee Dam there no practical alternative methods of discharge other than those proposed by the Applicant.

With regard to s107 of the RMA we agree with the reporting officer's view that the dam construction related discharges are not temporary in nature and consequently s107(2)(b) of the RMA does not apply.²⁶ Consequently, we accept Dr Lieffering's recommendation that conditions of consent should be imposed to ensure that the construction related discharges do not breach the standards set out in s107(1)(c) to (g) of the RMA.

We note Mr Rae's corroborating advice to us that:

"Sediment control measures are able to be utilised to ensure that the effects described in section 107(1) do not occur after reasonable mixing, and conditions have been proposed relating to these relevant effects."²⁷

6.3 Part 2 RMA matters

We have sought to give effect to Part 2 of the RMA in making our decision on the applications in light of the submissions received.

Part 2 of the RMA sets out the purpose and principles of general application in giving effect to the Act. The RMA's overall objective is set out in s5.²⁸ Its purpose is identified in s5(1) as "to promote the sustainable management of natural and physical resources." Section 5 contemplates environmental preservation and protection as an element of sustainable management of natural and physical resources;²⁹ and protecting the environment from adverse effects of use and development is an aspect (though not the only aspect) of sustainable management.³⁰ Similarly, the enabling elements of s5 are not absolute or necessarily predominant and they must be able to co-exist with the purposes in paragraphs (a) to (c) of s5.³¹ Although s5 is not itself an operative provision,³² where applicable the other sections of Part 2 (ss 6, 7 and 8) are operative, albeit at the level of general principles, directing those administering the RMA, and elaborating³³ how s5 is to be applied in the circumstances described in them.

Section 6 of the RMA identifies matters of national importance that we are required to recognise and provide for. In this case we find that ss 6(a), (c), (d) and (e) are relevant. We note that the

²⁶ Officer's report, section 10.3.4, page 29

²⁷ Rae, Evidence, para 7.3, page 15

²⁸ *Environmental Defence Society v NZ King Salmon and ors* [2014] NZSC 38 [151].

²⁹ *Environmental Defence Society v NZ King Salmon* [146].

³⁰ *Environmental Defence Society v NZ King Salmon* [148].

³¹ *Day v Manawatu-Wanganui Regional Council* [2012] NZEnvC 182 [5-215] (not questioned on appeal: *Horticulture NZ v Manawatu RC* [2013] NZHC 2492)

³² *Environmental Defence Society v NZ King Salmon* [151].

³³ *Environmental Defence Society v NZ King Salmon* [25], [149].

word 'inappropriate' in s6(a) should be interpreted "against the backdrop of what is sought to be protected or preserved"³⁴ and the application of the s6 matters is to serve the RMA's purpose of promoting sustainable management. The s6 matters are not to be achieved at all costs. In particular, we note that protection is not an absolute concept, and a reasonable, rather than strict, assessment is called for.³⁵

Section 7 directs that in achieving the purpose of the RMA, we must have particular regard to some eleven listed matters. In this case we find that all eleven sub-clauses of s7 are relevant. Section 8 directs us to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). We have done so to the extent that those principles are consistent with the scheme of the RMA.

We note that Mr Rae concluded³⁶ that "Overall, the proposal will promote the sustainable management of natural and physical resources and will achieve the purpose of the RMA." In a similar vein, Dr Lieffering had this to say at the end of the hearing:

"There will be significant residual adverse effects on terrestrial ecology, even with the full implementation and success of the biodiversity offset and compensation package (this was confirmed by Dr Ussher). In addition, there will be adverse effects on natural character, public access, and the relationship of Maori with their culture and traditions. That is, the application does not recognise and provide for sections 6(a), 6(c), 6(d), and 6(e) of the RMA. Whilst these are important matters they do not create a veto for the granting of resource consents. There are also a number of significant positive effects associated with the proposal, mainly improved life supporting capacity of the Lee, Wairoa, and Waimea Rivers and improved security of supply for existing water permit holders."³⁷

We have quoted Dr Lieffering's advice to us in full as we concur with it and find that it concisely summarises our own conclusions on Part 2 matters. We return to that in Section 10 of this Decision.

7 Matters of Contention

As we stated at the beginning of this Decision, we intend to focus our attention on the matters that remained in contention throughout the hearing.

7.1 Matters not relevant to our Decision

There are four significant issues raised by submitters that we consider are not relevant.

7.1.1 Demand for water

Many submitters³⁸ considered that there was a lack of demonstrated demand for the water that was intended to be released from the Lee Dam, insofar as that demand was based on irrigation needs. The demand or otherwise for that water is not relevant as we are instead concerned about the effects of the proposed damming of the Lee River and the discharges that will occur from the dam construction activities and the operation of the dam. If none of the water released from the

³⁴ *Environmental Defence Society v NZ King Salmon*, [105].

³⁵ *Environmental Defence Society v Mangonui County Council* [1989] 3 NZLR 257 (CA) 260.

³⁶ Evidence, Rae, para 1.8(j), page 2

³⁷ Supplementary Report per s42A – Summary Statement -9 December 2014, para 38, page 6

³⁸ Submitters 3, 4, 9, 20, 23, 30, 34, 39, 42, 50, 52, 57, 58, 64, 67, 68, 82, 83, 84, 85, 88, 89, 91, 92 and 93 amongst others.

dam is subsequently abstracted for consumptive use then that is of no concern to us in considering this application.

7.1.2 Effects of land use intensification

A large number of submitters³⁹ were concerned about the potential future abstraction of water released from the Lee Dam and the land use intensification and associated nutrient leaching that could result. One submitter⁴⁰ initially went so far as to suggest that applications for the take and use of the released water should be required under s91 of the RMA.⁴¹ We reject that proposition and simply note that such water take and use consents have not been sought by the Applicant.

Further, we understand that any future consents to abstract water released from the Lee Dam would be made by third parties (e.g. farmers, horticulturalists and industrial users amongst others) and so even if we were minded to impose conditions regulating how that water was able to be used (in terms of managing nutrient losses from irrigated land for example)⁴² we would be unable to do so as it well-established that conditions of consent (which in this case would apply to Waimea Community Dam Limited) cannot bind unknown third parties (the potential future water users).

We also note that it would be mere speculation on our part should we attempt to consider what the effects of using any abstracted water might be.

In that regard, Forest and Bird submitted that we should nevertheless take into account future water quality degradation resulting from land use intensification occasioned by the augmentation flows released from the proposed dam as that was (in their view) both reasonably foreseeable and inevitable.⁴³

We clarified with Counsel that Forest and Bird's view on this matter was informed by a report prepared in 2013⁴⁴ that modelled two land use scenarios.⁴⁵ In our view both of those land use scenarios are rather fanciful. Counsel for Forest and Bird agreed (in response to our questions) that many other land use intensification scenarios were equally possible. Counsel also agreed that it was possible that the implementation of on-farm 'good management practices' could reduce current nutrient losses, that existing high nutrient leaching land use activities could be replaced by low leaching activities (such as viticulture⁴⁶), and that an increased security of supply could facilitate 'just in time irrigation' which is known to reduce nutrient leaching. Finally, Counsel agreed that even if the direct of the 2013 report's modelling results eventuated there was no evidence before us on whether or not that would then lead to a degradation of water quality in the Waimea Plains' surface water bodies.

Consequently, we are not persuaded on the evidence that future water quality degradation resulting from land use intensification occasioned by the abstraction and use of augmentation flows released from the Lee Dam is either reasonably foreseeable or inevitable. That may occur

³⁹ Submitters 3, 11, 12, 17, 18, 19, 20, 22, 27, 30, 34, 38, 39, 41, 42, 43, 44, 50, 55, 67, 83, 86, 87, 88, 93 and 101 amongst others.

⁴⁰ Submitter 55

⁴¹ The submitter later abandoned that proposition (Forest and Bird legal submissions, para 78)

⁴² We note that in itself is problematic as the abstraction of water does not give rise to nutrient losses, rather it is the resulting land use activities occasioned by the use of that water that may give rise to nutrient losses. That is why most regional plans attempting to address this issue have utilised s9 RMA land use rules.

⁴³ Forest and Bird legal submissions, paras 80 to 95

⁴⁴ Fenemor AD et al (2013) Assessing Water Quality Risks and Responses with Increased Irrigation in the Waimea Basin. Landcare Research 1246

⁴⁵ Ibid, para 75

⁴⁶ We note the evidence of Mary O'Connor that pipfruit plantings in the Waimea Plains have reduced by 24% since 2008 whereas plantings of grapes have increased by 15% over that same period.

but equally it may not. We consider that those matters are best left to the TDC's Waimea Plains Freshwater and Land Advisory Group process (and subsequent changes to the TRMP) that was helpfully explained to us by a number of submitters, including Mr Davey for Fish and Game NZ. We understand that process is the means by which the TDC will give effect to the NPSFM 2014.

We note and accept the submissions of the Applicant and Waimea East Irrigation Company:

"There is insufficient nexus between these [land use intensification] effects and the Lee Dam. Such effects are too uncertain or remote, and are not inevitable. Water quality effects may arise from land use practices whether or not a dam is constructed."⁴⁷

"As far as we are aware, no evidence has been produced by Forest & Bird to lead you to conclude that such [land use intensification] effects are inevitable or reasonably foreseeable. Such effects will be managed under another forum and this is not something that you are able to control or place conditions on when it comes to the Lee Dam project. ..."⁴⁸

Finally on this matter we note and accept the Reply submissions on this matter:

"In our submission, there is nothing inevitable or reasonably foreseeable about how any further uses of water will be managed by TDC. Any new uses that may become available would require additional consents and would be subject to scrutiny at that time.

There is also no basis for submitters to assert (and particularly in the absence of technical evidence) that an increase in nitrogen leaching will be directly provided for by this proposal. This could be seen as an attempt to turn proceedings about one consent into proceedings about another, an approach that has previously been rejected by the Court in *Beadle*.⁴⁹ In any event, the environmental bottom lines in the NPSFM will have to be achieved by TDC regardless of whether the Lee Dam proceeds."⁵⁰

7.1.3 Economic benefits

Some submitters⁵¹ were concerned that the proposal did not provide sufficient economic benefits or even generated negative economic benefits, insofar as those benefits derived from the future consumptive take and use of water released from the dam. As that matter (the future take and use of the water released) is not before us we need not concern ourselves with the economic benefits (or otherwise) of the eventual use of that abstracted water.

In relation to this matter we accept the advice of the applicant as enunciated in their response to the TDC's s92 request for further information:⁵²

"To clarify, it is the Applicant's position that neither the potential water quality effects nor the economic benefits associated with the use of water for consumptive purposes are relevant to consideration of this application. In particular, in relation to the water quality effects, that is because:

- a. The effects are too uncertain or remote, and are not inevitable. The effects will be dependent on independent decisions about water use, and will also rely on a regional planning framework which enables additional water quality effects. The NPS requires that the Council

⁴⁷ Applicant's opening legal submissions, para 4.3, page 4

⁴⁸ Waimea East Irrigation Company, Legal submissions, para 20, page 4

⁴⁹ *Beadle v Minister of Corrections* A074/02

⁵⁰ Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, paragraphs 4.9 and 4.10, page 4

⁵¹ Submitters 12, 17, 39, 50, 55, 78 and 101 amongst others

⁵² Letter from Anderson Lloyd dated 6 October 2014, paragraph 4, page 2

amend its plans to provide water quality limits to maintain or improve overall water quality within the region.

- b. The water quality plan change and subsequent applications to take and use water provide another, more appropriate, forum for consideration of water quality effects. Processes to amend the regional plan provisions relating to water quality are underway and will be completed before additional water as a result of the dam is available. Detailed assessment of water quality effects arising from the use of water will be considered through subsequent applications for consent.
- c. While additional use of water is connected to and could not occur without the dam, creating potential for additional water use is not the sole purpose of the proposal. The dam provides a method to address current inadequate minimum flows, resulting in positive effects for instream values and security of supply for other urban uses, and will avoid the adverse economic effects which will result if the without-dam minimum flows are applied.”

A related matter is the ‘negative effect’ of the ‘no-dam’ minimum flow and rationing regime contained in the TRMP. That regime forms the background environment. A relevant consideration is the extent to which the proposed augmentation flows from the Lee Dam will improve that existing environment for existing consent holders. We discuss that matter in Section 7.3.12 of this Decision.

7.1.4 Dam costs and funding

Some submitters⁵³ were concerned about the costs of the Lee Dam and manner in which those costs might be funded by the district’s ratepayers or consent holders. Those matters are not relevant considerations for us.

Regarding the costs of the Lee Dam, as noted in the officer’s report, in *Omokoroa Ratepayers Association Inc v Western Bay of Plenty District Council* (A102/2004) the Environment Court clarified that “ ... A decision that the cost of a public work is appropriate is one to be made by the elected members of the Council, for which they are responsible to the electorate. Such a decision is not a decision under the Resource Management Act.”

Similarly, how those costs might be funded is a matter for the TDC to consider. In that regard we accept the reporting officer’s advice that:⁵⁴

“The exact details of the funding are yet to be decided but it may be a combination of targeted rate, district wide rate, and user charges. In any case, the process by which the Council funds the dam must be in accordance with the special consultative procedures specified in the Local Government Act 2002.”

We now turn to the matters that are relevant. We have divided these matters into construction effects and operational effects.

7.2 Construction Effects

7.2.1 Traffic and road network

⁵³ Submitters 3, 4, 5, 6, 10, 12, 13, 14, 17, 18, 27, 28, 31, 34, 41, 44, 50, 52, 56, 62, 64, 67, 82, 83, 85, 86, 87, 93, 94 and 95 amongst others

⁵⁴ Officer’s report, section 8.2.1, Page 26

It is self-evident that the construction phase of this project has the potential to generate a significant amount of traffic and much of this would be heavy vehicles. The construction period is estimated to be approximately 24-30 months. Supplementary Report A, attached to the s42A Report notes⁵⁵ that the Applicant anticipates, in a worst case scenario, there would be some 130 vehicle movements per day of which 80 would be heavy commercial vehicles (HCV).

Mr Petrie, in his evidence⁵⁶ on behalf of the Applicant, told us that access to the site from SH6 at Brightwater would be along River Terrace Road, which connects to Lee Valley Road, and then by way of a privately-owned forestry road. River Terrace Road, which is classified as a Collector Road⁵⁷, provides a sealed two-way carriageway over a distance of 5.5 km. Lee Valley Road extends from Wairoa Gorge Road through to a gate that gives access via the private road/track leading into the site.

The first 4.7 km of Lee Valley Road is sealed and then the road narrows (from 6.5 m down to around 4.5 m or less) and is unsealed for the remaining 3.25 km through to a gate at the entry to private land. From there, the access road remains unsealed, and is narrow, at around 3.5 to 4 m width for the most part, and winding, for a distance of some 4.5 km to the proposed dam site. There are few locations where vehicles can safely pass.

During our visit to the site, we noted that this section of the access road is also steep in parts with very tight corners. Landslips, according to Mr Petrie, are a regular occurrence and these are routinely cleared by either the forestry operators or the landowners. To all intents and purposes the forestry roads are able to cope with one-way traffic only and the potential for construction traffic to conflict with forestry operations is readily apparent. In addition, some roads will need to be re-aligned or, in some cases, alternate routes provided. Mr Petrie acknowledges⁵⁸ that, before any work can commence, agreement will need to be reached with the owners of the private land. Various works to improve the safety of the public roads were also identified.

Mr Petrie concluded that the anticipated traffic effects that would arise during construction of the dam are able to be effectively managed through provision of a comprehensive Construction Traffic Management Plan (CTMP)⁵⁹. A proposed draft was attached to Mr Petrie's evidence.

Not surprisingly, we received several submissions, principally from forestry interests, that expressed concern about the effects of construction traffic on forestry operations. These were exemplified in the submissions from Tasman Bay Forests Limited [37], M A K Stuart [59], D L Irvine [60], S M Irvine [61] and JWJ Forestry Limited [65] on behalf of the owners of several forestry blocks through which the Applicant requires access, or requires as part of the construction area for the dam.

We were told, in some detail, that the forest harvesting regime with respect to timing was critical and that any constraints or delays could not be tolerated. The Applicant acknowledged⁶⁰ that the increased traffic during the construction phase will have the potential to adversely impact on the efficient and safe movement of logging trucks and that road upgrades and maintenance works will be required.

⁵⁵ Traffic and Safety Report (Mike van Enter MWH) Page 71 of the Officer's report.

⁵⁶ Donald Petrie, EIC, Section 2, Page 3

⁵⁷ In the TRMP Road Hierarchy

⁵⁸ Donald Petrie, EIC at Section 6.10, Page 10

⁵⁹ Donald Petrie, EIC at Section 11.7, Page 20

⁶⁰ Donald Petrie, EIC at Section 9.4 et seq, Page 16

Others, such as K D Ford & G A Busch [95], who own property at 723 Lee Valley Road, were concerned, among other things, that they would be adversely affected by the increased heavy traffic on the unsealed road.

We note that these matters were canvassed in the s42A Report and, particularly, in the attached Supplementary Report A by the Council's consultant transport expert, Mike van Enter of MWH. The report concluded⁶¹ that, although the Applicant's draft CTMP provided conceptual solutions on how construction traffic can be managed to ensure traffic safety and efficiency of the road network, the level of detail was not considered sufficient to provide certainty that the proposed solutions were either practical or feasible.

However, having heard the Applicant's evidence (Mr Petrie) at the hearing, Dr Lieffering advised that Mr van Enter had no further concerns regarding the effects of construction traffic provided the recommended conditions are complied with.

While we acknowledge that proper management of all traffic using the access roads to the site during the construction period is critical, and that the potential for conflict is high, we accept that these effects can be managed through an appropriate CTMP and that conditions can be imposed, should we be minded to grant consent, to ensure that this is so.

7.2.2 Noise

The potential noise generated during construction activities did not appear to be of significant concern to submitters. The officer's report⁶² advised:

"The Council's Environmental Health Co-ordinator (Mr Graham Caradus) has reviewed the AEE and he has confirmed that the noise limits in Table 2 of NZS6803:1999 'Acoustics – Construction Noise' are appropriate and that the construction activities are very unlikely to exceed these at the closest residential dwelling. A condition is recommended which includes a requirement to comply with these noise limits."

We are satisfied with that approach.

7.2.3 Dust

The potential dust generated during construction activities did not appear to be of significant concern to submitters. The reporting officer recommended conditions of consent relating to the avoidance of objectionable effects and the use of dust suppression measures. We are satisfied with the recommended approach.

7.2.4 Dam safety

Dam safety is mostly a post-construction matter where, once the dam has been filled, the consequences of failure can be catastrophic. We shall deal with this aspect later in this decision when we come to consider the safety aspects of the completed dam.

During the construction phase, dam safety issues are typically concerned with the adequacy of the diversion channel and, more particularly in this case, the culverts through the dam once the river

⁶¹ Officer's report, section 7.3.1.1, Page 17

⁶² Officer's report, section 7.3.4.4, Page 18

has been rediverted. Potentially serious problems can arise should a flood occur in the river that is beyond the capacity of the culverts, and the unfinished dam starts to fill and is unable to contain the flows. The diversion channel is seen as less of an issue here as it only exists to allow the culverts to be constructed. As far as safety is concerned, there would be little or no capacity to prematurely dam the river during this stage of the construction.

While dam safety during the construction phase did not receive much attention in the s42A Report, or from submitters, we did receive evidence from Mr Simon Croft on behalf of the Applicant. He told us that, the NZSOLD Guidelines⁶³, which govern dam design in New Zealand, and about which we shall have more to say later in this decision, advise that there is no universally accepted method for selecting the size of flood for construction diversion facilities. However, he said⁶⁴ a draft revision to the guidelines, which is expected to be released in 2015, states that:

“... a flood event with a return period of 500 years may be appropriate for sizing the diversion works, if there is the potential for the loss of two or more lives as a consequence of a dam failure during construction.”

In his evidence, Mr Croft went on to say⁶⁵:

“The currently proposed strategy for construction diversion is to provide capacity to convey flood flows with an AEP in the range of 1 in 500 to 1 in 1,000 during those phases of construction when public safety is potentially at risk. This is consistent with the guidance provided in the draft revision to the NZSOLD Guidelines. I consider that the diversion strategy that has been developed is appropriate and is consistent with accepted NZ and international practice.”

In the absence of any evidence to the contrary, we agree.

7.2.5 Forestry operations

The s42A Report notes⁶⁶ that activities associated with construction of the proposed dam will, potentially, result in adverse effects on forestry operations in and around the dam site. In particular, use of forestry roads for site access for construction traffic, if not properly managed, is likely to have a significant impact. Not surprisingly, this particular aspect received a considerable amount of attention during the hearing and we have already discussed this in Section 7.2.1, above, where we accepted the evidence that the effects of construction traffic can be managed through an appropriate CTMP.

Submissions were received from five parties⁶⁷ who have forestry interests that would, potentially, be affected by the proposal. Aside from construction traffic, other concerns raised included:

- constraints and delays in harvesting;
- risks to public health and safety in the event of public access to the dam and reservoir due to the proximity of harvesting activities;
- increased risk of fire;
- potential effects on stability of land and flooding effects of rising reservoir;

⁶³ New Zealand Society of Large Dams, Dam Safety Guidelines 2000

⁶⁴ Simon Croft, EIC at 10.2, Page 14

⁶⁵ Simon Croft, EIC at 10.3, Page 14

⁶⁶ Officer's report, Section 7.3.7.2, Page 21

⁶⁷ Submitters 37, 59, 60, 61, and 65

- potential constraints on changes to current use of their land.

We acknowledge that these are very real concerns and that they first came to light during the consultation undertaken with the current landowners and licence holders, which was described in the AEE⁶⁸ submitted by the Applicant. The AEE goes on to report on the outcomes arising out of this consultation, which included:

- further negotiations between the Waimea Water Augmentation Committee (WWAC) and the landowners with the aim of WWAC obtaining land tenure over the affected areas;
- access roads to be replaced to the landowner's satisfaction;
- public access to the dam and reservoir not to be enhanced; and
- traffic management plan to be put in place.

We also note that, while the forestry operators have a realistic view of the project and its potential wider benefits, they understandably seek that their forestry businesses are not disadvantaged, particularly during the construction period. These views were ably summed up by Ms Fiona McLeod in concluding her legal submissions on behalf of S M Irvine and M A K Stuart where, among other things, she said⁶⁹:

"While the Lee Valley Dam will bring benefits to the wider community, this cannot be at the expense of the pre-existing forestry operations. These forestry operations enable Mr Irvine and Mr Stuart to provide for their own social and economic wellbeing and also contribute to the local economy. The potentially significant adverse effects of the dam on these forestry operations must be adequately managed by conditions of consent."

In presenting his Supplementary Report 2 to the s42A Report, having heard the evidence and submissions presented during the hearing, Dr Liewerling told us that the Applicant has been in discussion with the forestry operators and conditions relating to their concerns have been exchanged between the parties. He said he found Ms McLeod's evidence especially helpful and preferred her suggested conditions over those proposed by the Applicant.

Dr Liewerling added that the matter of providing alternative access to forestry blocks that will become isolated due to existing access roads being inundated once the dam had been filled had been addressed by a proposed new condition (87).

We accept that there is a general willingness to resolve the concerns of the forestry owners and that conditions can be imposed, in the event that consent is granted, to ensure that any adverse effects on forestry operations will be properly managed. In coming to a decision on this particular matter, we accept that there will be a need for on-going liaison with the forestry operators.

We also accept, as pointed out by Dr Liewerling, that it is anticipated there will be a need for negotiation between the parties in relation to compensation, both in terms of delays and loss of forest, as part of access and/or land tenure negotiations, and that these matters are outside the RMA process and have no bearing on our decision.

7.2.6 Water quality

⁶⁸ Assessment of Environmental Effects, Tonkin and Taylor Ltd., Section 5.5

⁶⁹ F R McLeod Legal Submissions at Para 54

The construction of the proposed dam has the potential to impact on water quality in the Lee River. Construction works will necessarily be undertaken in the bed of the river and construction works and vegetation clearance activities will be undertaken on the banks of the river and the adjoining hillsides. These construction related activities could occur almost continuously for a 2½ to 3-year period. It appeared to be common ground that the contaminant most likely to be of concern was sediment. Sediment discharges occasioned by dam construction have the potential to discolour the water of the Lee River and if that sediment settles out on the bed of the river it could have an adverse effect on aquatic life, particularly macroinvertebrates and fish. There was also some concern about the potential for concrete used in the dam construction to adversely affect water quality, particularly pH levels.

In response the Applicant has offered to meet downstream water quality standards relating to visual clarity, turbidity, deposited fine sediment, Quantitative Macroinvertebrate Community Index (QMCI), pH, and dissolved oxygen. In addition, industry good practice sediment management and control practices and procedures will be adhered to. Should the downstream water quality standards be breached, then the consent holder is to cease construction activities in any area identified as causing the breach until corrective action is taken to meet the standard. The Applicant has also advised that concrete batching (if it occurs on site) will be closely controlled and concrete trucks will not be washed down at the construction site.

These measures were set out in recommended conditions of consent⁷⁰ and further detail is to be contained in the Construction Environmental Management Plan and its subsidiary Supplementary Construction Environmental Management Plans. We find that to be appropriate. In making that finding we note that there was no strong opposition to the measures proposed by the Applicant.

7.2.7 Downstream water users

Several submitters⁷¹ expressed concern that sediment releases from the dam construction activities could adversely affect their ability to draw water from the river downstream. We asked Dr Loeffering to consider this matter in his Supplementary S42A Report and he advised:

“... I recommend that a condition be imposed that would require the Consent Holder to undertake a survey downstream of the dam site to the point where the Waimea East Irrigation Company Limited takes water from the Wairoa River to ascertain who takes water, where, and for what use. I also recommend that a condition be imposed that would require the Consent Holder to provide written notification to those parties at least one week before any ‘in river’ works are proposed. This time period would allow those users to make sure that their water tanks (if they have any) are able to be filled before the works commence. In addition, I also recommend that a condition be imposed that would allow the Council to require the Consent Holder to provide an alternative water supply to those persons in the event that any of its activities (not necessarily limited only to the in river works) are adversely affecting the downstream water supplies.”⁷²

We accept Dr Loeffering’s assessment and recommendations on this issue.

We note that in their Reply submissions the Applicant opposed the conditions recommended by Dr Loeffering.⁷³ We have carefully considered these submissions, but we are not persuaded by them.

⁷⁰ We note that we have adopted the Supplementary Section 42A Report’s recommendations regarding the ‘upstream extent of an construction works’, that dissolved oxygen measurements should to be made between 0600 and 0900, and the inclusion of a table outlining the minimum water release rates from the dam for different dam water level ranges.

⁷¹ Including F&C Bacon Community Trust and John Kuipers.

⁷² Supplementary Report per section 42A RMA – 19 December 2014, page 4.

⁷³ Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, paragraph 8.7, page 9

In our view the precise wording of the conditions recommended by Dr Lieffering (conditions 31 to 33) overcome the Applicant's concerns regarding practicality and enforceability. In particular, we note the obligation imposed only relates to properties above the Waimea East Irrigation Company's intake structure.

7.2.8 Aquatic ecology

The aquatic ecology in the footprint of the dam will obviously be severely impacted by construction activities. That is an unavoidable consequence of the dam proceeding. However, the downstream aquatic ecology (primarily macroinvertebrates and fish) could also be adversely affected by any deterioration in water quality. The Applicant has proffered a performance standard whereby the percentage reduction to the Quantitative Macroinvertebrate Community Index (QMCI) score downstream of the construction area relative to the QMCI upstream of the construction area is not to exceed 20% in combination with a 20% reduction in the densities of Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa. The QMCI is to be monitored three-monthly initially and six-monthly thereafter.

We find that to be an appropriate standard to ensure that adverse effects on the aquatic ecology will be no more than minor.

7.2.9 Fish passage

In response to submissions,⁷⁴ the officer's report recommended that fish passage be provided during the construction phase of the dam.⁷⁵ This recommendation arose from a technical report prepared by Mr David Cameron in support of the officer's report because in his view "...construction activities may affect the river over more than one annual migration ...".⁷⁶ The reporting officer's envisaged the diversion culverts being modified to provide for fish passage. We queried the practicality of that.

In response the Applicant advised that it would be impractical to provide fish passage through the diversion culverts at all flows, particularly once installation of the pipework for the outlet works commenced. Providing for fish passage (by altering the culverts) would reduce their capacity and affect dam safety. Mr Croft did however suggest that a rock weir could be formed at the downstream end of the diversion culverts to assist fish passage at low flows.⁷⁷

Dr Young considered that there would be very little impediment to fish passage downstream during construction. He agreed that the weir suggested by Mr Croft would enable upstream elver passage during low flows. Dr Young also advised:

"During higher flow periods, when passage is not possible, elvers will simply remain in habitat below the dam or move into tributaries if they find their way temporarily blocked by the construction activity."

"I recognise that a significant run of elvers may occur in the Lee River, but given that passage through the construction area will be possible during low-moderate flows I don't consider that temporary passage obstruction during high flows will be a concern."⁷⁸

We accept Dr Young's advice and on balance we find Mr Croft's suggestion of a low rock weir at the base of the diversion culverts to be an appropriate mitigation measure.

7.2.10 Natural character

Under s6(a) of the RMA we must recognise and provide for the preservation of the natural character of the Lee River rivers and its margins, and protect them from inappropriate subdivision, use, and development.

We have already noted that the proposal is inconsistent with the natural character provisions of the TRMP. It is simply not possible to construct a dam and fill a 4.1 km long reservoir behind that dam while preserving the natural character of the river. However, Part 2 of the RMA (of which s6 forms a part) calls for an overall broad judgement of such potentially conflicting considerations. In this case we find that the positive benefits of the proposal (see Section 7.3.12 of this Decision) in conjunction with the proposed measures to mitigate, offset, or compensate for adverse effects on indigenous biodiversity, lead us to conclude that the Lee Dam is not an inappropriate development.

⁷⁴ Submitters 55 and 57 amongst others

⁷⁵ Officer's report, section 7.3.3.1, page 18

⁷⁶ Officer's report, Supplementary Report B – Aquatic Ecology and Water Quality, section 3.1.2, page 79

⁷⁷ Evidence, Croft, para 13.13, page 19 and para 16.3, page 24

⁷⁸ Young, Supplementary Evidence, para 3.22, page 7

Only one submitter, Forest and Bird [55] raised the issue of natural character directly. That submitter was concerned about effects within the dam footprint (discussed above) but also the flow regime, downstream sedimentation and downstream aquatic, riparian and terrestrial habitat. We discuss each of these matters in other parts of this Decision, but record here that in each case we find that the potential adverse effects are either minor or can be avoided, remedied, mitigated, offset, or compensated for through the imposition of consent conditions.

7.2.11 Indigenous biodiversity

It was common ground that the construction of the Lee Dam and the consequential filling of the reservoir will have an adverse effect on indigenous biodiversity. This was summarised concisely by Simon Moore for the Director General of Conservation who concluded:

“There is overwhelming evidence that the terrestrial indigenous biodiversity values under the dam footprint are significant and rank highly within a national, regional and local context. The extensive loss of indigenous lowland ecosystems, particularly alluvial kahikatea forest, as well as the presence of a Nationally Critically Threatened species (shovel mint), are the main drivers for this ranking. I agree with Dr. Ussher (Table 2, para 2.39) that the scale of ecological effect for all of the ecosystems under the dam footprint will therefore be significant.”⁷⁹

These adverse effects are unavoidable if the Lee Dam is to proceed. On that matter we accept the submissions of counsel for the Applicant that the RMA is not a “no effects” statute and that in terms of biodiversity offsets or compensation, the RMA does not require a “no net loss” approach.⁸⁰ Indeed, there may be a net loss of some values and that needs to be weighed against the benefits of the proposal.⁸¹

In response to the unavoidable loss of biodiversity values the Applicant has offered to undertake a range of biodiversity mitigation, offset, and compensation works (the “biodiversity package”). We find that to be an appropriate response. The nature of the Applicant’s proposed biodiversity package was summarised in the supplementary evidence of Dr Ussher.⁸² Over the proposed 35 year life of the consents, the biodiversity mitigation and offset package would involve around \$1.65 million of ‘capital works’ (comprising the salvage, propagation and replanting of indigenous species impacted by the proposal; enrichment and restoration planting in existing areas of indigenous vegetation elsewhere; and a \$215,000 Biodiversity Compensation Fund). In addition, the consent holder would undertake monitoring and reporting estimated to cost \$355,000 over the life of the consents.

However, in response to the Supplementary Evidence of Mr Courtney,⁸³ we asked the terrestrial ecological experts to conference on the scope of Dr Ussher’s biodiversity package insofar as that package related to shovel mint, scented broom, river cloak daisy, and associated monitoring and reporting.

We received the conferencing statement on 11 December 2014. The Supplementary Section 42A Report prepared by Dr Loeffering concisely summarised the results of the conferencing and

⁷⁹ Moore, Evidence, para 14, page 6

⁸⁰ Opening submissions, para 7.34, pages 12 and 13 and Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, paragraph 9.6, page 11

⁸¹ Ibid, para 7.42(c) quoting from the Transmission Gully decision

⁸² Lee Dam proposed ecological offset and compensation package; Ussher Supplementary Evidence, 1 December 2014

⁸³ Mr Courtney, a witness for the Director General of Conservation, undertook a field inspection of the site on 1 December 2014 and identified larger areas of shovel mint and river cloak daisy than had been documented by the other experts.

recommended amendments to the conditions accordingly. We therefore repeat that helpful advice in full:

“The five terrestrial ecology experts were asked to meet to discuss the details of the proposed biodiversity offset and compensation package and to prepare a statement outlining the matters where there was agreement and also disagreement, including reasons for any disagreement. The outcomes of the caucusing, in the form of a signed statement and revised table outlining the details of the biodiversity offset package, were circulated on 1 December 2014.

All the experts agree on the likely extent of New Zealand shovel mint, Scented broom, and River cloak daisy that will be removed as a result of the dam and reservoir. In addition, the experts all agree with the proposed compensation outcomes for these species, however there are some differences of opinion on the likelihood of achieving the agreed compensation outcomes – the submitters’ experts generally consider that the perceived level of uncertainty is greater than the applicant’s experts. I have incorporated the agreed compensation outcomes for these species into recommended Condition 50.

The experts disagree on the monitoring and reporting requirements that are likely to be required for these species over the term of the consent – the submitters’ experts consider that the effort (and the corresponding financial implications) that is likely to be needed is greater than the applicant’s experts. The applicant’s experts consider that efficiencies will arise in site survey and reporting, thereby reducing costs. Mr Beale (MWH) agrees with the applicant’s experts on this matter. These differences of opinion do not directly affect any of the recommended conditions of consent, however these differences will need to be resolved through development of the Biodiversity Management Plan (BMP) and the individual Species Management Plans required by Condition 46(c). I note that the BMP and the Species Management Plans will need to be prepared in consultation with the Director-General of Conservation (or their nominee) and the members of the Biodiversity Technical Advisory Group (BTAG) and it is therefore very likely that some (if not all) of the submitters’ experts who took part in the caucusing will be involved in determining the actual monitoring and reporting requirements.

I have made additional recommended changes to the biodiversity offset and compensation conditions as follows:

- ‘Sand coprosma’ has been changed to ‘Rock coprosma’ (as per the expert caucusing statement)
- Condition 46(b)(ii) has been deleted. I do not consider that there is a need for separate Weed Control and Enrichment Planting Plans to be prepared – I consider that the Revegetation and Enrichment Planting Plans that are to be prepared for all the areas identified in Condition 49(a)-(e) can cover weed control (if relevant).
- Condition 46(e)(ii) has been amended to include a proposed figure of \$35,000 for the monitoring programme for gorge turf communities – this being one of the grey shaded cells in the table attached to the expert caucusing statement.
- A new Condition 48 has been included which specifies what each Species Management Plan should contain – these details should have been in the original set of recommended conditions but were omitted.
- Condition 49(e) has been amended, and an Advice Note included, to be consistent with the table attached to the expert caucusing statement.
- Condition 50 has been amended to reflect the biodiversity outcomes agreed to by the experts.
- Condition 51 has been amended to provide more flexibility for the BTAG.⁸⁴

We agree with Dr Lieffering’s assessment and his recommended amendments to the previously proffered conditions of consent.

⁸⁴ Supplementary Report per section 42A RMA – 19 December 2014, pages 1 and 2.

We received a range of evidence from expert witnesses and lay submitters as to the adequacy of the biodiversity package. We have carefully considered that evidence and have concluded that the amended package, as discussed above, is appropriate. In making that finding we accept that the land upon which the biodiversity package is to be executed must be formally protected by way of covenant or land tenure that is dedicated to conservation management prior to the works occurring.⁸⁵

In that regard, we strongly recommend to the TDC that should existing reserves be chosen for elements of the biodiversity package, then the primary purposes for those parts of the reserves containing the biodiversity package sites should be changed in accordance with Section 24 of the Reserves Act to permanently protect the biodiversity values that are to be established and maintained.

Finally, we also received a range of submissions and evidence regarding the adequacy of the consent conditions relating to the biodiversity package and the scope and content of the Biodiversity Management Plan (BMP). Having considered those matters, we are generally satisfied with the revised wording of the biodiversity conditions recommended to us by Dr Lieffering in his Supplementary S42A Report. However, we have accepted some of the Applicant's suggested amendments to those conditions, as was outlined in their Reply submissions and as further detailed in Section 9 of this Decision.

7.2.12 Land snail

There is one matter relating to terrestrial biodiversity that deserves special mention. Forest and Bird [55] submitted that the alluvial kanuka forest on an island above the forestry road bridge (upstream of the proposed dam site) contained a population of unknown size of the Nationally Vulnerable land snail *Wainuia nasuta*.⁸⁶ We understand that this was one of five factors that lead Dr Lloyd to conclude that the adverse ecological effects of the proposal were of major significance.⁸⁷

In his evidence Dr Lloyd repeatedly described the population of snails as "significant" and suggested the forest habitat was an "important site" for the snail.⁸⁸ Dr Lloyd's opinion on this matter was based on the discovery of a single dead snail shell.

However, in answer to our questions Dr Lloyd advised that he himself had not found the snail shell and nor had he sighted it. It was allegedly discovered by some unnamed person who then conveyed it to Ms Kath Walker, a Science Advisor and snail expert in the Nelson office of the Department of Conservation. Dr Lloyd's evidence to us was that Ms Walker then identified the snail shell as *Wainuia nasuta*, determined that it had not been washed down the river into the subject site, but had been eaten insitu by a thrush.

Forest and Bird did not provide any written evidence from Ms Walker and it did not call her as a witness. Nor did it present any evidence from the unnamed person who allegedly found this snail shell. We were consequently unable to verify the veracity of the claims. We also note, rather tellingly in our view, that the Director General of Conservation (for whom Ms Walker works) did not suggest to us that the site contained a population of the land snail *Wainuia nasuta* and nor did he (through his staff) table any evidence from Ms Walker.

⁸⁵ Counsel for the Director general of Conservation, legal submissions, para 73, page 17

⁸⁶ Lloyd, Evidence, paras 78 to 82, pages 22 to 23

⁸⁷ Lloyd, Evidence, para 167, page 42

⁸⁸ Lloyd, Evidence, para 166, page 42

We are not persuaded by Dr Lloyd's evidence on this matter which we find to be unsubstantiated hearsay at best. We do not discuss the alleged presence of the land snail *Wainuia nasuta* further.

7.2.13 Maori cultural matters

There were only two iwi submitters, Ngati Kuia Trust [2] and Whakatu Incorporation [96]. Neither submitter appeared at the hearing.

Ngati Kuia Trust sought that a person (an iwi monitor) from the Trust be present during the dam's construction period. The recommended conditions include a routine accidental discovery (or koiwi discovery) condition.⁸⁹ We are not persuaded that in addition to that an iwi monitor is required to observe the construction works. Given the scale of the construction area we question the effectiveness of such an approach.

Whakatu Incorporation owns and manages land in and around Nelson and Tasman on behalf of Maori landowners. Whakatu Incorporation submitted in support of the wider benefits of the Lee Dam, provided that potential adverse effects were managed appropriately. We are satisfied that conditions of consent can achieve that outcome.

The officer's report discusses statutory acknowledgments.⁹⁰ We understand that such acknowledgments exist over the Waimea River, Wairoa River, and Wai-iti River and their tributaries. The acknowledgments place obligations on the TDC to notify the relevant iwi of resource consent applications so that the iwi may lodge submissions if they so desire. We understand that such notification was undertaken in this case.

7.2.14 Management plan approach

As already discussed, the Applicant proposes to rely on a number of management plans to avoid, remedy, or mitigate potential adverse effects and, in the case of indigenous biodiversity, to manage biodiversity offset and compensation works. The various management plans are:

- Construction Environmental Management Plan (CEMP)
- Supplementary Construction Environmental Management Plans (SCEMPs)
- Construction Traffic Management Plan (CTMP)
- Vegetation Clearance Plan (VCP)
- Biodiversity Management Plan (BMP)
- Construction Emergency Management Plan (CEAP)

In our view there is nothing inherently wrong with a management plan approach, providing that the actual conditions of consent specify the timeframe for the preparation of each plan, who the plan is to be prepared by, the objectives of each plan, the performance standards that each plan is designed to achieve, the certification process for each plan (whereby the regulator, being the TDC in this case, certifies that the plan is fit for purpose), and a process for reviewing and amending each plan over time.

We have addressed the content of the management plans in preceding sections of this Decision.

⁸⁹ Recommended condition 18

⁹⁰ Officer's report, sections 7.3.6.6 to 7.3.6.8, page 20

7.3 Operational Effects

7.3.1 Alternatives

A large number of submitters⁹¹ considered that alternative water augmentation methods (such as weirs in the Wairoa or Waimea Rivers), a smaller dam or on-farm dams, or water conservation practices were preferable to the proposed Lee Dam. Under Clause 1(b) of Schedule 4 to the RMA an applicant's AEE is to include a description of any possible alternative locations or methods for undertaking the proposed activity, if it is likely that the activity will result in significant adverse effects on the environment. The matter of alternatives was addressed very briefly in the Applicant's AEE⁹² and in the Reply submissions.⁹³ We understand that the types of alternatives referred to by the submitters were considered by the Waimea Water Augmentation Committee (WWAC) and that it decided to progress the Lee Dam proposal now before us.

It is not our role to second guess the WWAC's decision-making process and nor is it our role to consider the comparative benefits or adverse effects of water augmentation proposals for which consent has not been sought. This includes the size of the dam, the volume of water stored in the reservoir, and the use of a piped network to convey the water to end users (as opposed to releasing the water into the Lee River). Instead, it is our role to assess the actual and potential effects of the precise proposal for which consents have been sought, having regard to the relevant matters described in s104 of the RMA.

We do not consider the matter of alternatives any further.

⁹¹ Submitters 4, 20, 24, 30, 34, 38, 39, 40, 41, 42, 44, 48, 49, 50, 52, 55, 56, 57, 64, 67, 68, 82, 83, 87, 88, 89, 92, 93 and 95 amongst others.

⁹² AEE, section 12, page 135

⁹³ Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, paragraphs 4.11 to 4.13, page5

7.3.2 Natural hazards and dam safety

The Lee Valley dam proposal is sited in an area with known natural hazards associated with earthquake activity and flooding. This section examines the extent to which these risks may or may not be exacerbated by the proposal.

Seismic activity and landslides, whether the result of an earthquake or other factors relating to slope instability, have the potential to impact on the safety of a dam structure. The consequences of dam failure, or perhaps flooding from overtopping in the case of a landslide or an earthquake, can be catastrophic. These are matters that can weigh heavily on the minds of those who live downstream of a dam and are fearful of the risks to which they feel exposed.

The risks attached to the geology of the surrounding landscape and seismic hazards were discussed, on behalf of the Applicant, by Mr Mark Foley. Mr Simon Croft covered the design and construction of the dam, and the dam break hazard assessment was described in the evidence of Mr David Leong.

Mr Foley said that underlying greywacke bedrock would provide a strong and stable foundation material, and is suitable for construction of a concrete face rockfill dam, as has been proposed. He told us that no active faults have been identified in the immediate vicinity of the dam site and that seismic risk, which needs to be accounted for in the design of the dam, originates mainly from the Wairau Fault, located approximately 21 km south-east of the site, and the Waimea Fault, which is located some 8 km to the west.

Mr Foley also told us that, while his investigations had not shown any active landslides within the reservoir area that would compromise the safety of the dam, he had identified sites where landslides have the potential to initiate slope instability, which could result in the generation of a wave within the reservoir. He told us that Mr Croft would deal with this in his evidence. Mr Foley concluded that the site is suitable for construction of a concrete face rockfill dam as proposed.

Mr Croft, in his evidence⁹⁴, explained that the general design criteria for works of this nature are based on the New Zealand Society on Large Dams, Dam Safety Guidelines 2000 (NZSOLD Guidelines). These provide guidance on the investigation, design, construction, commissioning, operation, and surveillance of dams in New Zealand. The philosophy that underpins these guidelines is that the standards of design and operational processes associated with a dam must be commensurate with the consequence of a dam failure. In order to achieve the necessary standards, the NZSOLD Guidelines and the Building (Dam Safety) Regulations 2008 provide a classification system to assign a Potential Impact Category (PIC). This is used to determine the appropriate design standards for a dam and the level of rigour that needs to be applied to site investigations, construction, commissioning and on-going operation, maintenance and surveillance.

According to Mr Croft, the Lee Dam has a High PIC classification, which means it has been designed to the highest standards currently applicable for dams in New Zealand, and that this is consistent with best international practice. He went on to describe, in some detail, the design and the required peer review process that had led to the present proposal. Since that is a matter of record, there is no need for us to repeat that information here. Mr Croft also assured us that the

⁹⁴ Croft, EIC, Para 4.2, Page 5

dam had been designed to accommodate a Probable Maximum Flood (PMF) event and that this also was consistent with the NZSOLD Guidelines.

We turn now to what Mr Leong had to say about the dam break analysis and potential flood hazards. Mr Leong made it clear to us that the dam break assessment had not been instigated because of any specific concern with the site conditions or any engineering aspect of the proposed dam, but had been undertaken to determine the potential downstream hazard of dam failure. He, thus, prefaced his evidence on these matters by saying⁹⁵:

“Dam break analyses are undertaken within the dam industry primarily to assess the potential harm to downstream communities from a dam break. In the case of a proposed dam, the hazard potential guides the selection of appropriate standards for design, construction, operation and maintenance of the dam; the higher the potential hazard, the more stringent the applicable standard. The analysis is hypothetical and entirely divorced from the chances of the dam break ever occurring.”

Mr Leong described⁹⁶ the process of carrying out a dam break analysis, and the flooding that would occur, in some detail and we do not propose to repeat here all that he had to say. It is important, however, to record that, based on his analysis, Mr Leong considered⁹⁷ that the appropriate classification for the dam is High PIC and that the probability of failure for a dam designed in accordance with this classification would be extremely low and commensurate with the degree to which the potential impact of dam failure is high.

We were fortunate, in this instance, to also receive independent expert evidence relevant to dam safety from Mr Peter Foster, who has some 30 years experience in the field of dam engineering. Mr Foster was engaged by the Council to provide evidence on dam construction and safety to assist in the preparation of the s42A Report. His findings were provided in Supplementary Report D, in the s42A Report. He noted that the key issues associated with the proposed dam are its design and safety, and that these matters had been raised in many submissions⁹⁸.

Mr Foster concluded that the dam had been designed according to the accepted guidelines and that the various design assumptions with respect to seismic criteria and flooding were appropriate.

Mr Foster was not required to appear before us at the hearing, but he did respond in writing to a number of questions from Commissioner Lumsden. These questions arose largely out of the recent Canterbury earthquakes, particularly with respect to Peak Ground Accelerations (PGA), and the robustness of the Building Act 2004 and the NZSOLD Guidelines, in light of that experience. Mr Foster considered that the probabilistic seismic hazard assessment, carried out by GNS Science, provided appropriate PGAs and response spectra for dam design purposes, and that the building consent process can be relied upon to ensure that the dam is designed to the appropriate standards consistent with its High PIC rating.

In the absence of any evidence to the contrary, we are satisfied that the design work that has been completed for the purposes of submitting the application is sufficient. We note that the design has been endorsed by internal and independent peer review. We are also aware that, in order to construct the dam, a building consent will be required under the Building Act 2004 and that the design will receive more detailed scrutiny during that process. In these respects, we note the recommendation in the s42A Report that a condition requiring the consent holder to have

⁹⁵ Leong, EIC, Para 10.3, Page 35

⁹⁶ Leong, EIC, Para 10.6 et seq, Page 36

⁹⁷ Leong, EIC, Para 10.31 et seq, Page 42

⁹⁸ Submitters: 7, 8, 17, 19, 20, 29, 30, 41, 42, 48, 50, 57, 58, 67, 83, 87, 88, 89, 90, 91, 92, 93, and 95

obtained the Code Compliance Certificate (CCC) for the dam structure, before the reservoir is filled, be attached in the event that consent is granted.

We also note that, as recommended by Mr Foster, it would be appropriate to include a condition requiring the dam to be subject to an independent external peer review throughout its design and construction, in the event that consent is granted.

With these caveats, we are satisfied that the proposed dam can be designed and constructed to an appropriate standard, and that the final design would be in accordance with best international practice and conform to the NZSOLD Guidelines, would be subjected to peer review, and would require consent under the Building Act 2004. We therefore consider the potential risk of failure to be acceptably very small and that there would an Emergency Action Plan (EAP) in place, as required by the NZSOLD Guidelines for a High PIC dam, should there be any threat of dam failure.

7.3.3 Public liability insurance

A submitter⁹⁹ brought to our attention the matter of public liability insurance to cover potential impacts¹⁰⁰ on third parties in the unlikely event of the failure of the Lee Dam. Mrs Bacon helpfully provided copies of public liability consent conditions that had been imposed on the Waimakariri Irrigation Storage Ponds. We consider that a requirement for public liability insurance would be a sensible precaution.

We asked for further advice on this matter from the reporting officers and the Applicant. In response the Dr Lieffering advised:

“The potential adverse effects of the dam and reservoir include the downstream effects that may result in the event that the dam fails. Depending on the nature of the failure the downstream effects could be significant and widespread. I consider it appropriate that a condition(s) be imposed on these consents that would require the Consent Holder to maintain an insurance policy to cover damage or destruction of land and possessions in the event of failure of the dam. At this stage the level of indemnity and coverage is not known so I have recommended a condition that would require the Consent Holder to obtain independent advice on the level of coverage. Further, I consider that the Council (as Consent Authority) should be an additional party to the policy and be able to enforce its terms. I have recommended a suite of conditions (Conditions 5AA-5AF) [Conditions 7-12], these being based substantially on the conditions imposed by Environment Canterbury on Waimakariri Irrigation Limited’s recent consents to construct water storage ponds – these being the conditions included in Mrs Bacon’s evidence.”¹⁰¹

In their Reply submissions counsel for the Applicant advised:

“... we submit that this is a civil matter and does not warrant the imposition of a suite of consent conditions related to insurance for the following reasons.

Claims for compensation could be considered to be akin to arguments about impacts on property values, a matter that the Courts have ruled against on a number of occasions. We also query whether it is appropriate to replicate consent conditions from another hearing that involved a water storage facility with a different design and where the issue of risk and uncertainty gave rise to

⁹⁹ Catherine Bacon [25]

¹⁰⁰ The impacts include damage to houses, buildings, fences, possessions, vehicles, clean up, repairs and replacement of damaged items and infrastructure, together with the loss of profits for affected businesses.

¹⁰¹ Supplementary Report per s42A – Summary Statement -9 December 2014, section 13, page 4

residual concerns over dam safety given the geology and seismicity of the area. The fact that another applicant in another location was prepared to accept the imposition of certain conditions (presumably on an *Augier* basis) does not in itself justify the imposition of such conditions on the Lee Dam, particularly in circumstances where you have ample evidence as to the design and safety aspects of the proposal. With respect, it is not necessary or appropriate in this case to seek to apply some form of "financial fallback". Insurance will be held as a matter of course by the dam operator. In any event, aspects of the proposed consent conditions appear to be ultra vires as they seek to involve a third party."¹⁰²

We have carefully considered the evidence of the submitter and reporting officer on the one hand and the submissions in Reply on the other. On balance, we find that public liability insurance conditions should be imposed. We note that the dam operator will hold insurance "as a matter of course" in any event. However, we are mindful that a large number of submitters were concerned about the safety of the proposed dam and the implications of dam failure (or a dam break).¹⁰³ While a requirement for public liability insurance would not alleviate concerns regarding the potential loss of life, it would remedy adverse effects on property, businesses and other assets should any such adverse effect eventuate.

We are satisfied that these conditions can be imposed under the provisions of Section 16.5.5.1 (financial contributions) of the TRMP. Those provisions are:¹⁰⁴

Subject to subsection 16.5.1, the Council may require, as a condition on any land use consent that a financial contribution of money or land, or a combination of these, be made for the following purposes:

- (a) To avoid, remedy or mitigate any identified adverse effect on the environment that is attributable to the activity that is the subject of the consent.

¹⁰² Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, paragraphs 6.4 and 6.5, pages 6 and 7.

¹⁰³ Including the following submitters whom we heard from at the hearing: Max Rogers [31], Trevor Riley [90], Patricia Baker [57], Maxwell Clark [93] and Mary O'Connor [48] amongst other

¹⁰⁴ Section 16.5.1 which is referred to in 16.5.5.1 states: "This section establishes Council's ability to require payment of financial contributions as a condition of subdivision, building development, establishment of plantation forestry in a Groundwater Recharge Protection Area or a Surface Water Yield Protection Area, or resource consents for other purposes."

7.3.4 Reduced minimum flow

The Applicant has proposed that in a 1 in 40 year drought and above the target minimum flow within the Waimea River at the Appleby Bridge should be 800 L/s. We understand that to be consistent with the situation envisaged in Table 1A of Schedule 31C of the TRMP. Mr Leong assessed the likelihood of that occurring. He advised:

“Assuming full uptake of the reservoir’s supply capacity, the simulated storage behaviour from 1958 to 2008 indicates that there would have been a total of 26 days (0.14% of the time) for which the lower residual flow of 800 l/s would have been released based on a threshold reservoir level of RL 174.2 m.”¹⁰⁵

In terms of the effects of allowing this proposal, Dr Young advised:

“The effects of rare events on instream habitat availability and aquatic life will be temporary and due to their rarity not a primary driver of the health and productivity of the river. The reduction in minimum flow to 800 L/s when reservoir levels drop to RL 174.2 m will decrease the risk of a sudden drop in flow releases associated with the reservoir reaching its minimum operating level under an even more extreme drought.”

Dr Lieffering addressed this matter in his end of hearing report to us:

“The further evidence provided during the hearing leads me to agree with the applicant that this change is within scope. It is important to note that the application seeks to increase flows in the Waimea River compared to the current situation and the change in minimum flows (from 1,100 L/s to 800 L/s) during extreme droughts will still achieves this outcome, albeit to a lesser extent than what was applied for.”¹⁰⁶

We find on the evidence that the Applicant’s proposal with regard to the target minimum flow during extreme droughts is appropriate.

7.3.5 Reservoir water quality

In terms of reservoir water quality we note and accept the advice from Dr Young:

“However, given the depth and expected residence time of water within the reservoir, it is likely that thermal stratification will occur in summer, with a layer of warmer surface water above a second layer of cooler, denser bottom water. Thermal stratification can lead to deoxygenation of bottom waters, which can result in the release of nutrients, and chemical elements such as iron and manganese into the bottom waters. This presents a potential issue for water quality and ecological health below the dam if anoxic bottom water containing these elevated levels of nutrients and metals is released under low flow conditions. However, release of surface water may result in increased water temperature downstream of the dam, which can also have adverse ecological effects.”¹⁰⁷

“In addition to manipulating the quality of release water through the use of the two outlet levels, it may be necessary to install an aeration system just upstream of the dam face to help manage

¹⁰⁵ Leong, Supplementary Evidence, para 2.6, page 2

¹⁰⁶ Supplementary Report per s42A – Summary Statement -9 December 2014, para 6, page 1

¹⁰⁷ Young, Evidence, para 2.12. page 5

stratification of the water column. Whether this is required will depend on the results of monitoring.”¹⁰⁸

Consequently, we find that water quality should be monitored in the reservoir and water quality discharge standards should be imposed on operational releases from the dam (those that occur through the outlet pipes, but not the spillway flows or flushing flows). We note that by the conclusion of the hearing the reporting officers and the Applicant’s experts were in agreement on the nature and frequency of reservoir water quality monitoring, the water quality discharge standards that should be imposed in order to safeguard the life-supporting capacity of the downstream Lee River, and the location of the downstream monitoring site.¹⁰⁹ We find that agreed position to be appropriate. We were not persuaded by the evidence of some submitters who suggested more frequent monitoring (see also Section 7.3.11 below) or different water quality discharge standards.

7.3.6 Periphyton and flushing flows

As noted by Dr Young, during the irrigation season and at times when the reservoir is not full, the frequency of flushing flow events¹¹⁰ is predicted to be reduced by about two events per year (from ~18 events per year to ~16 events per year) in the Lee River below the dam.¹¹¹ This has a minor potential to exacerbate the accumulation of excessive periphyton in the river. Accordingly, we concur with the Applicant’s proposal to release around three flushing flows per year should naturally low flows occur for a period of time exceeding 40 days (the periphyton accrual period).

We note that Mr Rutledge suggested that additional flushing flows should be released in response to periphyton reaching specified trigger levels. In response Dr Young advised:

“Additional flushing flows could also be a response action included in the RRWMP in response to periphyton triggers being breached, which is essentially the approach that Mr Rutledge is seeking. No changes to conditions are required for this.”¹¹²

We accept Dr Young’s advice and we are grateful to Mr Rutledge for raising this issue, as the potential occurrence of nuisance periphyton was of concern to a number of lay submitters. Mr Rutledge also suggested that the effectiveness of the flushing flow regime be reviewed after two years (as opposed to the five years originally proposed by the Applicant). Dr Young¹¹³ agreed with this suggestion as did the reporting officers.¹¹⁴ We concur with that agreed position.

We accept Dr Lieffering’s advice that the conditions of consent should require the Consent Holder to outline how it proposes to fill the reservoir and what monitoring it proposes to undertake during the filling, and that the conditions should list all the matters and conditions that the Consent Holder needs to comply with before it is allowed to commence filling the reservoir.¹¹⁵ However, we accept that the Flushing Flow Release Plan (FFRP) need only be supplied to the Council prior to the first release and thereafter complied with.¹¹⁶ We agree that Consent Holder should give the Council no less than 24 hours’ written notice of the date of each intended flushing flow.¹¹⁷

¹⁰⁸ Ibid, para 2.14, page 5

¹⁰⁹ Supplementary Report per s42A – Summary Statement -9 December 2014, paras 17 and 20, page 5

¹¹⁰ Those exceeding three times the median flow

¹¹¹ Young, Evidence, para 3.34, page 17

¹¹² Young, Supplementary Evidence, para 3.10, page 4

¹¹³ Ibid, para 3.11, page 5

¹¹⁴ End of Hearing recommended condition 61

¹¹⁵ Supplementary Report per section 42A RMA – 19 December 2014, page 4.

¹¹⁶ Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, Appendix B, page 2

¹¹⁷ Ibid.

We also accept Dr Lieffering's advice that the flushing flows will result in a significant release of water from the dam compared to its normal operation, potentially affecting recreational users (at swimming holes downstream of the dam) if they occurred during the day. Dr Lieffering recommended that all flushing flows be released at night, between the 2200 (10 pm) and 0400 (4 am) so that they pass by the recreational areas before the public frequent them.¹¹⁸ We agree.

7.3.7 Fish passage

The Applicant has proposed to construct a fish pass, primarily for the benefit of elvers and koaro, over the dam once it is completed. Having considered the evidence on this matter, we find that proposal to be appropriate. We are also satisfied with the Applicant's intention to 'trap and transfer' adult longfin and shortfin eels that wish to migrate downstream. The methodology for the 'trap and transfer' is to be appropriately (in our view) developed in consultation with the Director General of Conservation and thereafter specified in the Biodiversity Management Plan. The effectiveness of both the fish pass the 'trap and transfer' methodology is to be independently reviewed after five years.¹¹⁹

We also note and accept Dr Lieffering's advice that the intention is that the fish pass be constructed, but its downstream end would not be completed until after the first fish migration season. That will allow a freshwater ecologist to assess and determine the most appropriate location to position the downstream end of the fish pass (to be a location where fish are observed to congregate).¹²⁰ We agree that the conditions of consent should reflect that intent.

We are satisfied that these measures will appropriately mitigate or remedy adverse effects on fish passage.

7.3.8 Sediment transport

The AEE notes¹²¹ that sediments in rivers are typically derived from hill-slope erosion and/or the re-working of gravels in the terraces, fans and floodplains through which the river flows. Catchments in the Nelson region tend to be steep and small and are relatively stable. Because of this, suspended sediment yields are low. There have been no measurements of gravel yields (bed load) in either the Lee or Wairoa Rivers.

When a dam is constructed on a river, the bed load gravels and a portion of the suspended sediment will be trapped within the reservoir. Over time, these will accumulate and reduce the volume of the water behind the dam. Furthermore, since these trapped sediments will no longer be available in the downstream portion of the river, erosion of the bed and banks of the river may occur. In some instances, these effects can also lead to changes at the mouth of the river and on the adjacent coast.

Estimating bed load as a proportion of the measured suspended sediment is considered a practical approach in the absence of data obtained by direct measurement. Using a model developed by NIWA and Landcare Research, sediment load for the Lee River has been estimated for the proposed dam site as being 2900 t/yr. Since the likely bed load for Nelson catchments will

¹¹⁸ Supplementary Report per section 42A RMA – 19 December 2014, page 3.

¹¹⁹ End of Hearing recommended conditions 79, 79A, 79B, 80 and 81.

¹²⁰ Supplementary Report per section 42A RMA – 19 December 2014, page 4.

¹²¹ Assessment of Environmental Effects Lee Valley Community Dam, Volume 1, Tonkin and Taylor, Section 9.4.5, Page 68

be in the range 10-25% of the sediment yield, the amount of gravel in the Lee River is likely to be small relative to other tributaries of the Waimea River.

The s42A Report states¹²² that since the total amount of gravel transported down the catchment is low, the effect of removing this supply is not expected to have any significant effects on the downstream morphology of the Lee or Wairoa Rivers but there may be some increase in erosion of the bed or bank. We expect that such erosion occurs from time to time as part of the normal behaviour of these rivers. There was no evidence to suggest that any changes in erosion patterns would be significant.

7.3.9 Hydroelectricity proposal

The proposal includes provision for a 3.3 m³/s, 1.2 MW hydroelectricity generation facility although no specific proposal forms part of the applications. We agree that enabling small scale hydroelectricity generation would assist with giving effect to the National Policy Statement for Renewable Electricity Generation (NPS REG)¹²³ and Objective 15.1.2.1(c) of the TRMP and it is therefore appropriate.

The officer's report recommended a condition¹²⁴ that would restrict large variations in the rate of discharge from any hydroelectricity generation facility (such as might occur from a 'peaking' station that is operated to meet morning or evening electricity demand). In their Supplementary S42A report at the end of the hearing the officers recommended an additional condition¹²⁵ requiring an independent ecological assessment to determine tolerable levels of daily flow variations that would be allowed under a daily hydro-peaking scenario. We consider that to be an appropriate safeguard and one that will address the concerns of submitters.¹²⁶

7.3.10 Monitoring

We received a large body of evidence on the monitoring and reporting that should occur if the consents are granted. We fully accept that monitoring and reporting is a fundamental component of a major infrastructure project such as the Lee Dam. However, we are of the view that the monitoring must be related to the potential adverse effects of the activity, with a particular focus on any limits or standards imposed in the consent conditions. We also consider that the monitoring regime must be clearly and unambiguously set out in conditions of consent with further operational details being contained in the various management plans proffered by the Applicant.

In terms of the scope of monitoring, we find that water quality and aquatic ecology within the proposed reservoir and the Lee River downstream of the dam should be monitored at a frequency that is reasonable but not excessive. In that regard we do not consider it appropriate to impose monitoring that is designed to 'further scientific knowledge'¹²⁷ or that is more akin to environmental research.

We are not persuaded that the water quality in the Lee River should be monitored at a permanent location above its entry point to the reservoir. We accept the evidence (verified by our site visit) that access to that location is very difficult and in our view potentially dangerous. To that end, we

¹²² Officer's report, Section 7.4.4.2, Page 24

¹²³ Officer's report, section 11.8, page 31

¹²⁴ Recommended condition 68.

¹²⁵ End of Hearing recommended condition 68A

¹²⁶ Submitters 38, 53 and 101 amongst others

¹²⁷ As was sought, for example, by Mr Courtney for the Director General of Conservation

accept the amendments to Conditions 110 and 111 recommended by the Applicant in Reply.¹²⁸ We note those amendments (which we understand were recommended by Dr Young) result in more certain and enforceable obligations regarding visual clarity and water temperature.

We have borne the above matters in mind when determining the monitoring conditions. We are also grateful to the various experts who provided advice on what the monitoring regime, consent conditions and various management plans should entail.

7.3.11 Positive effects

A large number of submitters supported the proposal because of its positive effects.¹²⁹ In the main those effects related to the subsequent taking and use of the water released from the dam and we have already found that those effects are not relevant. However, the proposal will have a number of other relevant positive effects, including those listed in the officer's report¹³⁰ and the Applicant's AEE¹³¹ as follows:

- "protection of instream ecological values by maintaining habitat availability throughout the Wairoa/Waimea Rivers at or above the level that would be expected without any water abstractions in most years;
- a net benefit to most fish species (including trout, eels, torrentfish, koaro, upland bully) and food producing habitat in response to increased minimum flows in the waterways below the dam;
- improvement of the fishery values and recreational opportunities in the Waimea River;
- improvement in the mauri of the rivers;
- provision of the opportunity for small-scale hydropower (i.e. renewable energy) generation, making use of the available head and water resource;
- recharge of the groundwater aquifers beneath the Waimea Plains and avoidance of saltwater intrusion;
- increase in security of supply of existing water permit holders;
- employment during dam construction."

The positive effects of the proposal on instream ecological values, most fish species and food producing habitat and fishery values and recreational opportunities was also acknowledged by the Director General of Conservation.¹³²

With regard to the second bullet point matter (increased minimum flows), we note that the 'without dam' minimum flow for Waimea River at the TDC Nursery recorder (close to Appleby Bridge) is stated to be 800 L/s¹³³ and the 'with dam' minimum flow is 1100 L/s anywhere in the river. However, the 'without dam' minimum flow is not a 'cease take' flow. It is a flow where Step 4 rationing (up to 70% reduction for some takes) occurs.¹³⁴ In the 'no dam' situation the flow will therefore continue to drop below the 800 L/s 'minimum flow' specified in the TRMP. As noted by counsel for the Director General of Conservation, currently "... there is no specified minimum flow for the Waimea River and the river may dry up completely under drought conditions."¹³⁵ Consequently, the net benefit attributable to the proposal in terms of the Waimea River minimum flow is difficult to precisely ascertain, but we are able to conclude that it is significant.

¹²⁸ Legal Submissions In Reply On Behalf of the Applicant, 27 January 2015, Appendix B

¹²⁹ Submitters 15, 16, 21, 26, 28, 29, 35, 36, 39, 45, 46, 47, 51, 53 (in part), 54, 62, 63, 69, 70, 71, 72, 73, 74, 75, 76, 77, 80, 81, 96, 97, 98, 99, 100 and 101 (in part) amongst others

¹³⁰ Officer's report, section 7.4.6.1, page 25

¹³¹ AEE, sections 10.1, 10.2 and 10.3, pages 94 and 95

¹³² Counsel for the Director general of Conservation, legal submissions, paras 18 and 19, page 5

¹³³ Table 1C in Schedule 31C of the TRMP

¹³⁴ TRMP Figure 31.1C and Schedule 31C Table 1C

¹³⁵ Counsel for the Director general of Conservation, legal submissions, para 21, page 5

In terms of the second to last bullet point matter (increase in security of supply for existing water permit holders), we received a body of helpful submissions and evidence from the Waimea East Irrigation Company. That irrigation company serves 180 shareholders and around 100 ha of irrigable land in the Waimea Plains.¹³⁶ In particular we note and accept the evidence of Mr Harris who made the point that in the absence of the Lee Dam and its water augmentation flow releases, existing water take consent holders would face addition restrictions (or rationing) of their takes under Plan Changes 45 to 48 to the TRMP. We accept that to be the case. We note that the NZIER Report tabled by Mr Harris concluded:

“Viewed from 2014 and assuming the dam is built until 2017 and 2018 and the benefits of augmentation would not begin until 4 years from now, the present value of non-augmentation costs in RGDP [regional gross domestic product] that would be avoided with the dam range from \$123.5 million to \$243.5 million with allocation cuts of 20% and 35% respectively.”

These are significant costs and they represent a significant adverse effect that can be avoided by the construction and operation of the dam. We received no qualified evidence that contradicted that provided to us by Mr Harris.

We also note that under the TRMP rationing cuts of up to 70% of consented allocations could occur in very dry years in the absence of the dam. We received graphic evidence from a number of horticulturalists¹³⁷ called as witnesses by the Waimea East Irrigation Company regarding the potential adverse effects that level of rationing would have for crop production and subsequent on-farm employment (both seasonal and permanent). We accept that the avoidance of those adverse effects (as would occur should the Lee Dam proceed) is a significant positive effect.

We have had regard to all of these positive effects when undertaking our overall broad judgement of the proposal and determining whether or not it promotes the sustainable management of natural and physical resources.

8 Duration and Lapsing

The Applicant sought a seven-year lapsing period, a ten-year duration for activities associated with the construction of the dam and a 35 year duration for the operational aspects of the proposal (the dam structure and the damming and discharge of water). The reporting officer recommended in favour of those respective time periods.

We agree that an extended lapsing period¹³⁸ is appropriate for a project of this magnitude. Similarly, granting the construction related consents for a ten-year period is reasonable (noting that it is expected that the dam will be constructed over a lesser two to three year period). Once completed the dam structure will exist in perpetuity. Consequently a duration of 35 years is appropriate for the operational consents.

9 Conditions

The Applicant submitted a suite of conditions as part of the application documents.¹³⁹ The officer's report recommended a suite of conditions¹⁴⁰ that built on those submitted by the Applicant,

¹³⁶ Maling, Evidence, paras 6 and 7

¹³⁷ Messers Maling, Gargiulo, Kininmonth, Williams and Hoddy,

¹³⁸ The default under the RMA is 5 years

¹³⁹ AEE, Volume 2, Appendix H

¹⁴⁰ Officer's report, section 15, commencing at page 53

expanded as considered necessary to provide additional clarity and certainty and to cover matters arising from the provisions of the TRMP and matters raised by submitters. We received comments on the recommended conditions from submitters and at the end of the hearing we were provided with revised suites of conditions by both the Applicant and the reporting officers. We are grateful for all of that assistance and having considered the various advice received we have determined a suite of conditions that we consider to be appropriate.

In terms of matters that remained in dispute between the reporting officers and the Applicant at the end of the hearing (as set out in the Applicant's Reply submissions) we make the following findings:

- Conditions 7 to 12 (regarding insurance) should be imposed. We discussed this in Section 7.3.3 of this Decision;
- the document reference for the draft CEMP (Condition 15) should be inserted;
- a new column into Condition 23's table regarding the frequency of monitoring required in the pre-construction phase, as was recommended by Dr Young, should be inserted;
- Conditions 31 to 33 and the associated Advice Note (regarding downstream water users) should be imposed. We discussed this in Section 7.2.7 of this Decision;
- the Advice Note under Condition 34 should be retained as it accurately records the Applicant's stated intent;
- the document reference for the draft CTMP (Condition 35(a)) should be inserted;
- the plan reference numbers for Condition 36(f) should be inserted;
- the document reference for the draft BMP (Condition 44(a)) should be inserted;
- the reference to plans in Conditions 49(a) to (d) should be deleted as the plans are included in the draft BMP, noting that they indicate a range of areas that will be finalised in the certified BMP;
- the reference to a 'gorge turf' ecologist should be omitted from Condition 57 because ecologists with expertise in other fields (habitat restoration, management of threatened plants, and control of pest weeds) should be sufficiently experienced to address gorge turf community issues;
- Condition 110 should refer to an alternative downstream water quality monitoring site to that provided immediately upstream of the confluence with Anslow Creek;
- Conditions 110 and 111 should not refer to a requirement to monitor water temperature and clarity at an upstream monitoring site. We discussed this in Section 7.3.11 of this Decision.

The final suite of conditions is set out in Appendix 4 to this Decision.

10 Determination

Pursuant to the powers delegated to us by the Tasman District Council under s34A of the Resource Management Act 1991, we record that having read the application documents, the officer's report, the submissions and the evidence presented at the hearing, and having considered the various requirements of the RMA, we are satisfied that:

- i. The Applicant has undertaken a thorough assessment of the potential adverse effects that might arise from the construction and operation of the proposed Lee Dam;
- ii Subject to the imposition of appropriate conditions of consent, those potential adverse effects are likely to be no more than minor;

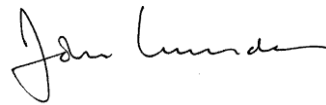
- iii. There are no provisions in the relevant statutory instruments and plans that would lead us to conclude that the resource consents required for the proposed Lee Dam should not be granted; and
- iv. Granting consents for the proposed Lee Dam (subject to appropriate conditions of consent) will be consistent with the Purpose and Principles of the RMA and will promote the sustainable management of natural and physical resources.

We therefore grant the resource consent applications sought by Waimea Community Dam Limited (as listed in Appendix 1) to construct and operate the proposed Lee Dam subject to the conditions set out in Appendix 4 of this Decision.

Signed by the commissioners:



Rob van Voorthuysen (Chair)



John Lumsden

Dated: 26 February 2015

**Appendix 1 Consents Applied For
CONSTRUCTION ACTIVITIES**

Activity		Application Number
<i>Take, dam, divert, use water:</i>		
Construction water take from the Lee River including for 'domestic' use		RM140544
Diversion of the Lee River during construction		RM140546
<i>Structures, bed disturbance:</i>		
Temporary diversion, access and damming structures including: <ul style="list-style-type: none"> ▪ Culverts, fords, and/or bridges crossing the Lee River and its tributaries ▪ Diversion culvert in the Lee River ▪ Diversion wall along true right bank of the Lee River ▪ Cofferdam and starter dams in the Lee River ▪ Vehicles crossing the bed of the Lee River and its tributaries 		RM140545
Bed disturbance associated with construction of a dam		RM140547
Gravel excavation from the Lee River bed and tributaries for material to build a dam and geotechnical testing		RM140548
<i>Discharges:</i>		
Discharge of sediment to the Lee River and its tributaries from land and bed disturbance activities		RM140549
Discharge of sediment to land from land disturbance		RM140550
Discharge of dust to air		RM140551
Discharge of stormwater during construction to land and water		RM140552
<i>Land use:</i>		
Land disturbance (removal and disposal of vegetation, excavation of material to build the dam, roading and tracking for dam construction and operation purposes, and reservoir slope stabilisation/preparation)		RM140553
Geotechnical testing, including boreholes and test pits		RM140554
Rural industrial activity (aggregate processing and concrete batching)	Rural 2 Zone	RM140542
Indigenous vegetation and indigenous forest removal	Rural 2 Zone	RM140543
	Conservation Zone	
Storage of hazardous substances	Rural 2 Zone	RM140555

OPERATIONAL ACTIVITIES

Activity	Application Number
<i>Take, dam, divert, use water:</i>	
Take, diversion and use of water from the Lee River	RM140556
Damming of the Lee River (permanent) and associated discharges to the Lee River (of sediment from the dam spillway; of contaminants from the during maintenance; of water to water through the dam including for maintenance and flushing flows) and hydropower generation	RM140557

<i>Structures, bed disturbance:</i>	
Construction, operation, use and maintenance of a dam and associated structures	RM140540
<i>Discharges:</i>	
Discharge of sediment to the the Lee River and its tributaries from land and bed disturbance activities (during maintenance)	RM140558
Discharge of sediment to land from land disturbance activities (dam and reservoir maintenance works)	RM140559

Appendix 2 List of Submitters

Submission Number	Submitter
1	Julie Panes & James Scott Brown
2	Ngati Kuia Trust
3	Victoria Reid
4	Bruce Lester MacDonald
5	Ian Alexander Milne
6	Bruce Collings
7	Cecilia Higgins
8	Susan Mary Challies
9	James Daniel Challies
10	Emma Anne Reid
11	Robert Gordon Challies
12	Edward Challies
13	Lesley Baynes
14	Allan Keith Baynes
15	Compass Fruit Ltd
16	Appleby Fresh Ltd
17	Gordon Hugh Challies
18	Nicola Basham
19	Catherine Gale Hughson
20	Robert and Patricia Todd
21	The Nelson Regional Economic Development Agency
22	Margaret Anne Challies
23	John Charles Challies
24	Aage Melis
25	Catherine Eleanor Bacon for F & C Bacon Family Tru
26	Heartland Fruit NZ Ltd
27	Ian MacLennan
28	Martin Farming
29	Brightwater Community Association Inc
30	John Martin Todd
31	Francis Maxwell Rodgers
32	Alan Reginald Eskrick
33	Anthony Hodgson
34	Victoria Davis
35	Irrigation New Zealand
36	Blackbyre Horticulture Ltd & J S Ewers
37	Tasman Bay Forests Ltd
38	The Friends of Nelson Haven and Tasman Bay Inc
39	Waimea Irrigators and Water Users Ltd
40	S J & S E Lambert

Submission Number	Submitter
41	J D & L M Russ Ltd
42	F J & E A O`Connor
43	Waimea Inlet Forum
44	David Gavin Vanstone
45	Waimea East Irrigation Co Ltd
46	Gibbons Holdings
47	Kevin King
48	Mary Ellen O`Connor
49	David Sydney Wickham
50	RB & M J Wagner
51	Nelson City Council
52	Redwood Valley Irrigators
53	Department Of Conservation
54	Dr Nick Smith(MP)
55	Forest and Bird
56	Colin Johnson
57	Patricia Anne Palmer
58	Jonathan Norman Harvey
59	Matthew Anthony Kenneth Stuart
60	David Lee Irvine
61	Stanley Mitchell Irvine
62	Federated Farmers of New Zealand
63	Horticulture NZ
64	Kristopher Charles Cumpstone
65	J W J Forestry Ltsd (Ian Willetts)
66	Nigel B Haworth
67	Pearl Creek Partnership
68	Neudorf Investments Ltd
69	Paton Rise Ltd
70	Projects and Ventures Ltd
71	Easton Apples
72	Waiwest Horticulture Ltd,The Fresh Frui Co Ltd, Be
73	Vailima Orchards Ltd
74	Mahau Orchard Partnership
75	Alandale Orchards Ltd
76	Cold Storage Nelson Ltd
77	Morison Davids Vineyards Ltd
78	Philip John Fitzgerald
79	John Kuipers
80	Enzafoods NZ Ltd,Alliance Group Ltd and Nelson Pine
81	Tony Gargiulo
82	Teresa O`Connor

Submission Number	Submitter
83	Ian Paterson
84	Shirley Anne little
85	Neville Maisey
86	Malcolm Fell Smith
87	Margaret Mary O`Connor
88	William Hill
89	Lars Jensen
90	Trevor Hugh Riley
91	Joanne Lamia F Westbrooke
92	Brownlow John Westbrooke
93	Maxwell Clark & Shona McBride
94	Don Yelverton
95	Kevin D Ford & Glenys A Busch
96	Wakatu Incorporation
97	Maureen and Tony Baigent
98	Aaron and Karen Baigent
99	Riverstone Balage Ltd
100	Melinda Baigent and Grant Holland
101	Fish and Game New Zealand

Appendix 3 Hearing Appearances

The people from whom we received submissions or evidence at the hearing are listed below in the sequence in which they appeared. Some of the witnesses tabled evidence. Submitter reference numbers are in [square brackets]

For the Applicant:

- Jen Crawford and Sarah Eveleigh, legal counsel
- Murray King, Chairman of WWAC and Director of Waimea Community Dam Limited
- Mark Foley, engineering geologist
- Simon Croft, civil and geotechnical engineer
- Edryd Breese, environmental management specialist
- David Leong, hydrologist and water resources engineer
- Dr Roger Young, freshwater ecologist
- Dr Graham Ussher, terrestrial ecologist
- Dave Petrie, civil engineer (traffic)
- Gary Rae, planner

Ian MacLennan [27]

For JWJ Forestry, Ian Willetts [65]

Mary O'Connor [48]

For Royal Forest and Bird Protection Society of NZ [55]:

- Sally Gepp, legal counsel
- Deborah Martin, Regional Conservation and Volunteer Manager
- Dr Kelvin Lloyd, ecologist

For Fish and Game NZ Nelson-Marlborough Region, Lawson Davies [101]

David Irvine [60]

Alan Eskrick [32]

For the Director General of Conservation [53]:

- Victoria Tumai, legal counsel
- Martin Rutledge, freshwater ecologist
- Simon Moore, plant ecologist
- Shannel Courtney, plant ecologist
- Rachel Penney, planner

For Waimea Inlet Forum, Gillian Bishop [43]

Maxwell Clark [93]

Mitchell Irvine and Matthew Stuart (for themselves) [61] and [59]

- Fiona McLeod, legal counsel

Patricia Palmer [57]

Trevor Riley [90]

For Tasman Bay Forests Ltd, John Moorhead [37]

For Nelson Regional Economic Development Agency, Bill Findlater [21]

For Cold Storage Nelson, Alister Morison [76]

For Waimea Irrigators and Water Users Association Inc, Brian Halstead¹⁴¹ [39]

For the Waimea East Irrigation Company [45]

- Shoshana Galbreath, legal counsel
- Christopher Maling, Chairman of the Board of the Company
- Tony Gargiulo, Director of the Company and a tomato grower
- Andrew Kininmonth, Director of the Company and an orchardist
- Gavin Williams, Director of the Company and a market gardener
- Richard Hoddy, Director of the Company and an orchardist
- Simon Harris, economist

For Horticulture New Zealand, Christopher Keenan [63]

Max Rogers [31]

For Mahauai Orchard Partnership, Barry Thompson [74]

Andrew Kuipers [79]

For Waiwest Horticulture Ltd, Alastair Patterson [72]

Catherine Bacon [25]

Shirley Little [84] – tabled evidence

For The Friends of Nelson Haven and Tasman Bay Inc, Helen Campbell [38]

Irrigation NZ [35] did not attend the hearing but submitted an apology.

Section 42A Reporting officers

- Dr Rob Lieffering, planner and environmental scientist
- David Cameron, freshwater ecologist
- Mike van Enter, transportation engineer
- Peter Foster, dam engineer
- Simon Beale, planner and terrestrial ecologist
- Mary-Anne Baker, planner

¹⁴¹ We note the submission lodged [39] was in the name of Waimea Irrigators and Water Users Ltd. Mr Halstead (a registered valuer) advised us that the Society was incorporated in October 2014. So strictly the evidence presented by Mr Halstead was not given in support of the original submitter. We have taken this into account when deciding the weight to afford to Mr Halstead's evidence.

Appendix 4 Consent Conditions



RESOURCE CONSENTS

RESOURCE CONSENT NUMBERS: RM140540, RM140542 - RM140559

Pursuant to Section 104B of the Resource Management Act 1991 ("the Act"), the Tasman District Council ("the Council") hereby grants resource consent to:

Waimea Community Dam Limited

(hereinafter referred to as "the Consent Holder")

CONSTRUCTION ACTIVITIES AUTHORISED BY THESE CONSENTS:

Activity	Application Number
<i>Take, dam, divert, use water:</i>	
Construction water take from the Lee River including for 'domestic' use	RM140544
Diversion of the Lee River during construction	RM140546
<i>Structures, bed disturbance:</i>	
Temporary diversion, access and damming structures including: <ul style="list-style-type: none">▪ Culverts, fords, and/or bridges crossing the Lee River and its tributaries▪ Diversion culvert in the Lee River▪ Diversion wall along true right bank of the Lee River▪ Coffer and starter dams in the Lee River▪ Vehicles crossing the bed of the Lee River and its tributaries	RM140545
Bed disturbance associated with construction of a dam	RM140547
Gravel excavation from the Lee River bed and tributaries for material to build a dam and geotechnical testing	RM140548
<i>Discharges:</i>	
Discharge of sediment to the Lee River and its tributaries from land and bed disturbance activities	RM140549
Discharge of sediment to land from land disturbance	RM140550

Discharge of dust to air		RM140551
Discharge of stormwater during construction to land and water		RM140552
Land use:		
Land disturbance (removal and disposal of vegetation, excavation of material to build the dam, roading and tracking for dam construction and operation purposes, and reservoir slope stabilisation/preparation)		RM140553
Geotechnical testing, including boreholes and test pits		RM140554
Rural industrial activity (aggregate processing and concrete batching)	Rural 2 Zone	RM140542
Indigenous vegetation and indigenous forest removal	Rural 2 Zone	RM140543
	Conservation Zone	
Storage of hazardous substances	Rural 2 Zone	RM140555

OPERATIONAL ACTIVITIES AUTHORISED BY THESE CONSENTS:

Activity	Application Number
Take, dam, divert, use water:	
Take, diversion and use of water from the Lee River	RM140556
Damming of the Lee River (permanent) and associated discharges to the Lee River (of sediment from the dam spillway; of contaminants from the during maintenance; of water to water through the dam including for maintenance and flushing flows) and hydropower generation	RM140557

Structures, bed disturbance:	
Construction, operation, use and maintenance of a dam and associated structures	RM140540
Discharges:	
Discharge of sediment to the the Lee River and its tributaries from land and bed disturbance activities (during maintenance)	RM140558
Discharge of sediment to land from land disturbance activities (dam and reservoir maintenance works)	RM140559

LOCATION DETAILS:

Legal description:

Sec 5 Blk II Rintoul SD, Sec 4 Blk II Rintoul SD, Lot 1 DP 350533, Sec 12 Blk II Rintoul SD, Sec 8 Blk II Rintoul SD, Lot 1 and Lot 2 DP 14351, Sec 13 Blk II Rintoul SD, Mt Richmond Forest Park and Pt Sec 10 Blk II Rintoul SD (Conservation land), Beds of Lee

Easting and Northing:

River and Waterfall Creek (Crown land), and
Unformed Legal Roads
1613437 E, 5409020 N NZTM

Definitions and Abbreviations used in these consents:

BMP	Biodiversity Management Plan
BTAG	Biodiversity Technical Advisory Group
CEAP	Construction Emergency Action Plan
CEMP	Construction Environmental Management Plan
Council	Where any condition refers to submitting information, documents, or notification to 'the Council' it shall mean the Council's Coordinator Compliance Monitoring (in the first instance)
CTMP	Construction Traffic Management Plan
EAP	Emergency Action Plan
EPT	Ephemeroptera, Plecoptera, and Trichoptera
ESCP	Emergency and Spill Contingency Plan
FFRP	Flushing Flow Release Plan
MCI	Macroinvertebrate Community Index
NZSOLD	New Zealand Society on Large Dams
OMP	Operational Management Plan
QMCI	Quantitative Macroinvertebrate Community Index
RRWMP	Reservoir Release Water Management Plan
Reservoir WQMP	Reservoir Water Quality Monitoring Programme
River WQMP	River Water Quality Monitoring Programme
SCEMP	Supplementary Construction Environmental Management Plan
VCP	Vegetation Clearance Plan

CONDITIONS

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

GENERAL CONDITIONS THAT APPLY TO ALL CONSENTS AND ACTIVITIES

- 1 The activities authorised by these consents shall be undertaken in general accordance with the application for resource consents and associated assessment of environmental effects entitled 'Waimea Water Augmentation Committee – Assessment of Environmental Effects' (Volumes 1 and 2) prepared by Tonkin & Taylor Limited, dated July 2014, the Section 92 responses from Anderson Lloyd dated 6 October 2014, Cawthron Institute (Young and Hay) dated October 2014, and Tonkin and Taylor dated 6 October 2014. If there is any inconsistency between any conditions and the application documents referred to above, the conditions shall prevail.
- 2 Pursuant to Section 125(1) of the Resource Management Act 1991, these consents shall lapse if not given effect to within seven years of the date of their commencement. The consents related to construction activities shall expire 10 years after the date of commencement and the consents related to ongoing operation activities shall expire 35 years after the date of commencement.
- 3 The Council may, within three months following the first anniversary of the granting of these consents and thereafter at six monthly intervals for the duration of these consents, review any or all of the conditions of these consents pursuant to Section 128 of the Resource Management Act 1991 for any or all of the following purposes:
 - (a) to deal with any adverse effects on the environment that may arise from the exercise of these consents and which it is appropriate to deal with at a later stage;
 - (b) to require the adoption of the best practicable option to remove or reduce any adverse effect on the environment;
 - (c) to amend the frequency, parameters, and location of monitoring and the parameters monitored.

Advice Note:

The Council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions at any time for the following purposes:

- (a) *to provide for compliance with rules relating to minimum standards of water quality or air quality in any regional plan that has been made operative since the commencement of these consents; or*
- (b) *to provide for compliance with any relevant national environmental standards that have been made; or*

- (c) *where there are inaccuracies in the information made available with the application that materially influenced the decision on the application and where the effects of the exercise of consent are such that it is necessary to apply more appropriate conditions.*
- 4 The following shall apply in respect of any condition which requires the Consent Holder to provide the Council with a plan or similar document 'for certification':
- (a) the Consent Holder shall provide the plan to the Council in accordance with the timeframe specified in the applicable condition;
 - (b) where a plan is required to be prepared in consultation with any third party, the plan shall outline the extent of the consultation that has been undertaken and demonstrate how the views of that party have been incorporated, and where they have not, the reasons why;
 - (c) the Consent Holder may commence the activities for which the plan relate in accordance with the submitted plan unless the Council advises the Consent Holder in writing within 20 working days of receipt of the plan that it refuses to certify it on the grounds that it fails to meet the requirements of the condition which requires such a plan to be provided and the Council provides reasons why that view is held;
 - (d) should the Council refuse to certify the plan, the Consent Holder shall submit a revised plan to the Council for certification. Clause (c) shall apply for any resubmitted plan;
 - (e) once certified, the plan may be varied by the Consent Holder. The certification process for any variation to the plan shall follow the process outlined in (a) to (d) above.
- 5 A copy of these consents, including all conditions and the Council certified versions of all the plans required by these consents, shall be kept on-site at all times and the Consent Holder shall ensure all personnel are made aware of each plan's contents where the plan relates to activities that those personnel are responsible for.
- 6 Any condition of these consents that requires continuous monitoring to be undertaken shall, where relevant, be in accordance with the latest version of Land Air Water Aotearoa's (LAWA) National Environmental Monitoring Standards (NEMS).

Insurance

- 7 The Consent Holder shall, at least three months prior to construction commencing and at all times thereafter, have a current public liability insurance policy on terms acceptable in all respects to the Council. The Consent Holder shall provide written confirmation that the insurance is in place to the Council.
- 8 The insurance required by Condition 7 shall be sufficient to cover all reasonable insurable contingent risks associated with the construction and operation of the dam, including offsite impacts to third party property (including damage or destruction of possessions), associated with any reasonable foreseeable failure of any part of the dam, together with a reasonable provision for reconstruction and reinstatement; and the proceeds of the insurance policy shall be applied for those purposes only.

- 9 The insurance required by Condition 7 shall provide for the following:
- (a) The Council shall be an additional insurance party and shall be able to enforce its terms.
 - (b) The Consent Holder shall ensure that the insurer is required to copy all relevant information regarding the insurance policy to the Council. This obligation includes an express term that the insurer must immediately notify the Council of any non-performance of the terms of the insurance by the Consent Holder.
 - (c) In the event of any non-performance of any term of the insurance policy, the Council shall be given the opportunity to rectify that non-performance before the insurance policy is cancelled.
- 10 The Consent Holder shall, prior to arranging the insurance required by Condition 7, obtain advice from an independent person qualified and experienced within the insurance industry to determine the limit of indemnity and coverage required to be provided for by the insurance policy. In providing that advice, that person shall ensure the purpose of the policy is met, which is to provide coverage and protection in the instance of a failure of the works authorised by these consents to third parties whose properties and possessions may be damaged or destroyed.
- 11 The Consent Holder shall provide a copy of the advice relating to the insurance policy required by Condition 10 to the Council for review and comment, and any comments and suggestions that are provided to the Consent Holder by the Council shall be taken into account and provided for within the insurance policy.
- 12 The limits of indemnity and coverage and terms of the insurance policy required by Condition 7 shall be reviewed by the Consent Holder at least every three years, and if that review results in a recommendation to amend or alter the insurance cover, then the Consent Holder shall provide a copy of the review and recommendations to the Council for certification that the amendments still achieve the requirements of Condition 8. Any amendments to the insurance cover may only occur after Council certification.

CONDITIONS TO BE COMPLIED WITH DURING CONSTRUCTION OF DAM

Construction Emergency Action Plan (CEAP)

- 13 The Consent Holder shall, at least three months prior to the commencement of construction of coffer dams in the Lee River, provide to the Council a Construction Emergency Action Plan (CEAP) for certification that it has been prepared in accordance with the recommendations of the New Zealand Society of Large Dams (NZSOLD) Guidelines and relevant New Zealand dam safety legislative requirements for emergency action plans and meets the following objective and minimum requirements. The objective of the CEAP shall be to limit damage to the dam and downstream areas (including property and possessions), and prevent loss of life. The CEAP shall meet the following minimum requirements:
- (a) Identification of emergency conditions which could endanger the integrity of the dam and which require immediate action;

- (b) Prescription of procedures which should be followed by the contractor and operating personnel to initiate emergency procedures at the dam; and
- (c) Provision of timely warning to appropriate emergency management agencies for their implementation of protection measures for downstream communities

Construction Environmental Management Plan and Supplementary Construction Environmental Management Plans (CEMP and SCEMPs)

- 14 The Consent Holder shall, at least 20 working days prior to the intended date of commencement of construction activities, provide to the Council a final Construction Environmental Management Plan (CEMP). Supplementary Construction Environmental Management Plan(s) (SCEMP(s)) required by Condition 17 shall be provided to the Council at least 20 working days prior to the commencement of activities to which they relate. The CEMP and SCEMPs shall be submitted to the Council for certification that these plans:
- (a) are in general accordance with the draft CEMP (Lee Valley Community Dam Draft Construction Environmental Management Plan, Tonkin & Taylor Limited, Ref: 85731.005, November 2014);
 - (b) meet the objectives stated in Condition 15;
 - (c) have been prepared in accordance with, and include the matters stated in, conditions 16 and 18;
 - (d) address the receiving environment standards prescribed in conditions 24 – 28; and
 - (e) are consistent with the contents of the BMP.
- 15 The CEMP and SCEMPs shall meet the following objectives:
- (a) to avoid, where possible, adverse environmental effects and where this is not possible ensuring appropriate mitigation or remediation is undertaken;
 - (b) to minimise the extent of clearance of indigenous vegetation wherever practicable through clear demarcation of construction zones on the ground;
 - (c) to minimise riverbed disturbance to the greatest extent possible and where practical schedule works to avoid trout spawning and egg incubation periods for brown trout and koaro (April – September);
 - (d) to integrate best environmental practice into construction activities;
 - (e) to manage concrete and grouting activities to minimise the potential for discharges with elevated pH levels into aquatic environments;
 - (f) to manage materials and equipment to avoid introduction of weeds or pests to the site, including Didymo;
 - (g) for all clean water to be diverted away from earthworks areas;

- (h) to minimise the area of exposed soil;
- (i) to minimise disturbance of the soil mantle in the reservoir area;
- (j) to minimise the duration of earthworks;
- (k) for bare soil areas to be stabilised as soon as practicable following construction activities;
- (l) for erosion and sediment controls to be installed on all soil disturbance activities to minimise sediment discharges to waterways;
- (m) to retain topsoil wherever possible;
- (n) to ensure that contingencies are in place for flood events, including management of debris;
- (o) for refuelling and machinery maintenance to take place away from any waterbody;
- (p) for the receiving environment standards specified in Conditions 24 - 28 to be met at all times;
- (q) to avoid any adverse effects of construction activities on forestry operations as far as practicable; and
- (r) to minimise fire risk, including through imposition of a no smoking rule for dam construction personnel.

16 The CEMP shall be prepared by a suitably qualified and experienced person and shall include the following as a minimum:

- (a) an outline of the proposed staging of construction activities;
- (b) identification of potential adverse environmental effects;
- (c) procedures for construction management;
- (d) requirements for keeping of records, undertaking inspections and reporting;
- (e) details of the contingency measures for those events that may cause significant adverse effects;
- (f) details of the management of hazardous substances;
- (g) details of the management of in-stream works including procedures for fish salvage and translocation when there is de-watering of any part of the river, or to address other localised risk to fish associated with the works;

- (h) procedures that will be followed for demarcation of the maximum limit of the reservoir and construction area, above which no vegetation clearance or public access will be permitted.
- 17 SCEMPs shall be prepared for the following specific components of construction:
- (a) SCEMP 1 Access road to dam site – Roading improvements
 - (b) SCEMP 2 (a) Area downstream of the dam footprint – Spoil storage and disposal areas
 - (c) SCEMP 2 (b) Area downstream of the dam footprint - Site office, workshop facilities, and laydown area
 - (d) SCEMP 3 (a) Dam footprint area- Temporary coffer dams and tunnels
 - (e) SCEMP 3 (b) Dam footprint area – Western (true left) abutment
 - (f) SCEMP 3 (c) Dam footprint area – Eastern (true right) abutment
 - (g) SCEMP 3 (d) Dam footprint area – Dam embankment
 - (h) SCEMP 3 (e) Dam footprint area – Spillway
 - (i) SCEMP 3 (f) Dam footprint area – Power house (if required)
 - (j) SCEMP 4 Lower borrow and material processing area
 - (k) SCEMP 5 Upper borrow and material processing area
 - (l) SCEMP 6 Concrete batching plant (if required)
 - (m) SCEMP 7 Vegetation clearance and rehabilitation. SCEMP 7 shall be developed subsequent to, and in accordance with, the Vegetation Clearance Plan required by Condition 42.
- 18 The SCEMPs shall be prepared by suitably qualified and experienced person(s) and shall include, as relevant:
- (a) Detailed design drawings;
 - (b) Identification of personnel involved in preparing the SCEMP;
 - (c) Calculations for sizing of sediment control structures, including their minimum working water volumes that need to be maintained;
 - (d) Calculations for sizing culverts and design, including scour protection;
 - (e) Actions taken in design to minimise the extent and effects of earthworks;

- (f) Contact details for the contractor's staff, sub-contractors and relevant Consent Holder representatives;
 - (g) The location of any sites with special landscape, ecological, cultural, or archaeological values and measures to avoid, minimise or mitigate impacts on these values;
 - (h) Work programme and staging of works;
 - (i) Location of spill kits and fire extinguishers;
 - (j) Vegetation clearance schedule detailing proposed method and timing;
 - (l) Schedule of sediment control measures with specifications;
 - (m) Revegetation schedule; and
 - (n) Monitoring schedule, including sediment accumulation rates in sediment control structures.
- 19 Demarcation of the construction areas shall be undertaken in consultation with a suitably qualified and experience ecologist and shall be clearly identified on the ground and on the plans included in the CEMP and SCEMPs.
- 20 The Consent Holder shall comply with the certified CEMP and SCEMPs at all times.
- 21 All erosion and sediment controls shall be installed for as long as there is a potential for sediment movement arising from dam construction activities into any waterways and all such control structures shall be maintained to ensure they achieve their intended performance standards at all times.
- 22 The Consent Holders shall establish and maintain a weather station at the dam construction site that records rainfall, continuous wind speed and wind direction. Records of rainfall, wind speed, and wind direction shall be made available to the Council upon request.
- 23 The Consent Holder shall establish two monitoring sites within the Lee River, one located as close as practicable to 100 metres upstream of the upstream extent of any construction activity areas and one as close as practicable to a point located 1,000 metres downstream of all dam construction activity areas. For the purposes of this condition the 'upstream extent of any construction activity areas' shall be limited to those works specifically associated with the construction of the dam, including the gravel extraction (borrow) and material processing areas, but does not include the area further upstream where vegetation removal from the reservoir impoundment area is proposed. The Consent Holder shall undertake monitoring for the parameters and at the frequencies specified in the following table. Monitoring at both sites shall commence at least twelve months before the beginning of the construction activities (excluding investigation activities, enabling works and vegetation clearance) and cease not less than two calendar months after completion of the construction of the dam and the commencement of first filling of the reservoir.

Monitoring

Type	Monitoring Parameter	Frequency during 12 month pre-construction period	Frequency during construction
Laboratory Analysis	Total suspended solids	Quarterly	Fortnightly at times chosen at random during the working day
	Turbidity		
Field measurements	Visual clarity (Black disc)	Quarterly	Fortnightly at times chosen at random during the working day
	Deposited fine sediment		
	Turbidity	Once	Continuous – Telemeter to website real time
	Quantitative Macroinvertebrate Community Index (QMCI) and Ephemeroptera, Plecoptera, and Trichoptera (EPT) Taxa	Quarterly	Quarterly during the first 12 months of construction, then 6 monthly thereafter
	pH	Quarterly	Fortnightly at times chosen at random during the working day
	Dissolved oxygen (grams per cubic metres and % saturation)	Quarterly	Fortnightly between 0600 and 0900 hours

All sampling shall be carried out by a person(s) suitably qualified and experienced in environmental monitoring. All samples that are to be analysed by a laboratory shall be collected in containers supplied by the laboratory and analyses shall be undertaken by an independent laboratory accredited to IANZ. Equipment used to undertake field measurements shall be calibrated in accordance with the manufacturer's specifications to minimise measurement errors. Calibration records shall be kept and made available to the Council upon request.

- 24 The percentage reduction to the Quantitative Macroinvertebrate Community Index (QMCI) score downstream of the construction area relative to the QMCI upstream of the construction area (these two locations being in appropriately matched habitats as close as is practical to the two sites specified in Condition 23) shall not exceed 20% in combination with a 20% reduction in the densities of Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa.
- 25 The percentage reduction in visual clarity of water downstream of the construction area relative to water upstream of the construction area (these two locations being those specified in Condition 23) shall not exceed 40% at flows less than the median flow. This

performance standard shall not apply during works in any active river channel or for a period of 9 hours after their completion.

- 26 The coverage of deposited fine sediment on the riverbed of the Lee River downstream of the construction area, as measured at the downstream monitoring site specified in Condition 23, shall be no more than 20% higher than measured at the upstream monitoring site.
- 27 The pH of the Lee River downstream of the construction area, as measured at the downstream monitoring site specified in Condition 23, shall not fall outside of the range 6.5 to 9.0.
- 28 The level of dissolved oxygen in the Lee River downstream of the construction area, as measured at the downstream monitoring site specified in Condition 23 shall not be less than 80% of the saturation value.
- 29 In the event that either monitoring undertaken pursuant to Condition 23 or spot sampling by the Council indicates a breach of any of the receiving environment standards specified in Condition 24 - 28 of these consents (which apply at all times for out of river work, and at least 9 hours after the end of any in-river construction work), the Consent Holder shall:
 - (a) cease construction activities in any area identified as causing the breach until corrective action is taken to meet the breached standard;
 - (b) within five working days undertake a full review of the relevant erosion and sediment control devices or other construction management protocols within the area identified as causing the breach;
 - (c) within five working days identify any potential causes beyond the control of the Consent Holder such as slips or stream bank erosion;
 - (d) undertake further water quality measurements for that parameter which was breached, daily for ten working days after the breach occurs and, where breaches of the receiving environment standards specified in Condition 24 – 28 are detected in two consecutive samples, commission an ecological assessment of the receiving environment to determine any responses by the aquatic communities to the breach and any necessary or appropriate corrective action to the cause of the breach;
 - (e) implement any corrective action to the area causing the breach (and equivalent corrective action on other erosion and sediment controls or other construction management protocols using the same methodologies in the wider catchment) as recommended in the ecological assessment required by clause (d) above;
 - (f) identify action(s), including amendments to erosion and sediment control plan design, methodologies and policies within the relevant catchment and, as appropriate, as applicable elsewhere within the site, necessary to ensure future compliance with the water quality standard(s) that was breached;
 - (g) implement the actions identified in (e) and (f) above;

- (h) advise the Council in writing of the steps taken in accordance with paragraphs (b) to (g) above. This advice shall be provide in writing within one week of the steps being taken; and
- (i) review the CEMP and/or the relevant SEMP prepared under Condition 6, and revise it if necessary to ensure compliance with conditions 24 – 28 occurs. All revised CEMPs or SEMPs shall be submitted to the Council for certification that they meet the objectives and performance standards as required by Condition 14 within one month of monitoring identifying a breach of any of the receiving environment standards.

30 The Consent Holder shall keep a log detailing the time and location of any work undertaken within any active flowing river channel. This log shall be provided to the Council upon request.

Alternative Water Supply

- 31 The Consent Holder shall undertake a survey to determine the names and addresses of those persons who take water directly from the Lee or Wairoa Rivers between the dam site and the Waimea East Irrigation Company's intake. The Consent Holder shall prepare a report identifying the location of the intakes, the name of the person(s) who take water, and the use of the water and shall provide a copy of this report to the Council prior the commencement of construction activities.
- 32 The Consent shall advise, in writing, all those persons identified by the survey required to be undertaken by Condition 31 of the intended date of any work that will be undertaken within any active flowing river channel. Such advice shall include the intended duration of the works and shall be delivered to the persons at least one week before such works are to occur.
- 33 If, in the opinion of the Council, the Consent Holder's activities are adversely affecting any downstream water supplies, then the Consent Holder shall provide the user with an alternative water supply to the satisfaction of the Council. For the avoidance of doubt, this condition includes all the Consent Holder's activities, not just works in any active flowing river channel.

Advice Note:

The purpose of conditions 31-33 is to firstly determine/confirm downstream water users. The Consent Holder must then provide notice to these persons of intended works (including the duration of the works) within any active flowing river channel. This notice period will allow those water users to fill any storage tanks they may have prior to the works commencing. However, if it is verified that the Consent Holder's activities (not limited to works in any active flowing river channel) is adversely affecting any of the water supplies then the Consent Holder needs to provide the water user(s) with an alternative water supply (e.g. tankering in water to fill water tanks).

Fish Passage

- 34 The Consent Holder shall make provision for the upstream passage of elvers (longfin eels) and young koaro at times of low river flows from November to April, inclusive, during the construction period.

Advice Note:

The diversion culvert barrels are designed to be smooth and relatively hydraulically efficient and the addition of roughness elements (e.g. rocks or baffles) are not required within the barrels. However, a rock weir at the downstream end of the culvert barrels would assist fish passage at low flows and such a weir would comply with the requirements of this condition.

Construction Traffic Management Plan (CTMP)

- 35 The Consent Holder shall, at least 20 working days prior to the intended date of commencement of construction activities, provide to the Council a Construction Traffic Management Plan (CTMP). The CTMP shall be prepared by a suitably qualified and experienced Traffic Engineer in consultation with the affected land and forest owners within the application site and also the owners and occupiers of properties served by the unsealed section of Lee Valley Road, and shall be submitted to the Council for certification that it:

- (a) is generally consistent with the draft CTMP (Lee Valley Dam Draft Construction Traffic Management Plan, TDG, Ref:11416-2, November 2014);
- (b) meets the objectives contained in Condition 36; and
- (c) contains the minimum requirements contained in Condition 37.

- 36 The CTMP shall meet the following objectives:

- (a) to ensure that traffic generated during construction of the dam is effectively managed so that increases in traffic volume are safely accommodated within the existing road network;
- (b) dam construction traffic shall be scheduled as far as practicable to avoid times when the private road is being used for forestry harvesting operations;
- (c) to the extent that it is not practicable to schedule dam construction traffic to avoid times when the private road is being used for harvesting activities, logging trucks shall be afforded priority of passage on the private road and forestry operators shall not be prevented from operating any skyline anchor associated with their harvesting activities;
- (d) that any section of River Terrace Road or Lee Valley Road that is open to the public and comprises part of the construction route to the site are managed in accordance with the latest version of the New Zealand Transport Agency's (NZTA) Code of Practice for Temporary Traffic Management (CoPTTM);
- (e) that the best practicable option is used to manage traffic on roads not open to the public (including, where appropriate, the use of methods such as radio telephone (R/T) controls);

- (f) centre-line road markings are painted as an isolated safety treatment on those curves identified as requiring such treatment on the plans attached to the evidence of Mr David Petrie TDG Ref:11683, Lee Valley Road Corridor Survey, Sheets 1 – 7.

37 The CTMP shall include the following as a minimum:

- (a) an appropriately detailed plan or plans describing any road improvement works to the public road, including all necessary passing bays;
- (b) identification of the extent of such passing bays required to accommodate the anticipated number and type of waiting vehicles clear of through vehicles in the opposing direction;
- (c) identification of methods to avoid, as far as is practical, adverse effects on forestry harvesting operations; and
- (d) methods to manage construction traffic and other traffic on the private road and the unsealed section of Lee Valley Road, including use of R/T controls and installation of a dedicated repeater.

38 The Consent Holder shall comply with the certified CTMP at all times.

Advice Note:

Any physical works on the public road will require separate authorisation from the road controlling authority. The person that undertakes the works will need to be on the Council's list of approved contractors.

Condition of Roads

39 The Consent Holder shall ensure that all of the roads comprising the construction route between the State Highway 6 intersection and the site are adequately maintained throughout construction of the dam and returned to the Council as road controlling authority or owner of the private road, respectively, in the same or better condition at the end of construction than before construction commenced.

Advice Note:

Any physical works on the public road required to comply with Condition 39 will require separate authorisation from the road controlling authority. The person that undertakes the works will need to be on the Council's list of approved contractors.

40 To enable compliance with Condition 39 to be determined, the Consent Holder shall engage an independent roading engineer to prepare a pre-construction and post-construction inspection report on the condition of the construction route between the State Highway 6 intersection and the site. The pre-construction inspection shall be undertaken no more than 5 working days before the date that construction commences and the post-construction inspection shall be undertaken within 5 working days of completion of construction of the dam. A copy of each report shall be submitted to the Council within one month of the inspection being undertaken.

Accidental Discovery

- 41 If koiwi, taonga or other archaeological material is discovered in any area during the works, work shall immediately cease in the area of the discovery (within 100 metres) and the Consent Holder shall notify Ngati Rarua, Ngati Toa, Ngati Koata, Ngati Kuia, Rangitane, Ngati Apa, Ngati Tama, Te Ati Awa, Heritage New Zealand and the Council within 24 hours. If human remains are found, the New Zealand Police shall also be contacted. The Consent Holder shall allow the above parties to inspect the site and in consultation with them, identify what needs to occur before work can resume in that area.

Vegetation Clearance Plan (VCP)

- 42 The Consent Holder shall, at least 20 working days prior to the intended date of commencement of construction activities, prepare a Vegetation Clearance Plan (VCP). The VCP shall be prepared in consultation with Ngati Rarua, Ngati Toa, Ngati Koata, Ngati Kuia, Rangitane, Ngati Apa, Ngati Tama, and Te Ati Awa, the Director-General of Conservation (or their nominee), the Biodiversity Technical Advisory Group (required by Condition 56), and those forestry operators affected by the proposal and shall be submitted to the Council for certification that it meets the following objectives and performance standards:
- (a) to minimise as far as practicable the loss of indigenous vegetation and fauna resulting from construction earthworks, and reservoir filling (outside of the maximum flood level);
 - (b) to manage clearance of vegetation within the reservoir footprint so as to minimise adverse effects on native fauna;
 - (c) to provide to the extent practical and possible an opportunity for iwi to access suitable ngahere (native timber) and kohatu (stone/minerals, including pakohe (argillite)) for traditional cultural uses;
 - (ca) to avoid any adverse effects of vegetation clearance activities on forestry operations as far as practicable;
 - (d) identification of indigenous timber within the reservoir footprint that is suitable for traditional cultural use and establishment of methodologies for its harvesting for cultural purposes;
 - (e) identification of vegetation within demarcated construction areas that can practically be preserved during the construction process and means of ensuring that effects on that vegetation are avoided or minimised;
 - (f) identification of areas, totaling not less than five hectares, within the construction area that, following completion of construction, will be suitable for replanting with indigenous species;
 - (g) identification of appropriate measures to ensure planted out areas within completed construction areas are maintained for a period of not less than five years following completion of construction;

- (h) identification of methods to deal with vegetative material cleared in a manner that will minimise any fire risk;
- (i) identification of protocols to minimise the impact on native vertebrates and threatened plants during vegetation removal or construction, including seed collection for nursery propagation and salvage and transplantation of threatened plants prior to vegetation removal consistent with the requirements of the Biodiversity Management Plan required to be prepared by Condition 44;

43 The Consent Holder shall comply with the certified VCP at all times.

Biodiversity Management Plan (BMP)

44 The Consent Holder shall, at least twelve months prior to the intended date of commencement of construction activities, prepare a Biodiversity Management Plan (BMP) for all biodiversity offset and compensation work. The final BMP shall be prepared in consultation with the Director-General of Conservation (or their nominee) and the Biodiversity Technical Advisory Group (required by Condition 56). The final BMP shall be submitted to the Council for certification that it:

- (a) is in general accordance with the draft BMP (Lee Dam Draft Biodiversity Management Plan, Tonkin and Taylor Limited, Ref:85731.005, November 2014);
- (b) includes the matters and meets the objectives prescribed in conditions 45 – 50.

45 The objective of the BMP shall be to demonstrate how the Consent Holder will mitigate, remedy and compensate for the significant adverse effects of construction activities, inundation, and operational activities on terrestrial and freshwater ecological values, and their associated biodiversity values, including but not limited to:

- (a) Hill-slope beech forest
- (b) Riparian kahikatea forest
- (c) Alluvial forest
- (d) Flood zone turf communities
- (e) River bed island forest
- (f) New Zealand shovel mint *Scutellaria novae-zelandiae*
- (g) Rock coprosma *Coprosma brunnea*
- (h) Scented broom *Carmichaelia odorata*
- (i) River cloak daisy *Euchiton polylepis*
- (j) Longfin eel *Anguilla dieffenbachii*

46 The BMP shall set out the methodologies and processes that will be used to achieve the objectives in Condition 45 and shall include, but not be limited to:

(a) Ecological Management

- (i) Personnel roles and responsibilities
- (ii) Vegetation and habitat management in- and ex-situ, including vegetation clearance, revegetation, and enrichment
- (iii) Measures to prevent introduction of weeds or pests to the site through importation of materials or on equipment.

Advice Note:

Ecological management at the construction site is covered by the CEMP and relevant SCEMPs.

(b) Habitat Restoration

- (i) A Revegetation and Enrichment Planting Plan for each area identified under Condition 49(a) – (e)

(c) Species Management

- (i) A Species Management Plan for each of the species identified under Condition 50.

(d) Biodiversity Compensation Fund

- (i) Establishment of a Biodiversity Compensation Fund of not less than \$215,000 (CPI adjusted from 15 August 2014) to be administered by the Biodiversity Technical Advisory Group (required to be established under Condition 56) for the protection, restoration or enhancement of vegetation communities or species in the Waimea River catchment, including the margins of the Waimea Inlet.

(e) Ecological Monitoring and Adaptive Management

- (i) Specific measures and/or criteria to determine the success of ecological management, mitigation and compensation;
- (ii) Establishing a monitoring programme for gorge turf communities downstream of the dam (proposed value \$35,000) for the purpose of determining whether the health of turf communities is maintained, and if not, whether this is the result of a change to the flow regime;
- (iii) Specific approaches and contingency plans that will be employed to undertake adaptive management of adverse effects on terrestrial and freshwater biodiversity;

- (iv) Where adaptive management will be applied, the measures of success of the management and the point at which alternative management will be initiated where success has not been achieved.

(f) In addition the BMP shall:

- (i) Include a programme setting out timing for the selection of suitable sites for species translocation, revegetation, enrichment planting, weed control, and species management required by conditions 49 and 50 of this consent;
- (ii) Demonstrate an integrated approach to the development of this BMP and the Vegetation Clearance Plan that is required by Condition 42.

47 The Revegetation and Enrichment Planting Plans required under Condition 46(b)(i) shall include, where relevant, the following details:

- (a) Proposed planting including plant species, plant/grass mixes, spacing/densities, sizes (at the time of planting), layout and planting methods;
- (b) A planting programme detailing the timing and staging of planting (where planting is to be undertaken over two or more seasons);
- (c) Detailed specifications relating to (but not limited to) the following:
 - (i) Vegetation protection (for any existing native vegetation to be retained);
 - (ii) Weed control and clearance;
 - (iii) Pest animal management;
 - (iv) Ground preparation;
 - (v) Mulching; and
 - (vi) Plant supply and planting, which shall require:
 - 1. Any planting to reflect the natural (indigenous) plant associations of the area;
 - 2. Where practicable, the use of mixes of plants which are of a suitable richness and diversity to encourage self-sustainability once established; and
 - 3. Any native plants to, so far as practicable, be genetically sourced from the relevant Ecological District;
- (d) A maintenance regime including monitoring and reporting requirements, which is to apply for at least three years following that planting being undertaken.

48 The Species Management Plans required under Condition 46(c)(i) shall include, where relevant, the following details:

- (a) Collection methods and type of material (seed, cuttings, and/or whole plants) for plant salvage, including method to maximise the genetic diversity of the material collected;
- (b) The target number of sites at which the species will be established and the target number/ground cover extent of plants to be newly established and maintained;
- (c) A programme, including methods, of:
 - (i) survey, assessment and selection of candidate sites for population establishment, including suitability of habitat and ecological processes for the species;
 - (ii) management of potential threats and maintaining suitable habitat;
 - (iii) ease of access for ongoing management / monitoring; and
 - (iv) legal protection of the site.
- (d) Details of the proposed maintenance of supplementary plants in cultivation as a permanent source for any ongoing transplant material needs;
- (e) The nature, purpose, and extent of planting trials;
- (f) Cultivation and transplant protocols including biosecurity, timing of transplanting, methods of transplanting;
- (g) Post planting maintenance of the populations and habitats, including supplementing new populations with additional transplants where necessary;
- (h) Monitoring and reporting provisions;
- (i) Resourcing needs; and
- (j) A review period.

49 The Consent Holder shall undertake works necessary to ensure that a combined total of at least 39 hectares of land is dedicated to the active restoration of vegetation which shall comprise the following components:

- (a) Active replanting of not less than 5 hectares of the temporary construction area near the dam to hill-slope beech forest,
- (b) Not less than 10 hectares of coastal duneland forest/wetland/estuarine margin restoration (mostly revegetation) on Rough and/or Rabbit Island;
- (c) Not less than 10 hectares of lowland alluvial forest restoration (revegetation) on the Waimea River bermlands;
- (d) A programme of weed control and enrichment planting into not less than 10 hectares (proposed value \$100,000) of degraded alluvial forest areas between the dam and Lucy Creek.
- (e) A programme of weed control and enrichment planting into between 4 and 20 hectares (proposed value \$200,000) of degraded alluvial and riparian forest areas within the Lee, Roding, Wai-iti and Wairoa river catchments. The location and extent of this

programme will be confirmed by the BTAG required to be established under Condition 56.

Advice Note:

Clause (e) is deliberately not specific in respect of the area of land that needs to have weed control and enrichment planting. The money specified is to be spent on generating gains across best management options which may result in anywhere between 4 hectares (if planted) and 20 hectares (if weed control only occurs).

- 50 The Consent Holder shall undertake works necessary for the salvage, propagation and re-establishment (as far as practicable) of the following indigenous species:
- (a) Rock coprosma: Salvage of plant material, propagation and replanting/relocation to suitable habitat that collectively provide for a minimum of 50 individual rock coprosma plants being successfully established (proposed value \$40,000);
 - (b) New Zealand shovel mint: Acquire cuttings or seed from individuals in the project footprint and transplant or propagate and plant into suitable recipient sites that collectively provides for a minimum of 20 square metres total area cover area (ie. 100% coverage) comprising at least 3 discrete sites of shovel mint being successfully established (proposed value \$70,000);
 - (c) Scented broom: Salvage cuttings and seed from project footprint. Propagation of eco-sourced stock and inclusion as a component of the compensation planting programme that collectively provide for a minimum of 600 mature scented broom individuals being successfully established (proposed value \$20,000); and
 - (d) River cloak daisy: Salvage whole plants in the project footprint and transplant or propagate and replant/relocate to suitable habitat that collectively provides for a minimum of 3 square metres of total cover area (ie. 100% coverage), comprising at least 10 discrete patches of river clock daisy being successfully established (proposed value \$50,000);
 - (e) Longfin eel: Undertake a programme of trap and transfer of out-migrating adult long fin eels on an annual basis to assist their safe downstream migration, as a standalone trap and transfer programme;

Advice Note:

Monetary values quoted in this condition are correct as at 15 August 2014 and are to be adjusted for consumer price index (CPI) until the work is undertaken.

- 51 Notwithstanding Condition 50, if at any time during the implementation of each programme, the view of the Biodiversity Technical Advisory Group (required to be established under Condition 56) is that establishment of wild populations is not achievable, the funds remaining of those specified in Condition 50 shall be used to promote the recovery of native plant species with similar or greater threat classification in the Tasman District. Any such changes shall be addressed by way of a variation to the BMP.

- 52 The Consent Holder shall, in July of each year following the commencement of construction, engage a suitably experienced and qualified ecologist to prepare a Biodiversity Compensation Programme Annual Report which sets out:
- (a) The specific work undertaken in the preceding year (1 July to 30 June);
 - (b) The dollar amount spent over that period reported against the budget contained in the BMP;
 - (c) The monitoring undertaken in accordance with BMP, and the results thereof;
 - (d) An assessment of whether the objectives set out on the BMP are being met;
 - (e) What activities are to be implemented in the following 12 months in order to meet the objectives of the BMP; and
 - (f) Any recommendations for altering the focus of any of the BMP activities which it is considered would better meet the objectives of the BMP.
- 53 The Biodiversity Compensation Programme Annual Report required by Condition 52 shall be submitted to the Council by 31 July of each year. A copy of the report shall also be provided to the Biodiversity Technical Advisory Group established under Condition 56 and the Director-General of Conservation (or their nominee).
- 54 The biodiversity offset and compensation shall be undertaken in accordance with the certified BMP and the conditions of this consent. For the avoidance of doubt, compliance with this condition shall continue for the duration of the consents.
- 55 The Consent Holder shall ensure that all land on which biodiversity enhancements are undertaken in accordance with the certified BMP are legally protected, in perpetuity, for conservation purposes, through a covenant pursuant to section 108(2)(d) of the Resource Management Act 1991 or other such protection mechanism as is appropriate for that land tenure, prior to enhancement works commencing. Evidence of the legal protection shall be provided to the Council prior to enhancement works commencing.

Biodiversity Technical Advisory Group (BTAG)

- 56 The Consent Holder shall establish a Biodiversity Technical Advisory Group (BTAG) to provide independent advice on:
- (a) preparation of the Biodiversity Management Plan (BMP) required by Condition 44;
 - (b) implementation of the BMP;
 - (c) criteria for disbursement of funds from the Biodiversity Compensation Fund required by Condition 46(d)(i).
 - (d) monitoring of biodiversity outcomes from actions specified in the BMP and use of the Biodiversity Compensation Fund.

- 57 The BTAG shall comprise of at least three suitably qualified and/or experienced ecologists with experience in one or more of the following:
- (a) habitat restoration including, in particular, restoration of indigenous forest habitats;
 - (b) management of threatened plants, including plant propagation and translocation;
 - (c) control of pest weeds including, in particular, Old Man's Beard;
 - (d) aquatic ecology and fish passage.
- 58 The Consent Holder shall invite the Council and the Director-General of Conservation, or their nominee(s), to each suggest an independent technical expert who could be selected as a member of the BTAG.
- 59 The Consent Holder shall submit the names of the ecologists selected for the BTAG, together with a summary of their qualifications and experience, to the Council for certification that they meet the requirements specified in Condition 57. The membership of the BTAG may be changed provided the changes are first certified by the Council that any new members meet the requirements specified in Condition 57.

Biodiversity Management Programme and Funding

- 60 Each year following the commencement of construction, in the month of September, the Consent Holder shall convene an Annual Review Meeting to report on progress on the implementation and success of the BMP programme. Members of the Biodiversity Technical Advisory Group established under Condition 56, the Director General of Conservation (or their nominee), and relevant contractors shall be invited to the Annual Review Meeting which shall have the following objectives:
- (a) to review the Biodiversity Management Programme Annual Report required by Condition 52
 - (b) to develop and agree an Annual Meeting Report to be provided to the Council within one calendar month of each meeting outlining the outcomes of the meeting, including any agreement with recommendations made in the report required to be prepared by Condition 56(f).
- 61 The Consent Holder may submit to the Council for certification a variation to the programme specified within the certified BMP, provided that the ability to meet the performance targets and overall budget provision are not reduced. Any such variation shall be consistent with the recommendations of the Biodiversity Compensation Programme Annual Report (required by Condition 52) and the Annual Meeting Report (required by Condition 60(b)) or shall otherwise state the reasons why those recommendations have not been adopted.

Noise

- 62 All noise from construction activities pursuant to these consents shall meet the requirements of the long duration noise limits specified in Table 2 of NZS6803:1999 'Acoustics – Construction Noise'.

Dust

- 63 Dust suppression measures, such as the use of water carts, shall be utilised on site and site access roads as necessary to ensure dust generation is minimised.
- 64 Any dust discharge arising from the exercise of these consents shall not result in any objectionable deposition of particulate matter on any structure or land beyond the line delineating 'nominal limits of construction area' shown on plans 27425-GEN-09 and 27425-GEN-10 attached to these consents.

Complaints

- 65 The Consent Holder shall maintain a permanent record of any complaints received alleging adverse effects from or related to the works, including sedimentation effects in the Lee River. This record shall include:
- (a) the name and address of the complainant (if provided);
 - (b) the date and time that the complaint was received;
 - (c) details of the alleged event;
 - (d) weather conditions at the time of the complaint and of the alleged event; and
 - (e) any measures taken to investigate/mitigate/remedy the cause of the complaint.

The Consent Holder shall provide details of any complaints received to the Council no later than the next working day. This record shall be made available to the Council on request.

Hazardous Substances

- 66 The Consent Holder shall, at least 20 working days prior to the intended date of commencement of construction activities, provide to the Council an Emergency and Spill Contingency Plan (ESCP). The ESCP shall be submitted to the Council for certification that it meets the following objectives and performance standards:
- (a) details of hazardous substances to be used and stored, including material safety data sheets (MSDSs);
 - (b) procedures for handling hazardous substances to minimise the likelihood of spills occurring;
 - (c) location and contents of spill kits and fire extinguishers;
 - (d) training of staff;
 - (e) at least two site contact names and contact telephone numbers (including after hours), contact telephone numbers for all emergency services;

- (f) detailed procedures for dealing with spills, contact numbers for liquid waste collection and removal companies;
 - (g) procedures that will be followed to minimise the likelihood of fire and the procedures that will be followed in the event of a fire occurring.
- 67 The Consent Holder shall comply with the certified ESCP at all times. All staff involved in the handling and/or use of hazardous substances shall be familiar with the certified ESCP.
- 68 At least one copy of the certified ESCP shall be located in a visible and accessible location. An additional copy of the certified ESCP shall be held in a central, accessible location in the office area.
- 69 Any surface or container used to store or contain any hazardous substances shall be sealed and impervious to the hazardous substance.
- 70 Appropriate, clearly visible signage indicating the type and properties of hazardous substances held on-site shall be located on or near all storage areas to alert emergency services.
- 71 All secondary containment facilities for hazardous substances held on-site shall be regularly checked to ensure their integrity. Written records of these inspections shall be held on-site and presented to the Council on request.
- 72 Any spillage of hazardous substances on-site shall be dealt with in a manner that minimises risks to human health and the environment. In the event of a spill, the Consent Holder shall take all practicable measures to minimise contaminants entering soil and surface water bodies.

Advice Note:

Any spillage to land would not be authorised by this resource consent, spillage on unsealed surfaces may require excavation of any contaminated material and removal of this material for disposal at a site authorised to accept such material.

- 73 The Consent Holder shall keep an accurate written record of all accidents or incidents involving the spillage of hazardous substances and shall supply these to the Council on request. Any spillage of hazardous substances where the substance is not collected and removed from site shall be reported immediately (within 24 hours) to the Council.
- 74 All waste material containing hazardous substances (including any material associated with spill cleanup) shall be removed off-site on a regular basis and disposed of at a facility authorised to receive such material.

Water Take during Construction

- 75 The water taken shall only be used for activities associated with the construction of the dam.
- 76 The maximum rates of take shall not exceed any of the following:
- (a) 28 litres per second (instantaneous rate);

- (b) 2,226 cubic metres per day;
- (c) 15,582 cubic metres per week.

Advice Note:

The Consent Holder may take water at rates that exceed those specified in this condition for fire-fighting purposes as provided for in Section 14(3)(e) of the Resource Management Act 1991.

- 77 The intake shall include a fish exclusion device to a standard consistent with the NIWA Fish Screening Good Practice Guidelines (Jamieson et al., October 2007). The fish exclusion device shall be maintained in good working order. Records shall be kept of all inspections and maintenance, and those records shall be provided to the Council on request.
- 78 The Consent Holder shall install, and thereafter operate and maintain, a water meter that complies with both the Water Meter definition as stated in Chapter 2 of the Tasman Resource Management Plan and also the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010, including that the water meter shall have a pulse output facility capable of providing data in a form suitable for electronic storage.

Advice Note:

The Resource Management (Measurement & Reporting of Water Takes) Regulations 2010 apply to this consent and the Consent Holder is therefore referred to the Ministry for the Environment website for all requirements under these Regulations. The website address is: <http://www.mfe.govt.nz/rma/central/measuring-reporting-water-takes.html>.

- 79 The water meter shall be installed in accordance with the water meter manufacturer's specifications such that it provides a continuous measurement of all water taken under this consent.
- 80 The water meter shall be verified as measuring the volume of water taken to within +/-5% of the actual water taken and written confirmation of water meter accuracy shall be provided by the verifier to the Council prior to water being taken for construction purposes.
- 81 Water meter verification required by Condition 80 shall be performed by a person who, in the Council's opinion, is suitably qualified and experienced and the verification methodology shall be in general accordance with best practice.
- 82 The Consent Holder shall record the water meter reading every week and shall submit the meter readings to the Council specified each year by the Council.

Advice Note:

The Consent Holder is required to supply to the Council a complete record of its weekly water meter readings for each water year, including recording nil usage. Regular (preferably Monday) meter readings are required to ensure consistent data and because the Council currently monitors weekly use. Advice is available about options to supply the water meter readings to the Council. Please contact the Council's Compliance Officer (Water Metering) to discuss these options.

CONDITIONS TO BE COMPLIED WITH PRIOR TO AND FOLLOWING FILLING OF THE RESERVOIR**Emergency Action Plan (EAP)**

- 83 Prior to the first filling of the reservoir, the Consent Holder shall forward to the Council written confirmation from a Professional Engineer(s) experienced in the design and construction of large dams with an assessed Potential Impact Category of 'High', confirming their engagement to prepare a post construction Emergency Action Plan (EAP) for the purpose of ensuring appropriate management of the risk associated with uncontrolled or excessive flow releases from the dam, as required by the conditions of these consents.
- 84 An EAP shall be prepared in accordance with the recommendations of the NZSOLD Guidelines and relevant New Zealand dam safety legislative requirements. The EAP shall be submitted to the Council at least 20 working days prior to reservoir filling for certification that it meets the recommendations of the NZSOLD Guidelines and relevant New Zealand dam safety legislative requirements.
- 85 The Consent Holder shall comply with the certified EAP at all times.

Reservoir Filling

- 86 Prior to filling the reservoir the Consent Holder shall determine the volume of the reservoir and then provide to the Council a water level to water volume relationship over the operating range of the dam. This relationship shall be in the form of a rating table and graph which plots water level against water volume.
- 87 The Consent Holder shall provide either of the following for those land owners and forestry operators whose existing legal access roads are to be inundated by the dam reservoir:
- (a) provision of a new access road(s) where legal rights currently exist; or
 - (b) an alternative method to harvest the trees on land that is unable to be accessed.

The Consent Holder shall provide a report to the Council on how it has complied with this condition at least 20 working days prior to filling of the reservoir. The report shall include an outline of the consultation that has been undertaken with the affected land owners and forestry operators including a statement on whether they agree with the solution being provided by the Consent Holder.

- 88 Reservoir filling shall not commence until all of the following are met:
- (a) the Emergency Action Plan required by Condition 84 is certified by the Council;
 - (b) the Code Compliance Certificate (CCC), or similar authorisation, for the dam structure has been issued under the Building Act 2004;
 - (c) the Operational Management Plan required by Condition 92 is certified by the Council;
 - (d) the Reservoir Water Quality Monitoring Programme required by Condition 106 is certified by the Council;
 - (e) the Reservoir Release Water Management Plan required by Condition 108 is certified by the Council;
 - (f) the River Water Quality Monitoring Programme required by Condition 110 is certified by the Council; and
 - (g) Conditions 87 and 89 have been complied with.
- 89 The Consent Holder shall ensure that, prior to the first filling of the reservoir, the footprint of the reservoir is cleared of vegetation, or the potential for vegetation to adversely impact on water quality is otherwise reduced, to the extent possible, to assist with managing reservoir water quality.

Advice note:

Vegetation clearance needs to be carried out in accordance with the Vegetation Clearance Plan required by Condition 42.

- 90 At the first filling of the reservoir, the Consent Holder shall remove floating vegetative matter, to the extent possible, to assist with managing reservoir water quality.
- 91 The Consent Holder shall, once every 10 years following filling of the reservoir, monitor sediment infilling of the reservoir and calculate a revised reservoir volume and water level to water volume relationship for the dam. This relationship shall be in the form of a revised rating table and graph which plots water level against water volume. This information shall be provided to the Council within one month of the relationship being finalised.

Operational Management Plan (OMP)

- 92 The Consent Holder shall, at least 20 working days prior to the commencement of filling of the reservoir, submit to the Council for certification an Operational Management Plan (OMP). The OMP shall be prepared in consultation with forestry owners and shall be certified by the Council that it meets the following objectives and performance standards:
- (a) avoids adverse effects on forestry harvesting operations as far as practical;
 - (b) outlines the procedures to minimise fire risk;
 - (c) provides for the management of traffic on the private road, including use of radio telephone (R/T) controls as appropriate;

- (d) outlines the training to be provided to all personnel accessing the site on behalf of the Consent Holder, including in respect of access protocols, health and safety requirements, and fire risk;
- (e) outlines procedures and frequencies for dam surveillance and dam safety, including shoreline inspections to identify slope instability risks.
- (f) outlines procedures and frequencies to assess floating vegetation on the reservoir and its subsequent management.
- (g) outlines how the reservoir is proposed to be filled, including any staging of filling and the inspections that will be undertaken during filling.

93 The Consent Holder shall comply with the certified OMP at all times.

Water Release from Dam Following Construction

94 The Consent Holder shall, in accordance with the following table, for each of the stated 'ranges' of water levels of the dam, release water from the dam at the minimum rate(s) specified.

Dam Water Level Description*	Relative Level (metres)	Minimum Rate of Water Release from Dam (excluding Flushing Flows)	Maximum Rate for Authorised Hydroelectricity Generation
'Upper Range' (between PMFWL and MBSWL)	202.5 - 197.04	At least 510 litres per second or any greater rate to ensure that the 72 hour rolling average flow of the Waimea River, as measured at the Council's 'Nursery' flow recorder site (above the Appleby Bridge) does not fall below 1,100 litres per second.	No limit, but subject to Conditions 103 and 104
'Normal Range' (between MBSWL and 1:40YDWL)	197.04 - 174.2	At least 510 litres per second or any greater rate to ensure that the 72 hour rolling average flow of the Waimea River, as measured at the Council's 'Nursery' flow recorder site (above the Appleby Bridge) does not fall below 1,100 litres per second.	No greater than the discharge rate needed to ensure that the 72 hour rolling average flow of the Waimea River, as measured at the Council's 'Nursery' flow recorder site (above the Appleby Bridge) does not fall below 1,100 litres per second.

Dam Water Level Description*	Relative Level (metres)	Minimum Rate of Water Release from Dam (excluding Flushing Flows)	Maximum Rate for Authorised Hydroelectricity Generation
'Lower Range' (between 1:40YDWL and MOWL)	174.2 - 166.5	At least 510 litres per second or any greater rate to ensure that the 72 hour rolling average flow of the Waimea River, as measured at the Council's 'Nursery' flow recorder site (above the Appleby Bridge) does not fall below 800 litres per second.	No greater than the discharge rate needed to ensure that the 72 hour rolling average flow of the Waimea River, as measured at the Council's 'Nursery' flow recorder site (above the Appleby Bridge) does not fall below 800 litres per second.
'Through-flow Range' (below MOWL)	<166.5	All inflows into the dam up to 510 litres per second shall be released downstream.	Any discharge from the dam may be used.

* Abbreviations

PMFWL: Probable Maximum Flood Water Level
MBSWL: Minimum Buffer Storage Water Level
1:40YDWL: 1 in 40 Year Drought Water Level
MOWL: Minimum Operation Water Level

- 95 The Consent Holder shall install, operate, and maintain a system to directly or indirectly measure and record the instantaneous rate that water is released from the dam and also the water level within the reservoir to an accuracy of at least +/-5%. These measurements shall also comply with the requirements of Condition 6. These data shall be provided to the Council electronically in 'real time' in a format agreed to by the Council.

Flushing Flows

- 96 The Consent Holder shall release 'flushing flows' from the dam with the objective of mitigating the potential build-up of periphyton in the Lee River. This condition shall be complied with between 1 November and 30 April each year and flushing flows shall be released when the flow in the Lee River, measured immediately below the dam, has been less than 5 cubic metres per second for a period of 40 days after 1 November. Flushing flows shall be released at a minimum rate of 5 cubic metres per second for a period not less than three hours. For the first two years of operation no more than three flushing flows shall be required to be released each year between 1 November and 30 April. The number of flushing flows after two years shall be in accordance with the recommendations that must be included in the review of flushing flows required by Condition 102.

- 97 Flushing flows shall only be released from the dam at night between 2200 and 0400 hours.

98 The Consent Holder shall, at least 5 working days prior to the intended date of the first release of a flushing flow, provide to the Council a Flushing Flow Release Plan (FFRP). The FFRP shall be submitted to the Council for certification that it meets the following objectives:

- (a) avoids or mitigates adverse effects of the change in water level, transport of and accumulation of organic material that results from flushing flows on the Lee River and Waimea River mouth estuary;
- (b) avoids adverse effects on downstream recreational users through timing or notification of flushing flows;
- (c) avoids fish stranding as a result of sudden flow recession.

The FFRP shall include as a minimum:

- (i) the proposed timing of the flushing flow;
- (ii) details of how adverse effects on downstream recreational uses will be avoided;
- (iii) the proposed rate of flow recession to avoid fish stranding;
- (iv) details of monitoring to be undertaken to demonstrate compliance with objective (a);
- (v) identification of the location of monitoring sites.

99 The Consent Holder shall give the Council no less than 24 hours' written notice of the date of each flushing flow. Flushing flows shall otherwise be released in accordance with the certified FFRP

100 The Consent Holder shall not release flushing flows until the FFRP has been certified by the Council and shall then comply with the certified FFRP at all times.

101 Where a flushing flow is intended to be released from the dam the Consent Holder shall monitor periphyton cover, including the presence and relative abundance of cyanobacteria. Monitoring shall occur before and after each flushing flow released during the first two years of water releases from the dam as follows:

- (i) the monitoring shall be undertaken no more than 48 hours before the beginning, and no more than 48 hours after the end, of each flushing flow;
- (ii) the monitoring shall follow the RAM-1 method contained in the 'stream periphyton manual' (Biggs and Kilroy, 2000) or such similar method approved by the Council;
- (iii) the monitoring shall be undertaken at no fewer than 2 sites on the Lee River between the toe of the dam and the Roding River confluence;

102 Two years after commencement of filling of the reservoir the Consent Holder shall engage an independent appropriately qualified and experienced ecologist to undertake a review of

the flushing flow releases, and all monitoring results collected in accordance with Condition 101. The independent ecologist shall prepare a report on the monitoring results, and identify any issues of concern raised by monitoring results, and make recommendations for any changes to the frequency, number, or magnitude of flushing flows considered necessary to achieve the objectives of mitigating the potential build-up of periphyton in the Lee River. A copy of the report shall be provided to the Council for certification that recommended changes will achieve the objective of mitigating the potential build-up of periphyton in the Lee River no later than 3 months following the 2nd anniversary of commencement of filling of the reservoir. Any recommendations to changes in the frequency, number, or magnitude of flushing flows in this report shall be implemented once certified by the Council.

Hydro Power Operation

- 103 In the event that the Consent Holder constructs and operates a hydroelectricity plant then the dam shall be operated such that the maximum rate that water may be used for generation complies with the right hand column of the table presented in Condition 94. In addition, the plant shall be operated such that for controlled flow releases from the base of the dam as a result of flow passing through hydroelectricity turbines and flow control valves, 98% of the changes in mean daily flow (due to the dam operation) from one day to the next over a rolling 12 month preceding period shall be less than 1.2 cubic metres per second. For the avoidance of doubt, these restrictions do not apply to discharges via the spillway or any flushing flows required by this consent.
- 104 In the event that hydro-peaking is planned, the Consent Holder shall engage an independent appropriately qualified ecologist to undertake a fluctuating flow analysis to help guide the maximum level of flow variation allowed within a day. The independent ecologist shall prepare a report describing the results of this fluctuating flow analysis and make recommendations on the maximum level of flow variation allowed within a day. A copy of this report and the Consent Holder's plans for hydro-peaking adopting the recommendations of the ecologist shall be provided to the Council for certification that it meets the objective prior to commencement of any hydro-peaking.

Flood Warning Model Recalibration

- 105 The Consent Holder shall pay for the recalibration of the Council's flood warning model for the Waimea River catchment so that the effects of the dam are accounted for. Recalibration of the model shall occur every 10 years to take into account sediment infilling of the reservoir (required to be monitored in accordance with Condition 91. The Consent Holder's contribution to recalibration of the model shall be capped at \$3,000 (including GST).

Reservoir and River Water Quality

- 106 The Consent Holder shall, prior to the commencement of filling of the reservoir, provide to the Council a Reservoir Water Quality Monitoring Programme (Reservoir WQMP) for certification that it provides for monitoring of parameters likely to influence water quality in the Lee River following discharge from the dam. The initial Reservoir WQMP shall include, as a minimum, monitoring for the parameters and at the frequencies specified in the following table. Monitoring shall be undertaken at a point in the reservoir located at or near the deepest point in the reservoir, unless specified otherwise in the table. Unless otherwise specified in the conditions of this consent, the monitoring protocols shall follow the protocols

described in the Ministry for the Environment report “Protocol for monitoring trophic levels of New Zealand lakes and reservoirs” (Burns et al. 2000).

Reservoir water quality monitoring

<i>Parameters</i>	<i>Frequency</i>
Chlorophyll a (integrated tube sample between 0-10 metres) Nitrate nitrogen (integrated tube sample between 0- 10 metres) Total ammoniacal nitrogen (integrated tube sample between 0-10 metres; and at hypolimnetic depth) Total nitrogen (integrated tube sample between 0-10 metres) Total carbon (integrated tube sample between 0-10 metres) Dissolved reactive phosphorus (integrated tube sample between 0-10 metres) Total phosphorus (integrated tube sample between 0-10 metres; and at hypolimnetic depth) Dissolved iron and manganese (at hypolimnetic depth if dissolved oxygen in bottom waters < 5 milligrams per litre)	Monthly
Algal abundance (cell count and biovolume)	Monthly, only during any cyanobacteria blooms
Visual clarity (Secchi depth) Temperature (depth profile) Dissolved oxygen (grams per cubic metres and % saturation) (depth profile) Conductivity (depth profile) pH (depth profile)	Monthly
Temperature at 8 levels within the reservoir water column. Dissolved oxygen (grams per cubic metres and % saturation) at 3 levels within the reservoir water column.	Continuous ¹ (Hourly logged values)
Aquatic macrophytes and weeds Fish populations in the reservoir Invertebrate communities	4 years after filling at representative sites throughout the reservoir
Index calculation Trophic Level Index	Annually

¹ Continuous monitoring shall also comply with the requirements of Condition 6.

Monitoring shall be undertaken in accordance with the certified Reservoir WQMP. All sampling shall be carried out by a person(s) suitably qualified and experienced in environmental monitoring. All samples that are to be analysed by a laboratory shall be collected in containers supplied by the laboratory and analyses shall be undertaken by an independent laboratory accredited to IANZ. Equipment used to undertake field measurements shall be calibrated in accordance with the manufacturer's specifications to minimise measurement errors. Calibration records shall be kept and made available to the Council upon request.

- 107 The Reservoir WQMP required by Condition 106 shall be undertaken to the detection limits specified in the following table. The detection limits may be varied with the prior written approval of the Council.

Detection/Precision Limits

<i>Type</i>	<i>Monitoring Parameter</i>	<i>Detection/Precision Limit</i>
Laboratory	Nitrate nitrogen	0.002 g/m ³
	Total ammoniacal nitrogen	0.005 g/m ³
	Total nitrogen	0.050 g/m ³
	Total organic carbon	0.5 g/m ³
	Dissolved reactive phosphorus	0.002 g/m ³
	Total phosphorus	0.004 g/m ³
	Dissolved iron	0.02 g/m ³
	Dissolved manganese	0.005 g/m ³
	Algal abundance (cell count)	10 cells/mL
Field Measurements (depth profiles)	Visual clarity (Secchi depth)	0.1 m ¹
	Temperature	0.1 °C ¹
	Dissolved oxygen (concentration and % saturation)	0.1 g/m ³ 0.5 % saturation ¹
	Conductivity	1.0 µS/cm ¹
	Turbidity	0.1 NTU ¹
Index calculation	Trophic Level Index (following the methodology set out in Burns et al. 2000)	N/A

¹ Numbers for field measurements relate to the precision of these measurements, not the detection limit.

- 108 The Consent Holder shall, prior to commencement of filling of the reservoir, provide to the Council a Reservoir Release Water Management Plan (RRWMP) which shall apply to all reservoir water discharges to the Lee River. The RRWMP shall include trigger levels and response protocols for the parameters measured in the Reservoir WQMP (Condition 106) and the River WQMP (Condition 110). The RRWMP shall be submitted to Council for certification that it details how release water will be managed and monitored so as to minimise adverse effects on the water quality and aquatic ecology of Lee River and to meet the receiving environment standards specified in Condition 111.
- 109 The Consent Holder shall undertake monitoring in accordance with the certified Reservoir WQMP, RRWMP, and River WQMP.
- 110 The Consent Holder shall, prior to the commencement of filling of reservoir, provide to the Council a River Water Quality Monitoring Programme (River WQMP) for certification that it provides for monitoring of water quality and ecological health in the Lee River. The initial River WQMP shall include provision for a downstream monitoring site within the Lee River located immediately upstream of the confluence with Anslow Creek or such alternative site that is located as close as practical downstream of the reservoir..

The initial River WQMP shall include, as a minimum, monitoring for the parameters and at the frequencies specified in the following table. Monitoring shall commence within two months of the commencement of filling of the reservoir.

<i>Parameter</i>	<i>Units</i>	<i>Frequency</i>	<i>Detection Precision Limit</i>
Water temperature	Degrees Celsius.	Continuous ² (hourly logged values)	0.1°C ¹
Dissolved oxygen	g/m ³ ; %sat	Continuous ² (hourly logged values) from Nov to April	0.1 g/m ³ 0.5 % saturation ¹
pH	pH	Monthly	0.1 pH units ¹
Nitrate-N	g/m ³	Monthly	0.002 g/m ³
Total ammoniacal-N	g/m ³	Monthly	0.005 g/m ³
Dissolved reactive phosphorus	g/m ³	Monthly	0.002 g/m ³
Visual clarity (black disc)	m	Monthly	0.1 m ¹
Dissolved iron	g/m ³	Monthly	0.02 g/m ³
Dissolved manganese	g/m ³	Monthly	0.005 g/m ³
Periphyton cover	%-cover	Monthly, from November to April	
Macroinvertebrate community metrics	MCI, QMCI, and density of EPT taxa	Annual (between January and March)	
Fish community		Annually, single pass using Electric Fishing Machine (EFM) at sites representative of the fish communities present	
Deposited sediment		Six monthly using Sediment Assessment Methods (SAM) 2 and 5 (outlined in Sediment Assessment Methods - Protocols and guidelines for assessing the effects of deposited fine sediment on in-	

<i>Parameter</i>	<i>Units</i>	<i>Frequency</i>	<i>Detection Precision Limit</i>
		stream values)	

¹ Numbers for field measurements relate to the precision of these measurements, not the detection limit.

² Continuous monitoring shall also comply with the requirements of Condition 6.

All sampling shall be carried out by a person(s) suitably qualified and experienced in environmental monitoring. All samples that are to be analysed by a laboratory shall be collected in containers supplied by the laboratory and analyses shall be undertaken by an independent laboratory accredited to IANZ. Equipment used to undertake field measurements shall be calibrated in accordance with the manufacturer's specifications to minimise measurement errors. Calibration records shall be kept and made available to the Council upon request.

111 The discharge of water from the dam shall not cause the water quality or ecological health of the Lee River downstream of the dam to fall below the following standards, as measured immediately upstream of the confluence of Anslow Creek or such alternative site as close as practical downstream of the reservoir (being the monitoring site(s) referred to in Condition 110, noting that the downstream monitoring site for macroinvertebrate metrics may be at a different location to the primary monitoring site stated in that condition):

- (a) the discharge shall not cause the pH of the receiving water to fall outside of the range 6.5 to 9.0;
- (b) the discharge shall not cause the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials in the receiving water;
- (c) the discharge shall not cause the visual clarity of the receiving water to be less than 5 metres as measured by black disc;
- (d) the discharge shall not cause any emission of objectionable odour in the receiving water;
- (e) the discharge shall not cause the level of the dissolved oxygen (DO) level to be less than 80% of the saturation value;
- (f) the discharge shall not cause the average daily temperature of the receiving water to exceed 20 °C;
- (g) the percentage reduction to the QMCI score and densities of EPT taxa relative to the average QMCI score and density of EPT taxa recorded at the Lee River at Meads Bridge site prior to dam construction shall not exceed 20%.
- (h) the discharge shall not cause the concentration of dissolved manganese to exceed 1.2 grams per cubic metre.

- (i) the discharge shall not cause the concentration of dissolved iron to exceed 0.35 grams per cubic metre.
- 112 The receiving water standards specified in Condition 111 shall not apply during flushing flows required by Condition 96 or at any time when the river exceeds the 20th flow exceedence percentile.
- 113 Five years after commencement of filling of the reservoir the Consent Holder shall engage an independent appropriately qualified and experienced ecologist(s) to undertake a review of the RRWMP, Reservoir WQMP and the River WQMP. The independent ecologist shall prepare a report on the monitoring results, any parameters or other water quality issues of concern, and any recommended changes to the dam operating regime to achieve the receiving environment standards specified in Condition 111. The report shall include an assessment of whether the monitoring results at the Council's Lee River at Meads Bridge monitoring are sufficiently similar to and can be relied on in place of the River WQMP. The independent ecologist shall also prepare a revised RRWMP, Reservoir WQMP and River WQMP that should apply for the remainder of the term of consent. The revised RRWMP, Reservoir WQMP and River WQMP shall identify appropriate monitoring parameters and frequencies having regard to the results of monitoring previously undertaken. The Consent Holder shall provide a copy of the revised RRWMP, Reservoir WQMP and River WQMP to the Council for certification that it details how reservoir water will be managed and monitored so as to minimise adverse effects on the water quality and aquatic ecology of Lee River and to meet the receiving environment standards specified in Condition 111, no later than 3 months following the 5th anniversary of commencement of filling of the reservoir. The certified RRWMP, Reservoir WQMP and River WQMP shall be complied with once they are certified by the Council, and any changes to monitoring parameters and frequencies shall then be implemented.

Fish Passage

- 114 The Consent Holder shall ensure that upstream passage past the dam structure is provided for elvers (longfin eels) and koaro in accordance with the approach specified in section 4.3.6 of the Assessment of Environmental Effects referred to in Condition 1, or such other means that achieves at least the same passage, to be further developed in consultation with the Director General of Conservation (or their nominee). Key components of the approach are:
- (a) naturalised, riprap lined channel provided downstream of the dam crest;
 - (b) small channel or pipe to provide access from the crest to the upstream side of the dam;
 - (c) pumped flow of 5-10 litres per second down the fish pass (split between the channel on the downstream side of the dam and the channel or pipe on the upstream side of the dam), after dam construction is complete during the periods when migration of elvers and juvenile koaro is likely (1 September to 30 April).
- 115 Within 3 months of completion of dam construction, and prior to installing the downstream end of the fish pass (as required by Condition 114), the Consent Holder shall engage a suitably qualified and experienced freshwater ecologist to undertake monitoring to determine the preferred upstream migration pathway for elvers and koaro. The monitoring shall be

undertaken over the first migration season. Upon completion of the monitoring, the ecologist shall provide a recommendation to the Consent Holder as to the most appropriate location of the downstream end of the fish pass. The Consent Holder shall provide a copy of the ecologist's recommendation to the Council within one week of receiving it.

- 116 Within 1 month of receiving the recommendation prepared in accordance with Condition 115, the Consent Holder shall commence activities necessary to design and construct the downstream end of the fish pass in accordance with the ecologist's recommendation.
- 117 The Consent Holder shall ensure that downstream passage past the dam is provided for adult longfin and shortfin eel by 'trap and transfer'. The methodology shall be developed in consultation with the Director General of Conservation (or their nominee) and specified in the Biodiversity Management Plan.
- 118 The Consent Holder shall, within the first five years of the initial filling of the reservoir, engage a suitably qualified and experienced freshwater ecologist to undertake assessment of the effectiveness of the fish pass for upstream passage for elvers and juvenile koaro over the dam and also the effectiveness of downstream passage for adult longfin and shortfin eel by 'trap and transfer'. The monitoring methodology shall be specified in the Biodiversity Management Plan.
- 119 The intake to the dam water release system required shall be equipped with a screen with a clear mesh opening size of no greater than 20 millimetres, and shall be designed to provide an approach velocity no greater than 0.3 metres per second under normal operating conditions to minimise entrainment of fish. The 0.3 metres per second velocity limit shall not apply during periods of flushing flow required by Condition 96.
- 120 Five years after commencement of filling of the reservoir the Consent Holder shall engage an independent appropriately qualified and experienced ecologist to undertake a review of the effectiveness of upstream and downstream fish passage arrangements based on the monitoring required by condition 118 this consent. The independent ecologist shall prepare a report on fish passage and any issues of concern. The report shall recommend any changes that are necessary to the design or operation of the fish passage methods in use to ensure that fish passage is achieved. A copy of the report shall be provided to Council for certification no later than 3 months following the 5th anniversary of commencement of filling of the reservoir. Any changes recommended by the ecologist in respect of the design or operation of the fish passage methods shall be implemented once certified by the Council.

Reporting and Monitoring

- 121 The Consent Holder shall prepare an Annual Monitoring Report for the operation of the dam and provide it to the Council by 31 July of each year. The report shall cover the period from 1 May to 30 April and include the results of all monitoring undertaken, an interpretation of the results, and an assessment of the impact of the discharges from the dam on the water quality and aquatic ecology of the Lee River, and terrestrial ecology bordering the Lee River, downstream of the dam. This assessment shall include an analysis of pre- and post-dam construction monitoring data and identification of any trends in the results.

Advice Note:

Condition 95 of these consents requires the water level of the reservoir and the rate of discharge from the dam to be provided to the Council in 'real time' and the Annual Monitoring Report therefore does not need to include all this monitoring data but should include a graphical summary of these data.

Issued this 26th day of February 2015



Rob van Voorthuysen
Chair of the Panel of Commissioners

Date Confirmed:

Chair: