

Memorandum

To: Joanna Gilroy, Consents Manager, Otago Regional Council
From: Dr Rob Lieffering, Independent Commissioner
Date: 16 August 2022
Subject: Resource Consents held by Contact Energy Limited – Review of Conditions

1 Introduction

The Otago Regional Council (**ORC**) has requested that I review the adequacy of a number of resource consent conditions imposed on three of the resource consents issued to Contact Energy Limited (**Contact**) associated with the operation of two hydro-electric power plants on the Clutha/Mata-Au River in Central Otago, one at the Clyde Dam and one at the Roxburgh Dam.

Independent commissioners appointed by the ORC granted a suite of resource consents associated with Contact's hydroelectricity scheme in 2003 but their decision was appealed to the Environment Court by a number of parties. The Environment Court heard the appeals and issued two interim decisions (2005¹ and 2007²) and a final decision granting the consents (May 2007³). The conditions imposed by the Court were based on those imposed by the Commissioners, however significant changes were made to some of them.

The Lake Dunstan Charitable Trust⁴ (**LDCT**) wrote to the ORC on 10 June 2022 and 21 July 2022. The letters noted the LDCT had long held concerns about the adequacy of the conditions of Contact's consents, or at least the implementation of them, in ensuring that Contact appropriately avoids, remedies or mitigates the effects of its operations. The LDCT has requested that the ORC initiate a review of Contact's conditions under section 128 of the Resource Management Act 1991 (**RMA**).

The ORC has asked me to assess whether a number of the current conditions are appropriate in terms of avoiding, remedying, or mitigating adverse effects from the exercise of the consents. If the conditions do not adequately do so, then the ORC has the opportunity to instigate a review of the conditions under section 128 of the RMA.

2 Issues

The LDCT's letter of 21 July 2022 outlines a number of issues which it considers exist with the current conditions of Contact's consents. According to the LDCT these issues are:

...Contact's duty to "manage the effects of Contact's activities on landscape and visual amenity values in the bed of the Kawarau Arm of Lake Dunstan", through a current Landscape and Visual Amenity Management Plan (LVAP)⁵. The extent of Contact's obligations under that condition are under debate and remain unresolved. However, Contact's unmitigated effects extend beyond those that can or are intended to be addressed through the LVAP. These include:

¹ C 102/2005

² C 34/2007

³ C 67/2007

⁴ Formerly the Guardians of Lake Dunstan.

⁵ Whilst the LDCT initialises this management plan to 'LVAP', for the remainder of this memorandum I have used the more complete abbreviation 'LVAMP'.

- a) *Lake Weed: Lagarosiphon has taken over huge areas of the lake. While the source of the weed is from Lake Wanaka and Wakatipu, it settles in Lake Dunstan as the water is slow moving. This would not occur if the land still had a fast moving river passing over it. These effects are not addressed at all in the current conditions, despite clearly arising from Contact's operations.*
- b) *Lake margins have reduced biodiversity: The lake edge is now almost completely man made and falls under the Contact's easement. Contact is under no requirement to return the margins to pre-dam levels of biodiversity, or otherwise mitigate its effects in this regard.*
- c) *Sediment: Current conditions and sediment management plans do not address all viable options for sediment management. There are many options beyond what is currently being done, which is essentially to simply let 1 million cubes of sediment build up each year causing loss in visual, recreational and biodiversity amenity values. There have been no feasibility assessments into alternative measures, such as dredging.*
- d) *Access to the lake: Much of the lake is inaccessible due to the build up of weed both in the water and on the lake margins. There is no plan to manage and maintain access for the areas included within Contacts easement.*
- e) *Access to the Kawarau: The river is no longer safe to use for many boats due to sediment build up. Contact is requesting a variation of a current condition that requires them to maintain an access channel at the Bannockburn inlet, but is failing to address this issue.*
- f) *Flood risk to Alexandra: It remains unclear whether Contact's current plans to flush silt at the Roxburgh dam sufficiently reduce the flood risk to Alexandra.*

3 Relevant Consents and Conditions

The brief provided to me by the ORC requested that I review the adequacy of the following specific conditions.

Consent number	Conditions
RM2001.385.V3	<ul style="list-style-type: none"> • 3 – catchment approach to monitoring • 6 – Flood Management Plan (FMP) • 10 – lakebed monitoring • 11 – Lowburn Inlet • 12 – Bannockburn Inlet • 17 – Landscape and Visual Amenity Management Plan (LVAMP) • 20 – Sediment Management Plan (SMP)
RM2001.386.V4	<ul style="list-style-type: none"> • 10 – lakebed monitoring • 18 – LVAMP • 20 – SMP
RM2001.398.V2	<ul style="list-style-type: none"> • 5 – FMP • 6 – lakebed monitoring • 8 – LVAMP

Resource consent RM2001.385.V3 is a water permit which authorises Contact to dam the Clutha River approximately 1.5 kilometres upstream from Clyde with a concrete dam (the Clyde Dam) for the purpose of hydro-electric power generation. Lake Dunstan is located behind (upstream) of the Clyde Dam. Lake Dunstan has three arms centred on Cromwell: 1) the wide Clutha arm stretching down from Bendigo; 2) the Kawarau arm from where the Kawarau River emerges from its gorge above Bannockburn; and 3) the Cromwell Gorge between Cromwell and Clyde. For the purposes of this memorandum I refer to resource consent RM2001.385.V3 as the “**Clyde Dam consent**”.

Resource consent RM2001.386.V4 is a water permit which authorises Contact to dam the Clutha River at Roxburgh for the purpose of hydro-electric power generation. For the purposes of this memorandum I refer to resource consent RM2001.386.V4 as the “**Roxburgh Dam consent**”.

Resource consent RM2001.398.V2 is a land use consent⁶ which authorises Contact to disturb the bed of Lake Roxburgh by moving or removing deposited sediment and to disturb and alter the bed of the lower Manuherikia River for the purpose of flood mitigation. For the purposes of this memorandum I refer to resource consent RM2001.398.V2 as the “**Lake Roxburgh consent**”.

4 Analysis of Conditions

4.1 Introduction

My analysis of the adequacy of the conditions in terms of whether they adequately avoid, remedy, or mitigate adverse effects is somewhat of an academic exercise. I state this because I have not been asked to assess whether or not Contact has adequately complied with the conditions or whether the ORC has appropriately enforced the conditions. Those are separate matters and the lens I have used in terms of my analysis is therefore quite narrow.

There are two fundamental questions that need to be asked and answered when analysing the adequacy of the conditions. First, does the condition clearly identify an actual or potential adverse effect(s) that needs to be avoided, remedied, and/or mitigated; and second, does the condition then clearly state how the adverse effect is to be avoided, remedied, and/or mitigated by the consent holder.

There is a significant degree of commonality between the following conditions of the three consents that I have been asked to review:

- Condition 6 of the Clyde Dam consent and Condition 5 of the Lake Roxburgh consent – both conditions require a FMP to be prepared;
- Condition 10 of the Clyde Dam consent, Condition 10 of the Roxburgh Dam consent, and Condition 6 of the Lake Roxburgh consent – all three conditions require lakebed monitoring;
- Condition 17 of the Clyde Dam consent, Condition 18 of the Roxburgh Dam consent, and Condition 8 of the Lake Roxburgh consent – all three conditions required an LVAMP to be prepared; and
- Condition 20 of the Clyde Dam consent and Condition 20 of the Roxburgh Dam consent – both conditions require a SMP to be prepared.

For the sake of efficiency, I therefore analyse each set of conditions together and note the differences where they exist (which in a lot of cases relates to the water bodies specified).

⁶ Incorrectly stated as being a land use ‘permit’ on the consent certificate.

4.2 Clyde Dam Consent Condition 3 – Catchment Approach to Monitoring

Condition 3 of the Clyde Dam consent states:

3. Catchment Approach to Monitoring

a) The consent holder shall submit a monitoring programme to the Otago Regional Council within six months of the commencement of this consent and shall thereafter implement the same. The purpose of the programme shall be to monitor in an integrated manner, lake levels and river levels and flows required by the conditions of this consent, and to enable the consent holder to demonstrate compliance with the conditions of this consent.

b) The programme will specify procedures for monitoring lake levels and river levels and flows required by conditions of this consent. Monitoring sites are defined in the table in condition 8.

c) The consent holder shall implement a maintenance programme to ensure the functionality and accuracy of the equipment monitoring flows and levels.

This condition requires Contact to prepare and submit a monitoring programme whose purpose is to monitor lake levels, river levels, and flows. Condition 3 does not, in itself, specifically deal with any adverse effect nor does it require any actions to be undertaken to avoid, remedy, or mitigate any effect. There are other conditions which specify minimum and maximum lake levels which rely on the results of this monitoring.

I see no reason why Condition 3 of the Clyde Dam consent needs to be reviewed by the ORC.

4.3 Clyde Dam Consent Condition 6/Lake Roxburgh Consent Condition 5 – Flood Management Plan

Condition 6 of the Clyde Dam consent and Condition 5 of the Lake Roxburgh consent are essentially identical, with the only difference being condition cross referencing in clauses b), c), d), and e). For simplicity I present only Condition 6 of the Clyde Dam consent, as follows:

6. Flood Management Plan

a) The consent holder shall, within six months of the commencement of this consent, prepare for approval by Otago Regional Council, a Flood Management Plan in consultation with Queenstown Lakes District Council, Central Otago District Council and Clutha District Council, identifying:

(i) Procedures the consent holder will implement to ensure continual preparedness for flood events;

(ii) Monitoring and control actions the consent holder will implement during the rising, cresting and falling limbs of floods;

(iii) Procedures the consent holder will implement for notification to interested parties of such actions; and

(iv) The manner in which the consent holder will control the storage and flow of water in the Clutha River/Mata-au catchment to mitigate the adverse effects of flooding to the extent that this is practicable through the exercise of this consent and the other consents listed in condition 2.

b) Pending approval of the Flood Management Plan prepared under condition 6 (a) of this consent, the consent holder shall exercise this consent in accordance with the Clutha Flood Rules Version 1;

c) Once the Flood Management Plan prepared under condition 6(a) of this consent is approved, the consent holder shall exercise this consent in accordance with that management plan including approved revisions of the plan;

d) The consent holder shall reassess the effectiveness and appropriateness of the Flood Management Plan prepared under condition 6 (a) of this consent in consultation with Queenstown Lakes District Council, Central Otago District Council, Clutha District Council and Otago Regional Council no less frequently than every fifth anniversary of the commencement of this consent and also following any instantaneous flow in the Clutha River/Mata-au of greater than 2500 cubic metres per second as measured at Clyde (site 75213);

e) If the reassessment undertaken pursuant to condition 6 (d) indicates to the consent holder that changes to the Flood Management Plan are necessary or desirable, the consent holder shall revise the Flood Management Plan accordingly, for approval by Otago Regional Council.

This condition seeks to ensure Contact's operations, in terms of its control of the storage and flow of water, minimises adverse effects of flooding 'to the extent that this is practicable' through the preparation of a FMP, prepared in consultation with the relevant territorial authorities, which then needs to be 'approved' by the ORC. Further, the condition requires the effectiveness and appropriateness of the FMP to be reassessed every five years and also following any instantaneous flow in the Clutha River greater than 2,500 cumecs. If that reassessment suggests that changes to the FMP are needed then Contact must revise the FMP and submit it to the ORC 'for approval'.

This condition does not include a specific compliance requirement in terms of the extent of the flooding allowable by Contact's activities, however that is appropriate in this case because both Contact and the ORC have necessary responsibilities, the former to operate the dams safely, and the latter with the overall statutory responsibility for river and flood management within the region. While Contact has the capacity to minimise the effects of large floods in the Clutha catchment its objective of mitigating flooding is, however, secondary to ensuring that dam safety is maintained. I suspect that, because of the joint responsibilities and the overriding dam safety issues, the condition is deliberately worded such that the FMP has to specify how Contact will control the storage and flow of water to minimise flooding effects to the extent that this is practicable.

As such, I consider Condition 6 of the Clyde Dam consent and Condition 5 of the Lake Roxburgh consent are adequate in terms of mitigating the actual and potential adverse effects on flooding to the extent that Contact can practicably do so whilst still maintaining dam safety.

I see no reason why Condition 6 of the Clyde Dam consent or Condition 5 of the Lake Roxburgh consent need to be reviewed by the ORC.

4.4 Clyde Dam Consent Condition 10 / Roxburgh Dam Consent Condition 10 / Lake Roxburgh Consent Condition 6 – Lakebed Monitoring

Condition 10 of the Clyde Dam consent, Condition 10 of the Roxburgh Dam consent, and Condition 6 of the Lake Roxburgh consent are essentially the same, except they reference different water bodies and also the Roxburgh Dam and Lake Roxburgh consents includes an additional requirement for surveys of the Manuherikia River. I present Condition 10 of the Clyde Dam consent below and show the Roxburgh Dam consent/Lake Roxburgh consent differences in [brackets⁷]:

10 [10/6]. Lakebed Monitoring

a) The consent holder shall survey the Lake Dunstan [Roxburgh bed at the] cross sections identified in the Opus (July 2000) report on Drawing No. 8/1291/01/7834/1X and 2X [8/1247/86/8804/3] and attached as part of this consent [(copy attached) and the Lower Manuherikia River bed at sections M1 –M13 inclusive (as identified on the topographical map attached)], at the following frequency:

- at intervals of not more than 5 years [for Lake Roxburgh] in the Dunstan and Clutha Arms; and*
- at intervals of not more than 24 months in the Kawarau Arm [Lower Manuherikia River]; except that*
- in the Kawarau Arm [Lower Manuherikia River] a survey shall occur within 3 months of a flow exceeding 800 cumecs, as measured in the Kawarau River at the Chards Road site (Site No. 75262) [350 cumecs, as measured at the Ophir (No. 75253); and except that in both Lake Roxburgh and the Lower Manuherikia River, a Council survey shall occur within 3 months of inflows into Lake Roxburgh exceeding 1750 cumecs (as measured at Clutha River at Clyde and Manuherikia at Ophir).].*

The first survey of all three arms [above areas] shall be undertaken within six months of the commencement of the consent.

b) The results of each survey shall be provided to the Otago Regional Council within 3 months of completion of the [each] survey. The reported survey results shall include an assessment of [any] predicted flood levels for the lake [Lake Roxburgh] as measured at each re-survey cross section based on a 3,200 [3,600] cumecs per second flow at Clyde Dam [Roxburgh Dam].

This condition requires Contact to undertake surveys of the specified locations within the respective lakes and, for the Roxburgh Dam and Lake Roxburgh consents also the Lower Manuherikia River. The purpose of the condition(s) is to track the progress of sediment deposition in the lake(s). While the results of these surveys also need to include an assessment of any predicted flood levels for the respective lakes, the condition does not, in itself, specifically deal with any adverse effect nor does it require any actions to be undertaken to avoid, remedy, or mitigate any effect.

I see no reason why Condition 6 of the Clyde Dam consent, Condition 10 of the Roxburgh Dam consent, or Condition 6 of the Lake Roxburgh consent need to be reviewed by the ORC.

4.5 Clyde Dam Consent Condition 11 – Lowburn Inlet

Condition 11 of the Clyde Dam consent states:

⁷ Condition 10 of the Roxburgh Dam consent and Condition 6 of the Lake Roxburgh consent are almost identical.

11. Lowburn Inlet

a) *Within one year of the commencement of this consent, the consent holder shall establish and survey a series of six cross sections at 20 metre intervals in the Lowburn Inlet. The cross sections shall run in a northeast direction and shall extend across the inlet from 195 metres above datum to 195 metres above datum. The first cross section shall be at the confluence of the Lowburn Stream and the Lowburn Inlet (as defined in the attached plan).*

b) *The results of the survey shall be provided to the Otago Regional Council within 3 months of completion of the survey.*

c) *Subject to it obtaining any necessary resource consents which are subject only to conditions substantially in the same form as conditions contained in condition 11e) of this consent, the consent holder shall remove deposited sediment from the bed of the Lowburn Inlet to ensure that the lakebed specification set out in the attached plan which forms part of this consent, is met. The consent holder shall maintain the inlet free of deposited alluvial material as follows (except insofar as allowed by condition 11 d)):*

(i) From the 0 to 60 metre cross section the bed shall be maintained to the as-built contours shown in the Works Project Services drawing "As-Built Lake Shore Contours 8/1291/08/7834/Sheet 76".

(ii) From the 60 metre to 120 metre cross section the bed shall be maintained as follows:

- The area between the Lowburn Inlet boundary (as defined in the attached plan) and the 191.0 metre contour shall be maintained at an average grade of approximately 8:1;*
- The area inside the 191.0 metre contour shall be maintained with a bed level not exceeding 191.0 metres above datum.*

d) *The consent holder shall undertake repeat surveys of the two cross sections nearest to the Lowburn Stream outlet from time to time in consultation with the Otago Regional Council, but in any event at not greater than five yearly intervals. The results of the survey shall be provided to the Otago Regional Council within three months of the survey. Where more than 50% of the bed profile varies from any one or more of the cross-sections defined in condition 11 a) above by more than 0.5 metres vertically the consent holder shall ensure the inlet conforms to the specifications established in 11c).*

e) *For any bed disturbance works required by this Condition the following conditions apply:*

(i) Works shall not be undertaken during the months of November to April inclusive;

(ii) The consent holder shall take all reasonable measures to minimise any change in the colour or visual clarity of the water in the Clutha Arm of Lake Dunstan;

(iii) The consent holder shall take all reasonable measures to reduce dust emissions resulting from the disturbance of the bed material;

(iv) Any fuels or other hazardous materials stored near the site shall be kept at least 50 metres clear of any water body;

(v) Any refuelling of machinery shall occur at least 50 metres clear of the waterbody;

(vi) Once commenced, the works shall be completed without unreasonable delay and on completion the site shall be left tidy and all surplus material shall be removed from the site.

Condition 11 of the Clyde Dam consent requires Contact to undertake surveys within the Lowburn Inlet and then to remove any deposited sediment from the bed of the Lowburn Inlet to ensure that the original character and bathymetry are achieved.

The Lowburn Inlet was initially re-shaped and planted to mitigate the effects of damming. A number of submitters believed lake margin plantings, public access works, and lake bed profiles (which had been affected by sedimentation) had not been adequately maintained by Contact and this condition was imposed to address those concerns of submitters. The intent of the condition is to ensure Contact maintain the Lowburn Inlet as it was originally intended. The Commissioners' decision stated:

61. The aim of this condition is to ensure that the Lowburn Inlet retains the original character it had immediately following the filling of Lake Dunstan. It is a significant and pleasant recreation area. The inlet is gradually silting up primarily due to material brought down the Low Burn.

62. Accordingly the consent holder is required to remove sediment from the bed of the inlet as specified in the condition, and this is to be linked to a periodic survey of the underwater contours of the inlet as a means of monitoring its state.

I consider Condition 11 of the Clyde Dam consent clearly identifies the environmental state that is sought to be achieved (i.e. the as-built lakebed specifications) and it clearly states the actions Contact must undertake to achieve such a state, including monitoring to ensure it complies with the requirements. As such, provided Contact complies with the requirements specified in the condition the potential adverse effects being sought to be avoided should be met.

I see no reason why Condition 11 of the Clyde Dam consent needs to be reviewed by the ORC.

4.6 Clyde Dam Consent Condition 12 – Bannockburn Inlet

Condition 12 of the Clyde Dam consent states:

12. Bannockburn Inlet

a) The consent holder shall undertake a bathymetric survey, at not more than 1.0 metre elevation contour intervals, of the Bannockburn inlet below 194 m above datum and as defined in the attached plan, within three months of the commencement of this consent (the initial bathymetric survey) and every fifth year thereafter.

b) The results of each survey shall be provided to the Otago Regional Council within 3 months of completion of the survey.

c) Subject to it obtaining any necessary resource consents which are subject only to conditions substantially in the same form as the conditions contained in condition 12 e) of this consent, the consent holder shall remove deposited sediment from the bed of the Bannockburn Inlet to ensure that the lakebed between elevation 194.5 metres above datum and 191.0 metres above datum shall be graded to generally conform with the initial bathymetric survey data. Where the bathymetric survey data shows that the lakebed is lower than 191.0 metres above datum the consent holder shall maintain such lower levels at an elevation of not greater than 191.0 metres above datum.

d) *The consent holder shall maintain a channel at least 50 metres wide with a bed elevation of not greater than 191.0 metres above datum between the flowing water in the Kawarau Arm and the Bannockburn Inlet.*

e) *For any bed disturbance works required by condition 12(c) of this consent the following conditions apply:*

(i) Works shall not be undertaken during the months of November to April inclusive;

(ii) The consent holder shall take all reasonable measures to minimise any change in the colour or visual clarity of the water in the Kawarau Arm of Lake Dunstan;

(iii) The consent holder shall take all reasonable measures to reduce dust emissions resulting from the disturbance of the bed material;

(iv) Any fuels or other hazardous materials stored near the site shall be kept at least 50 metres clear of any water body;

(v) Any refuelling of machinery shall occur at least 50 metres clear of the waterbody;

(vi) Once commenced, the works shall be completed without unreasonable delay and on completion the site shall be left tidy and all surplus material shall be removed from the site.

Condition 12 of the Clyde Dam consent is very similar to Condition 11 of the same consent except that it applies to the Bannockburn Inlet rather than the Lowburn Inlet. Condition 12 of the Clyde Dam consent requires Contact to undertake surveys within the Bannockburn Inlet and then to remove any deposited sediment from the bed of the Inlet to ensure that it generally conforms with the initial bathymetric survey data.

The Commissioners' reasons for Condition 12 were:

63. *This condition is very similar to that for the Lowburn Inlet and is required for the same reason: that the ongoing activities of the consent holder are leading to the degradation and potential loss of a significant recreational amenity. A further reason for maintaining the inlets is that they were initially offered as mitigation in part for the adverse effects on the environment and the community resulting from the Clyde Dam project. It would be unreasonable for the offered amenity to be taken away because of the consent holder's activities.*

64. *Maintaining the Bannockburn Inlet in essentially its present state will be more difficult than preserving the Lowburn Inlet because of the sediment advance in the Kawarau Arm. It is none the less important for that.*

65. *We do not of course specify in any way the methods to be used by the consent holder to comply with this condition. To do so would unreasonably restrict its ability to adopt the most desirable and cost-effective solution.*

I consider Condition 12 of the Clyde Dam consent clearly identifies the environmental state that is sought to be achieved (i.e. the initial bathymetric survey data specifications) and it clearly states the actions Contact must undertake to achieve such a state, including monitoring to ensure it complies with the requirements. As such, provided Contact complies with the requirements specified in the condition, the potential adverse effects being sought to be avoided should be met.

I see no reason why Condition 12 of the Clyde Dam consent needs to be reviewed by the ORC.

4.7 Clyde Dam Consent Condition 17/ Roxburgh Dam Consent Condition 18 / Lake Roxburgh Consent Condition 8 – Landscape and Visual Amenity Management Plan

Condition 17 of the Clyde Dam consent, Condition 18 of the Roxburgh Dam consent, and Condition 8 of the Lake Roxburgh consent are all essentially the same, except they reference different water bodies. I present Condition 17 of the Clyde Dam consent below and show the Roxburgh Dam consent and Lake Roxburgh differences in [brackets]:

17 [18/8]. Landscape and Visual Amenity Management Plan

- a) *Within two years of the commencement of this consent, the consent holder shall submit to Otago Regional Council for approval a Landscape and Visual Amenity Management Plan that describes how it will manage the effects of its activities on landscape and visual amenity values in the bed of the Kawarau Arm of Lake Dunstan [Manuherikia River and adjacent Crown Land from the confluence with the Clutha River to cross-section M10 (located 3.97 kilometres upstream from Lake Roxburgh)], including a programme of actions, methods and timelines for required actions.*
- b) *The Landscape and Visual Amenity Management Plan shall incorporate a monitoring component and a subsequent remediation component and shall be prepared in consultation with Otago Regional Council, and other potentially affected parties including Central Otago District Council.*
- c) *The consent holder shall be responsible for ensuring implementation of the Landscape and Visual Amenity Management Plan, including approved revisions of that Plan.*
- d) *The consent holder may reassess the Landscape and Visual Amenity Management Plan at any time in consultation with the Otago Regional Council, and any [any] other potentially affected parties including Central Otago District Council. Any revisions to the Plan shall be submitted to Otago Regional Council for approval.*
- e) *The consent holder [shall,] in consultation with the Otago Regional Council and [other potentially affected parties including⁸] Central Otago District Council shall, [shall,] reassess the Landscape and Visual Amenity Management Plan [at the expiration of] every five years after [following] approval of the first Landscape and Visual Amenity Management Plan and shall submit any revised plans to Otago Regional Council for approval within six months of the reassessment.*

These conditions are similar to the conditions included in the Commissioners' decision, however changes were made to incorporate the Environment Court's suggested changes as well as some other subtle changes. Despite these differences, the intent of the conditions is essentially the same as the Commissioners' decision. The Commissioners' decision includes the following commentary regarding the three LVAMP conditions:

Clyde Dam consent Condition 17⁹:

72. *Many changes are likely to occur in the Kawarau Arm in the 35 year span of the consent. Some may have adverse effects on the appearance of the Arm. It is better to consider the issue ahead of time rather than wait until adverse effects have already happened, at which point it might be too late to take effective action. Therefore the condition requires development of a landscape plan and also that the consent holder implement its recommendations within the specified time frame.*

⁸ The words in brackets are only included in the Lake Roxburgh consent, the Roxburgh Dam consent does not include these words.

⁹ Was Condition 19 in the Commissioners' decision.

Roxburgh Dam consent Condition 18 and Lake Roxburgh consent Condition 8:

110. The condition refers to the low lying and willow infested land in the lower Manuherikia. It follows the two-step approach to be found in many other conditions such as Condition 17 above. Note that the consent holder is not required to carry out remedial works required by the plan, but merely to ensure they are implemented. The responsibility is Contact's, but it does not necessarily have to commission or carry out the work itself.

There are a number of issues with these conditions as follows:

- Conditions must provide clear performance or environmental standards that are to be certified by an appropriately qualified and experienced person as being achieved. No such performance or environmental standards are specified in this (or any other) condition as it relates to extent of adverse effects of Contact's operations on landscape and visual amenity effects which are considered (by the decision maker) to be acceptable.
- Critical actual or potential adverse effects should have been identified, appropriately avoided, remedied, or mitigated in either this condition, or a separate condition, before a decision to grant was made and not left to be addressed via a future management plan as has been the case here for the LVAMP.
- Management plans should be limited to non-critical operational processes that lie behind a performance or operational standard. Management plans can be used to clarify how compliance with a performance standard will be achieved but they should not be relied upon as the sole mechanism to provide reassurance that a critical performance or environmental standard will be achieved.
- In this case the decision on whether Contact's proposed management of its activities is appropriate to avoid, mitigate, and/or remedy adverse effects on landscape and visual amenity values of the two water bodies and whether its programme of actions, methods, and timelines for required actions is appropriate is left up to an ORC staff member to decide through the 'approval' of the LVAMP and any revisions/reassessments of it. This type of condition is not lawful because it leaves what is quite a critical decision (i.e. deciding what level of effect is acceptable and what actions are needed to remedy or mitigate any adverse effects) is left to the discretion of a council officer – that is, the condition gives an arbitration power to the council officer by way of a secondary approval. In my view the condition amounts to a derogation of decision making.
- While the condition requires Contact to prepare the LVAMP, including any reassessment of it, "in consultation" with specified persons, there is no obligation for Contact to incorporate any of the suggestions or address specific concerns of those persons. The condition could be improved to require Contact to provide a summary of the consultation/feedback and identify how that feedback has been incorporated into any revised LVAMP and/or why such feedback has not been incorporated.

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- The condition specifies that Contact must prepare the LVAMP, including any reassessment of it, in consultation with the Central Otago District Council and “potentially affected persons”. This language is vague and creates uncertainty as to who may be potentially affected in terms of landscape and visual amenity values and therefore who Contact needs to consult with in preparing/reassessing the LVAMP. The landscape and visual amenity values of the two water bodies in question are clearly important to the local community (and probably also the wider public). Therefore, it would appear that Contact would need to consult with at least the local community (or at least those submitters who raised issues relating to Contact’s actual or potential adverse effects on landscape and visual amenity values) in preparing its LVAMP and during any reassessment of it. I am not sure if such consultation has occurred to date, but the condition should be changed to specify the groups who Contact needs to consult with, these being groups that either represent the local community or have a specific interest in landscape and visual amenity values of the water bodies in question. Specifying the parties to be consulted will provide Contact certainty as to who it needs to consult in any reassessment of the LVAMP.

A further complicating factor in terms of crafting any condition which seeks to manage Contact’s activities to appropriately avoid, remedy, or mitigate adverse effects on landscape and visual amenity values is the fact that there is little guidance provided in either the Commissioners’ decision or the Environment Court’s decision as to the acceptable degree of adverse effect on these values from Contact’s activities. Both decisions acknowledge that there will be changes to landscape and visual amenity values over the next 35 years but they are not necessary adverse. While specific conditions were imposed on the Clyde Dam consents to deal with the Lowburn and Bannockburn Inlets (which includes an element of visual amenity effects and required sediment to be removed to return the inlets to their original character), there are no other conditions that deal with these values as they relate to other parts of the lakes.

I recommend that the ORC reviews Condition 17 of the Clyde Dam consent, Condition 18 of the Roxburgh Dam consent, and Condition 8 of the Lake Roxburgh consent to address the issues which I have discussed above.

I note there was a recent meeting (27 July 2022) to discuss the Kawarau Arm, Lake Dunstan LVAMP and that the LDCT participated in this meeting. The minutes of the meeting record that it produced successful outcomes, including a commitment for the various parties to work together to produce a revised LVAMP. I make this observation because, while my analysis and recommendation regarding this condition is that it should be reviewed, I am also aware that section 128 RMA reviews can be a cumbersome, potentially lengthy, and litigious process. A section 128 RMA review may not be necessary within the current five year ‘window’ available to the ORC if there is goodwill between the various parties and a commitment for them to work together within the current condition framework (despite its deficiencies) to achieve the intended aims of the condition through developing a revised LVAMP.

4.8 Clyde Dam Consent Condition 20 / Roxburgh Dam Consent Condition 20 – Sediment Management Plan

Condition 20 of the Clyde Dam consent and Condition 20 of the Roxburgh Dam consent are all essentially the same, with only minor differences as shown below. I present Condition 20 of the Clyde Dam consent below and show the Roxburgh Dam consent differences in [brackets]:

20. Sediment Management Plan

a) The consent holder shall within six months of the commencement of this consent commission the preparation of an option plan for the long term management of sediment in the Clutha Catchment that is either stored within or moving through the Crown easement area or is discharged through the Clyde or Roxburgh Dams.

In assessing the options, consideration shall be given to:

(i) Sediment deposition in the head of the Clutha Arm of Lake Dunstan and the implications for the Bendigo Wildlife Area;

(ii) Maintaining access to water for the existing surface water abstractors and the provision of access to water for future users;

(iii) The implications for groundwater abstractors adjacent to the Kawarau Arm of Lake Dunstan specifically those with bores within 100 metres of the existing lake edge;

(iv) Effects on flooding levels in Lake Dunstan and at Alexandra and along the lower Manuherikia River;

(v) Implications of revising the [Clutha] Flood Management Plan if it is not possible to obtain easements over land affected by raised flood levels;

(vi) Implications of changes in sediment trap efficiency of Lake Dunstan if the tipping face is allowed to advance down the Cromwell to Clyde Reach, including in particular the effect on flood levels at Alexandra;

(vii) The causes and mechanisms of the deposition of fine sediment in and on the margins of the lower Clutha River from Roxburgh Dam to the sea;

viii) The extent to which sediment starvation contributes to coastal erosion problems.

b) The plan shall also include an assessment of the adverse and positive effects of each option, and the technical feasibility of each option together with a draft management plan for the imposition of the recommended options.

c) The plan shall be concluded within four years of the commencement of this consent and forwarded to the [the] Otago Regional Council.

d) The consent holder shall commission a peer review of the plan by suitably qualified experts independent of the consent holder.

e) Within five years of commencement of [this] consent the consent holder shall submit the plan and peer review prepared under this condition to Otago Regional Council.

f) Within six months of receiving the plan and peer review, Otago Regional Council may serve notice pursuant to section 128 of the Resource Management Act 1991 of its intention to review the conditions of this consent and [the] other consents listed in condition 2 to consider the adequacy of conditions governing the long term management of sediment in the Clutha catchment.

Condition 20 requires Contact to prepare a SMP, have a peer review of it undertaken, and submit the SMP and the peer review to the ORC within five years of the commencement of the consent. The ORC then had the opportunity, within six months of receiving the SMP and peer review, to review the conditions of all of Contact's consents to consider the adequacy of conditions which cover the long-term management of sediment in the Clutha catchment. I do not know whether such a review occurred.

Condition 20 clearly states what the purpose of the SMP is, including a consideration of options, and requires a draft management plan to be included for the imposition of the recommended options for the long-term management of sediment to achieve the stated purposes.

I note that the condition does not require the SMP that is submitted to the ORC to be certified or approved, nor does the condition require any of the recommended sediment management options to be implemented. This appears to be deliberate as the Commissioners' decision stated (my emphasis added):

75. The sedimentation issues in the different sections of the lakes and rivers are significant, and cannot be considered in isolation from each other. A catchment-wide Sediment Management Plan is needed, ranging from the upper reaches of the catchment down to and along the coast. The condition sets out the requirements and purpose of the plan in detail. Our expectation is that a great deal of careful work will be needed, and for that reason the Plan is assigned a time frame of four years. The condition does not ask for implementation at this stage. Rather, what is required is a review of the conditions five years after commencement of the consent. Note also the requirement for a peer review of the sediment management report by an independent panel of experts. Here, we are essentially following the precedent of the five yearly independent safety reviews of the dams and landslides.

The condition imposed by the Commissioners differs from what was ultimately included in the final set of conditions issued by the Environment Court. The Commissioners' decision included a clause¹⁰ worded such that a mandatory review of Contact's consents was required – their clause stated (my emphasis) “*Within five years of commencement of consent granted there shall be a review of the conditions to consider the issues in [sic] raised in (a) and (b) above*”¹¹. The Environment Court's decision does not discuss the change to Condition 20 (except in terms of the timeframe by which the Sediment Management Plan had to be prepared) but it did direct the parties to work on the conditions and the change from a mandatory review to a discretionary ability for the ORC using section 128 of RMA appears to have occurred during those discussions. It is entirely understandable why the review part of the condition was changed because a condition cannot require a review of conditions under section 128 of the RMA, it can only provide for the ability for such a review to occur if this is considered appropriate.

In reviewing the genesis of Condition 20, it was clear that the SMP was to be used as a basis to review the conditions of all of Contact's consents in terms of the adequacy of conditions governing the long term management of sediment in the Clutha catchment. On the face of it, Condition 20 was to have a finite life but its contents, in particular the draft management plan for the imposition of the recommended long-term sediment management options, are likely have been required to be implemented as a condition of consent following the review anticipated by the Commissioners. The final wording of the condition leaves the implementation of such a management plan in a state of limbo as there is no requirement in the current condition for it to be implemented, monitored, or reviewed. However, it would appear¹² that Contact is actively implementing a sediment management strategy and has reviewed this strategy for effectiveness.

I recommend that the ORC reviews Condition 20 of the Clyde Dam consent and Condition 20 of the Roxburgh Dam consent to require Contact to maintain and implement an up to date SMP which has been certified/approved by the ORC. The condition should also require the SMP to be reviewed on a regular basis (maybe every five years) and require Contact to report annually to the ORC on the actions it has taken in respect of sediment management to achieve the aims and purpose of the SMP.

¹⁰ Being clause c) of their decision but due to renumbering of the clauses ended up being replaced by clause f) of the Environment Court's Condition 20.

¹¹ The Commissioners' reference to “(a) and (b) above” equates to clauses (a) to (e) in the final conditions (again due to renumbering that was undertaken as part of the Environment Court's conditions).

¹² Based on comments made by ORC staff in its 2018 Compliance Monitoring Report.

5 Lagarosiphon

I note that one of the concerns raised by the LDCT relates to the lake weed 'lagarosiphon', which the LDCT states has taken over huge areas of Lake Dunstan. The LDCT states the effects associated with lagarosiphon are not addressed at all in the current conditions and they state that such effects are "...clearly arising from Contact's operations".

The Commissioners' decision discusses lagarosiphon and they included a condition which sought to deal with the potential effects of this plant. The Environment Court, in its initial interim decision at paras [109]-[113]¹³, traverses this topic. The Court stated that Land Information New Zealand (LINZ), being the Crown agency responsible for ownership of the lake bed, accepted that it had the responsibility to control the weed, but how well the Crown is achieving that is another matter. The Court noted there were two issues of concern: the first being that the Crown is not bound to comply with the Regional Pest Management Strategy (which designates lagarosiphon as a pest plant), and the second being that apparently LINZ does not always have sufficient funds to carry out the work. The Court then stated that this would suggest that Contact should control lagarosiphon as a back-up to LINZ, but found this not to be the case and determined that the lagarosiphon condition imposed by the Commissioners should be deleted.

6 Conclusions and Recommendations

The ORC has requested that I review the adequacy of a number of resource consent conditions imposed on three of the resource consents held by Contact associated with the operation of two hydro-electric power plants on the Clutha/Mata-Au River in Central Otago, one at the Clyde Dam and one at the Roxburgh Dam.

The ORC has asked me to review 13 conditions across three of Contact's consents (RM2001.385.V3, RM2001.386.V4, and RM2001.398.V2) and to assess whether I consider they are appropriate in terms of avoiding, remedying, or mitigating adverse effects from the exercise of the consents. If the conditions do not adequately do so, then the ORC has the opportunity to instigate a review of the conditions under section 128 of the RMA.

Of the 13 conditions I have been asked to analyse, I recommend that the ORC reviews the following conditions:

- Condition 17 of the Clyde Dam consent (RM2001.385.V3), Condition 18 of the Roxburgh Dam consent (RM2001.386.V4), and Condition 8 of the Lake Roxburgh consent (RM2001.398.V2) which all relate to the LVAMP. I have identified several issues with these conditions that should be remedied; and
- Condition 20 of the Clyde Dam consent (RM2001.385.V3) and Condition 20 of the Roxburgh Dam consent (RM2001.386.V4) which relate to the SMP.

¹³ C105/2005.