Otago Regional Council

RM26.297

6 November 2026

Via email to: Simon Mason (simon.mason@qldc.govt.nz) Claire Perkins (claire@landpro.co.nz)

Dear Simon

Request for further information under section 92(1) of the Resource Management Act 1991 (the Act) – Consent Application Number RM26.297

Thank you for your application to:

- discharge treated wastewater to the Kawarau River from the Shotover Wastewater Treatment Plant (WWTP);
- discharge odour to air from the Shotover WWTP;
- disturb the bed of the Kawarau River and to place and maintain an outfall structure and/or pipe in the bed of the Kawarau River;
- discharge sediment-laden water associated with the construction and maintenance of the outfall and/or pipe to the Kawarau River; and
- to take and use groundwater for construction-phase dewatering.

An initial assessment of your application has now been made by Mr Nick Dempsey of Mott MacDonald who is providing a technical audit of the application:

This is the final initial technical audit for this stage of the process.

To be able to make a full assessment of the application, I request the following information under section 92(1) of the Resource Management Act (the Act). This is supplementary to the requests for information dated 20 July 2026, 21 August 2026 and 8 September 2026.

UV Disinfection

Section 2.4.3 of the Application document titled: *Resource Consent Application to Otago Regional Council for Discharge of Treated Wastewater & Associated Activities – Shotover Wastewater Treatment Plant* dated 29 May 2026 proposes further UV treatment. However, Section 7.6.2 of Appendix A to the Application notes that the addition of further UV treatment is currently being considered. The Application proposes a 95th percentile *E.Coli* consent limit of 100 cfu/100mL as a condition of resource consent in Appendix O to the Application. It is also acknowledged in the Application that a discharge-specific quantitative microbial risk assessment (QMRA) is needed to refine the estimates of risks to recreational users. The following additional information is requested:

1. Please confirm what flow the UV dose of 27 mJ/cm^2 relates to, and whether this dose will be sufficient for future flows;

2. The RFI dated 8 September 2026 requested a revised QMRA, or in lieu of that, further information relating to it. Alongside responding to those queries, please consider the suitability or otherwise of a dose based UV limit to be included as a proposed condition of resource consent. Please also give consideration to:
    a. A minimum validated UV dose;
    b. Continuous monitoring of critical UV performance parameters (such as flow, UV intensity, UV transmittance and lamp status);
    c. Alarm and corrective -action requirements; and
    d. Compliance monitoring of the treated effluent.
3. Please clarify whether additional UV treatment will be installed at the Shotover WWTP, or when this is likely to be determined and how the findings of the QMRA will impact on the requirement for additional UV to be installed.

This information is required to understand whether the proposed disinfection and consent limits adequately manage health risks to recreational users.

Usage of aluminium sulphate and polyaluminium chloride

Aluminium sulphate (alum) and polyaluminium chloride (PACI) are proposed to reduce phosphorous concentrations in the treated wastewater. Based on the advice of Mr Dempsey it is understood that they are typically effective for this purpose, but increase sludge quantity and can change the pH of the wastewater, which could put the consented discharge pH at risk and affect the biological treatment process. The application addresses the effects of additional aluminium on the receiving environment, but not these other impacts, which may put the process at risk and create ongoing operational issues and costs. Please provide the following additional information:

4. Use of alum, PACI or other phosphorous-precipitating chemicals typically increases waste sludge volume by 20% to 30%. Please advise what impact this will have on the WWTP's solids handling equipment, and whether limited solids handling capacity could restrict the mass of solids removed from the system and so adversely affect the MLE treatment process.
5. Thickened and dewatered sludge (biosolids) will have a higher concentration of aluminium and phosphorus. Please advise whether this limits how the biosolids can be handled and where they can be delivered.
6. Please describe how the chemical dosing will change the nature of the mixed liquor, and how this will affect sludge age and subsequent biological treatment performance.
7. Please explain whether alum or PACl dosing could reduce process pH to unacceptably low levels and, if so, how the process would respond and what mitigation would be required.
8. Please advise whether the lower temperatures expected in winter (particularly with water entering through infiltration) will affect the efficacy of the dosing and, if so, how this will be addressed.
9. Please advise what residual aluminium concentration can be expected in the treated wastewater, and whether concentrations could be high enough to be unacceptable for the receiving environment.

This information is required to understand the effects of chemical dosing on the treatment process, the discharge and the receiving environment.

Sludge age and ability to remove nitrogen

It is understood that sludge age is currently controlled by wasting solids from the clarifier underflow return activated sludge (RAS) stream, adjusted to maintain a target mixed liquor suspended solids (MLSS) concentration in the reactors. It is understood from Mr Dempsey's advice that this is typically a more difficult method of controlling sludge age, because it relies on knowing the solids concentration in the clarifier underflow, which varies through the day with flow. More commonly, MLSS is wasted directly from the reactor, which gives greater control. A better understanding is therefore needed of how the plant will respond to chemical addition, and what control or mitigation measures may be needed to reduce the risk of non-compliance with the nitrogen limits. Considering the changes to sludge characteristics and pH described above, please provide the following:

10. Please describe how the system will respond in terms of nitrogen removal. For example, additional aluminium and phosphorus sludge is expected to increase MLSS concentration for a given sludge age, which may reduce reactor capacity. However, MLSS settling may also improve with chemical addition, which could offset that reduction. Please provide further information on the behaviour and capacity of the system for nitrogen reduction after aluminium sulphate or PACl is added. Will any additional control measures be put in place to further refine control of the sludge age? If so, what could these be? If not, please explain why sludge age control and nitrogen removal are not a concern with the provision of chemical dosing.
11. Please advise whether any additional measures will be put in place to refine sludge age control and, if so, what these will be. If not, please explain why sludge age control and nitrogen removal are not a concern with chemical dosing.

This information is required to understand whether the proposed nitrogen limits can be reliably met.

Assessment of alternatives

The assessment of alternative options provided with the application appears to be thorough, however it is considered that there may be further opportunities for nutrient reduction and "polishing" the final effluent. The following additional information is requested:

15. Please explain why the wetland area was limited to three hectares when there appears to be significantly more area available in the indicative wetland location shown in Figure ii of Appendix G to the Application.
16. Please advise how effective the proposed three-hectare wetland would be under Option B at removing contaminants such as metals, PFAS, pharmaceuticals, microplastics and other emerging organic contaminants.
17. Please consider whether the wetland could be increased in size to further reduce nitrate and the other contaminants listed above.
18. Please consider whether a larger wetland could be located away from the delta area.

This information is required to understand the assessment of alternative options and the options considered.

Proposed consent conditions

Proposed consent conditions are provided in Appendix O to the Application document. The following additional information is requested:

12. Please advise how upgrades to the capacity of the Shotover WWTP over the life of the consent, to accommodate anticipated growth, are proposed to be provided for. Please also consider whether a condition requiring regular reporting to ORC on wastewater treatment planning (for example, every three to five years, increasing to annually from 2040) would be appropriate.
13. Given the above discussion about aluminium residuals following the dosing of alum or PACl in the treatment plant, please consider whether total aluminium should be added as a monitoring parameter (Conditions 4 and 22(b)(ii)) for the discharge and receiving environment.
14. The proposed conditions include an Operations and Maintenance (O&M) manual and a Contingency and Incident Response Plan (CIRP). Please advise whether draft versions of these plans will be provided for review.

This information is required to understand the proposed conditions insofar as they relate to capacity upgrades and the proposed plans.

Objective and policy assessment
A comprehensive assessment of the objectives and policies relevant to the proposal is contained in Section 7 of the Application.

15. If any of the information provided in response to the matters identified in this letter mean that objective and policy assessments provided are no longer relevant, please provide updated assessments.

This information is requested so ORC is considering accurate objective and policy assessments.

Your application will be placed on hold under section 88C of the Act until the requested information has been received. Unless I hear otherwise from you I will continue to do some minor work on your application so that we can progress it once the application comes 'off hold'.

In accordance with section 92A of the Act, please respond within 15 working days from the date of this letter (**26 November 2026**) with one of the following:

1. The information requested above; or
2. Written advice that you agree to provide the information, and the date by which you intend to provide it; or
3. Written advice that you refuse to provide the requested information.

Incomplete Application
Under Section 92AA the Council may determine your application is incomplete if after 3 months following the close of the 15 working day period, you have not responded to this request. If determined to be incomplete your application will be returned to you. If you relodge your application it will be treated as a new application.

If the information you provide raises more questions, your application will remain on hold until sufficient information has been provided to enable processing to continue.

If you have any further queries, please contact me on (03) 474 0827 or 0800 474 082.

Information on the current processing costs for your application is included in the email relating to this letter.

Yours sincerely

[redacted]

Hannah Goslin
Consultant Consents Planner