

BEFORE THE FAST-TRACK EXPERT PANEL

AT CHRISTCHURCH

IN THE MATTER of the Fast-track Approvals Act
2025

AND

IN THE MATTER of applications for Pound Road
Industrial Area [FTAA-2505-
1057]

**EVIDENCE OF MICHELE ANN MCDONALD FOR COMMENTS BY CHRISTCHURCH CITY
COUNCIL**

Dated: 22 October 2025

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INTRODUCTION

1. My full name is **Michele Ann McDonald**. I hold a Bachelor of Science in Civil Engineering and a Bachelor of Science Honours in Urban Engineering, both awarded by the University of Pretoria, South Africa. I am currently employed by the Christchurch City Council (Council) as Team Leader: Asset Planning – Water and Wastewater. In this role, I provided technical advice on the capacity of Council's water and wastewater networks and associated servicing requirements for the Pound Road Industrial fast track application numbered [FTAA-2505-1057] (the application).
2. I have over 30 years of experience as a civil engineer with a particular focus on water and wastewater planning and infrastructure delivery. I have led the development of numerous water and wastewater infrastructure strategies for cities and major metropolitan areas and joined Christchurch City Council in January 2017 as a Senior Planning Engineer within the Asset Planning – Water and Wastewater team.
3. I am a registered professional engineer in South Africa and a Chartered Member of Engineering New Zealand.

Code of conduct

4. While this is a Council hearing, I have read the Code of Conduct for Expert Witnesses (contained in the Environment Court Practice Note 2023) and agree to comply with it. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

Documents reviewed

5. In preparing this evidence I have reviewed the following documents:
 - 5.1 Memorandum - Wastewater Model Query Request – Plan Change 19: Pound Road Industrial, (updated July 2025)
 - 5.2 Water Supply Modelling Assessment – Pound Road Industrial Park – Development (April 2024)
 - 5.3 Final Fast-Track Approval – Resource Consent Applications & Wildlife

Act Permit Application (July 2025)

- 5.4 Appendix 3 – Scheme Plan (June 2025)
- 5.5 Appendix 12 – Infrastructure Report (June 2025)
- 5.6 Appendix 14 – Consent Conditions (June 2025)
- 5.7 Addendum to Appendix 12 – Infrastructure Servicing Memo (October 2025)
- 5.8 Updated Engineering Concept Plans (October 2025)
- 5.9 Addendum to Appendix 14 - Draft Conditions (October 2025)

SUMMARY OF EVIDENCE

- 6. This evidence, prepared by Michele Ann McDonald, Team Leader Asset Planning – Water and Wastewater at Christchurch City Council, addresses the water supply and wastewater infrastructure constraints and resulting servicing requirements for the proposed Pound Road Industrial development under the Fast-track Approvals Act 2025 (FTAA-2505-1057).
- 7. The assessments performed on behalf of the applicant identified significant limitations to the existing water and wastewater networks, which are unable to service the development. Key findings include:
 - 7.1 **Water Supply: The current network does not have capacity to service the development.** Significant upgrades are needed to the water network between the Templeton Booster Pump Station, and along Waterloo Road to the service connection point as well as to the Templeton Booster Pump Station feeder mains in Foreman Road and Main South Road. In addition, the Templeton Booster Pump Station will have to be upgraded to service an FW4 (100 L/s) fire flow demand for this industrial development. A comprehensive design process in terms of an Infrastructure Provision Agreement will be required to refine and optimise the infrastructure requirements and to ensure compliance with Council standards and specifications.
 - 7.2 **Wastewater: The DN375 gravity sewer in Waterloo Road does not have capacity to service the development.** Council supports a gravity network with a dedicated pump station that can service the

wastewater demand as expected from an industrial general development. The proposed location of the wastewater pump station is considered unsuitable, as it would result in emergency overflows discharging into a stormwater basin, which is not an acceptable outcome. Odour and corrosion management at the pump station discharge location will be critical. There are opportunities to investigate alternative alignments and discharge points to improve long-term infrastructure resilience. A comprehensive design process in terms of an Infrastructure Provision Agreement will be required to refine and optimise the infrastructure requirements and to ensure compliance with Council standards and specifications.

- 7.3 **Conditions of Consent:** Detailed conditions are proposed for both water and wastewater systems, including design standards, engineering acceptance processes, and infrastructure provision agreements. These conditions aim to ensure that the development is serviced effectively and sustainably.

8. The evidence concludes that, subject to the implementation of the proposed upgrades per the conditions, that the development can be serviced in accordance with Council requirements.

EVIDENCE

Water Supply

9. The application acknowledges the findings of the water supply modelling assessment, which states that the existing water supply network is unable to service the water demand and fire flow demand of the proposed Pound Road Industrial development.
10. While the Infrastructure Servicing Memo (October 2025) commits to the upgrade of the water supply main from the Templeton Booster Pump Station along Waterloo Road, it does not address the need to upgrade the water mains that supplies the Templeton Booster Pump Station. Upgrades to the DN200 water main in Main South Road and the DN150 water main in Foremans Road are required to enable the Templeton Booster Pump Station to operate at full capacity with all 3 booster pumps functioning to service an FW3 (50 L/s) fire flow demand.

11. The Templeton Booster Pump Station does not have sufficient capacity to service a FW4 fire flow demand (100 L/s) as required for this industrial development. To achieve a FW4 fire flow service level as noted in the Infrastructure Servicing Memo (October 2025), the Templeton Booster Pump Station will have to be upgraded. If the applicant elects not to upgrade the Templeton Booster Pump Station, a consent notice will have to be placed against all allotments within the subdivision that limits the available fire flow demand to FW3 (50 L/s).
12. The alignment of the water main as shown in the Engineering Concept Plans (October 2025) does not comply with Council's Infrastructure Design Standards regarding the permissible deflection angle. Council also seeks to avoid the installation of a water main within the Pound Road corridor, preferring instead to optimise the use of existing infrastructure. A revised alignment is therefore required and must be agreed upon by Council and the applicant. This matter is to be addressed through the comprehensive design process outlined below. Accordingly, the proposed consent conditions specify the point of water supply as the intersection of Barters Road and Waterloo Road, rather than the connection point identified in the application.
13. The water supply conditions of consent proposed in this evidence assume that all necessary network upgrades will be undertaken by the applicant, even though the full extent of these upgrades is not detailed in the application. These upgrades are essential to achieving the required service levels, including the provision of an FW4 fire flow demand as specified in the Infrastructure Servicing Memo (October 2025).
14. A comprehensive design process, including Council's engineering review and acceptance, will be required to ensure that the upgrades and new infrastructure are appropriately designed to meet the required service levels and comply with relevant design standards and specifications. This process must also consider Council's long-term operation and maintenance requirements to ensure infrastructure is practical, sustainable, and serviceable over its lifecycle. It is recommended that this process be managed through an Infrastructure Provision Agreement, which will facilitate a coordinated design process, enable further technical assessments, and support the optimisation of infrastructure outcomes.

Wastewater

15. Wastewater network modelling has confirmed that the DN375 gravity sewer in Waterloo Road does not have sufficient capacity to service the proposed Pound Road Industrial development, regardless of the servicing option selected (gravity or local pressure sewer). The projected wastewater demand from the development would result in the pipe becoming surcharged under existing flow conditions, leading to overflows – particularly as demand from existing developments, such as the Christchurch Men's and Women's Prisons, continues to grow. Adequate capacity is available approximately 1.5 kilometres downstream at the intersection of Waterloo Road and Brixton Road.
16. Council has advised the applicant of its preference for the subdivision to be serviced by a wastewater gravity network supported by a single pump station. This servicing approach avoids the need to impose strict discharge limits on individual allotments and enables the subdivision to be serviced at the Industrial General (suburban) wastewater discharge rate of 0.15 l/s/ha, rather than the lower rate of 0.09 l/s/ha.
17. The applicant has acknowledged Council's advice and proposes to service the subdivision via a gravity wastewater network that discharges to a dedicated pump station located within the development site. It is further proposed that the pump station discharge be conveyed via a rising main installed along Waterloo Road, extending to the intersection of Brixton Street.
18. The proposed location of the dedicated pump station, as shown in the Engineering Concept Plans, is considered unsuitable due to the potential for emergency overflows to discharge into a stormwater basin, which is not an acceptable outcome. A more appropriate location would be to the east of Barbers Road, where the emergency overflow could be directed to Selwyn District Council's Water Race 15 – subject to obtaining the necessary approvals from Selwyn District Council.
19. The alignment of the rising main, as illustrated in the Engineering Concept Plans, is not considered ideal and does not comply with Council's Infrastructure Design Standards regarding the permissible deflection angle. Additionally, Council prefers to avoid situating the rising main within the

Pound Road corridor. Given the requirement to relocate the wastewater pump station, a more suitable alignment may be achievable by positioning the rising main parallel to the existing DN225 rising main between Barbers Road to Pound Road. This revised alignment, along with the final location of the pump station, must be confirmed during the comprehensive design process outlined below.

20. The pumping of wastewater results in the release of hydrogen sulfide (H_2S), a gas that is highly corrosive to concrete infrastructure such as manholes and pipes. The DN525 receiving sewer is constructed from concrete, making it susceptible to H_2S -related corrosion. In accordance with Council's Infrastructure Design Standards, hydrogen sulfide must be extracted and treated at the discharge point, and downstream manholes located within 400 metres of the discharge point must be protected. The proposed installation of an odour treatment facility at the proposed discharge location, situated at the corner of Brixton Street and Waterloo Road, may present challenges.
21. There are opportunities to optimise the proposed wastewater infrastructure serving the Pound Road Industrial development, delivering benefits for both the applicant and future generations. For instance, establishing a dedicated, duplicate non-corrosive gravity sewer along Waterloo Road could allow the discharge point to be relocated closer to the pump station and positioned at a more suitable location – potentially one that better accommodates an odour treatment facility and aligns with existing wastewater discharge locations. In this scenario, Council may be willing to contribute to the cost of an odour treatment facility that services multiple discharge points. Additionally, by constructing a duplicate gravity sewer instead of a rising main, Council would be able to renew both gravity sewers in the future with a single, larger sewer, thereby avoiding the need to separately renew both existing gravity sewer and a rising main.
22. A comprehensive design process, including Council's engineering review and acceptance, will be required to ensure that the upgrades and new infrastructure are appropriately designed to meet the required service levels and comply with relevant design standards and specifications. This process must also consider Council's long-term operation and maintenance requirements to ensure infrastructure is practical, sustainable, and

serviceable over its lifecycle. It is recommended that this process be managed through an Infrastructure Provision Agreement, which will facilitate a coordinated design process, enable further technical assessments, and support the optimisation of infrastructure outcomes.

Proposed Conditions of Consent

Water Supply

23. The point of water supply for this subdivision shall be located at the intersection of Barbers Road and Waterloo Road, following the comprehensive upgrade of the existing water supply network by the Consent Holder (**Upgraded Water Supply Network**). This upgrade shall include:
- a) Upgrades to the Templeton Booster Pump Station supply mains, including the DN200 water main in Main South Road, the DN150 water main in Foremans Road, and the DN150 connection at the intersection of State Highway 1 and Halswell Junction Road;
 - b) An upgrade of the Templeton Booster Pump Station to continue to operate in a duty/duty/standby configuration; and
 - c) Upgrading the water main from the Templeton Booster Pump Station along Waterloo Road and Pound Road to the designated connection point.

Advice Note: Refined hydraulic modelling may enable optimisation of the supply water main upgrades, potentially limiting the required works to the connection between State Highway 1 and Halswell Junction Road, as well as the supply main along Main South Road.

24. The Consent Holder shall enter into an Infrastructure Provision Agreement with the Christchurch City Council (CCC) using a form reasonably required by CCC and provided by the Council's solicitors for review and comment. This agreement shall cover the design and construction of the **Upgraded Water Supply System** and will include, but not be limited to, the following provisions:

- 24.1 that the Design Engineer shall be approved on the Three Waters HDM (hybrid delivery model) Professional Services Panel;
- 24.2 that the design shall be in accordance with the design standards and

- requirements as per the Council Design Guides/Standards Master List and for Council to advise any such further specifications, standards and requirements during each phase of the design;
- 24.3 for the Consent Holder to obtain Council Engineering Acceptance for each stage of the design including Concept design, Preliminary design and Detailed design;
- 24.4 that the Consent Holder shall complete the necessary investigations and assessments to adequately inform the design including geology, topography, ground contamination, archeological, ecological and visual aspects.
- 24.5 that the design shall be comprehensive in terms of civil, mechanical, structural, electrical, SCADA and controls, landscaping, access, security, and water safety disciplines;
- 24.6 for incorporation of risk assessments (inclusive of water safety) and safety in design in the design process;
- 24.7 that the work shall be carried out by a Council Three Waters HDM (hybrid delivery model) Potable Water Tier One Contractor;
- 24.8 for Council participation and review of the Contract Quality Plan, Health and Safety Plan, Environmental Management Plan, Contract Method Statement, Testing & Commissioning Plan including Handover checklist;
- 24.9 for the assignment of a Council contracts engineer to audit the construction phase;
- 24.10 for specifying any additional As-Built, Testing and Commissioning and Operations and Maintenance Manual requirements;
- 24.11 for the Consent Holder to undertake all design and construction work at its sole cost and to meet the reasonable costs of CCC involved including all legal, external and internal consultants.
25. The internal water supply network for the subdivision shall be designed by a suitably qualified professional, in coordination with the design of the

Upgraded Water Supply Network. The design must comply with the Infrastructure Design Standard and, in general, align with the NZ Fire Service Fire Fighting Water Supplies Code of Practice NZS 4509:2008, subject to Council engineering acceptance. Engineering drawings supported by hydraulic model outputs must be submitted for review and engineering acceptance by the Water Supply & Wastewater Asset Planning Team prior to the commencement of any physical works.

26. Council will not grant engineering acceptance for the subdivision's water supply network until final engineering acceptance of the **Upgraded Water Supply Network** has been confirmed.
27. Connection of the subdivision's water supply network shall not proceed until the Upgraded Water Supply Network has been fully commissioned and is operational.
28. All water mains and submains for the subdivision shall be installed in road to be vested in Council. Minimum DN200 water mains shall be extended along the full length of all roads to be vested and terminated with temporary hydrants in accordance with the requirements of the Infrastructure Design Standard.
29. All lots shall be provided with water supply connections extending to their boundaries. Submains shall be installed to extend at least 1 metre beyond each lot boundary.
30. The following condition must be recorded pursuant to Section 221 of the RMA in a consent notice registered on the titles of each Lot:
 - 30.1 This allotment shall be served by the Christchurch City Council's pressurized water supply network and requires the installation of a high-hazard backflow prevention device. An application for water connection must be submitted to Christchurch City Council either online or by completing a WS1 form (application for water supply), including a water supply site plan. The water connection will not be activated until confirmation is provided that an approved backflow prevention device has been installed. The backflow prevention device must be installed within the property boundary, on private land, as close as practicable to the water meter at the point of supply.

Wastewater

31. The subdivision shall be serviced by a gravity sewer network designed in accordance with Council's Infrastructure Design Standards and Construction Standard Specifications. Engineering drawings must be sent to the Council Subdivisions Engineer for Engineering Acceptance prior to the commencement of any physical works.
32. The gravity sewer network shall discharge into a **New Wastewater System** comprising a dedicated wastewater pumpstation and rising main to convey wastewater to the DN525 sewer located at the intersection of Waterloo Road and Brixton Street. The New Wastewater System shall be sized to accommodate Industrial General (IG) (suburban) design flow rates as specified in the Council's Infrastructure Design Standard. The **New Wastewater System** shall also incorporate an odour treatment and corrosion management solution, to be established in accordance with the following requirements:
 - 32.1 The design shall be in accordance with the CCC Odour and Corrosion Management Design Guideline, the SCIRT Protective Coating for Concrete Wastewater Structures Designers Guideline, the Infrastructure Design Standards, the Construction Standard Specification and such other specifications or operations requirements to be provided / issued by Council as part of the engineering acceptance process.
 - 32.2 The **New Wastewater System** shall discharge into a new corrosion resistant manhole and corrosion protection shall be provided to downstream manholes within 400 metres of the discharge point.
 - 32.3 The location of the odour treatment facility must be approved by Council. In making its determination, Council will consider factors such as site accessibility, feasibility of maintenance activities and the ability to meet service objectives. The final location of the odour treatment facility shall be adjusted as necessary to satisfy the requirements of Council.
 - 32.4 The necessary investigations, assessments and tests shall be carried out to inform the design.

- 32.5 Smoke testing is required during the commissioning of the odour treatment unit to confirm negative pressure is achieved at the design air entry point.

Advice Note: Optimisation of infrastructure through the comprehensive design process may support a preference for constructing a duplicate gravity sewer along Waterloo Road, rather than a dedicated rising main. This approach would result in a shorter rising main for the pump station.

If the odour treatment facility is located to align with the discharge point of existing rising mains, Council may enter into a cost-sharing agreement for the establishment of an integrated odour treatment facility serving multiple discharge points.

33. The Consent Holder shall enter into an Infrastructure Provision Agreement with the Christchurch City Council (CCC) using a form reasonably required by CCC and provided by the Council's solicitors for review and comment. This agreement shall cover the design and construction of the **New Wastewater System** and will include, but not be limited to, the following provisions:
- 33.1 that the Design Engineer shall be approved on the Three Waters HDM (hybrid delivery model) Professional Services Panel;
- 33.2 that the design shall be in accordance with the design standards and requirements as per the Council Design Guides/Standards Master List and for Council to advise any such further specifications, standards and requirements during each phase of the design;
- 33.3 for the Consent Holder to obtain Council Engineering Acceptance for each stage of the design including Concept design, Preliminary design and Detailed design;
- 33.4 that the Consent Holder shall complete the necessary investigations and assessments to adequately inform the design including geology, topography, ground contamination, archeological, ecological and visual aspects.
- 33.5 that the design shall be comprehensive in terms of civil, mechanical, structural, electrical, SCADA and controls, landscaping, access,

security, and water safety disciplines;

- 33.6 for incorporation of risk assessments (inclusive of water safety) and safety in design in the design process;
- 33.7 that the work shall be carried out by a Council Three Waters HDM (hybrid delivery model) Potable Water Tier One Contractor;
- 33.8 for Council participation and review of the Contract Quality Plan, Health and Safety Plan, Environmental Management Plan, Contract Method Statement, Testing & Commissioning Plan including Handover checklist;
- 33.9 for the assignment of a Council contracts engineer to audit the construction phase;
- 33.10 for specifying any additional As-Built, Testing and Commissioning and Operations and Maintenance Manual requirements;
- 33.11 for the Consent Holder to undertake all design and construction work at its sole cost and to meet the reasonable costs of CCC involved including all legal, external and internal consultants.

34. The dedicated wastewater pump station serving the **New Wastewater System** shall be installed on land to be vested in Council as a Utility Lot. The size and configuration of this Utility Lot, including all associated infrastructure, must be approved by Council. In determining suitability, Council will consider factors such as site accessibility, maintenance feasibility, and the ability to meet operational service requirements.

The final size and location of the Utility Lot shall be adjusted as necessary to meet Council's requirements. The Three Waters Water Supply and Wastewater Asset Planning Team will confirm the land requirements in accordance with the New Wastewater System Infrastructure Provision Agreement, resulting in one of the following outcomes:

- 34.1 Confirmation that no changes to the Utility Lot size or configuration are required, based on the adequacy demonstrated through design documentation; or
- 34.2 Confirmation that the Utility Lot must be increased in size, with

specification of the additional land required to accommodate the New Wastewater System. Where additional land is required, the Consent Holder shall enlarge the Utility Lot accordingly.

35. Sanitary sewer laterals shall be installed to extend a minimum of 600mm into the net site area of all industrial lots at the subdivision stage. These laterals must be installed at sufficient depth to ensure adequate gradient is available to service the furthest extent of each lot.
36. Gravity network sewers to be vested in Council must have a minimum diameter of 175 mm, in accordance with the Council's Infrastructure Design Standards. All network sewers and connections to these sewers must be installed by a Council-authorised drainlayer, at the Consent Holder's expense.

Advice Note: Refer to <https://ccc.govt.nz/assets/Documents/Consents-and-Licences/construction-requirements/Authorised-Drainlayer-Register.pdf> for a list of authorised drainlayers.

CONCLUSION

37. Based on infrastructure modelling undertaken, I consider that the proposed Pound Road Industrial development cannot be serviced by the existing water and wastewater networks without substantial upgrades. The infrastructure improvements outlined in this evidence—including upgrades to the DN200 watermain in Waterloo Road, upgrades to the DN150/DN200 Templeton Booster supply mains, the upgrade of the Templeton Booster Pump Station, and the establishment of a dedicated wastewater pump station with appropriate odour and corrosion management that conveys wastewater to the DN525 sewer in Waterloo Road—are essential to achieve the required service levels and ensure compliance with Council standards.
38. It is recommended that servicing of the subdivision be subject to a comprehensive design process, governed by an Infrastructure Provision Agreement to address both water and wastewater systems. This agreement will enable coordinated planning, facilitate further technical assessments, and support the optimisation of infrastructure outcomes for the benefit of the Consent Holder, Council, and future generations.

39. Subject to the implementation of the proposed consent conditions and completion of the necessary infrastructure upgrades following a comprehensive design and engineering approval process, it is concluded that the Pound Road Industrial development can be serviced in alignment with Council's requirements.

Dated October 2025

MA McDonald