



28 May 2026

Arrowsouth Properties Ltd
C/o Southern Planning Group Ltd

By Email: scott@southernplanning.co.nz

Attention: Scott Freeman

Dear Scott,

ARROW SOUTH ZONE CHANGE – QLDC RFI RESPONSE: WASTEWATER INFRASTRUCTURE

1. PURPOSE AND STATUS

This letter is an addendum to the Infrastructure Report prepared by Civilised Ltd dated 25 February 2025 (the Original Report), which was submitted as part of the Arrow South Zone Change application. This letter should be read in conjunction with the Original Report.

The purpose of this letter is to provide a formal response to Point 3 of the QLDC Request for Further Information (RFI) relating to wastewater infrastructure.

2. CHANGE TO PLAN CHANGE SCENARIO

The Original Report assessed infrastructure requirements under two development yield scenarios:

- A Suburban Residential Zone scenario with a minimum lot size of 450 m²; and
- A Suburban Residential Zone scenario with a minimum lot size of 300 m².

The 300 m² minimum lot size scenario has since been deleted from the plan change request. The plan change now advances only the scenario with a minimum lot size of 450 m² and a potential yield of approximately 44 allotments.

This change does not affect the key infrastructure findings of the Original Report or this letter. The wastewater assessment, emergency storage calculations, and engineering solutions described herein are based on the 44-lot Suburban Residential Zone scenario and remain valid and applicable to the plan change as currently advanced.

3. QLDC RFI – POINT 3 (WASTEWATER)

Point 3 of the QLDC RFI, issued pursuant to cl23(1)(b) of the First Schedule, states:

“Provide information demonstrating that feasible engineering solutions are available for the upgrade to the WWPS, and additional emergency storage, to service the development outcomes enabled by the proposal.”

The context provided by the RFI notes that the QLDC Property and Infrastructure Team is of the view that the necessary upgrade to the Wastewater Pump Station (WWPS) should be confirmed as feasible at the plan change stage, and that there may be a need for additional emergency storage at the WWPS which may not be feasible due to the size of the designated area. The following sections respond directly to this request.

4. EMERGENCY STORAGE REQUIREMENTS – BASIS OF CALCULATION

The required emergency storage volume is derived in accordance with Appendix G of the QLDC Land Development & Subdivision Code of Practice (2025), which mandates a minimum of nine hours of emergency storage based on Average Dry Weather Flow (ADWF). The calculation is summarised below.

Parameter	Value
Potential number of allotments	44 lots
Design ADWF (QLDC CoP rate)	750 L/lot/day
Total ADWF	$44 \times 750 = 33,000 \text{ L/day}$
ADWF per hour	$33,000 \div 24 = 1,375 \text{ L/hour}$
Required emergency storage (9 hours)	$1,375 \times 9 = 12,375 \text{ L} \approx 12.4 \text{ m}^3$

The 9-hour storage requirement of approximately 12.4 m^3 is the additional emergency storage volume attributable to the future potential 44-lot development, calculated directly from the QLDC CoP design rate of 750 L/lot/day.

5. GENERATOR RELAXATION

Appendix G of the QLDC Code of Practice explicitly provides that where a pump station has a standby generator and a spare pump (in addition to the duty and standby pumps), the 9-hour emergency storage requirement may be reduced, subject to agreement with Council. The existing Arrowtown WWPS has an on-site generator.

This has been discussed directly with Mr Richard Powell and Mr Saeed Firouzsalar of the QLDC Property and Infrastructure Department, who have confirmed that the quantum of emergency storage may be subject to relaxation on this basis. The precise reduced volume will be agreed with Council through the detailed design process at resource consent stage. This represents a meaningful reduction in the civil construction challenge associated with the emergency storage upgrade.

6. SITE INVESTIGATION – WWPS EMERGENCY STORAGE

A site visit has been undertaken to assess the constructability of additional emergency storage at the existing pump station, in addition to reviewing as-built information for the pump station. The investigation confirms that

a suitable emergency storage volume can be physically accommodated at the site. It is acknowledged that construction would be technically challenging and would likely require:

- Sheet piling to manage ground conditions and provide structural support during excavation; and
- Dewatering works to enable construction in anticipated high groundwater conditions.

Notwithstanding these construction challenges, both measures are well-established civil engineering techniques routinely employed on similar infrastructure projects. They do not render the solution infeasible. Detailed design would confirm the precise methodology and specification.

7. LOW PRESSURE SEWER SYSTEM AND DISTRIBUTED EMERGENCY STORAGE

It is anticipated that the potential future development of approximately 44 lots will be reticulated via a low pressure sewer (LPS) system, consistent with the approach adopted for the previous stage of the Arrowtown South development. Both the applicant and QLDC prefer distributing emergency storage across the development, incorporating additional volume into the individual wet well for the LPS connection on each new allotment.

This approach is technically sound and consistent with standard practice for LPS reticulation schemes. Each allotment wet well would accommodate approximately 281 litres of emergency storage (equivalent to 9 hours of ADWF at 750 L/day/lot). In an emergency at the pump station, this storage would be called upon by closing a valve on the rising main connecting the development to the pump station. This would cause the individual lot pump stations to experience a rise in pressure whenever they attempted to pump, causing them to shut off and retry after a delay. The valve could be constructed to operate remotely via SCADA telemetry.

This approach has been discussed with Mr Richard Powell of QLDC, who has confirmed that it is acceptable to the Council, subject to detailed design. The distributed storage approach has the added benefit of reducing the volume of centralised storage that must be constructed at the WWPS itself, further mitigating the construction challenges identified in Section 6 above.

Future lot owners will be made aware of the emergency storage requirement within their pump wet well by way of a Consent Notice registered against the title at the time of subdivision, requiring the selection of a suitable pump station wet well that provides the required emergency storage on the individual allotment.

In our experience, the matters set out above will be considered by QLDC during the processing of future subdivision resource consent applications.

8. CONCLUSION

The investigations undertaken demonstrate that feasible engineering solutions are available to provide the necessary WWPS upgrade and additional emergency storage to service the proposed development. Specifically:

- The required emergency storage volume of approximately 12.4 m³ has been calculated in accordance with Appendix G of the QLDC Code of Practice, using the standard design rate of 750 L/lot/day;
- The 9-hour ADWF storage requirement may be reduced given the presence of an on-site generator at the WWPS, as expressly provided for in Appendix G of the CoP, subject to agreement with Council at detailed design stage;
- Physical emergency storage can be constructed at the WWPS site using established techniques including sheet piling and dewatering;

- A distributed emergency storage solution via individual LPS wet wells on each allotment is the preferred approach of both the applicant and QLDC, and further reduces the centralised storage requirement at the WWPS; and
- The removal of the 300 m² lot scenario from the plan change does not alter these findings.

We are satisfied that these matters can be resolved through detailed design, and that no engineering impediment to the plan change exists. We respectfully submit that processing of the plan change should continue on this basis.

Yours faithfully,



John McCartney

Director

CIVILISED LTD