flow TRANSPORTATION SPECIALISTS

technical note

PROJECT	**ACXX439: WATERCARE NOTICE OF REQUIREMENT – WHENUAPAI WASTEWATER SERVICING SCHEME PACKAGE 1**
SUBJECT	**SECTION 92 INFORMATION REQUESTS**
TO	**TODD ELDER**
FROM	HARRY SHEPHERD AND SAGAR MALAKAPPA
DATE	9 NOVEMBER 2023

SUMMARY

Auckland Council (Council) has commissioned Flow Transportation Specialists (Flow) to review the traffic and transportation matters associated with an application for a Notice of Requirement (NoR) lodged by Watercare Services Limited. The NoR seeks to establish a new designation for the construction, operation and maintenance of the proposed Whenuapai Wastewater Servicing Scheme – Package 1 (Proposal), which is part of a wider programme of work referred to as Whenuapai-Redhills Wastewater Servicing Scheme. The Proposal includes a gravity main, underground pump station, rising main and associated infrastructure at Brigham Creek Road.

In short, the Proposal seeks to provide additional capacity in the wastewater network to support growth and development of the Whenuapai-Redhills catchment.

Flow previously provided Section 92 information requests for the previous iteration of this application. We note that this previous application has been withdrawn, and replaced with the current application. While the applicant provided responses to our requests from the previous application, we have repeated them so they are included in this application.

Having reviewed the lodged documentation, we consider that further information is required to understand the potential transport effects of the projects.

- **Information request 1:** Please provide further detail on the parameters used/assumptions made on the stop-go operation on SIDRA and the phasing summary of the SIDRA outputs.
- **Information request 2:** Please provide further detail on the duration of construction works if an open trenching construction method is used for the pipeline underneath Brigham Creek Road.
- **Information request 3:** Please demonstrate how a rigid truck can turn around at the pump station to exit the site in a forward direction.
- **Information request 4:** Please provide sight distance drawings at each of the SAPs and key intersections identified. The visibility assessment should consider both the horizontal and vertical alignment.
- **Information request 5:** Please demonstrate vehicle manoeuvring through the rising main temporary access road using a truck and trailer.

- **Information request 6:** Please outline how vehicle access into SAP 4 from Tamiro Road can be provided, while avoiding the stormwater pond and road infrastructure such as light poles. Please demonstrate a truck can enter and exit through this access in a forward direction.
- **Information request 7:** Please outline how vehicle access into SAP 4 from Tamiro Road can be provided, while avoiding features such as the stormwater pond and light poles. Please demonstrate a truck can enter and exit through this access in a forward direction.

During the operational phase (post-construction), we anticipate that there will be minimal impact on the long-term safety and efficiency of the transport network, should sufficient turning space be provided within the sites. A portion of the proposed Designation will sit over the legal road once construction is complete. We understand that Auckland Transport will not need to apply to Watercare for Section 176(b) approval to undertake routine maintenance and operational activities, however upgrading of infrastructure will require Watercare approval.

This technical note does not contain any recommendation on whether or not the proposal should be approved or declined by the decision-maker.

1 INTRODUCTION

Auckland Council (Council) has commissioned Flow Transportation Specialists (Flow) to review the traffic and transportation matters associated with an application for a Notice of Requirement (NoR) lodged by Watercare Services Limited. The NoR seeks to establish a new designation for the construction, operation and maintenance of the proposed Whenuapai Wastewater Servicing Scheme – Package 1 (Proposal), which is part of a wider programme of work referred to as Whenuapai-Redhills Wastewater Servicing Scheme. The Proposal includes a gravity main, underground pump station, rising main and associated infrastructure at Brigham Creek Road.

We have not engaged with Auckland Transport, and we assume that Auckland Transport will review and comment on all permanent structures/assets within the legal road (such as the Sinton Stream culvert and pipe crossing of Brigham Creek Road).

This technical note includes a summary of the proposal, the transport issues we have identified in our review, and an outline of any requests for further information related to transport matters only.

2 PROPOSAL SUMMARY

The Whenuapai-Redhills Wastewater Servicing Scheme has been developed to deliver upgrades to the wastewater infrastructure network in Whenuapai (and nearby Redhills). The project is in response to the projected growth and development in the Whenuapai-Redhills catchment.

As shown in Figure 1, the Proposal includes the following five key components:

- A **Pump Station** at 23A Brigham Creek Road
- A **Gravity Main Pipeline** between the existing Whenuapai Village Pump Station on Tamiro Road and the new pump station
- A **Rising Main** between the new pump station and a propsoed new break pressure chamber on Mamari Road
- A **Culvert** to provide access for the rising main across Sinton Stream
- A **Break Pressure Chamber** located on the corner of Mamari and Spedding Roads (proposed a subsequent package – Package 2).

The Proposal extends from the existing Whenuapai Village pump station site in Tamiro Road in the north, across Brigham Creek Road, to Spedding Road in the south. It includes three large contractor areas for staff parking, stockpiling, materials storage and space for truck turnaround. A total of six Site Access Points (SAP) are proposed which provide vehicle access to the work sites as indicated on Figure 1.

The application documents provide an anticipated construction methodology of the proposed works. It is noted that this is indicative only, and the final methodology will be subject to a contractor being appointed. The preliminary construction methodology involves the following

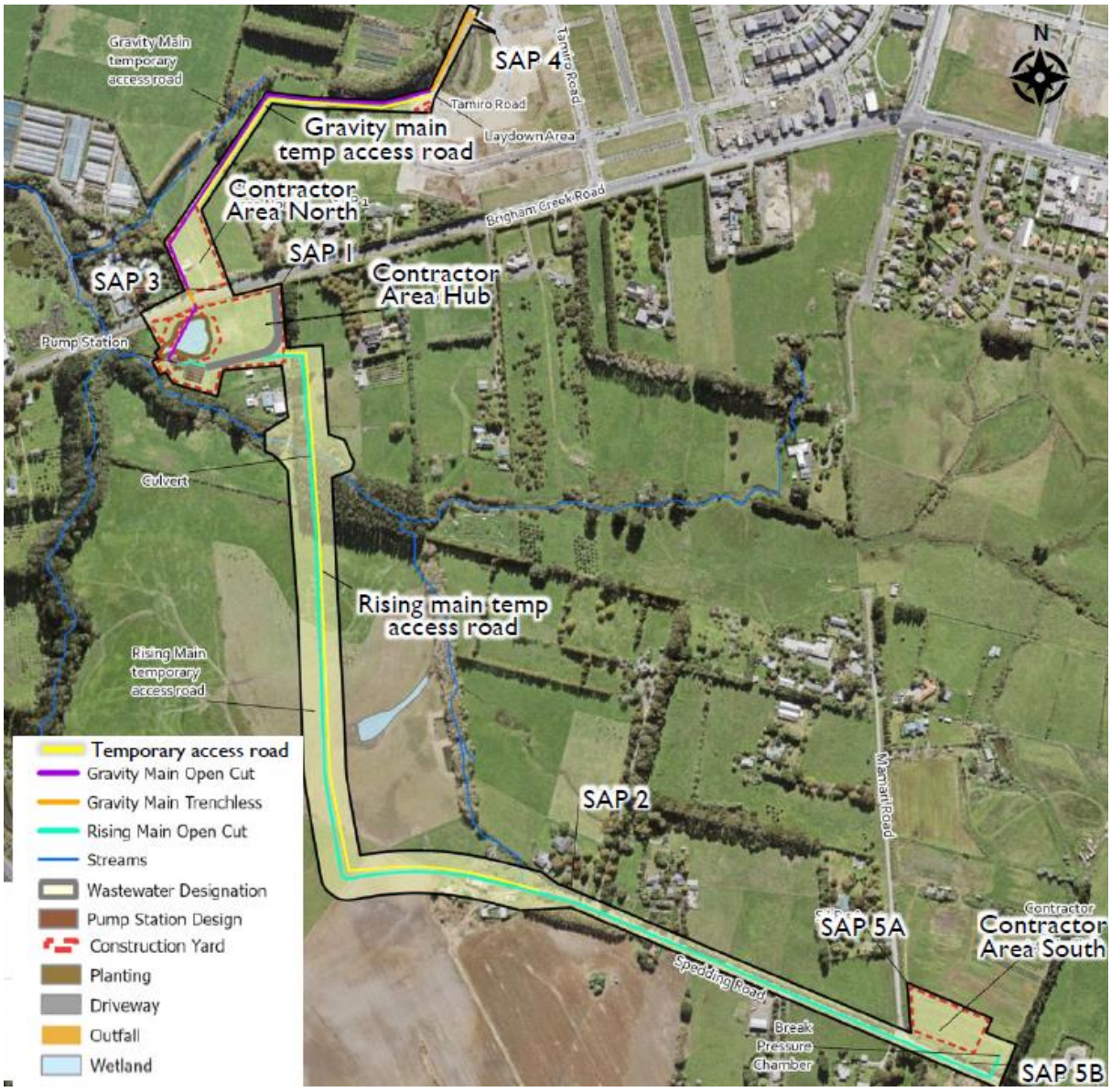
- A duration of approximately 30 months
- Principal construction hours would be 07:30 to 18:00 hours Monday to Saturday. Night works may be required as a contingency measure for construction of the pipeline under Brigham Creek Road, if open trenching is required
- Establishment of one laydown area and three contractor areas.
- A total of six Site Access Points (SAP) will provide access into the work areas, as indicated in Figure 1
- The construction phase consists of the following three phases
    - Pump Station construction
    - Rising Main pipeline construction
    - Gravity Main pipeline construction
- There are two methods to construct the gravity main pipe across Brigham Creek Road:
    - Trenchless Option (Preferred) - This is the preferred option; however, the ground conditions do present some risk. This method will not affect the traffic flow on Brigham Creek Road.

- Open Trenching Option – This option will only be used if the trenchless option fails due to poor ground conditions or underground obstructions. Where the pipe needed to be opencut through Brigham Creek Road the work will be proposed to be completed in half of the road at a time. Therefore, 1-lane 2-way operation on a section of Brigham Creek Road will be required.

- Based on the programme of key construction activities and their associated number of trucks, the highest total daily and hourly trucks generated by the activities will be up to 72 trucks / day (1-way), or 12 trucks / hour (1-way)

During the operational phase of the pump station, it is noted that there will be minimal vehicle movements as there will only be vehicles entering the site (at SAP 1) for maintenance and inspection activities. The application states that this will be one vehicle per week (one in and one out).

Figure 1: Proposal overview



3 ISSUES IDENTIFIED FROM OUR REVIEW

The following subsections discuss key issues with a brief description and extent of issue and the nature of its effects.

3.1 Issue 1: Stop/Go operation

Section 4.3.3 of the Traffic Impact Assessment (TIA) tests the option of 1-lane, 2-way (stop-go) operation on Brigham Creek Road during the Christmas Holiday period. SCATS data (at the nearby Brigham Creek Road/Totara Road signalised intersection) and TMS data for State Highways were referred to and it was deduced that traffic volumes during Christmas Holiday will be around 20% to 30% lower than typical conditions. Lowered traffic volumes were used as input for the stop-go operation and the SIDRA output showed a 160m queue length with an average delay of 45 seconds.

With the worksite length assumed to be 100 m, assuming a 30 km/h temporary speed limit, this results in a clearance time of approximately 15 seconds for a vehicle to move between the two control lines. There is a risk that the SIDRA model has underestimated the average delay and hence the queue length on Brigham Creek Road.

Information request 1: Please provide further detail on the parameters used/assumptions made on the stop-go operation on SIDRA and the phasing summary of the SIDRA outputs.

Note: While this information request was included in the previous application, we have modified it to request the phasing summary output

3.2 Issue 2: Open trenching construction duration

If an open trenching method is used, the TIA recommends that works should occur during the Christmas Holiday period. The exact dates of construction works have not been specified. We note that traffic volumes during the first week of January are generally lower than typical traffic volumes. However, by the second and third week of January, we expect volumes to be closer to typical. If construction works extend beyond the first week of January, stop-go operation will potentially result in unacceptable queue lengths and delays.

Information request 2: Please provide further detail on the duration of construction works if an open trenching method is used for the pipeline underneath Brigham Creek Road.

Note: this information request was included in the previous application

3.3 Issue 3: Heavy vehicle turnaround at pump station (Operational phase)

Appendix C of the TIA shows vehicle tracking of an 11.5 m rigid truck for the permanent access to the pump station for maintenance activities. The turnaround movement has not been demonstrated. We recommend tracking drawings be provided to demonstrate that a rigid truck can turn around at the pump station to exit the site in a forward direction.

Information request 3: Please demonstrate how a rigid truck can turn around at the pump station to exit the site in a forward direction.

Note: this information request was included in the previous application

3.4 Issue 4: Sight distance drawings

Section 4.1 of the TIA shows the sight distance assessment at each of the SAPs and key intersections which may potentially have visibility issues. The findings are presented in a tabulated format with photos provided. For completeness, we recommend preparing sight distance drawings to clearly illustrate the available sight lines in a horizontal and vertical profile. This will help in determining areas where vegetation needs to be trimmed/removed to allow for clear sight lines.

In particular, it would be useful to see sight distance drawings and photos for SAP 4 (Tamiro Road) as visibility to the northeast appears to be obstructed by the building and retaining wall opposite the SAP.

Information request 4: Please provide sight distance drawings at each of the SAPs and key intersections identified. The visibility assessment should consider both the horizontal and vertical alignment.

Note: this information request was included in the previous application

3.5 Issue 5: Rising main temporary access road alignment

A 6 m wide temporary access road is proposed along the rising main to provide vehicle access to the work areas including SAP 2. The alignment of this access road consists of tight 90-degree corners at the northern and southern ends. The access road may need to be widened at these locations to accommodate the manoeuvring of a 23 m truck and trailer.

Information request 5: Please demonstrate vehicle manoeuvring through the rising main temporary access road using a truck and trailer.

Note: this information request was included in the previous application

3.6 Issue 6: SAP 4 vehicle access

Appendix D of the TIA provides vehicle tracking of a truck turning into the SAP 4 access on Tamiro Road. The tracking shows a truck continuing forward into a stormwater pond, and it is not known whether it is feasible to form the proposed haul road through this location. Given this constrained area, it is uncertain whether a truck can enter and exit SAP 4 via Tamiro Road in a forward direction.

Furthermore, we note that the SAP 4 vehicle crossing is located immediately south of the existing Watercare service crossing. However, there is an existing lighting column at this location, and it may not be acceptable for this lighting column to be temporarily removed.

Information request 6: Please outline how vehicle access into SAP 4 from Tamiro Road can be provided, while avoiding features such as the stormwater pond and light poles. Please demonstrate a truck can enter and exit through this access in a forward direction.

3.7 Issue 7: SAP 4 route vehicle tracking

Appendix D of the TIA provides vehicle tracking of a truck turning into the SAP4 access on Tamiro Road and Joseph McDonald Drive. The tracking currently shows inbound movements only, and not outbound movements. The tracking shows that a body of a truck will hit a tree near the SAP4 access on Tamiro Road. We note that the tracking is difficult to view as it is provided in a series of screenshots. Furthermore, the Brigham Creek Road / Joseph McDonald Drive intersection is not included.

Information request 7: Please provide an updated set of vehicle tracking drawings for truck movements travelling from Brigham Creek Road into the SAP 4 access. Please show inbound and outbound truck movements, whilst avoiding street furniture such as trees.