



BLOXAM BURNETT & OLLIVER

Level 4, 18 London Street
PO Box 9041, Hamilton 3240
New Zealand

+64 7 838 0144
consultants@bbo.co.nz
www.bbo.co.nz

Memo

To Jamie Sirl
CC Renee Fraser-Smith, Chris Hardy, Craig Sharman
From Eugene Vodjansky
Reviewed by
Date 3 August 2021
Job No. 147090
Job name Rotokauri North Development
Subject Sub-catchment ICMP – Water and Wastewater System Report

Introduction

On the 30th of June, BBO received the review comments by AECOM New Zealand Limited on the water and wastewater systems solutions proposed as part of the sub-catchment ICMP for Rotokauri North development. The following are the replies to the comments. For clarity, the original comments have been included in italics. In addition, an updated version of the stormwater report has been attached that takes into account the review comments.

Water

Reviewer comment: *I note that Table 8 in Section 6.2 of the ICMP is incorrectly titled 'wastewater' instead of 'water'.*

BBO response: Noted. The error has been corrected.

Wastewater

Reviewer comment a: *The northern development area is proposed to connect to the northern manhole WWK09003 in the Rotokauri ICMP. Connection to southern manhole WWL09002 has been proposed by the applicant for reasons of private property access and easements.*

The documentation is not implicit as to whether the proposed southern connection is temporary or permanent. It appears that the southern connection is proposed to be permanent and the following is noted on that basis:

- *No assessment has been made as to whether the southern manhole has enough capacity to service the northern development in addition to planned development to the south (outside the Rotokauri North area).*
- *Connection to the southern manhole could not be approved without an assessment showing that capacity for development connections from the south would not be compromised.*
- *A solution resulting in nearly 100 % of the capacity of the southern connection being used is not recommended. Utilisation of both the northern and southern connections in accordance*



with the Rotokauri ICMP is preferred, with any spare capacity left for development uncertainty in the respective sub-catchments.

BBO reply: Multiple discussions with HCC were primarily focused on facilitating a wastewater connection that allowed a rather accelerated program to be met, for the benefit of the Developer and HCC. The southern connection was the only way to move the wastewater connection forward to allow the development to progress, supplying approximately 400 affordable homes as soon as possible. There was confusion (ours) regarding the temporary or permanent nature of the southern connection. Further discussions have clarified that this will be a temporary connection, which will be replaced with the northern connection when HCC can acquire access. For the purposes of the ICMP, the northern connection is now the permanent connection. The southern connection will be consented as temporary. Due to the very flat grades and the logistics around the temporary connection, a portion of the southwest corner of the development will become part of the wastewater sub-catchment that permanently drains to the southern connection. This has been shown in figure 3-1, *Concept Layout for Wastewater Conveyance*. This addition of catchment area was discussed with HCC. The report has been updated to reflect these changes.

Reviewer comment b: *Section 3.2 of the Report states a pipeline gradient of 0.05 %. It is assumed that this is a DN600 pipeline at minimum gradient. Section 3.4 of the Report states a pipeline gradient of 0.002. It is not clear whether this is % or m/m and, if the latter, it is not consistent with the previous Section 3.2.*

It would be helpful on both counts to have some additional context here (size, minimum gradient, velocity) so that such aspects do not have to be assumed by the reader.

BBO reply: Wastewater pipelines with a gradient of 0.05% will be lined 1050mm pipe. These are shown large, based on future proofing discussions with HCC. Indicative velocities at peak flow are 0.68m/s, which is not ideal. Discussions with Council will continue through the design process to ensure that the correct balance between size and operation cost is achieved. Pipe grades will be increased as much as possible in through the detailed design process as well. The inconsistencies in the report have been corrected.

Reviewer comment c: *Section 3.5 of the Report states that the two Ohote upstream catchments (east and west) cannot be fully serviced by either of the two proposed pump stations and third pump station will be required. The proposed serviced catchment and conceptual location of the third pump station is not provided (e.g. the sub-catchment ICMP does not adequately cover the entire sub-catchment). The following is noted:*

- *Not enough information has been provided to confirm the basis of this conclusion. A representative ground profile and pipeline long section should be provided to show that an additional pump station is necessary before HCC could confirm this is acceptable.*
- *The sub-catchment ICMP should show roughly where the third pump station would be located and the associated sub-catchment and preliminary flows, if a third pump station is necessary.*

BBO response: This has been refined in the report. Based on current ground levels, the upstream wastewater catchments can be serviced by the pump stations.

Reviewer comment d: *The alternative pumping scenario in Section 4.2 of the Report is a viable alternative solution. The alternative scenario should be assessed and discussed with HCC at the detailed design stage, prior to the approval of one or the other.*

It is acknowledged that HCC generally do not support pump stations in series. However, I note that diversion of the proposed Ohote Pump Station to the proposed Te Otamanui Pump Station has the potential to be more efficient if a gravity section can be utilised as opposed to pumping all the way to the Te Otamanui Pump Station.



BBO response: HCC will be consulted throughout the design process, especially with regard to the pump stations. While we have no intention to design infrastructure that does not meet the approval of HCC, we will explore reasonable options with Council through the preliminary design stages.

