

# Memo

## Strategic Development

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To: Jonathon Brooke – Project Engineer  
From: Jackie Colliar – Strategic Manager Infrastructure  
Subject: Amberfield Development - Strategic Wastewater Servicing  
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### Purpose of this Memo

1. To summarise the wastewater infrastructure considerations and context that Hamilton City Council (HCC) has had regard to as part of its regulatory response to the development proposed in the Weston Lea Limited resource consent applications at Peacocke Road. The matters outlined by Chris Hardy in his review of the proposal and brief of evidence also form part of HCC's regulatory response.

### Hamilton City Council Responsibilities

2. HCC is responsible for managing the wastewater network and providing for the safety of the community and our environment. Council takes the responsibility of providing a wastewater service seriously, we do this because the management of Hamilton's wastewater and trade waste is important to the health and wellbeing of the Hamilton community. HCC is also required to provide the service under the Local Government Act 2002, the Health Act 1956 and the Resource Management Act.

### Memorandum of Understanding

3. HCC have been in dialogue with the Adare Company Ltd (the property owners associated with the Amberfield development) since 2015 to work through a range of matters including infrastructure servicing of 1000 lots in the Peacocke Growth area. HCC and Adare entered into a Memorandum of Understanding (MOU) to establish a framework for engagement in respect of the development of the Peacocke Structure Plan Area.
4. While the MOU is not binding it clearly sets out Councils expectations and requirements in relation to Wastewater and Transport infrastructure and servicing. HCC's key expectations and requirements to guide identifying an acceptable wastewater solution include:
  - No additional wastewater overflows
  - No additional volume of wastewater overflows
  - No increase in frequency of any wastewater overflows
  - A network consistent with the HCC Wastewater Master plan
  - Complies with HCC Technical Specifications, including ensuring compliance with relevant district plans, bylaws, levels of service and policies.
5. The expectations set out in the MOU reflect the known capacity constraints in the western wastewater network, the growth demand in the area already served by the western network, a more stringent regulatory environment and HCC obligations to contribute toward achieving Te Ture Whaimana along with increasing community environmental expectations and scrutiny on wastewater network overflows to the environment.

6. HCC has consistently advised the Adare team over the last 24 months of the network capacity constraints in the west, the increasingly stringent regulatory environment and HCC strategic infrastructure plans to service the development area via a pumped discharge to the eastern wastewater network.
7. Despite this advice, at the Adare teams request, HCC has facilitated their testing and investigations into a potential solution to discharge wastewater from the development to the western wastewater network using the HCC wastewater model. Both long-term and interim solutions have been considered and have tested controlled discharges to the network using large volume storage facilities. The outcomes of these investigations have shown that the western wastewater network cannot accommodate the additional discharge from the full Amberfield development or the temporary discharge from between 200 and 400 lots tested in the model without exacerbating the performance of the western network and increasing the likelihood of network overflows to the receiving environment.

#### **Western Wastewater Network Constraints**

8. The wastewater reticulation network comprises large diameter interceptors, lift pump stations, trunk pipelines and pump stations and local pipelines and pump stations.
9. The western network has significant capacity issues in wet weather conditions which manifest as overflows from the network to the environment. The capacity constraints are shown by the 2017 HCC wastewater network modelling results and are observed by our network operators and asset managers through high level pump station alarms and overflows from the pump stations.
10. The existing western network capacity issues have been verified through network performance observations, and future issues quantified through network modelling assessments.
11. Over the last 5 – 10 years HCC has sought to place restrictions on trade waste discharges and unplanned growth in the catchment serviced by the western network to manage the known capacity constraints. Examples include a significant trade waste discharger on Kahikatea Drive who is required to store wastewater onsite and discharge during off-peak periods of the day when capacity is available, and the trade waste discharge from the Water Treatment Plant (WTP) on Peacocke Road. The WTP discharge to the network and impact on available network capacity is discussed further below.
12. The existing capacity issues will be exacerbated by planned development within the existing western wastewater network service area. Any proposal to further increase the flow discharged to the west would only act to worsen the situation and increase the frequency of overflows. As a result, servicing Peacocke via the existing western network (Interceptor and trunk network) is not considered a viable option.

#### **Wastewater Master Planning and Strategic Servicing**

13. Hamilton City Infrastructure Planning documents dating back to the 1960's envisaged wastewater from the Peacocke development would be conveyed to the Puketā WWTP via the eastern wastewater network.
14. The long-term wastewater servicing options considered for Wastewater Master Plan Version 1 (2015) and 2 (2017) recognise that the western wastewater network is already under stress and does not have capacity to service the Peacocke development areas. The Wastewater Master Plans and future network performance modelling assessments are based on Peacocke

discharging, via a transfer pump station at Peacocke with rising mains, to the Far Eastern Interceptor at Crosby Road

15. Despite the known capacity constraints in the western network, several investigations have been completed in recent times to ascertain if part or all the Peacocke development area could be serviced via the western network. Options to upgrade the western network to service Peacocke have been considered in the past and discounted due to cost and the need to preserve capacity for the currently planned development areas served by the western network.
16. To alleviate existing wet weather capacity constraints, reduce network overflows and cater for anticipated growth in the catchment served by the western network (i.e. the land that has no alternative wastewater conveyance options), HCC have planned significant network upgrades of the western network.
17. These planned upgrades are funded in the 2018-28 LTP and include duplicating the western interceptor – mid section, upgrading the Dinsdale Pump Station, constructing bulk wastewater storage facilities and trunk network upgrades. These upgrade works have been designed for the current wastewater catchment area and are not designed to service the Peacocke Stage 2 development area either in the short or long term.
18. Trunk network storage solutions were implemented to enable Peacocke Stage 1 development area to be serviced to the west. Those solutions have since been found to be inadequate to manage the additional flow to the trunk network.
19. To relieve the pressure on the upper section of the western wastewater interceptor and contributing network, HCC have budgeted for diverting a significant catchment (Te Anau, Splitt and Fitzroy Pump station catchments) away from the western network and into the large transfer pump station planned to service the Peacocke growth cell. The catchment that HCC intends to divert to the east is the same network that the Amberfield development are seeking to discharge to temporarily.

#### **Far Eastern Interceptor and Peacocke Strategic Wastewater Infrastructure**

20. HCC has invested in a large diameter interceptor (Far Eastern Interceptor) from the Pukete Wastewater Treatment Plant through Rototuna to the Wairere/Crosby Road roundabout. The interceptor has been sized to accommodate flow from the Ruakura and Peacocke development areas.
21. As part of unlocking the Peacocke growth cell and giving effect to the Master Plan, the strategic wastewater transfer pump station and rising mains to convey flow from the Peacocke area to the Interceptor at Crosby Road is funded in the 2018-28 LTP.
22. Furthermore, HCC has entered into arrangements with government through the Housing Infrastructure Fund (HIF) to accelerate delivery of the Peacocke Strategic Wastewater infrastructure. This programme of work will see the strategic wastewater infrastructure needed to service the growth cell in place no later than June 2024.
23. This investment, in addition to the western wastewater network capacity improvement programme demonstrates HCCs commitment to providing wastewater infrastructure needed to support growth in our city.

### Regulatory Environment

24. The operating environment for 3-waters including wastewater systems is becoming more challenging for several reasons including increasing demand on the networks which exacerbate capacity constraints, community expectations and regulatory requirements relating to water quality, treatment and management and the need to respond to climate change and infrastructure resilience issues. The challenges have been acknowledged in the Government led 3-waters review.
25. In the Waikato River Catchment, Te Ture Whaimana and Healthy Rivers Plan change are reinforcing the obligations to reduce the environmental effects associated with operating our wastewater networks.
26. To this end, and likely in response to the challenges highlighted in the Government led 3-waters review, Waikato Regional Council are taking a far more active approach to enforcement of the RMA, including in relation to wastewater network overflows. In the last 24 months, HCC have received letters of direction, abatement notices and prosecutions by the WRC in relation to wastewater network discharges to the environment. This demonstrates the higher expectations that WRC now has in terms of the management of wastewater systems and that they are now more likely to utilise the range of enforcement actions available to them to encourage compliance.
27. Additional discharges to the network that are not planned to be serviced by the western network and will increase the risk of more frequent wastewater network overflows directly contravenes HCC objectives to improve the performance of our wastewater network and meet our regulatory obligations. Increased overflows and increases the likelihood of further enforcement actions from WRC.

### Adare preferred solution

28. The Adare team has investigated and tested options to discharge wastewater from the development to various parts of the western network for the full development and as described in the *“Report on Wastewater Disposal for Amberfield Development Peacocke Structure Plan Area, Hamilton South, 16 May 2018”* lodged as part of the resource consent application concluded that the preferred option is to discharge to the Far Eastern Interceptor.
29. The preferred option described in the report involves the Amberfield main pump station pumping flows to the Far Eastern Interceptor via an interim pipe under the Waikato River and a pipe from the River crossing to Crosby Road. This option would involve an interim pipe beneath the Waikato River until Council has completed the Southern Links bridge and associated Peacocke pumping main installation on the bridge)
30. HCC agrees with the preferred wastewater servicing option described in the *“Report on Wastewater Disposal for Amberfield Development Peacocke Structure Plan Area, Hamilton South, 16 May 2018”* as an interim solution in lieu of the strategic wastewater infrastructure that HCC are constructing being in place.

### Temporary Western Discharge Assessment

31. The Adare team has recently requested that Council consider a temporary discharge for 200 – 400 lots to the western network. The temporary discharge is proposed to be in operation for a 5-year period while the strategic wastewater infrastructure is being constructed by HCC. The proposal is based on ~300m<sup>3</sup> storage at the trunk pump station installed as part of the development, with a controlled discharge to the local western wastewater network.

32. Further modelling has been carried out using the HCC model and an agreed brief to assess the viability of the proposal. The modelling has used agreed assumptions in line with HCC normal development assessment processes and shown that the proposal will increase the likelihood of overflows from the network. Key modelling assumptions include:
- Modelling using the largest rainfall event in the 10-year rainfall time series collected in Hamilton. The rainfall event is approximately equivalent to a 1 in 10-year recurrence interval rainfall event. This rainfall event is considered appropriate
  - Modelling the discharge from the Water Treatment Plant (WTP) based on the trade waste agreement discharge limits.

**WTP operating constraints**

33. HCC has an obligation to provide for consented discharges into our networks, this includes where HCC are the consent holder. The modelling assessments assumes a constant flow rate from the WTP to the network of 9.3l/s. This is based on the max. daily discharge volume of 800m<sup>3</sup>/day averaged over 24hours. The modelled constant flow rate is lower than the peak instantaneous discharge rate of 12.5l/s allowed in the trade-waste discharge consent, so does not allow for an undue level of conservatism.
34. The consented flow limits were developed with consideration of the network capacity constraints and present a significant constraint on the WTP operation. The operations team are considering options to better manage the plant within the consented limits based on the current network constraints. To provide an indication on the actual daily discharge volume from the plant, the 75th percentile for February during a peak production period was 790 m<sup>3</sup>/day. While there are times where the discharged instantaneous rates and daily discharge volumes are not reached, the operation needs the flexibility and ability to discharge to the consented limits at any time to protect the plant operation and ensure that Hamilton’s water supply quality and quantity needs are met.

**Conclusions**

35. HCC supports the developers’ proposal to convey wastewater from the development to the eastern wastewater network in the Wairere Drive / Crosby Road area. The proposal to service the Peacocke area via a pumped discharge to the eastern network is consistent with HCC strategic wastewater infrastructure plans.
36. HCC does not support a wastewater discharge from the development to the western wastewater network as an interim or permanent solution due to the capacity constraints and increased risk of network overflows and the resulting implications to HCC.



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Date 28/03/19

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