



Watercare Services Limited

2 Nuffield Street
Newmarket
Auckland 1023
New Zealand

Telephone
+64 9 539 7300

Private Bag 92521
Wellesley Street
Auckland 1141

Facsimile
+64 9 539 7400

www.watercare.co.nz

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Te Akitai Waiohua Waka Taua Trust
PO Box 59185, Mangere Bridge
Auckland 2151

Attention: Karen Wilson

Dear Karen

Central Interceptor Main Project Works – Response to Submissions Received

Thank you for your submissions on the Central Interceptor Project and for meeting with us on 3 May 2013. Our response to the technical issues you have raised is set out in this letter, as discussed at the meeting. The matters addressed are:

- Manukau Siphon – mitigation of existing risks and process to evaluate its future use
- Flows to the Mangere Wastewater Treatment Plant (WWTP)
- Additional planned projects
- Proposed Emergency Pressure Relief (EPR) structure – its use and physical appearance.

Manukau Siphon

Mitigation of existing risks

The Manukau Siphon was laid around 55 years ago. It is anticipated to have a remaining life of 15 to 25 years, but inability to gain access to the siphon for inspection means that some degree of uncertainty exists. The single biggest driver for the Central Interceptor is to provide a long-term replacement for the siphon and a section of the Western Interceptor tunnel under the Hillsborough Ridge.

The siphon is currently protected from damage by ships through a notice on the relevant marine charts for the area. This delineates an area within which anchoring is prohibited. The chart also indicates the depth to the seabed in the vicinity of the siphon. Masters of larger ships would limit shipping movements to periods when the tide is sufficiently high to maintain a safe separation distance between the top of the pipe and the underside of their ships.

Future use

The future use of the Manukau Siphon will depend on its condition and operational requirements.

Once the Central Interceptor is in use, Watercare will empty and inspect the existing siphon. If the siphon is in a relatively good condition and can be rehabilitated at a reasonable cost, it may be retained for use when the Central Interceptor needs maintenance. The rehabilitated siphon may also

be retained to allow some local flows to gravitate to the Mangere WWTP in some situations to provide additional operational flexibility and efficiency. Any risks associated with the continued use of the siphon would be minimal once the Central Interceptor is operational, as it would only be used if it is in sound condition, and flows could rapidly be diverted to the Central Interceptor in the event of any operational issues arising.

If the condition of the siphon is poor and would require expensive rehabilitation, it is unlikely that it would be retained in service and would likely be filled with cement grout or similar.

The decision on the future of the siphon can only be made once the Central Interceptor is commissioned and inspections have been completed.

Flows to the Mangere WWTP

The existing discharge permit at the Mangere WWTP was granted in 1997, with an expiry date of 2032. The existing permit includes a mean annual daily flow (“flow”) limit of 390,000 m³/d. This limit reflected the anticipated flow that would be delivered to the treatment plant at the end of the consent period in 2032.

Watercare’s current best assessment of flow to the Mangere WWTP in 2032 is 385,000 m³/d. This is based on the average of typical flow conditions over the last five years, an average of 10,000 m³/d of additional overflow volumes collected in the proposed Central Interceptor, and 20 years of future growth at 3,000 m³/d/year. This estimate also takes into account the proposal to divert some flows to Auckland’s other major wastewater treatment plant, the Rosedale WWTP on the North Shore.

More specifically, it is proposed to divert flows from areas of West Auckland currently served by the Mangere WWTP, via a new Northern Interceptor for treatment at the Rosedale WWTP. This is consistent with previous commitments to divert some flows away from the Mangere WWTP. It is currently anticipated that flows from 230,000 people will be progressively redirected from around 2020 through to 2062. The actual volume diverted at any particular time will depend on circumstances at that time, but will be directed towards ensuring the currently consented flow limit at the Mangere WWTP is not exceeded within the term of the existing consent.

Auckland’s population will continue to grow after 2032 and Watercare is legally obliged to provide wastewater infrastructure to service this growth. When applying for a new discharge permit in or just before 2032, Watercare will need to take into account future population growth through to 2062. It is currently anticipated that this will increase the mean daily flow at the Mangere WWTP by 15% from 390,000 m³/d to 450,000 m³/d by 2062, but actual volumes will need to be confirmed nearer the time. Additional treatment capacity will be provided to ensure continued protection of the Manukau Harbour.

In addition to providing for normal daily flows, the Central Interceptor is designed to collect overflows in wet weather which are currently discharged into urban watercourses. The collection of these wet weather overflows will result in less than a 2% increase in flows to the Mangere WWTP on an annual volumetric basis, with the benefit of reducing the equivalent discharge of untreated wastewater to the environment. Future increases in flow to the Mangere WWTP will be primarily as a result of population growth. The level of increase by 2062 will be managed in part by the proposed diversion to the Rosedale WWTP.

Additional planned projects

The two main wastewater treatment requirements for the protection and enhancement of the Manukau Harbour are the protection of public health and the effective management of nitrogen discharges. Watercare has developed a Mangere WWTP Master Plan (December 2011) to guide future development of the WWTP in order to meet these requirements. This Plan identified a number of key upgrading requirements at the WWTP and in the network. These projects are listed in the attached table.

Emergency Pressure Relief (EPR) structure

Purpose

Provision for an emergency pressure relief (EPR) structure at the Mangere Pump Station as part of the Central Interceptor Project must be made to ensure that under emergency situations, pressure can be safely released from the tunnel without causing damage to the pump station or tunnel structures or causing uncontrolled overflows from shafts along the tunnel alignment. The likelihood of the EPR operating is very low, and would only occur where pump station failure coincided with a significant storm event that utilised all available storage in the tunnel.

Watercare's experience indicates that pump station failures are rare and caused primarily by power outage. Of particular note:

- If there were a power loss to the Mangere Pump Station, Watercare's backup generator services enable Watercare to return the pump station to service typically within four hours.
- The Mangere Pump Station will have a dual power supply feed which further minimises the likelihood of pump station failure due to power outage.
- During a 10 year storm event it would take approximately 12 hours for the storage in the tunnel to fill from the start of the storm and the EPR to activate. In dry weather conditions it would take closer to 48 hours. Within these timeframes, it is likely that Watercare will be able to provide portable generator power before the EPR overflows.

In this regard, the likelihood of the EPR being called into service is very low and would require failure of the Mangere Pump Station over an extended duration (many hours) coinciding with a significant storm event. The likelihood of these events coinciding is extremely small and it is considered that the EPR is unlikely to activate more than say once in every 50 years.

Design and appearance

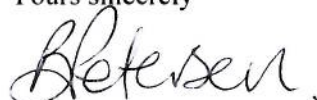
At our meeting with you on 3 May you asked whether the EPR structure could be extended and buried below the seabed so that it is not visible. Our consultants have reviewed this and advise that it is not practicable or feasible to bury the outfall structure. To do so, the pipe would need to be extended to beyond low tide levels such that the outfall would not be visible.

Our landscape architects have considered the effects of the EPR structure and conclude that any visual effects would be low. The existing shoreline adjacent to the Mangere WWTP and the proposed new Mangere Pump Station has previously been modified by placement of rock protection to stop coastal erosion. The EPR structure will be placed into this modified shoreline setting.

The design and appearance of the proposed EPR structure will be reviewed in the detailed design phase of the project, which will begin during 2014. This will include consideration of options to integrate the structure into the existing rocky shoreline, and planting to screen the structure from distant views.

If further information is required on the specific matters raised in your submission, please let us know.

Yours sincerely



Belinda Petersen
Resource Consents Manager
Watercare Services Limited

Encl: Schedule of Major Projects

Schedule of Major Projects

Projects listed below through to 2023 are included in Watercare's 10-year Asset Management Plan (AMP). The AMP has been approved by Watercare's Board and the Auckland Council. Projects starting after 2023 are included in Watercare's 20-year Plan, but the timing and final form of these projects are dependent on population growth.

Project	Purpose	Detailed Design Start Date (approx.)	Construction Start Date (approx.)	Commissioning Date (approx.)
Biological Nutrient Removal Plant - Stage 1	To provide additional capacity to ensure nitrogen continues to meet consent requirements and avoid a proliferation of undesirable biological growth in the Harbour	June 2013	2015	2017
Biological Nutrient Removal Plant - Stage 2	To provide additional capacity to ensure nitrogen continues to meet consent requirements and avoid a proliferation of undesirable biological growth in the Harbour	Likely after 2030	Dependant on population growth, possibly 2033	Dependant on population growth, possibly 2035
Modifications to existing secondary treatment plant	To improve the nitrogen removal and general efficiency of operation	Approx. 2022	2023/4	2030
Wet Weather Treatment Plant	To ensure all flows arriving at the Mangere WWTP receive treatment and enhanced disinfection, which goes beyond existing consent requirements	2017/8	2020	2022
Northern Interceptor Stage 1	To allow diversion of flows from west Auckland to the Rosedale WWTP	October 2013	2017	2020
Northern Interceptor Stage 2	To provide for the diversion of additional flows to Rosedale	Likely after 2030	Dependant on population growth, possibly 2033	Dependant on population growth, possibly 2035
Central Interceptor Main Project Works	To provide a long-term replacement for the section of the Western Interceptor from the Mangere WWTP to beyond the Hillsborough Tunnel; to provide for growth; and to mitigate overflows, particularly in combined sewer areas	After consents are granted and conditions incorporated within design brief. Early 2015	2017	2023
Combined Sewer Overflow Collector Sewers	To allow overflow locations remote from the CI alignment to be connected to the main CI tunnel	Approx. 2021	2023/4	2027