

17 October 2014



WASTEWATER TREATMENT PLANT AND LANDFILL JOINT COMMITTEE

A Joint Committee of the Porirua and Wellington City Councils

Notice is hereby given that, commencing at 3.00pm on WEDNESDAY 22 OCTOBER 2014, an extraordinary meeting of the WASTEWATER TREATMENT PLANT AND LANDFILL JOINT COMMITTEE will be held in the PORIRUA CITY COUNCIL CHAMBER, ADMINISTRATION BUILDING, HAGLEY STREET, PORIRUA CITY, to conduct the business set out as under.

TERMS OF REFERENCE

To provide governance for the joint services entered into by the Porirua and Wellington City Councils through the joint venture agreements for the Wastewater Treatment Plant and the Spicer Valley Landfill and associated land.

MEMBERSHIP

Porirua City Council:

Cr T M Sheppard (Chairperson)
Cr A M Coffey
Cr B E Kropp

Wellington City Council:

Cr M Sparrow (Deputy Chairperson)

A handwritten signature in blue ink, appearing to read "G Simpson".

Gary Simpson
CHIEF EXECUTIVE



SCOPE OF ACTIVITY

To consider and make recommendations to both Councils regarding:

- 1. Overview, input and policy formulation in the areas of management of the Spicer Valley joint landfill operation, and the Wastewater Treatment Plant, as set out in the joint venture agreements, entered into by both Councils, including development of Trade Waste Bylaws.*
- 2. Proposals for infrastructural development relating to the joint ventures*
- 3. New initiatives relating to the joint ventures*
- 4. The land associated with the Treatment Plant and landfill that provides a buffer zone between this infrastructure and the privately owned land. This refers to the reserve land around the treatment plant and landfill including the land known as Spicer Forest and Spicer Botanical Forest.*
- 5. The budget for operation of the joint ventures for inclusion in the Councils' Annual Plans / Long Term Council Community Plans*
- 6. Receipt of the Annual Report of the joint ventures for inclusion in the Councils' Annual Reports*
- 7. Any proposed service changes*

POWER TO ACT

The powers of the Joint Standing Committee as described in the Deed Relating to Joint Works dated 22 December 1986 and the powers of the Joint Committee as described in the Agreement Relating to Joint Refuse Disposal Works dated 2 May 1983

Setting of fees and charges related to the operation of the Spicer Valley Landfill and recommending the basis for charging for trade wastes at the Wastewater Treatment Plant

Decisions on acceptance of wastes into the Spicer Valley Landfill and Wastewater Treatment Plant

ORDER OF BUSINESS

PAGE

1. APOLOGIES

2. CONFLICT OF INTEREST

The Chairperson invites notice from members of:

- 1. Any interests that may create a conflict with their role as an elected member relating to the agenda item(s) for the meeting; and*
- 2. Any interests in items in which they have a direct or indirect pecuniary interest as provided for in the Local Authorities (Members' Interests) Act 1968.*

3. NOTIFICATION OF GENERAL BUSINESS ITEMS (STANDING ORDERS 152 AND 153)

Items of General Business at committee meetings should be conveyed to the Chairperson or called for by the Chairperson prior to undertaking the business on the agenda. Matters of General Business arising during the course of the debate should only be considered with the consent of the meeting.

Minor items not on the agenda may be discussed at a committee meeting. Where an item is not on the agenda for a meeting, that item may be discussed at that meeting if:

- a) that item is a minor matter relating to the general business of the Council and within the terms of reference of the committee; and*
- b) the Chairperson explains at the beginning of the meeting, at a time when it is open to the public, that the item will be discussed at the meeting; and*
- c) No resolution, decision or recommendation may be made in respect of that item except to refer that item to a subsequent meeting for further discussion.*

4. CONFIRMATION OF MINUTES

6

Meeting held 5 August 2014.

5. ITEMS FOR DECISION

5.1. WASTEWATER TREATMENT PLANT UPGRADES

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Report #1045661 of the General Manager Asset Management and Operations dated 16 September 2014.

6. COLLABORATION ON SOLID WASTE SERVICES

7. PUBLIC EXCLUDED BUSINESS

COUNCIL TO RESOLVE

That the public be excluded from the following parts of the proceedings of this meeting, namely:

- a) Confirmation of Minutes – 5 August 2014*
- b) Spicer Landfill Income – Status, Issues, Options*

That the general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under Section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

<i>General subject of each matter to be considered</i>	<i>Reason for passing this resolution in relation to each matter</i>	<i>Grounds under Section 48(1) for the passing of this resolution</i>
(a) <i>Confirmation of Minutes – 5 August 2014 re: Poly Palace – Proposed Payments for Services and Trash Palace – Proposed Oranga Relocation</i>	<i>Section 7(2)(h) — Enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities</i>	<i>The public conduct of the relevant part of the proceedings would be likely to result in a disclosure of information for which good reason for withholding that information would exist, under Section 7 of the Local Government Official Information and Meetings Act 1987.</i>
(b) <i>Spicer Landfill Income – Status, Issues, Options</i>	<i>Section 7(2)(h) — Enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities</i>	<i>As above</i>

This resolution is made in reliance on Section 48(1) of the Local Government Official Information and Meetings Act 1987 and the particular interests protected by Section 6 or Section 7 of the Act which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public as specified above.

WASTEWATER TREATMENT PLANT AND LANDFILL JOINT COMMITTEE

Minutes of Wastewater Treatment Plant and Landfill Joint Committee meeting held in the Council Chambers, Administration Building, Hagley Street, Porirua on Tuesday 5 August 2014 at 1.00pm.

PRESENT

Porirua City Council: Cr T M Sheppard (Chairperson)
Cr A M Coffey

Wellington City Council: Cr M Sparrow

OFFICERS

Porirua City Council: P Bailey General Manager Asset Management and Operations
R Baker General Manager Corporate Services
W Barry Zero Waste Coordinator
P Keller Solid Waste Manager
A Hector Capacity
J Saywell Capacity
S Mika Committee Advisor

Wellington City Council: A Mitchell Manager CitiOperations
A Wilson Chief Asset Officer

APOLOGY

From Councillor B E Kropp was sustained on the motion of Councillor T M Sheppard and Councillor A M Coffey.

4/14 CONFIRMATION OF MINUTES

Meeting held 6 May 2014

RESOLVED (Cr Sheppard / Cr Sparrow)

That the minutes be adopted as a true and correct record.

CARRIED

5/14 SPICER STORMWATER MANAGEMENT REVIEW

Report #99637 of the General Manager Asset Management and Operations dated 23 June 2014.

RESOLVED (Cr Sheppard / Cr Coffey)

- 1. That Porirua City Council agree to spend up to \$725,000 +GST on landfill stormwater improvements in 2014/2015 and 2015/2016.**

2. That Wellington City Council agree that Porirua City Council spends up to \$725,000 +GST on landfill stormwater improvements in 2014/2015 and 2015/2016.

CARRIED

6/14

PUBLIC EXCLUDED RESOLUTION

RESOLVED (Cr Sheppard / Cr Coffey)

That the public be excluded from the following parts of the proceedings of this meeting, namely:

- (a) Poly Palace – Proposed Payments for Services**
- (b) Trash Palace Proposed Oranga Relocation**

That the general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under Section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Grounds under Section 48(1) for the passing of this resolution
Poly Palace Proposed Payments for Services	Section 7(2)(h) – Enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities.	The public conduct of the relevant part of the proceedings would be likely to result in a disclosure of information for which good reason for withholding that information would exist, under Section 7 of the Local Government Official Information and Meetings Act 1987.
Trash Palace Proposed Oranga Relocation	Section 7(2)(h) – Enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities.	The public conduct of the relevant part of the proceedings would be likely to result in a disclosure of information for which good reason for withholding that information would exist, under Section 7 of the Local Government Official Information and Meetings Act 1987.

This resolution is made in reliance on Section 48(1) of the Local Government Official Information and Meetings Act 1987 and the particular interests protected by Section 6 or Section 7 of the act which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public as specified above.

CARRIED

The meeting closed at 1.03pm.

Approved and adopted as a true and correct record:

.....
CHAIRPERSON

.....
DATE

WASTEWATER TREATMENT PLANT UPGRADES

PURPOSE

To seek additional funding to complete urgent upgrades to the Wastewater Treatment Plant in the 2014/15 financial year.

SIGNIFICANCE OF DECISION

The matters considered in this report do not activate Council's Significance Policy.

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RECOMMENDATIONS

That the Wastewater Treatment Plant and Landfill Joint Committee approve:

1. Urgent upgrades to the return activated sludge system; aeration basin feed pipe and standby generation system for the Wastewater Treatment Plant, for an estimated cost of \$1,800,000.
2. High priority repairs and investigations associated with concrete damage and deterioration, including modelling to the wastewater treatment process to identify long term upgrades necessary to increase future capacity. The proposed repairs and investigations have an estimated cost of \$185,000.

Report prepared by:

Tim Strang
SENIOR ENGINEER, WELLINGTON WATER LTD

Approved for submission by:

Peter Bailey
GENERAL MANAGER ASSET MANAGEMENT AND OPERATIONS

1 CONTRIBUTION TO COUNCIL'S STRATEGIES

Relationship to Council's Strategic Focus Areas

Investing in infrastructure for the future	Protecting our landscapes and harbour	A vibrant city centre for residents, business and visitors	Active and connected communities
✓	✓		✓

- 1.1 The proposed wastewater treatment plant upgrades and investigations directly contribute to the strategic focus area of investing in infrastructure for the future.

2 ASSOCIATED PORTFOLIOS

Relationship to Council's Portfolios of Responsibility

Sport, Leisure and Recreation	Community and Social Development	Infrastructure and Environment	Economy and Arts	Planning and Regulatory	Finance and Audit
		✓		✓	

Relationship to Project Portfolios

Emergency Management	Sister Cities	Village Planning	Harbour	City Centre	Community Empowerment
✓			✓		

3 BACKGROUND

Sludge Return System

- 3.1 A new clarifier was constructed at the Porirua Wastewater Treatment Plant in 2012 to increase hydraulic capacity from 825 L/s to 1500 L/s and provide redundancy so that the original two clarifiers could be taken offline and refurbished. The first of the original clarifiers was refurbished in 2013/2014, and the second is proposed to be refurbished as part of the scheduled 2014/2015 equipment renewals. The new clarifier has, therefore, been an important and useful investment for the Plant to date.
- 3.2 The sludge underflow for the new clarifier was designed to discharge to the existing return activated sludge pump station. While the new clarifier was of different depth and dimensions to the existing clarifier, it was envisaged that the flows from the clarifiers could be balanced by manual adjustment of valves on the underflow lines.
- 3.3 Unfortunately, the connection of all clarifiers together at a common single pump station has led to the uncontrollable movement of sludge between the new clarifier and the old clarifiers, resulting in vastly different sludge levels between clarifiers. The operators of the plant currently check sludge levels and make valve adjustments on a daily basis. While this approach has been reasonably successful for stable dry weather flows, during wet weather flows the degree of control has not been sufficient to prevent sludge overflow.

Inlet Pipe to Aeration Basin

- 3.4 Tangere Pump Station was upgraded in 2012 to reduce overflows to the harbour. This has successfully reduced overflows and increased wet weather flows to the wastewater treatment plant.
- 3.5 Flow into the aeration basin is currently limited by the size of the inlet pipe, and when flows are too high for the pipe they bypass around the basin. With recent upgrades to the Tangere Pump Station increasing flows to the plant, the frequency of bypass events has increased over the last few years. Greater Wellington Regional Council has expressed concern over the frequency of bypass events.

Emergency Generator

- 3.6 Substantial work to the aeration system is being finished over the next four years, when fully completed; the treatment plant will theoretically be able to handle a population of around 90,000 people, as compared to the original design loading of 80,000 people. Based on current population predictions, the population of the Porirua basin is estimated to reach 90,000 by around 2021. The upgrades to the aeration system have resulted in an 80% increase in air flow, and a substantial increase in electricity consumption when all blowers are operating. The remaining work involves replacing the existing worn diffuser arms, and is being completed from the budget allocation for equipment renewal; estimated remaining cost is around \$470,000.
- 3.7 The increase in the aeration system capacity means that the existing emergency generator at the Wastewater Treatment Plant is now unable to operate even a single blower unit, so that the treatment process cannot be maintained if the power supply is interrupted.

Compliance Issues

- 3.8 Greater Wellington has issued formal warning for significant non-compliances at the treatment plant in 2011/2012, 2012/2013, 2013/2014 and has previously threatened enforcement action for breach of consent.
- 3.9 The discharge quality is now non-complying for 2014/2015, due to sludge overflows in wet weather. Urgent upgrades are needed to demonstrate PCC commitment to achieving compliance.

4 DISCUSSION

- 4.1 Despite the upgrade work that has been completed to date, the existing limitations of the inlet feed and sludge return system mean that the performance of the wastewater treatment plant is currently marginal. This means that the benefits of the previously completed upgrades cannot be fully realised. In addition, the Treatment Plant is currently very difficult to operate, and unmanageable during wet weather.

Sludge Return System

- 4.2 The highest priority at the Plant is to address the current issues with the sludge return system. The imbalance in sludge levels results in sludge overflowing during wet weather flows, meaning that the plant is unable to comply with resource consent conditions for suspended solids and faecal coliforms.
- 4.3 In hindsight, the potential issues with the sludge return system could have been highlighted by the clarifier designers; however it is likely they were attempting to reduce costs for PCC by avoiding the expense of constructing a new return activated sludge pumping station.
- 4.4 The recommended option for the sludge return system is to construct separate pump stations for Clarifier 1 and Clarifier 2, with the existing pump station retained for Clarifier 3. This will allow the sludge levels to be managed independently, while also providing a higher sludge return rate for the future operation of the plant under a higher population loading. The estimated cost of this option is \$1,300,000.
- 4.5 Other options were considered by the engineering consultant Mott Macdonald, with the primary alternative being to construct a new pump station for Clarifier 3, with the existing pump station retained for Clarifier 1 and Clarifier 2. While the alternative was cheaper at

\$900,000, it would require ongoing manually balancing of Clarifier 1 and 2 to prevent sludge overflow. While anecdotal accounts suggests the sludge return system performed reasonably well prior to the construction of Clarifier 3, there were still sludge imbalance issues during wet weather.

Inlet Pipe to Aeration Basin

- 4.6 The second highest priority at the plant is to increase the flow into the aeration basin so that the number of bypass events is reduced and so that more benefits of the new clarifier and upgraded aeration system can be realised.
- 4.7 In the short to medium term, an improvement in capacity can be achieved by upsizing the existing flowmeter and pipe fittings on the feed line. The estimated cost of these works is \$200,000. This includes improving the current flow measurement on the bypass line, so that a better flow balance is achieved for the plant.
- 4.8 In the longer term, the recommended option to increase flows to the aeration basin is to install a second feed line to the aeration basin. This will likely require constructing a new overflow line around the Treatment Plant building and reasonably substantial civil works, for an estimated cost of around \$600,000.

Emergency Generator

- 4.9 The third priority at the Plant is to restore the standby generation capacity. While a prolonged power outage is unlikely (there have been no prolonged outages in the last 15 years), the consequences would be severe if the process cannot be re-started. It is estimated to take around a month to re-commission the process, during which time there would be no treatment or partial treatment only.
- 4.10 Current best practice is to maintain standby generation for wastewater treatment plants, and Greater Wellington Regional Council has questioned the current state of the emergency generator. The existing generator is now 25 years old, and is not currently in a reliable running state (as well as being of insufficient capacity to power the aeration basin).
- 4.11 The recommended option is to purchase a containerised generator that is sufficient to run essential equipment at the plant (approximately three times the capacity of the existing generator). The proposed generator has been sized to supply the screens, one blower, aeration basin recirculation, RAS pump station, UV treatment unit and emergency lighting. Another benefit of the containerised unit is that it will free up valuable space in the treatment plant building for an additional polymer treatment unit to be constructed in 2014/2015. The estimated cost of the containerised generator is \$300,000.

Summary

- 4.12 A summary of the required urgent upgrade works is listed in Table 1.

Table 1: Urgent Upgrade Works

Work	Estimated Cost
1. RAS Pumpstation for Clarifier 3	\$1300K
2. Remove existing flow restrictions on feed line	\$200K
3. Standby generation capacity (WWTP)	\$300K
	\$1800K

Other Repairs and Investigations

4.13 Other repairs and investigations have been identified for the Wastewater Treatment Plant to address joint failure, and to scope out forward works. Due to recent joint failures and the deterioration of concrete condition in the screened effluent channel, these investigations are seen as high priority. The repairs and investigations have been listed in Table 2.

Table 2: High Priority Repairs and Investigations for 2014/2015

Investigations	Scope	Estimated Cost
2. Aeration Basin Crack Monitoring and Contraction Joint investigations	<ul style="list-style-type: none"> • Excavate around recent joint failure • Determine cause of recent cracking • Concrete condition • Permanent repair to joint if feasible 	\$75K
2. Inspected Screened Effluent Channel.	<ul style="list-style-type: none"> • Investigate spalling on concrete and reinforcing • Options for repair and preventative treatments 	\$35K
3. WWTP Modelling and Master Planning	<ul style="list-style-type: none"> • Consider effect of increased flows on the treatment plant biological process • Investigate ultimate capacity of the plant • Use for long term master planning and LTP process 	\$75K
		\$185K

5 FINANCIAL IMPLICATIONS

- 5.1 The draft 2015 Long Term Plan includes an allowance of \$1.15M for upgrades to the sludge return system in 2015/2016. These works will no longer be required if the proposed urgent work and investigations are completed in 2014/2015.
- 5.2 The draft 2015 Long Term Plan also includes an allowance of \$0.3M for hydraulic improvements. The intention is that these works will be deferred several years if the proposed urgent work and investigations are completed in 2014/2015.
- 5.3 The proposed urgent work and investigations is estimated to cost \$1.985M. This is a net increase of \$0.83M over works already identified in the 2015 Long Term Plan.
- 5.4 A separate report details proposed changes to the cross harbour project, which are estimated to provide considerable savings in the 2014/2015 financial year. If acceptable to Council, the proposed Wastewater Treatment Plant (WWTP) improvements could be funded from some of these savings. In terms of development and financial contributions, the funding basis of the Cross Harbour project is the same as the funding basis for equipment renewals at the WWTP.
- 5.5 The WWTP master planning exercise will be used to provide updated figures for future Long Term Plans.

6 CONCLUSION

- 6.1 A number of issues at the Wastewater Treatment Plant need addressing to assist with current resource consent compliance, investigate relatively urgent condition issues, and to fit in with the longer term plan to raise the treatment capacity of the Plant. In raising the Plant's capacity it will be able to cater for a population of 90,000 people whilst also being compatible with other future upgrades.