Masterton District Council Wastewater Upgrade

This newsletter is also available on our website www.mstn.govt.nz, along with the Council's evidence and reports relating to the wastewater upgrade.

Masterton takes lead to clean up Ruamahanga River

The Ruamahunga River will be the winner if the go-ahead is given for Masterton District Council to upgrade the Masterton Wastewater Treatment Plant (MWTP) in line with its current proposals.

Above and below the water, the Ruamahanga River is a valuable resource. It's popular with swimmers and walkers, people fishing and kayaking and it's of significant cultural value to local iwi.

Masterton Mayor Garry Daniell said the upgrade is going to cost $21 million in addition to the land already purchased and will be "a significant burden on the urban Masterton ratepayer but we believe the environmental benefits justify the expense".

"We've thoroughly investigated all the options and this is the best in terms of achieving the project's and the Wellington Region Freshwater Plan objectives – at a cost that is affordable to the community."

Once complete, improvements to the wastewater treatment system will result in 40% less treated effluent being discharged annually into the river than is currently the case. The new system will also allow the Council to stop discharging into the river over summer at low flows, when the river is more popular with users. This is also the time when it's most vulnerable to discharge impacts.

"At other times during the year, the improved treatment process and new ponds will mean that any water discharged into the river will have only a minor impact.

"The Ministry of Health has set criteria for safe recreation on and in the river. When we do discharge into the river, we will only be contributing 4% of what is considered to be a safe and acceptable level in the river.

Where current MoH standards require levels under 260cfu/100mL of bacteria (E.coli) for safe swimming, the actual treated discharge will produce an average of 10cfu/100mL which is a huge improvement.

Next step - Hearings and a decision

- 34 submissions have been made on applications for Resource Consent and Notice of Requirement
- Starting February 24, 2009, hearings will be held at Masterton District Council over 11 days spread over 3 weeks.
- These hearings are open to the public but only submitters and witnesses will be able to address the hearing panel.
- A decision will be announced after the evidence is considered, probably in early May.

The proposed scheme comprises three main parts:

- Treatment and storage of effluent in 6 ponds of sophisticated design – 2 primary and 4 maturation ponds.
- Land treatment of effluent over 97 hectares of land which will then support the growth of grass. This will be harvested five times a year and sold as baleage.
- Controlled discharge of effluent into the river at higher flows.

In technical terms: The scheme will be based around maximising sustainable land irrigation when the receiving river environment is most sensitive, discharging treated effluent to the Ruamahanga during freshes without significant environmental impacts, and utilising pond storage in the interim. No direct discharge to the river will occur for flows less than median in the summer and half median in the winter. When treated effluent discharge does occur, it will be at a controlled 30 fold dilution rate through a rock diffuser located on the Ruamahanga River bed.

The annual nutrient loading on the Ruamahanga River will be reduced by 40%. This, for example, will reduce the total phosphorus load on the river from the plant to less than 5%, down from a maximum of 8%. More significantly, the upgrade will reduce the peak phosphorus load on the river during periods of low flow from 43% to less than 3%. This reduction will significantly reduce the potential for algae growth.

The next step in the clean up of the Ruamahanga River is to reduce the other 95% of sources, and Greater Wellington is doing this through its Wellington Region Freshwater Plan.

Hearings follow a decade of development

A sustainable long-term solution for the treatment and disposal of Masterton's wastewater will be a step closer with the completion of hearings next month.

With residents at Riversdale Beach agreeing on the way forward for their multi-million dollar coastal settlement scheme, it's hoped submitters on the Masterton scheme will also put their case and then find favour with the Council's eventual decision.

A panel of three Commissioners has been chosen to hear and decide on the Notice of Requirement and Resource Consent applications for the upgrade.

The three Commissioners are Cr Sally Baber (Chair), Chairperson of the Greater Wellington Regional Council Environment Committee; Rob van Voorthuysen, a Director of Environmental Management Services Ltd, who has 23 years experience in environmental management, policy analysis and senior corporate management in both the central and local government sectors; and Te Waari Carkeek who is the Iwi representative and is well known for his cultural expertise.

It's been almost 10 years since Masterton District Council established a working party to develop a core set of principles for the project. Since 1999, work has been underway to develop a proposal that will protect public health and respect the wishes of the greater community.

As far back as 2003, the Council had begun undertaking and commissioning detailed environmental, economic and technical investigations to identify the most effective upgrade option to satisfy the project's environmental, economic and social objectives.

- **These investigations and further details of the above issues are going to be discussed during the hearings at Masterton District Council next month. This evidence is also online at www.mstn.govt.nz/projects/sewerageupgrade.**

The Totara stand to be retained at Homebush

What were our key objectives from the outset?

In 2004, the Council and the Consultation Task Group (which was formed to provide for community/ stakeholder-based input into the consultation and project development) several project objectives were decided. Long-term sustainability and affordability were the over-arching objectives, followed by:

Social and cultural objectives

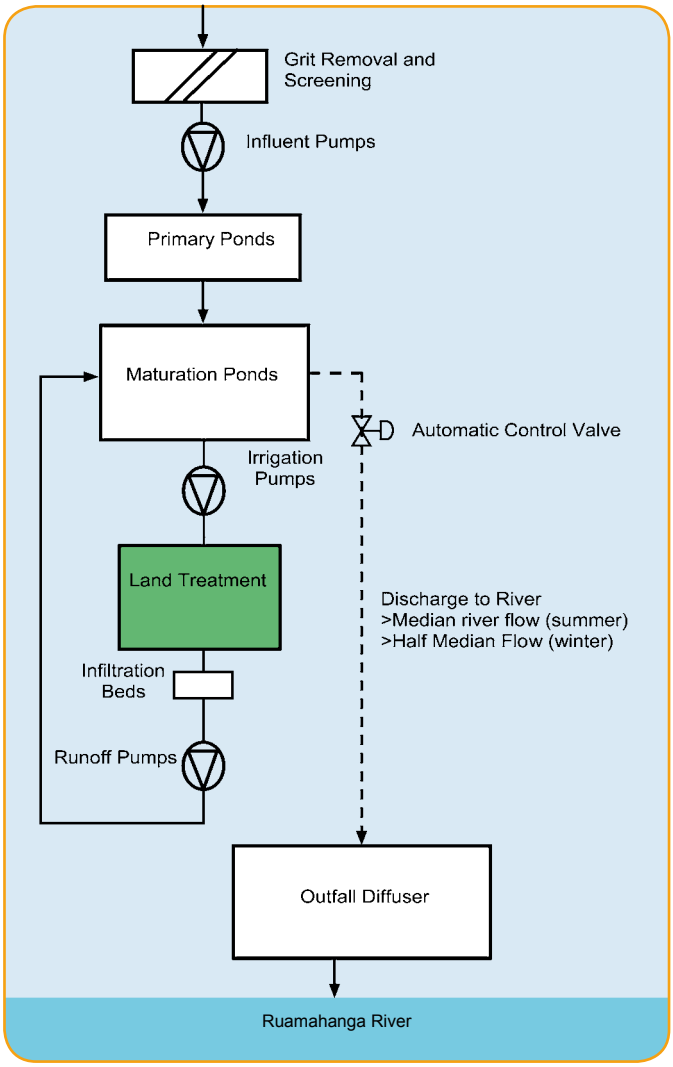
- To construct and operate a robust and reliable wastewater treatment plant.
- To recognise Maori cultural values associated with the Ruamahanga River and other water bodies
- To recognise the recreational use and amenity value of the Ruamahanga River.
- That the treated wastewater, after mixing, meets nationally recognised standards for bacteria to minimise the risk to public health in relation to recreation in and food gathering from, the Ruamahanga River.
- To have input and support from the Masterton and affected communities (including tangata whenua) for the selected upgrade option.

Environmental objectives

- That the wastewater is treated to a standard, particularly in terms of suspended solids, colour, clarity and nutrients that protects surface water for current and future users and recognises the objectives of the Regional Freshwater Plan for the Wellington Region.
- That the wastewater upgrade project promotes sustainability, particularly in resource consumption (for example non-renewable chemical use, energy use and gas emission).
- That the wastewater treatment plant upgrade does not result in any significant odour beyond the site boundary.
- To reduce over time the inflow and infiltration of stormwater and groundwater into the reticulation system and/or manage the peak flow in the treatment process.

Economic objectives

- That the proposed upgrade is cost effective and affordable for the Masterton Community.



Schematic drawing of proposed Masterton Wastewater Treatment Plant Upgrade

What is the situation right now?

The existing wastewater treatment plant at Homebush is situated on about 42 ha of flat land, located in the rural area 5 km southeast of the Masterton urban area. The plant is located off the Martinborough-Masterton Road adjacent to the Ruamahanga River, approximately 1 km upstream of Wardells Bridge, as shown in Figure 1.

The present wastewater plant, an oxidation pond system comprising two primary ponds and one secondary pond, was constructed and commissioned in 1970-71. The treated wastewater is currently continually discharged via the Makoura Stream into the Ruamahanga River at rates generally proportional to the inlet flows.

This site has been the location of a municipal wastewater facility since 1900 when the first municipal septic tanks were constructed.

Much of the Masterton sewer network was constructed in the period from 1910 to 1916 and is now approaching 100 years old.

However, other sections constructed more recently in the mid 20th century, are also proving problematic.

The total replacement cost of the public part of the wastewater network is estimated to be approximately $80m, and the private sections of laterals are estimated to have a replacement value of $35m. Replacement of the sewer network is not affordable for the community.

Existing treatment ponds at the Masterton plant

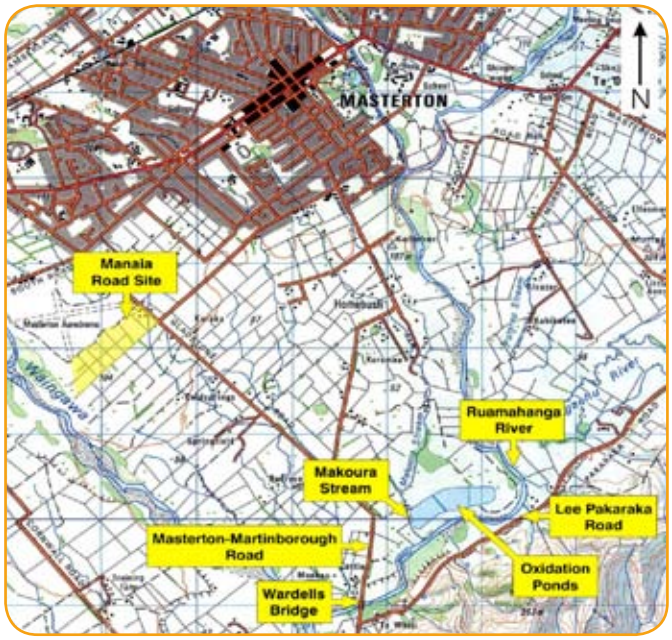


Figure 1

David Hopman, Masterton District Council's Assets and Operations Manager, says the Council is committed" as part of its ongoing asset management strategy, to progressively upgrade areas of the reticulation system that are significantly under performing".

"Extensive work has already been undertaken by the Council to identify the areas of the network that require upgrading or repair. These areas are being scheduled into the ongoing programme of works.

Our long-term goals for the urban wastewater infrastructure have been developed, in collaboration with the community, over an extended period of time. They form the basis for the operational and capital expenditure strategies set out in the Council's 2009-2019 Long Term Council Community Plan (LTCCP).

Approximately $15 million has been allocated for investigations, renewals, maintenance and capital works over the next 10 years, with additional capital expenditure able to be added for specific projects.

Under the current regional resource consent WAR 020074, the Council is required to obtain relevant resource consents for its wastewater treatment plant by 2010. There is also an expectation from the community that the discharge will be upgraded, and that the discharge to land will be maximised.

Land purchase increases the options and attracts submissions

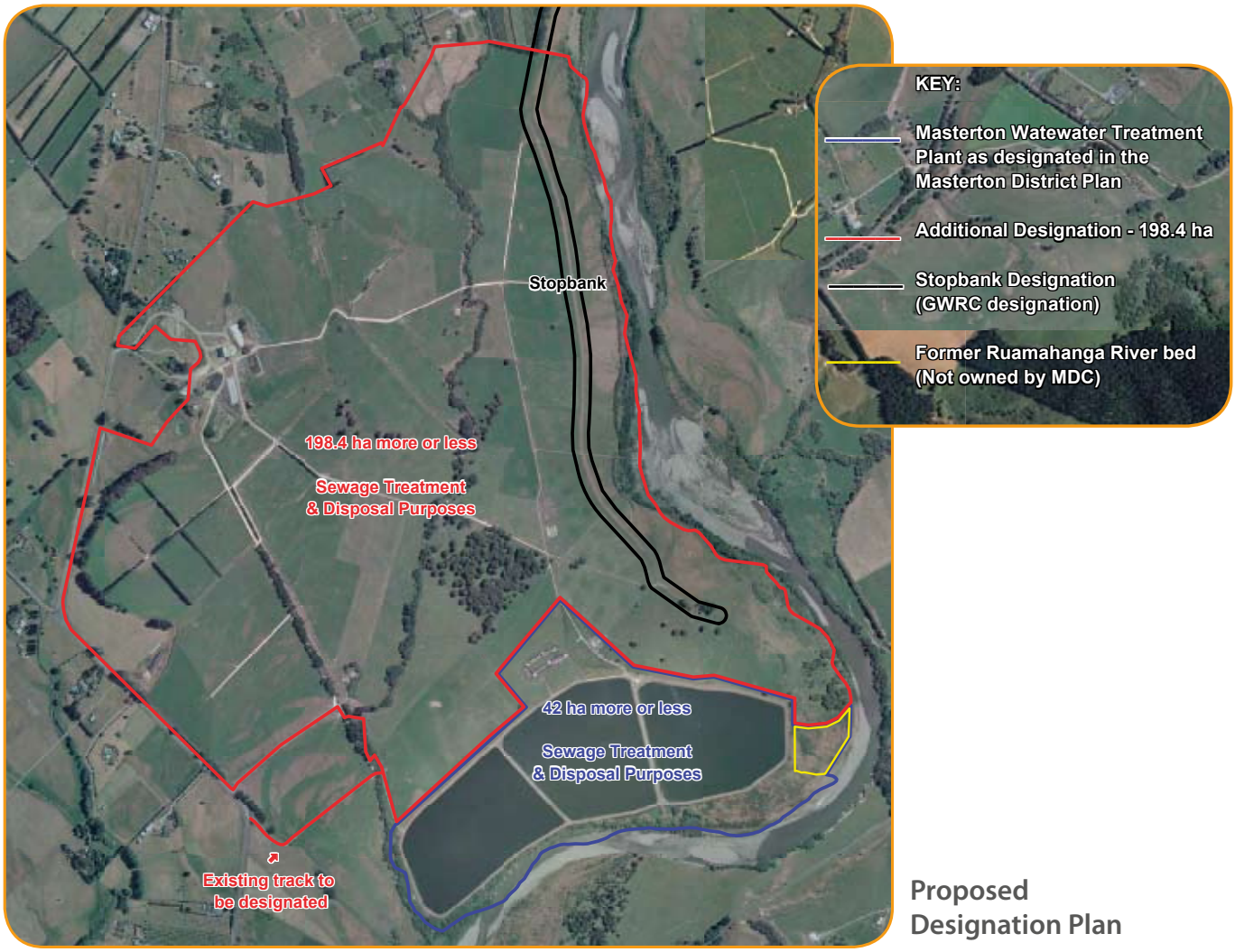
In March 2007 the Council purchased a 107 ha land block adjacent to the site of the initially proposed land treatment area (91 Ha), for the future application of treated wastewater to land. This purchase is consistent with Council's objectives and maximises the volume of effluent application to land to the extent that it is practicable and cost effective.

In December 2007 the Councillors unanimously selected the current proposal, which involves constructing new clay-lined ponds on the 91 ha site directly to the northwest of the existing ponds, decommissioning the existing ponds and developing a land treatment scheme on the remainder of the 91 ha site. The 107 ha site will be partially developed for land treatment, with the balance of the site remaining available for further effluent treatment if future unanticipated industrial or population growth occurs.

Submissions during the consent process for the original scheme expressed concerns with erosion and flooding risks due to the location of the existing ponds and leakage from these unlined ponds. The purchase of the 107 ha site provided an opportunity for the Council to address these issues by replacing the existing ponds with fully engineered and lined ponds, albeit at an additional cost.

The Council re-evaluated seven options for the construction of new oxidation ponds, either on the 91 or the 107 ha site, and various adjustments to the land treatment location.

A description and evaluation of the options is reported in detail in Masterton Wastewater Upgrade Project: Review of Pond Irrigation Area Options Incorporating Additional Land. This can be found on our website www.mstn.govt.nz



Proposed Designation Plan

Why we think the current proposal is the best

The average flow into the wastewater treatment plant is significantly higher than one would expect from a township with a population of almost 18,000 people. This is caused by the relatively high rate of infiltration and inflow into the sewer system from rainfall and high groundwater levels, said Council Assets and Operations Manager David Hopman.

The current proposal is the "best option in terms of achieving the project's and the Wellington Region Freshwater Plan objectives, at a cost that is acceptable to the community" because:

- The microbial load at Wardells Bridge from the WWTP discharges in summer will be eliminated below median river flows. Above median flows the median E.coli concentration increase will be approximately 10 cfu/100ml. Note that the MoH guideline level for acceptable water quality for swimming is no single sample greater than 260 E.coli /100mL.
- Other water quality issues at Wardells Bridge and Makoura Stream attributed to the MWTP discharge such as clarity, algae settling and nuisance growths will be eliminated.
- The annual WWTP nutrient loading on the Ruamahanga River will be reduced by 40%. This will reduce the nitrogen load from the WWTP as proportion of total catchment loads from a peak of 3% to 1-2% and reduce the phosphorus load from a peak of 8% to 2-5%.
- The instantaneous phosphorus load from the WWTP on the river during periods of low flow will be reduced from a peak of 43% to less than 3 %. This reduction will significantly reduce the potential of downstream nuisance growths.
- The construction of new clay lined ponds of modern design to replace the existing ponds will significantly reduce pond leakage, optimise the treatment of effluent and avoid the need for flood and erosion protection of the existing ponds.
- The design provides a public controlled and owned scheme to maximise the disposal of treated effluent to land. The design utilises modern automated control technologies with a proven irrigating system for municipal wastewater. The design also minimises the discharge to the Ruamahanga River, without producing significant environmental impacts, at an affordable cost to the Masterton ratepayers.
- The proposed upgrade allows for future third party use of the treated effluent as a water and nutrient resource without risking potential operational or environmental consequences of any commercial arrangements failing, or the imposition of uneconomic constraints on the use of the treated effluent. This third party use, combined with ongoing network improvements, will over time further reduce the volume of river discharges required.
- The proposed upgrade will have a long asset life and has additional land available for land treatment in the future if required. This, combined with an ongoing programme of investigation, renewals, maintenance and capital works, means that the proposed upgrade will provide Masterton with a long term solution for sewage treatment.

The Taupo wastewater irrigation scheme showing the plastic-wrapped baleage and the equipment used to handle baleage.

Pasture irrigated with treated effluent at the Taupo plant.