

**REPORT BY THE CHAIRMAN OF THE
AKAROA/WAIREWA COMMUNITY BOARD
16 NOVEMBER 2011**

PART A - MATTERS REQUIRING A COUNCIL DECISION

1. FUTURE MANAGEMENT OF AKAROA HARBOUR WASTEWATER

General Manager responsible	General Manager City Environment, DDI 941 8608
Officer responsible	City Water and Waste Manager
Authors	Zefanja Potgieter and Mike Bourke

PURPOSE OF REPORT

1. The purpose of this report is to seek the Council's preferred option for the future management of Akaroa's wastewater. This will enable the Council to then seek a variation to the current resource consent to align the current consent timeframes with the construction timeframe for the preferred option as programmed in the current Long Term Plan (LTP).

EXECUTIVE SUMMARY

2. The Akaroa wastewater treatment plant discharges treated wastewater into the Akaroa Harbour, and is operating well in terms of meeting its resource consent conditions. The current consent is a short term one. It was granted by Environment Canterbury (Ecan) with the aim that the Council consult with the community to decide on the future long term management of Akaroa wastewater. Apart from the standard monitoring conditions, the consent (which expires in July 2013) required that a community working party be established in 2008 to make a recommendation to the Council with regard to a long term wastewater treatment option for the Akaroa area. This would allow the Council to then apply for a new long term consent for wastewater discharges from the preferred option, prior to the expiry of the current discharge consent in July 2013. The consent requires the Council to select a preferred option for the long term management of Akaroa's wastewater and advise Ecan of that option by December 2011. Discharge could continue under the current consent if a new application for that activity is lodged six months before expiry of the current consent. Capital and operating cost provisions have been made for this project in the 2009-19 LTP.
3. The Akaroa Wastewater Working Party (the Working Party) - (see **Attachment 1** for participants) has worked for the past three years on the formulation and evaluation of a number of different options for the future management of Akaroa's wastewater. At the request of the Ōnuku Rūnanga, it was consulted separately. This process included some representatives attending some Working Party meetings as well as a formal hui at Ōnuku Marae.
4. In summary, the options for future wastewater management considered by the Working Party included:
 - (a) Whether or not the wastewater treatment plant should remain at the existing site (Takapuneke Reserve) which is an historic and culturally sensitive site.
 - (b) Discharge treated wastewater into mid-harbour, having been treated to a "near drinking water standard".
 - (c) No discharge of treated wastewater into the harbour, with all treated wastewater being applied to land.
 - (d) A combination of a harbour discharge during winter months, and land application during summer months.
 - (e) Beneficial reuse options e.g. third pipe reticulation for Akaroa.
 - (f) An ocean outfall discharge outside the Akaroa Heads.

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5. The Working Party's report with recommendations is attached (**Attachment 2**).
6. Ōnuku Rūnanga is opposed to the treatment plant remaining on Takapuneke Reserve, and therefore supports locating a new treatment plant off the reserve. The Rūnanga furthermore strongly opposes any discharge of treated wastewater into the harbour, supporting land irrigation to the north of Akaroa, and not to the south, closer to Ōnuku Marae (**Attachment 3**).
7. During the review of issues and options professional advice confirmed that, because of the poorly draining soils, land irrigation alone with no harbour discharge component, is not feasible for Akaroa. A harbour discharge would therefore be the minimum requirement for Akaroa's wastewater in the medium term due to lack of suitable land, and that could act as the sole discharge feature (i.e. with no land irrigation), or in conjunction with a land irrigation option.
8. Having met 15 times over a three year period, the Working Party reached the following conclusions and recommends:
 - (a) A new plant be located at a different site to the current Takapuneke Reserve site.
 - (b) A new wastewater treatment plant be designed to produce wastewater that achieves the best quality wastewater available at the time of construction.
 - (c) The plants' outfall pipeline discharge into the mid harbour region of Akaroa Harbour.
 - (d) The outfall design should allow for extension to a location outside the harbour if required in the future.
 - (e) Future wastewater management options, including the design of the plant, must allow for the beneficial re-use of the treated wastewater (e.g. potential irrigation uses in parks and on private property).
 - (f) Land irrigation of Banks Peninsula soils and topography be trialled to determine the parameters that will enable better decision making in the future about reuse of wastewater.
 - (g) If wastewater is to be discharged into the harbour, then the wastewater must first pass over, or through, land before it is discharged into the harbour, in order to help address cultural concerns of Ōnuku Rūnanga and Ngāi Tahu. This can be accommodated through the design of the outfall structures.
9. The working party could not reach agreement on a preferred location for a new plant and support infrastructure (e.g. a storage pond). The majority of the members favoured a mid-harbour discharge from a site to the south of Akaroa, with others favouring the Takamatua hill area to the north of Akaroa. Land acquisition would be a requirement for moving the treatment plant off Takapuneke Reserve. A number of technically feasible sites have been identified in areas both north and south of Akaroa. Sites have been assessed on the basis of elevation, distance from final pumping point, site vehicular access, power supply availability and reliability and access for pipelines to and from the sites, distance to neighbours, potential visual impact and consent ability. Final site selection will be subject to negotiation with current owners and in-depth geotechnical studies.
10. Two public information sessions were held in June 2010, one in Akaroa and one in the city. Email responses were invited and received. Feedback was mixed and wide ranging, from support for retaining the plant at the current site with improved levels of wastewater treatment, to an ocean outfall past the heads. All the feedback was considered by the Working Party at a subsequent meeting.

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11. The Council's 2009-19 LTP made the following provision for capital funds for this project (in 2011 dollars):

Financial year	2013 (\$000's)	2014 (\$000's)	2015 (\$000's)	2016 (\$000's)	2017 (\$000's)	Total (\$000's)
Akaroa WWTP Upgrade (WBS 522/773)	\$ 239.8	\$ 232.8	\$ 4,959	\$ 8,769	\$ 8,903	\$ 23,104

12. The currently technically feasible options are listed below.

<i>Treatment Plant Location – discharge to mid harbour</i>	<i>Capital Cost (\$m)</i>	<i>Opex Cost p.a. (\$m)</i>	<i>NPV (\$m)</i>
Existing site (upgraded plant)	8.2	0.371	13.6
Southern Site (new plant)	21.5	0.433	27.8
Northern site (new plant)	26.5	0.433	32.8

13. Comparative costs for the full list of different technical solutions for treating Akaroa's wastewater considered by the Working Party are provided in **Attachment 4**. It indicates that the existing budget provisions cover, or nearly cover, some of the options but not the option to build an ocean outfall to discharge beyond the heads at the mouth of the harbour. The estimated costs of the other options range from \$8.2 million for retaining the existing site with upgraded treatment and a mid harbour discharge, to \$26.5 million for a new northern plant with land application in summer and harbour discharge in winter. Note that these estimates have an estimating error of minus 10 per cent to plus 40 per cent, and are in 2011 dollars.

BACKGROUND

14. In reaching a recommendation, the following key considerations are relevant:
- (a) The current plant, which is located on Takapuneke Reserve, discharges treated water into the harbour near the shore and operates well in terms of the current resource consent conditions which expire in July 2013. A short term extension of the consent in order to construct a new plant will be necessary. Any consent for a new plant will include conditions for a higher level of wastewater treatment for harbour discharge, in particular in the reduction of nutrients.
 - (b) Over the past years the Council has worked with the Rūnanga towards a conservation plan for Takapuneke Reserve that will recognise the cultural significance and heritage values of the site. Other stakeholders have also been involved in this process, and a report to Council on the conservation plan is planned for 2012. The Rūnanga is strongly opposed to the wastewater treatment plant remaining on the Reserve, and to any discharge of treated wastewater into the harbour.
 - (c) A harbour discharge will however continue to be required in the medium to long term due to steep topography, problematic soil types, and the lack of suitable land available for land application. Funding for improved wastewater management options for Akaroa is provided in the 2009-19 LTP.
 - (d) There is no suitable Council owned land available for a new treatment plant site and storage pond. This land will have to be purchased as part of the project. This could either be on the Takamatua hill area, or to the south of Akaroa township but sufficiently distant from Ōnuku Marae, and dependant on further discussions with the Ōnuku Rūnanga and other interested parties.
 - (e) In preserving options for future water sources to meet non-potable water demand, the beneficial use of treated wastewater should not be ruled out by any selected option.

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15. The Working Party's recommendations can therefore be supported, except for the proposal to consider a future extension of the harbour discharge outside the Akaroa Heads. The costs of extending a mid-harbour discharge to a location outside the harbour would be prohibitive, and based on effects on the natural environment could not be justified. It would however address cultural concerns.
16. The Working Party could not agree on the actual location of a new plant and storage pond away from Takapuneke Reserve (should it be the selected option). The actual location will largely be affected by negotiation between the Council, community and landowners and the land that is available to accommodate the facility required.
17. Taking the above points into consideration the options available for consideration are reduced to:
 - (a) Upgrade the existing plant, or
 - (b) Support moving the treatment facility off Takapuneke Reserve to a new site, either north or south of Akaroa. The site would need to be selected by July 2012.
18. In both cases water will be treated to a higher level than the present plant achieves, including nutrient reduction (nitrogen and phosphorus reduction). The treated water will be discharged into the harbour via a mid-harbour outfall.
19. As detailed in **Attachments 2 and 3**, both the Working Party and the Rūnanga favour moving off Takapuneke. A harbour discharge is supported by the Working Party and opposed by the Rūnanga (which supports land irrigation for all treated wastewater and no discharge to the harbour).
20. As an alternative site the Rūnanga favours a location north of Akaroa, while within the Working Party there was support for either a northern or southern site, with the majority favouring a southern site.
21. As detailed in **Attachment 4** the costs of these options are

Akaroa Harbour Treatment Option	Capital Costs (\$ million). Range -10% to +40%	Operational cost (\$'000)
Upgraded plant on existing site, with nutrient reduction and mid harbour discharge	Estimate \$ 8.2 m (Possible Range \$ 7.40m to \$ 11.5m)	\$ 371 per annum
New plant with nutrient reduction and mid harbour discharge – south of Akaroa	Estimate \$ 21.5 m (Possible Range \$19.3m to \$ 30.1m)	\$ 433 per annum
New plant with nutrient reduction and mid harbour discharge – north of Akaroa	Estimate \$ 26.5 m (Possible Range \$ 23.8m to \$ 37.1m)	\$ 433 per annum

FINANCIAL IMPLICATIONS

22. Funding of \$23.1 million is available in the 2009-19 LTP for this project as above in paragraph 11. If a northern site is chosen additional funding may be required in the next LTP to cover the shortfall, which will be subject to refined cost estimates that will be required when a site is clearly identified and a treatment process defined.

Do the Recommendations of this Report Align with 2009-19 LTP budgets?

23. Yes. The range of options available are generally achievable within the funding envelopes currently forecast in the 2009-19 LTP as described above.

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LEGAL CONSIDERATIONS

24. *Current consent compliance:* There are no major consent compliance issues for the operation of the wastewater treatment plant. The consent requires the Council to select a preferred option for the long term management of Akaroa's wastewater, and advise Environment Canterbury by December 2011.
25. *Land issues:* Land acquisition will be required for a new treatment plant and ancillary supports such as storage ponds if the option of remaining on Takapuneke is not selected. If land irrigation was required then additional land would be required for this option. Depending on the final site selection it is likely that separate arrangements, such as a right of way and easements, will need to be acquired across private land to accommodate pipes discharging treated wastewater to the harbour.
26. *Consents:* Whichever long term option is decided upon, the current discharge consent expires in July 2013 and a notified consent application to extend the current operation will be required, possibly up to 2018 if the plant is to be shifted away from Takapuneke.
27. *Silent file:* There will be silent file issues to resolve with the Rūnanga should Takamatua Hill be used to locate a plant and storage ponds.

Have you considered the legal implications of the issue under consideration?

28. Yes, as above.

ALIGNMENT WITH LTP AND ACTIVITY MANAGEMENT PLANS

29. This report supports the wastewater treatment and collection activity management plan recommended level of service; that is, that no major or persistent breaches of resource consents for treatment plants and associated discharges occur.

Do the recommendations of this report support a level of service or project in the 2009-19 LTP?

30. Yes.

ALIGNMENT WITH STRATEGIES

31. There is no current wastewater strategy. A draft strategy is to be commenced this financial year, to be completed during 2013.

CONSULTATION FULFILMENT

32. The resource consent conditions prescribed specific parties which were to be invited to participate in the community working party, as well as possible volunteers. A number of Non Government Organisations, individuals and elected members joined the Working Party. Numbers attending meetings reduced over the three years with a core of five members (excluding CCC, Ecan and Department of Conservation attendees) completing the working party work in 2011.
33. At Ōnuku Rūnanga's request it was consulted separately. This process included some representatives attending some Working Party meetings, as well as a formal hui at Ōnuku Marae.
34. Upon completion of the technical reports for future options, two public information sessions were held, one in Akaroa and one in the city. Feedback on options was sought and considered by the Working Party.
35. A special consultative procedure is not considered necessary at this stage. The community that will be affected by the decision will have an opportunity to provide further views through the Annual Plan, and LTP processes and future resource consent processes.

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STAFF RECOMMENDATION

It is recommended that:

- (a) The Akaroa Wastewater Working Party be thanked for its valuable work over the last three years.
- (b) A replacement wastewater treatment plant for Akaroa be located away from Takapuneke Reserve, and that staff discuss siting options with the Ōnuku Rūnanga and community, and report back to the Council within six months on suitable potential sites.
- (c) The outfall for the treatment plant be located in the middle of the Akaroa Harbour and that consideration be given to measures to address cultural concerns, in consultation with Ngāi Tahu.
- (d) The new treatment plant be designed to produce wastewater that achieves the best quality wastewater available at the time, and that the design of the plant enable the potential future beneficial re-use of treated wastewater for domestic, commercial or agricultural irrigation.
- (e) Should suitable land become available, a land irrigation trial be costed and presented to the Council for consideration.
- (f) Environment Canterbury be advised of the Working Party Outcomes adopted by the Christchurch City Council.

BOARD CONSIDERATION

The Akaroa/Wairewa Community Board considered this report at its meeting held on 16 November 2011.

The Board agreed that the treatment plant should not remain on the Takapuneke Reserve. It was also felt that although the cultural effect of discharging wastewater into the harbour was a concern to the Rūnanga, soil types and the topography of the land in the area were issues and discussions with the Ōnuku Rūnanga should continue.

The Board commended the Working Party and staff for the excellent work they had carried out in advancing the future management of the Akaroa Harbour wastewater to this stage.

BOARD RECOMMENDATION

That the Council adopt the staff recommendation with the following amendments:

- (b) A replacement wastewater treatment plant for Akaroa be located away from Takapuneke Reserve, and that staff discuss siting options with the Ōnuku Rūnanga ~~and community~~, and report back to the Council within six months on suitable potential sites.
- (c) The outfall for the treatment plant be **re-located to in** the middle of the Akaroa Harbour and that consideration be given to measures to address cultural concerns, in consultation with Ngāi Tahu.
- (d) The new treatment plant be designed to produce wastewater that achieves the best quality wastewater available at the time, and that the design of the plant enable the potential future beneficial re-use of treated wastewater for domestic, commercial or agricultural ~~irrigation~~ **purposes**.

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ATTACHMENT TO CLAUSE 1
ATTACHMENT 1

Akaroa Wastewater Working Party members

Present up to 2011:

Bob Ayre	-	resident
Tom Bates	-	for Taiapure Management Group
Jeff Hamilton	-	resident
Kevin Simcock	-	resident
Harold Surtees	-	for Akaroa Harbour Marine Protection Society
Onuku Runanga		
Wairewa Runanga		
Cr. Claudia Reid		
Jane Chetwynd	-	Akaroa Wairewa Community Board
Fiona Nicol	-	for Environment Canterbury
Derek Cox	-	for Department of Conservation
Christchurch City Council	Staff	

Members who started but resigned:

Phil Hodkinson	-	resident
Ian Moore	-	for Akaroa District Promotions

RECOMMENDATIONS OF THE AKAROA WASTE WATER WORKING PARTY

The Akaroa Wastewater Working Party recommends:

1. A new plant be located away from Takapuneke Reserve, on the paper road south of the present plant together with a small portion of adjacent private land if this can be obtained. This would allow Ōnuku Marae to be linked to the treatment plant at some time in the future. (Further discussions with the Runanga are recommended in light of their concerns noted below).
2. The plant is to be designed to produce wastewater that achieves the best quality wastewater at the time. The membrane plant at Turangi is the minimum performance level to be achieved.
3. The outfall is to be located in the mid harbour. The exact location is to be decided at a future meeting in consultation with Council staff. The location is to be chosen to ensure effective mixing of the wastewater.
4. The outfall design should allow for extension to a location outside the harbour if required in the future.
5. Future wastewater management options, including the design of the plant, must allow for the beneficial re-use of treated wastewater.
6. Land irrigation of Banks Peninsula soils and topography is to be trialled to determine the parameters that will enable better decision making in the future about reuse of wastewater for irrigation.
7. The wastewater is to pass over or through land before it is discharged into the harbour. This is to be done in a way that respects the cultural concerns of Ngāi Tahu.

Important note:

The Working Party notes that Ōnuku and Wairewa Rūnanga and the Taiāpure Management Committee do not support the recommendations for a harbour discharge, nor for a treatment plant on a southern site.

Background:

1. The Working Party has been active since October 2008 with Ōnuku and Wairewa Rūnanga electing to be consulted separately in parallel. Over this protracted period which included fifteen meetings there have been some retirements but a core of regular attendees remained, and this has resulted in a majority view which represents a cross section of community interests.
2. The Working Party has had the services of a dedicated team of Council officers who have reported on all the technical issues involved. In many cases their input has been based on extensive reports provided by consultants with particular expertise in a number of specialist areas. The work done by the Working Party recognised the significance of the harbour as a customary, recreational, tourism and aquaculture farming area.

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3. The Working Party furthermore acknowledged the cultural concerns of Ngāi Tahu for wastewater in the harbour and maintained a commitment to consider these concerns. Representatives of the Rūnanga attended four Working Party meetings, and in addition a hui was held at Ōnuku Marae in order to find a solution which pays attention to cultural sensitivities associated with food gathering in the harbour and the sacred nature of the land surrounding the present treatment plant.
4. The Working Party has taken note of views expressed at two public meetings (one in Akaroa and one in the city) convened in an effort to obtain a wider community input.
5. A visit was made to a modern small new wastewater plant at Turangi, Taupo District, similar in size and nature to what could be considered for Akaroa. Two Working Party members and two Rūnanga members attended.
6. The Working Party has come to a number of majority conclusions. These are:
 - 6.1 The existing site at Takapuneke is unsuited to development as an improved facility because of its very significant historic and cultural importance. It must therefore be replaced with a completely new modern plant at an alternative site. Alternative options for a plant as well as possible land irrigation sites to both the north and south of the township were explored.
 - 6.1.1 A northern option for the relocation of the plant, (including storage) near Children's Bay on Takamatua hill is technically feasible however would impact on recreational and landscape amenities, and would move infrastructure in the wrong direction, i.e. further up the harbour instead of closer to the ocean. It would be against the current direction of the wastewater flow towards the south end of the town, and would require purchase of private land. A northern site is however closer to Akaroa township should future reuse of treated wastewater in Akaroa be decided upon.
 - 6.1.2 A southern option is possible on a Council owned paper road (in total size the paper road is approximately 2 hectares in size) with access easements required over private land, plus some land swapping with the property owner to achieve the required land parcel shape for the plant and wet weather storage. A land swap would facilitate sufficient land for a treatment plant and a balancing pond. The landowner is however not interested in such a proposal. Ōnuku Marae and surrounding houses could be connected to this treatment site. The Working Party is aware that some representatives of Ōnuku Rūnanga are opposed to the siting of a treatment plant approximately 530 m from the Marae. Such a location would not be visible from the Marae.
 - 6.2 Re-use of treated wastewater on land provides a better alternative to disposal in the harbour. The land for such disposal would have to be purchased, or permission for the usage obtained, from private owners. Currently there are limited options for suitable land and the owners of most of that land are not willing providers. There is currently limited information as to the suitability of, and application rates for local soil types, the topography on the Peninsula, and fauna of the area. Land application is currently believed to be not possible as the sole solution but could be possible in conjunction with a harbour discharge.
 - 6.3 The ideal alternative to land application is piping treated effluent out of the harbour past the heads. This is therefore seen as a second possible long term solution but would be an unnecessary expense now. It would likely preclude the possibility of reusing the treated wastewater some time in the future.

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- 6.4 Modern treatment plants (such as a membrane bio-reactor like the Turangi Plant) can provide a very high quality effluent, and disposal well out into the harbour would be an acceptable solution provided a rigorous testing regime is introduced. However, the outfall design should also make provision to allow further extension for the final outfall to be at a point beyond the harbour entrance if this becomes necessary. The Working Party is aware that a harbour discharge would remain a concern for cultural values, even though the wastewater would be treated to a very high standard. From a cultural perspective the passing of treated wastewater over or through land is likely to be required before it is discharged into the harbour.
- 6.5 Whatever the decision on the new plant and disposal method, the design should ensure that a portion of the treated water is made available for re-use if subsequent events create a demand, for example for irrigation of horticultural crops.
- 6.6 Irrespective of its location, a new nutrient removal treatment plant will require a reduction in the stormwater entering the wastewater system. The flow into the plant will need balancing of volume by the provision of storage upstream of the treatment plant. This is likely to require a large pond.
- 6.7 The long term impact of emerging contaminants (eg antibiotics, and hormones) in treated wastewater on marine life remains a concern as the issue is not yet well researched locally or internationally.

3 August 2011

Response of Ōnuku Rūnanga to Akaroa Harbour Wastewater Working Party Conclusions – Issues for Final Decision to Recommend to Council

Briefing on AWWP Was Given to Rūnanga by MKT on Sunday 31 July 2011

Discharge to the Harbour – Remains a Cultural Concern

While Ōnuku understand the options for removal of wastewater in Akaroa Harbour present a number of technical and financial challenges, and they acknowledge the efforts of the Working Party to investigate options for removal of this discharge from the Harbour. Ōnuku however hold significant concerns for a decision that would see the continuation of discharge of treated human sewerage to the harbour for another generation or more. The Rūnanga consider discharge to land as the only way to ensure that cultural concerns can be fully addressed, and that options for this should be pursued further.

Site of Treat Plant – Remains a Cultural Concern

The Working Party have given strong consideration to the cultural sensitivities associated with the current location at Takapuneke, and this is acknowledged and appreciated. The recommendation to relocate the treatment plant achieves a long held goal for Ōnuku Rūnanga and Ngāi Tahu more broadly, to recognise the importance of this location. However, the proposed new location generates new concern for Ōnuku Rūnanga – to bring wastewater further south, and so close to the marae has brought a new level of concern.

The Working Party were advised in March 2010 that the south site was of significant concern and that options for the north site must take precedence. The Rūnanga requested that the Working Party come back when further assessment of the northern site had occurred. The prospect of the treatment plant being located now closer to Ōnuku marae and their current mahinga kai areas remains a significant concern for Ōnuku Rūnanga and they were not satisfied that prospects for the north site should be discarded because of the lack of land currently in Council ownership. The prospect of paper roads and land acquisition in the northern area remained options they wished the Working Party and Council to pursue further.

In considering the south site for a new treatment plant, they hold concerns for the effects of the construction, operations, storage, overflows and failures of the system for the land, streams and harbour in this location.

It is important to note that while the Working Party have taken cultural concerns into consideration by recommending a move from Takapuneke, the option of relocating closer to the current community will bring new cultural concerns for current and future generations. A plant close to Ōnuku marae or Takapuneke was not an option Ōnuku thought it would have to consider when making the plea for relocation from Takapuneke.

Ōnuku Rūnanga Position on Options for Wastewater and current position of Working Party

1. Discharge of treated wastewater to the harbour remains culturally unacceptable;

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2. Land discharge must remain an option, and all steps taken to pursue this;
3. Treatment standards must be the highest available, and increase in response to identification harmful chemical and pharmaceutical components;
4. Questions on land to the north and combining with Takamatua and Duvauchelles remain, and Ōnuku Rūnanga seek further engagement with the Working Party on this;
5. Council must identify and acknowledge the concerns of Ngāi Tahu and respond to Ōnuku, Wairewa and Te Rūnanga o Ngāi Tahu before taking a final decision wastewater in Akaroa Harbour. Ōnuku Rūnanga are willing to enter discussions with Council over the south site if concerns for land options, north site and south site operations can be satisfied.
6. Decisions on the final options should not be rushed at this stage, and the short term consent deadlines should not be forcing such significant, long term decision which will have significant implications for generations of Ōnuku and Ngāi Tahu whanau to come.

Where to From Here for Ōnuku

Ōnuku Rūnanga request further engagement in regard to the wastewater options, including a briefing and site visit from the Working Party on the north and south site, on land options and on the likely treatment plant setup, operations and installation effects and how these will be addressed.

Ōnuku Rūnanga request that decisions are not taken until this has been addressed.

Prepared for: Akaroa Wastewater Working Party by Andrea Lobb, Mahaanui Kurataiao Ltd

Date: 7 August 2011

Akaroa Harbour Wastewater Working Party – Update from Last Meeting

The last Working Party meeting was held on ?? July at the Akaroa Recreation Centre. The Working Party had met twice since a subgroup had undertaken a visit to the Turangi and Taupo Wastewater Treatment Plants (Fri 17 June 2011). The Working Party have been working to complete their

evaluation in order to provide recommendations to the CCC and Environment Canterbury. Timeframes for completion and

Summary Cost Comparison - Akaroa Wastewater Options - 2011 update

*** Currently feasible options.**

(Costs based on possible site options)

Option Number	Treatment Plant Location	Wastewater Use Option	Capital Cost ## (\$m)	Operational Cost ** p.a.	NPV over 30 years
1*	Existing site (upgraded plant)	Mid harbour discharge	8,217,600	\$371,290	\$13,643,763
2	Existing site (upgraded plant)	Land application when possible	23,649,240	\$569,454	\$31,971,441
		Mid-harbour outfall otherwise			
3	Existing site (upgraded plant)	Ocean outfall	31,724,800	\$400,000	\$37,570,541
4*	Southern Site (new plant)	Mid harbour discharge	21,562,240	\$432,815	\$27,887,551
5	Southern Site (new plant)	Land application when possible	28,131,800	\$628,732	\$37,320,310
		Mid-harbour outfall otherwise			
6	Southern Site (new plant)	Ocean outfall	46,269,440	\$650,000	\$55,768,769
7*	Northern site (new plant)	Mid harbour discharge	26,486,804	\$432,815	\$32,812,115
8	Northern site (new plant)	Land application when possible	29,254,740	\$601,501	\$38,045,280
		Mid-harbour outfall otherwise			
9	Northern site (new plant)	Ocean outfall	53,583,355	\$465,000	\$60,379,028

Notes -

Costs exclude any work to include Takamatua in the reticulated system , \$5.5 M

Capital costs are the updated 2009 figures (additional 7% for construction cost index and 20% premium for work in Akaroa)

**** Operational Costs increased by CCI (7%)**

Land purchase costs are included

Current Council Capital budget is \$23.1M

Costs derived from Harrison Grierson reports

The land application options are calculated on the basis of the average cost of the HG options: All DWF Irrigation and Hybrid Disposal

Ocean outfall costs are based on the HG Peer review of the original MWH ocean outfall costs. HG figures are lower than the MWH costs. MWH gave a range of between \$28M and \$47M for the ocean outfall alone cf the HG figure of \$20.8M. Capital cost of options 3, 6 and 9 could be up to 30% higher.

Operational costs for the ocean outfall have not been considered in detail. An NPV figure of \$10M has been used. C.f mid harbour of \$8.2M

Capital cost for Northern new site is less than Southern new site, because of lower cost to reticulate to new site

Costs exclude the cost to reticulate to the Marae, \$935,000