Glenorchy Township Sewerage Scheme

Project Status Presentation

October 2014

QUEENSTOWN LAKES DISTRICT COUNCIL

1. The Current Situation: Where Are We Today?

- Currently Glenorchy has no reticulated community sewerage scheme for township residents. A township water supply does exist however.
- Some small scale private schemes operate within the township, but these are not available to all residents and have historically had some maintenance problems.
- Residents currently dispose of their wastewater direct to ground within their own properties through a range of methods. Some of these on site systems are rudimentary soakpits and include basic septic tanks and range through to more sophisticated small scale secondary treatment plants which treat wastewater to a higher standard before disposal to ground.

The Current Situation (continued)

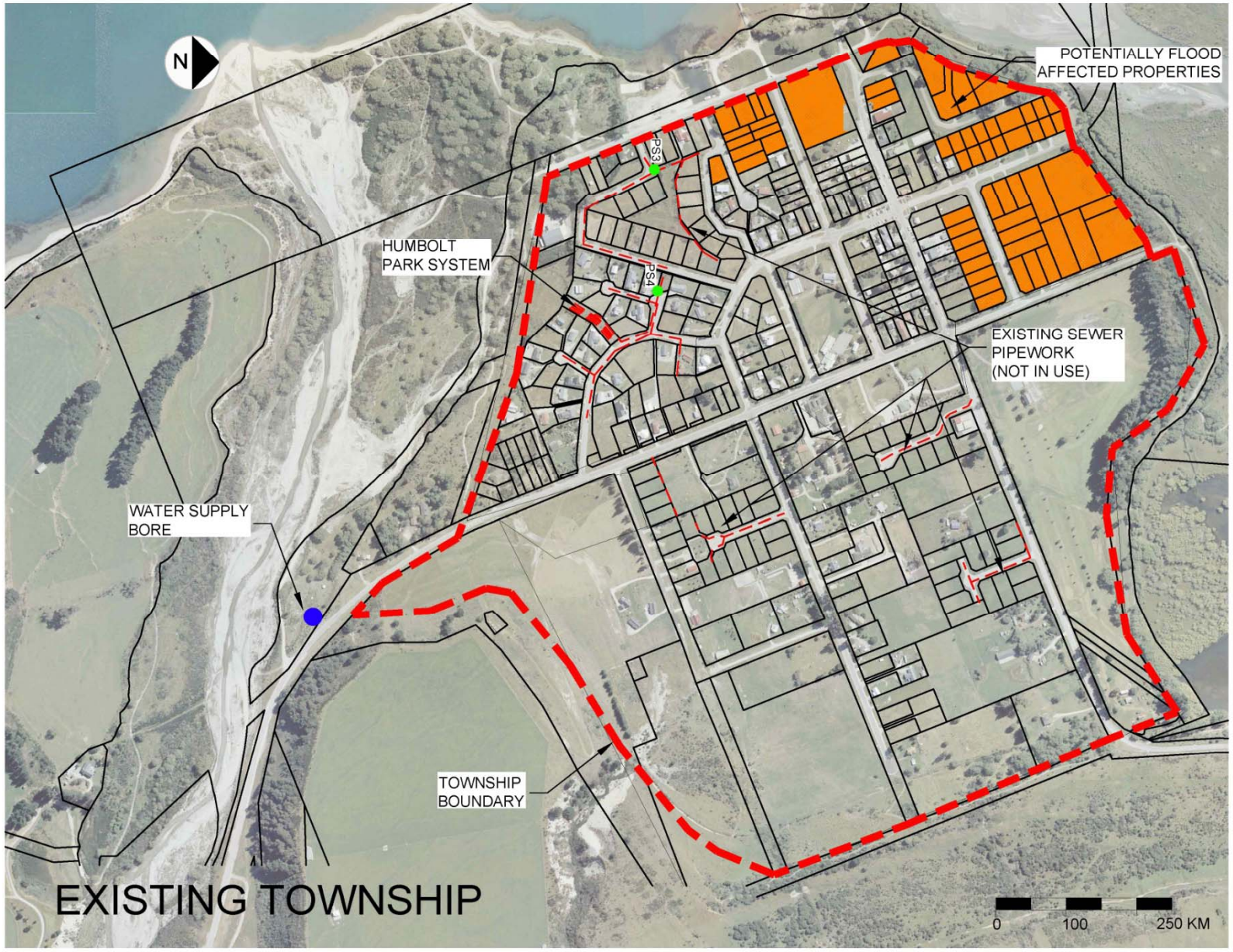
- The partially treated wastewater which is disposed of to ground works its way through the unsaturated soil undergoing a varying degree of further renovation , but this is limited within the Glenorchy township area due to the relatively shallow groundwater level.
- Currently, it is possible to dispose up to 2,000 litre/day of wastewater to ground without obtaining a Discharge Consent from the Otago Regional Council (ORC).
- The ORC have recorded their concern over the lack of a reticulated community sewerage scheme in Glenorchy over several years. The ORC are concerned about the potential cumulative effects and negative environmental impact of continually increasing the discharge of wastewater (of an unknown quality) within the localised township area where it can rapidly enter the groundwater.

The Current Situation (continued)

- Currently, within the township boundary there are;
  - 120 private dwellings,
  - 12 commercial properties, and
  - 125 vacant lots (several of which may be further subdivided).
- It is projected that by 2066 Glenorchy could ultimately have 430 dwellings and commercial properties equivalent to an additional 110 dwellings. This gives a total number of Dwelling Equivalents of 540.
- This means the township is presently at approximately 40% of its ultimate development level.

2. Some Infrastructure Considerations for Glenorchy

- Glenorchy obtains its water from a water supply bore located close to the township. This bore draws water from the same groundwater body which receives wastewater disposed of within private properties.
- A significant section of the township (approximately 60 sites) are subject to flood hazard. At times of high lake level and flooding this greatly increases the risk of faecal contamination of water bodies, and possibly water supplies.
- The graphic attached illustrates the bore location, properties potentially subject to flood hazard and highlights the township boundaries.


N
POTENTIALLY FLOOD AFFECTED PROPERTIES
PS3
HUMBOLT PARK SYSTEM
PS4
EXISTING SEWER PIPEWORK (NOT IN USE)
WATER SUPPLY BORE
TOWNSHIP BOUNDARY
EXISTING TOWNSHIP
0
100
250 KM

3. Looking to the Future

- The projected township metrics for 2066 comprise 430 dwellings and commercial properties equivalent to 110 additional dwellings. This translates to a resident population of approximately 1,500 people and a peak visitor population of 2,000 people.
- The increase in population density within the township boundaries will elevate the concern about environmental impact and pollution.

Looking to the Future (continued)

- As a consequence of this increase in population density, it is likely that;

  a) ORC will implement tighter controls on wastewater discharges. This is occurring now through ORC's Plan Change 6A. It is likely that more and more of these legislative reviews will occur over time which will raise the hurdle for wastewater discharge to land. This will make it more difficult and more expensive to continue to dispose of wastewater on private land in Glenorchy.

Looking to the Future (continued)

b) Possible outcomes include changes in legislation which require system upgrades, system maintenance and system monitoring and compliance reporting, all at the cost of the landowner. It is likely that the Glenorchy township area may evolve into a special catchment area, similar to Lake Hayes, where every discharge requires a consent from the ORC and an advanced secondary treatment system is considered a minimum standard.

c) Commercial discharges are likely to become very constrained, with controls on disposal rates possibly requiring land acquisition in order to achieve compliance. Significant plant investment and stringent compliance monitoring and reporting would be expected.

Looking to the Future (continued)

- We need to think about what Glenorchy might look like as it is fully developed without a reticulated wastewater treatment and disposal scheme for the community. Would it become an inappropriate environmental black spot in its surrounds? Possibly, yes. Would it become a high management and compliance cost centre not just for residents, but also for QLDC and its wider rating base? Possibly, yes.

- Certainly there is an undeniable risk of an escalating environmental issue in Glenorchy if wastewater disposal in the township is not well managed and controlled. There is a legacy issue for the current residents to grapple with. The present population has the ability to leave the legacy that they were the ones who acted to remove the environmental risk and leave a robust environmental outcome for future resident generations.

4. Options and Opportunities for a Community Sewerage Scheme

- QLDC sees that presently Glenorchy is at a potential point of change, or a gateway, whereby the Community must seriously consider investing in a community sewerage scheme.

- The township appears poised for another period of growth after which implementation of community sewerage schemes will only become more challenging as a result of the associated further investment made in on site disposal systems in order to facilitate development projects. This leads to the community becoming more and more committed to on site systems and makes it more expensive and more difficult to shift to a community sewerage scheme in the future.

Options and Opportunities (continued)

- Compounding this situation is that many of the commercial discharge consents are up for renewal. The likely outcome of these renewals is that commercial operators may be required to invest heavily in on-site system upgrades, management and compliance regimes if a communal scheme is not made available. Again, this would reduce the businesses ability to contribute to a lower risk community sewerage scheme which has better long term sustainability for the community and makes it less likely such a scheme will be implemented.

- Because QLDC believe Glenorchy is at a key decision gateway on this issue, they have decided that they will assist a community scheme by acting as a banker for the Community by funding parts of the Scheme over a period of 50 years with a long term loan.

Options and Opportunities (continued)

- The benefit of QLDC offering this funding model is that it means the present community does not have to shoulder the full cost of the construction of reticulation, treatment and disposal infrastructure which will also benefit future generations.

- For example, if a scheme proceeds, the pipe reticulation must be installed for the flows which arise from the ultimate (maximum) development level in 2066 (eg there is no point digging roads up twice to install duplicate pipe). The QLDC proposal means they will carry the cost of the reticulation associated with future flows and existing residents will only contribute the amount associated with 2020 flows. This applies to the treatment facility as well.

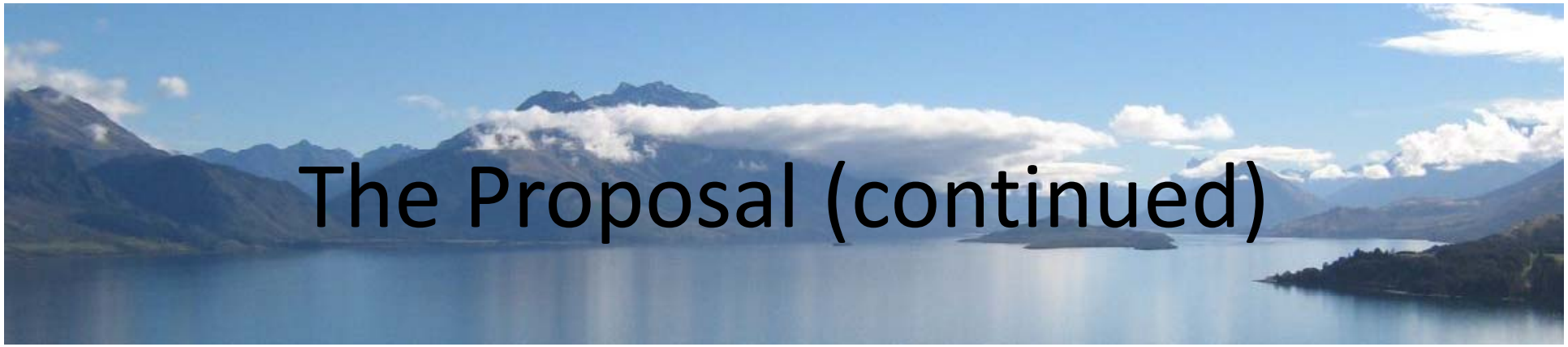
Options and Opportunities (continued)

- This allocation of cost allows the present Community to set Glenorchy on a path which reduces environmental risk without encumbering themselves with an expense related only to the benefit of future residents and generations. The risk of the cost recovery from future generations is born by QLDC.

5. The Proposal

- QLDC have conducted an assessment of options for a reticulated community wastewater treatment system. This work has included consideration of different reticulation systems (pressure systems, Septic Tank Effluent Pumping (STEP) systems and gravity systems) along with treatment options comprising Chemically Enhanced Primary Treatment (CEPT) (oxidation ponds), package plant systems and STEP reticulation package plant systems.

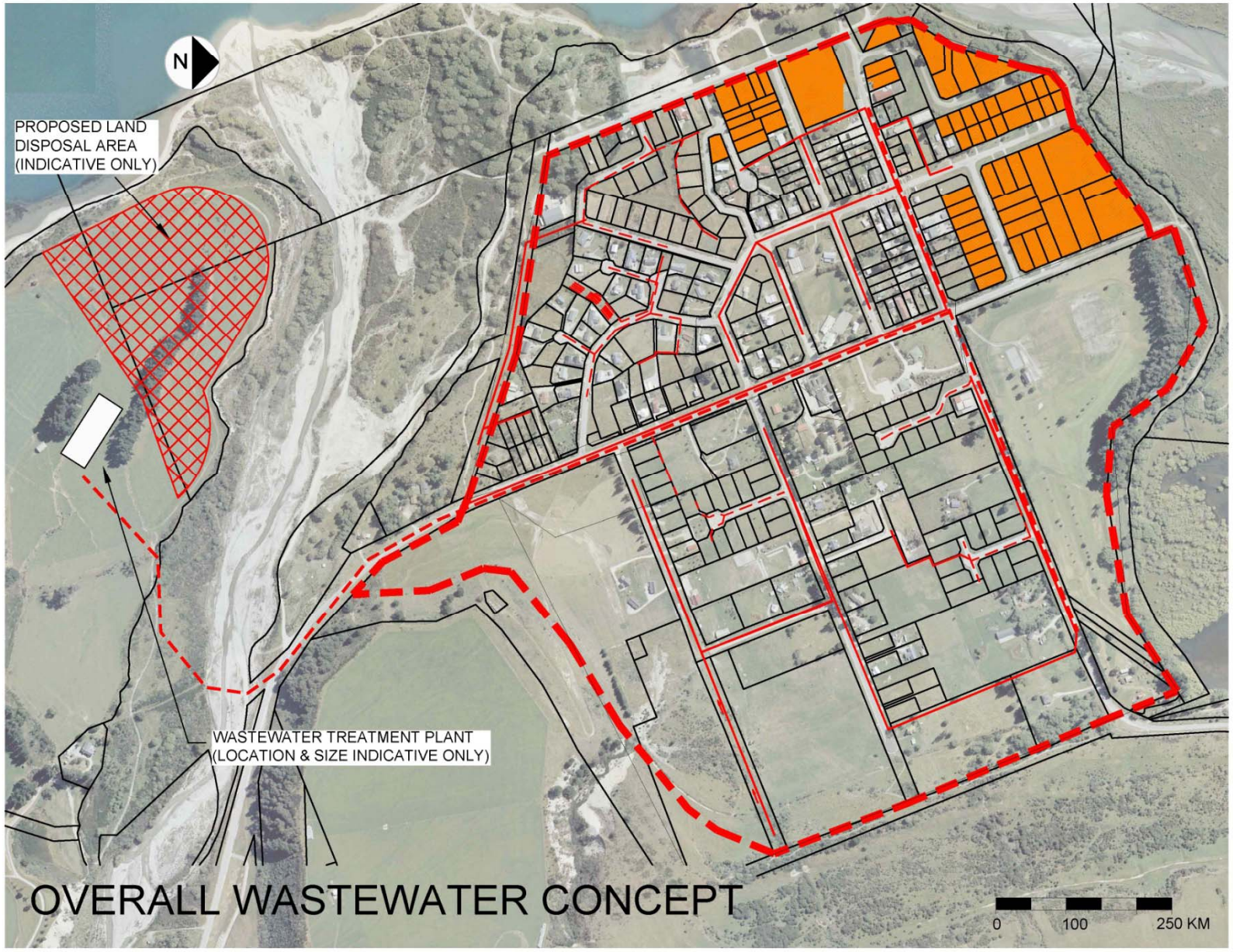
- QLDC have confirmed that the preferred option involves a hybrid reticulation system (comprising gravity reticulation and a small section of pressure system to address flood prone properties) together with a package plant treatment solution and subsurface drip irrigation disposal.

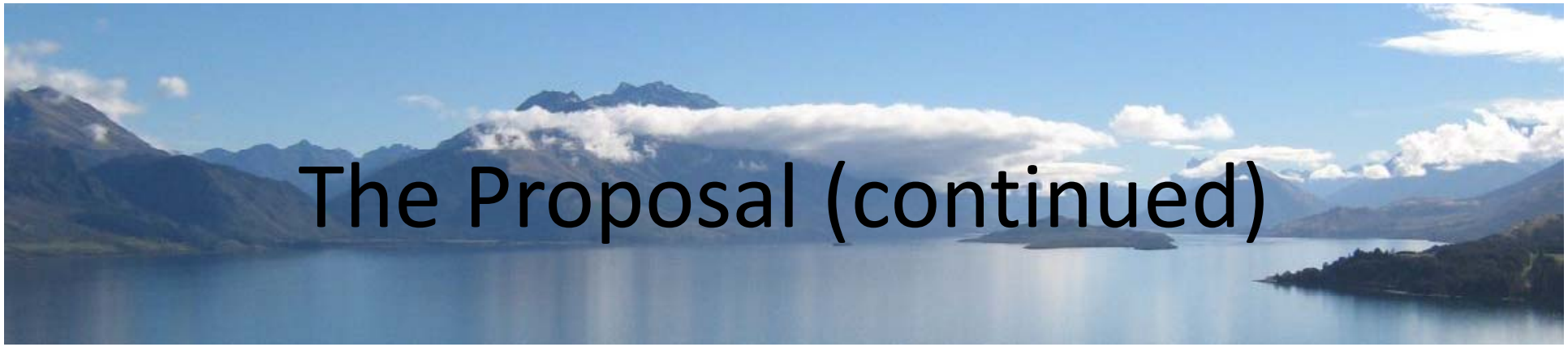


The Proposal (continued)

- Oxidation Ponds are the minimum capital cost treatment option, however they were determined as less favourable once the risks associated with odour, poor pond performance in cold climate conditions and maintenance work were costed. Additionally, concerns were held over the ability of the ponds to consistently meet treatment standards likely to apply to the discharge without the need for additional treatment and therefore additional cost. This would also increase consent compliance costs.

- It is proposed that all the land within the existing township boundaries would be fully reticulated. The treatment plant and disposal field area will be located on QLDC reserve land above the true left bank of the Buckler Burn River. A graphic is attached illustrating the general arrangement of the scheme.


N
PROPOSED LAND
DISPOSAL AREA
(INDICATIVE ONLY)
WASTEWATER TREATMENT PLANT
(LOCATION & SIZE INDICATIVE ONLY)
OVERALL WASTEWATER CONCEPT
0
100
250 KM



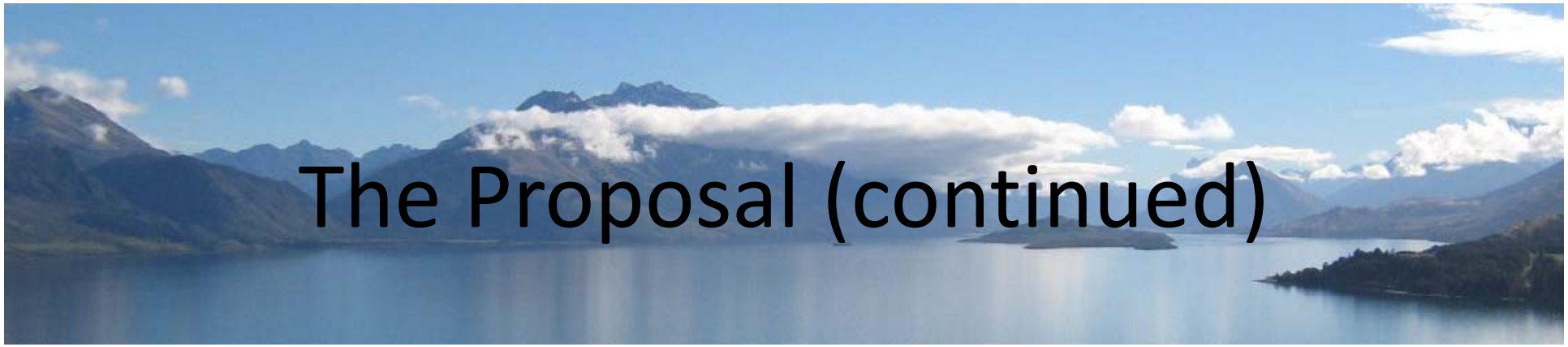
The Proposal (continued)

- This scheme provides several infrastructure benefits for the Community;

  a) It greatly improves separation of wastewater disposal from township water source points reducing the risk of contamination of water supplies.

  b) The height and distance from sensitive lake and groundwater receivers is greatly increased thereby meeting many of ORC's environmental objectives.

  c) Immediately upon commissioning the pressure sewer component, the system will provide mitigation of the contamination risk associated with the flood prone properties.



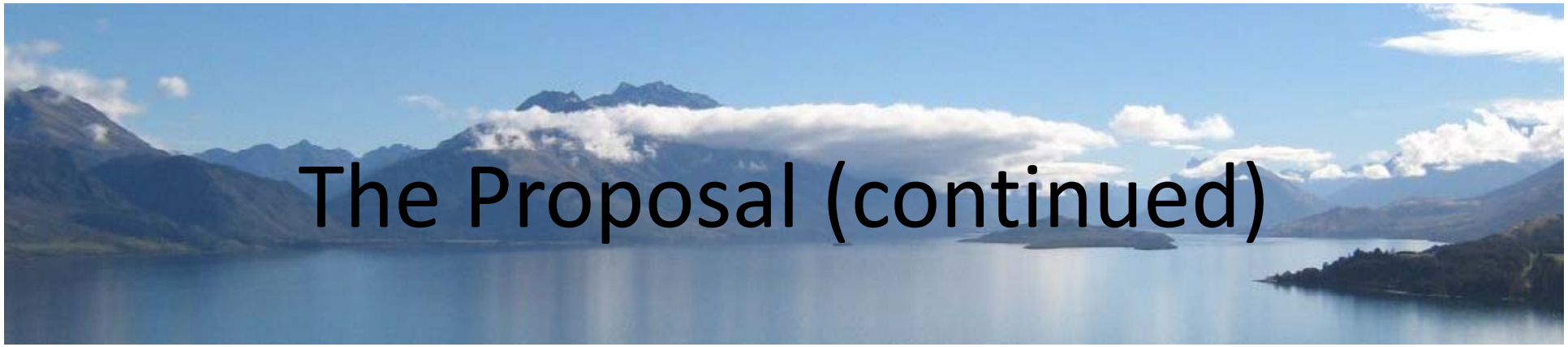
The Proposal (continued)

- The scheme involves four phases;

  i. Initial implementation comprising full township reticulation for the ultimate development level plus a treatment plant and disposal field construction for the 2020 flows.

  ii. Treatment plant expansion and disposal field expansion will occur in 2021 as the 2020 capacity is consumed by growth. (Depending on growth rates this may be some years after 2021).

  iii. A second plant and disposal field upgrade in 2028 will occur to meet 2034 flows.



The Proposal (continued)

iv. A third and final plant expansion and disposal field expansion is required to cater for the ultimate development flows. This is budgeted to occur in 2034, however actual timeframes will be subject to actual growth rates.

- In summary, the proposed system provides a solution consistent with a sustainable vision for Glenorchy whereby wastewater is managed and disposed of with minimal impact on the surrounding environment.

6. Rough Order Costs

- The total rough order cost estimate for the construction of the initial part of the scheme development is $5.91M.
- The $5.91M represents the cost of designing, consenting and constructing reticulation for the whole township (for its ultimate development level) and a treatment plant and disposal facility to cater for the 2020 flows.
- Yearly operation and maintenance (OPEX) costs are estimated to be in the range of $500 - $800 pa per household. These costs would be recovered through a separate annual rating charge.
- QLDC have allowed to fund any renewal costs (pump replacements etc) and recover these costs off all scheme users as part of OPEX costs. This is done to avoid unnecessarily loading the initial connection costs and contribution of existing residents.

Rough Order Costs (continued)

- Under the financial model proposed, QLDC are responsible for managing the finance cost of the unfunded portion of the initial $5.91M of CAPEX and recovering their finance cost from future connectors to the scheme (not current residents) through Development Contributions in the future.

- Initial Connection Charge contributions from existing residential ratepayers will be a fixed fee based on an average wastewater generation of 750 litres per day. Commercial connection charges will be based on an estimate of the wastewater generated by the business and prorated by the amount that would be generated from an average residential dwelling For example, if a commercial property generated 4,500 litres of wastewater per day then that would represent approximately 6 Dwelling Equivalents.

Rough Order Costs (continued)

- The model shows that the initial connection cost for existing residents will be $15,750 +GST per Dwelling Equivalent (essentially per residential property). QLDC expects to offer installment payment options for this Connection Charge.

- As part of the scheme all vacant lots will be required to pay 50% of the initial Connection Charge at the time the scheme is developed. The remaining 50% (plus any financing costs) would be paid when a dwelling is constructed.

- Any future subdivisions or commercial connections will be required to pay 100% of the Dwelling Equivalent connection charge which applies at the time.

7. Some Key Questions

- *Do I have to connect?*

  Yes. If the scheme goes ahead it will be compulsory to connect and pay the Connection Charge.

- *How do I physically connect to the scheme?*

  Unless you are in the flood zone QLDC will provide a lateral connection to your property boundary and will advise you when it is possible to make connection. At this time it will be your responsibility to connect your existing household wastewater pipework to the lateral connection provided by QLDC. QLDC have not allowed to decommission private septic tanks on private property.

Some Key Questions (continued)

- *Will I receive any credit for having a recently installed on site wastewater disposal (OSWWD) system?*

  No. QLDC looked at achieving benefit for existing residents with existing OSWWD systems by utilising STEP reticulation and treatment systems. Unfortunately, the cost of the STEP installation and reticulation made this more expensive than the option recommended. QLDC expect to enter into negotiations with domestic wastewater system suppliers to explore the possibility of a buy back scheme for suitable systems in which case they will offer this to residents. Alternatively, residents could arrange this direct with suppliers.

Some Key Questions (continued)

- *If I am in the flood zone will I have work done on my property?*

  Yes. Properties in the flood zone require closed pump pressure systems. The pump chamber will be installed inside the property in consultation with the owner. Boundary kits – which control flow to the main reticulation – will be located in the road reserve. The power consumption costs of the pump chambers will be met by property owners, however QLDC have allowed to renew pumps and equipment in the pump chamber as part of the financial model.

- *Who maintains equipment installed on my property?*

  QLDC will be responsible for maintaining all installed infrastructure including pump chambers installed on private property.

8. Moving Forward

- Council will include the budget in the 10 Year Plan for consultation.
- Council will confirm payment options including a deferred payment/loan scheme.
- The community will vote on whether to proceed with a Sewerage Scheme. Council will go ahead if 75% are in favour and if so it will be compulsory. The timing of this is still to be confirmed.
- More information will be made available via the QLDC website and the Community Association website.
- Any queries can be directed to: glenorchywastewater@qldc.govt.nz.