

21.8.22 LAKE DUNSTAN WATER SUPPLY PROJECT REPORT

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Public Excluded

Section under the Act	The grounds on which part of the Council or Committee may be closed to the public are listed in s48(1)(a)(i) of the <i>Local Government Act 2002</i> .
Sub-clause and Reason:	s7(2)(i) - the withholding of the information is necessary to enable Council to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations).

1. Purpose of Report

To consider the review of the scope of the Lake Dunstan Water Treatment Plant and Borefield construction and the contractor/supplier cost estimate.

Recommendations

That the Council

- A. Receives the report and accepts the level of significance.
- B. Approves appointment of Fulton Hogan to proceed with the contract works based on the reviewed scope, cost and contingency of \$16.12 million
- C. Authorises increased debt funding of \$6.92 million to be included in the 2022/23 Annual Plan to fund the increase in scope and cost of the Lake Dunstan Water Supply project.

2. Background

Council considered a report on the 22nd of September (Appendix 1) regarding the construction estimate of \$17.2 million from Fulton Hogan and the suppliers to complete the project against a design estimate of \$9.2 million.

Council resolved the following at the 22 September meeting:

- A. Receives the report and accepts the level of significance.
- B. Notes a review of the project scope, and contractor and material supply estimate is underway.
- C. Approves ordering the membrane plant materials.
- D. Authorises the Chief Executive to enter a contract for supply and installation of the membrane plant up to a value of \$3.7 million.
- E. The contents of this report be released once a contract is entered into for the construction of the remaining bore field and treatment work.
- F. That a media statement be released to update the public on the current project status and expected completion.

A review of the project scope and construction estimate has now been undertaken by staff with the suppliers. An independent review of the costs has also been undertaken by consultants Morrison Low & Associates Ltd.

A contract agreement has been submitted to the membrane supplier for their approval.

A media release has been circulated to inform the public of the revised project timeline.

A value engineering and scope review session was held with Fulton Hogan, Stantec and key suppliers on the 29th of September 2021.

A comprehensive review of the construction estimate was carried out to quantify the value of each of these factors:

- The changes that were made to the project scope, an estimate of the cost of each change, an explanation of the reason for the change, and prioritisation of the importance of each change.
- A breakdown of the renewals work, and costs that have been included in the upgrade costs
- An assessment of the percentage change in materials and labour costs due to current market conditions
- An assessment of the consultant's estimate
- A review of the contingency figures included in the consultant's estimate, council officer's report, and the contractor's estimate.

The revised construction estimate following this review is \$16.12 million. This includes a 10% contingency of \$1.47 million.

Changes to Project Scope

There were several items included in the September 2021 construction cost estimate that have been provided for in the Long Term Plan under separate project budgets. This includes the provision of a generator for the borefield, site fencing and reservoir bypass tanks. These items have been removed from the treatment and borefield upgrade cost estimate. The value of this work was \$382,000.

A review with operational staff has resulted in several valves and other minor items being removed after these were identified as not being required. The value of this work was \$270,000.

The chlorine disinfection method was changed by council staff from using liquid chlorine to hydrochlorite gas after the Stantec design estimate was submitted. The reasons for this change have been outlined in a separate report. The cost implication of this scope change is approximately \$400,000 excluding increased building floor area. This scope change has been left in the revised construction estimate of \$16.12 million.

Refinement of Scope Definition

Further definition of requirements and repricing of some items by suppliers has resulted in an overall reduction of \$1.01 million. The removal of some of the risk regarding these items also resulted in a further reduction in the contingency of \$440,000.

Membrane Operational Support

The current estimate includes \$78,000 for the membrane supplier to provide operational support for the first 12 months of plant operation. This will ensure that handover of the plant from the membrane provider to Council's operational staff occurs efficiently and that any operational issues that are identified are addressed during the defects period.

Building Cost Estimate

The August 2020 estimate provided \$450,000 for construction of the treatment plant building. The construction estimate for the building is \$2.67 million for a building that is 40% larger in size than provided for in the August 2020 estimate. The size of the building is mainly driven by the layout of the membranes, and this information was not available in August 2020. The size has also increased to enable chlorine gas storage and a shower facility to meet health and safety requirements.

Staff will be undertaking a further review of the building scope and cost to ensure that this is fit for purpose, and to identify if potential savings can be made to this.

Market Conditions

There is high demand on limited contracting resources for the large volume of work underway in New Zealand. This is placing pressure on construction companies who need to upsize to meet increasing work demands. The impact on the regional pool of resource in Central Otago and surrounding areas is more evident than the larger urban centres. High levels of infrastructure and development investment in Queenstown Lakes area is also placing further high demand on resources within the Central Otago area.

Many key materials and components have escalated in price and are experiencing major delays in supply. While this has previously been identified as a risk following the initial COVID-19 outbreak, these are uncontrollable risks being experienced by the construction industry and infrastructure providers across New Zealand.

The following are examples of price increases in the infrastructure market that relate directly to the Lake Dunstan Water Supply project:

- Increases in Polyvinylidene Fluoride (PVDF is the material that water treatment plant membranes are made from) source plastics have increased over 50% over the past 12 months.
- Contractor labour rates have increased between 8%-12% during the 12 month period between August 2020 and August 2021.
- In the past six months, Humes Industries has received notifications on over 50 individual price increases. The increases range from 5% through to 26% from a range supply chain providers.
- Humes have also outlined increase in freight costs due to COVID-19 disruption which has caused an 82% increase in shipping costs since September 2020, and a total of 333% increase since March 2020.
- 40ft container costs have increased from US\$2500 per 40ft container up to and over US\$5000 in the last six months.
- Reliant Solutions who are the suppliers for the raw and treated water tanks have had the freight price for their materials go from \$900 USD per 20ft container to \$3,750 USD per 20ft container in the last six months.
- Fulton Hogan have witnessed steadily rising material costs in reinforcing steel of 29%, structural steel 24% and concrete 15%. This is based on cost data from a Queenstown contract that was priced 18 months ago, but only recently commenced.
- Electrical subcontractors have reported that cable prices increased approximately 50% in the last year.

International and domestic inflation will continue to rise. It was therefore deemed prudent to increase the project contingency sum from 3% to 10%. In financial terms this means an increase in the contingency figure from \$441k to \$1.47 million. This will be managed and reported month to month by the project team via their risks and issues register.

Independent Review of the Contractors Cost Estimates

Morrison Low & Associates Ltd were utilised as an independent party to review the following:

- Fulton Hogan's project estimate summary, schedule of quantities and risk and opportunities register
- Compare Fulton Hogan's October 2021 estimate with Stantec's August 2020 estimate
- Interview Fulton Hogan's Project Estimate Development Manager and Executive Divisional Infrastructure Manager to discuss and confirm the cost build up and pricing methodology

On completion of the actions a report was submitted to Council (Appendix 2). The summary outlined that overall the cost estimate provided by Fulton Hogan was reasonable and in line with market pricing. It also identifies that the significant estimate differences from the original Stantec estimate largely relate to changes in scope and Covid related material / labour cost increases.

Fulton Hogan stated that their estimate has a high level of confidence (90%) in terms of exact pricing against scope. Morrison Low & Associates Ltd further stated in their report that there are some areas of the estimate that should be reviewed and tested around general management, preliminary and general contract costs and commissioning. This is to ensure no duplication of effort is borne by Council as part of the project management costs.

A project components chart has been appended to the report to outline the increase in cost and clarification of scope from the Stantec August 2020 costing against Fulton Hogan's October 2021 estimate (Appendix 3)

While there is potential for further refinement of the cost of some elements of the project, such as the treatment plant building, it is unlikely that there will be significant additional savings achieved.

3. Discussion

Current construction market and supply of materials is resulting in ongoing cost increases. The contractor and supplier cost estimates have been comprehensively reviewed by staff and an independent party. These are considered to be fair prices for the work required.

More accurate design cost estimates could have been provided in August 2020 however the current scope and design is considerably more developed allowing for a higher level of accuracy. The market cost increases that have occurred could not have been anticipated. This would have still resulted in Council needing to increase the project budget, albeit by a lesser amount.

The Lake Dunstan Water Supply project upgrade is required to meet the requirements of the New Zealand Drinking Water Standards for the Clyde and Alexandra communities. The establishment of Taumata Arowai, and implementation of the Water Services Bill will increase enforcement of the expected standards, and the consequences for not meeting these. The project will benefit the economic and environmental wellbeing of communities by providing a safe and resilient water supply. The level of treatment that is being provided will provide confidence that Alexandra and Clyde water supplies will meet the New Zealand Drinking Water Standards in what will be a more regulated industry.

The review of the contractor and supplier estimates by council staff and Morrison Low & Associates Ltd provides confidence that Fulton Hogan have provided a fair and reasonable price to undertake the work. Continuing with the direct appointment procurement option Council will achieve the earliest possible delivery of the project. The current economic environment indicates that further delays will result in continued cost increases due to high inflation rates within the construction industry.

4. Financial Considerations

The increased funding required to complete the project is \$6.92 million.

The cashflow forecast for the remaining work, based on a commencement date of November 2021 is as follows:

November - December 2021	January – March 2022	April - June 2022	July - September 2022	October – December 2022	January – March 2023	April - June 2023
\$0.94 million ¹	\$2.86 million	\$3.28 million	\$3.78 million	\$3.95 million	\$1.21 million ²	\$0.10 million ³

¹ Includes assumed 10% membrane deposit

² Final Fulton Hogan claim period including commissioning payments - first quarter of 2023

³ Includes 12 month maintenance and operation period by Pall Marshall Water Consortium

There is sufficient funding within the current budgets to fund work up to September 2022, which is the first quarter of the 2022/23 financial year. The additional funding will be required to fund work between October 2022 and June 2023.

Council has two options available to fund the remaining work. These are to increase borrowing or re-prioritise the water capital program and defer or reforecast this work into future years.

5. Options

Option 1 – (Recommended)

Appoint Fulton Hogan to proceed with the contract works based on the updated estimate of \$16.12 million; and
Increase loan funding by \$6.92 million to fund the increased scope and cost of the Lake Dunstan Water Supply project.

Advantages:

- A contract based on the most accurate scope and cost can commence and lock in as many priced elements of the project as soon as possible.
- External debt will not be raised until council cashflow requires this. This may occur later than needed to fund this specific project if the overall capital programme is running behind schedule.
- The remaining water capital programme can proceed as planned in the Long Term Plan.

Disadvantages:

- \$6.92 million of Council debt funding will be required to fund the scope and cost increase.

Option 2

Appoint Fulton Hogan to proceed with the contract works based on the updated estimate of \$16.12 million; and
Re-prioritise the capital expenditure programme to re-allocate \$6.92 million to the Lake Dunstan Water Supply project.

Advantages:

- A contract based on the most accurate scope and cost can commence and lock in as many priced elements of the project as soon as possible

Disadvantages:

- \$6.92 million of other capital expenditure works will not be undertaken in the 2022/23 programme
- Re-prioritising of water capital projects may mean further delay to improving the level of service of other community water supplies

6. Compliance

Local Government Act 2002 Purpose Provisions	This decision promotes the social, cultural, economic, and environmental wellbeing of communities, in the present and for the future by providing a safe and resilient water supply.
Decision consistent with other Council plans and policies? Such as the District Plan, Economic Development Strategy etc.	Yes
Considerations as to sustainability, the environment and climate change impacts	The membrane plant will increase energy consumption required to deliver compliant water to homes and businesses. A new water take consent will be required for this project, and a water demand management plan will be required as a consent condition. This will include measures and education that will be undertaken to minimise water use, and loss.
Risks Analysis	If council does not proceed with the project then the water that is delivered to a peak population of approximately 10,000 people will not be compliant with the legal requirements. There are further risks to the timeline if there was another COVID-19 outbreak, further issues at ports, or the availability of sub-contractors to undertake electrical work. Global and national inflation will continue to rise. Project contingency sum increased from \$441k to \$1.47 million. This will be managed and reported month to month by the project team via their risks and issues register.
Significance, Consultation and Engagement (internal and external)	The Corporate Services Executive Manager has been consulted on the financial implications in preparing this report. This project was consulted on in the 2018-28 Long Term Plan, and funding was included in the 2021-31 Long Term Plan. Council is not required to consult to increase its debt levels to fund the expected increased costs on this project.

	If increased debt funding is required to complete the project then this will be included in future annual plans.
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7. Next Steps

- Finalise the contract documents with Fulton Hogan – November 2021
- Commence the physical works at the treated water tank site – November 2021
- Order critical path materials - November 2021
- Update progress on project programme, expenditure and risks at Project Governance Group and Audit and Risk Committee meetings

8. Attachments

Appendix 1 - September 22 2021 Council Report.DOCX

Appendix 2 - 20211012 Morrison Low Review of LDWS Costs.pdf

Appendix 3 - LDWS project cost comparison chart - Stantec August 2020 vs Fulton Hogan October 2021

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