



Making a difference...together

MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE

Notice of Meeting on **Tuesday, April 4, 2023 at 9:30 a.m.**

Main Conference Room, 479 Island Highway, Victoria, BC

For members of the **public who wish to listen to the meeting** via telephone please call **1-833-353-8610** and enter the **Participant Code 1911461 followed by #**. You will not be heard in the meeting room but will be able to listen to the proceedings.

M. Fossil (Chair)	J. Deschenes (Vice Chair)	P. Brent (Electoral Area Director)	A. Cyr
W. Foster	D. Reed	R. Sullivan	

AGENDA

1. APPROVAL OF AGENDA

2. ADOPTION OF MINUTES3

Recommendation: That the minutes of the February 14, 2023 meeting be adopted.

3. CHAIR'S REMARKS

4. PRESENTATIONS/DELEGATIONS

Delegations will have the option to participate electronically. Please complete the [online](#) application for "Addressing the Board" on our website and staff will respond with details.

Alternatively, you may email your comments on an agenda item to the Magic Lake Estates Water and Sewer Committee at wsadministration@crd.bc.ca.

Requests must be received no later than 4:30 p.m. two calendar days prior to the meeting.

5. SENIOR MANAGER'S REPORT

6. COMMITTEE BUSINESS

6.1. Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades6

Recommendation: The Magic Lake Estates Water and Sewer Committee recommends that the Electoral Areas Committee recommend to the Capital Regional District Board:

- 1. That Contract 2022-846, Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades, be awarded to Coast Utility Contracting Ltd., in the amount of \$6,577,550 plus GST; and*
- 2. That staff be authorized to issue Change Orders for the project as required, up to total aggregate amount of \$361,284 from the Project Contingency.*

To ensure quorum, advise IWSAdministration@crd.bc.ca if you cannot attend.

Magic Lake Estates Water and Sewer Committee
Agenda – April 4, 2023

6.2. Project and Operations Update.....22

There is no recommendation, this report is for information only.

7. CORRESPONDENCE

8. NEW BUSINESS

9. ADJOURNMENT

Next Meeting: Tuesday, May 9, 2023



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MINUTES OF A MEETING OF THE Magic Lake Estates Water and Sewer Committee, held Tuesday, February 14, 2023 at 9:30 a.m., In the Goldstream Meeting Room, 479 Island Highway, Victoria, BC

PRESENT: Committee Members: J. Deschenes (Vice Chair) (EP); A. Cyr (EP); W. Foster (EP); R. Sullivan (EP)

Staff: J. Marr, Acting Senior Manager, Infrastructure Engineering; J. Dales, Senior Manager, Wastewater Infrastructure Operations; J. Kelly, Manager, Capital Projects; C. Moch, Manager, Water Quality Operations; M. Cowley, Manager, Wastewater Engineering and Planning (EP); L. Xu, Manager, Finance Services (EP); T. Duthie, Manager, Administration Services; M. Risvold, Committee and Administrative Clerk (Recorder)

REGRETS: M. Fossil (Chair); P. Brent (Electoral Area Director); D. Reed

EP = Electronic Participation

The meeting was called to order at 9:35 am.

1. APPROVAL OF AGENDA

Facilities Tour Discussion was added to New Business.

MOVED by W. Foster, **SECONDED** by A. Cyr,
That the agenda be approved as amended.

CARRIED

2. ADOPTION OF MINUTES

MOVED by W. Foster, **SECONDED** by A. Cyr,
That the minutes of the January 10, 2023 meeting be adopted.

CARRIED

3. CHAIR'S REMARKS

The Vice-Chair had no remarks.

4. PRESENTATIONS/DELEGATIONS

There were none.

5. SENIOR MANAGER'S REPORT

J. Marr noted the two items on the Agenda, the Orientation and the Water Conservation Bylaw.

6. COMMITTEE BUSINESS

6.1. Presentation – Magic Lake Estates Water and Sewer Committee Orientation

Staff provided the orientation presentation.
The committee thanked staff for the orientation noting it was very informative.

6.2. Project and Operations Update

Staff provided updates on water capital projects and operations.

Staff provided updates on wastewater capital projects and operations.

Staff responded to questions from the committee regarding:

- The sewer replacement program. Staff advised approximately three kilometers of pipe has been replaced from asbestos cement to polyvinyl chloride (PVC), and the project is more than 50 percent complete. The remaining funds may need to be used to complete the treatment plant and pumpstation upgrades. The committee will be notified if funds are required to be transferred. Staff recommend completing the treatment plant upgrades as the system is not in compliance. Any remaining funds will be used to replace the sewer pipe.
- Upgrades to the treatment plant and alleviating extra water from the pipelines. Staff advised the upgrades do not alleviate extra water from the pipelines, the upgrades would be providing the equalization storage to store and treat the excess flow.

Discussion ensued regarding:

- Rainwater getting into sewer pipes
- Inflow and Infiltration
- Jurisdiction over private property

6.3. Referral from Electoral Areas Committee – Electoral Areas Water Conservation Bylaw No. 1, 2022 (Bylaw No. 4492)

J. Dales presented the water conservation bylaw. The committee provided the following feedback:

- Feels the fine for filling an ornamental fountain is over the top.
- The wording regarding someone who is physically or mentally unable to do their watering, why are they unable to have someone water on their behalf during the same time parameters.
- Does not feel the exemptions for agriculture will affect the Magic Lake Estates area.

7. MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE MEETING SCHEDULE

Regular meetings of the Magic Lake Estates Water and Sewer Committee shall be held in the Goldstream Conference Room, 479 Island Highway, Victoria, BC on the second Tuesday of each month. Meetings will commence at 9:30 am unless otherwise determined.

8. CORRESPONDENCE

There was none.

9. NEW BUSINESS

**Magic Lake Estates Water and Sewer Committee
Minutes – February 14, 2023**

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9.1. Facilities Tour Discussion

The committee requested an annual tour of the treatment plant. Staff advised that a tour will take place in late spring and the invite will be extended to the committee.

10. ADJOURNMENT

MOVED by R. Sullivan, **SECONDED** by W. Foster,
That the February 14, 2023 meeting be adjourned at 10:52 am.

CARRIED

CHAIR

SECRETARY

**REPORT TO MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE
MEETING OF TUESDAY, APRIL 4, 2023**

SUBJECT **Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades**

ISSUE SUMMARY

To seek approval to award a contract for the Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades.

BACKGROUND

The Magic Lake Estates Sewer Service has committed to address the issues facing the aging and failing sewer infrastructure in Magic Lake Estates (MLE) through capital project upgrades. On November 23, 2019, the electors of the MLE Sewer Service approved borrowing \$6 million to complete Phase 1 upgrades to the system. Phase 1 upgrades originally included about 4.6 kilometers (km) of sewer pipe replacement, renewing of three pump stations, and some improvements at Schooner Wastewater Treatment Plant (WWTP). In 2020, the Capital Regional District (CRD) applied for a grant from Infrastructure Canada to complete upgrades on the pump stations and treatment plants at an estimated cost of \$7.71 million. The application was successful, and the 73.33% senior government share of the grant was \$5.65 million, and the 26.67% local taxpayer share was \$2.06 million.

The scope previously noted in Phase 1, 2 and 3 was adjusted so that \$3.94 million would be allocated for sewer replacement and overall project administration; and \$7.71 million would be allocated towards the pump stations and treatment plant upgrades.

In 2021, the Magic Lake Estates Water and Sewer Committee directed staff to proceed with replacing about 3km of sewer pipe and to install the new Cannon forcemain at an estimated cost of about \$2.2 million and to save the remaining funds from the \$3.94 million allocation until the final pump station and treatment plant costs were known. Refer to the map in Appendix A showing the completed and proposed upgrades.

McElhanney Ltd. was awarded a consulting engineering contract in January 2022 for the design of the WWTP and pump station upgrades.

Project Scope

The proposed upgrades under the Magic Lake Estates Wastewater Pump Station and Treatment Plant Project include:

1. Renew Buccaneer, Galleon, Schooner, Capstan, Cutlass and Masthead pump stations:
 - a. Replace mechanical and electrical components
 - b. Provide a standby generator for Galleon and Schooner
2. Replace Cannon WWTP with a new pump station:
 - a. Provide an access road to the pump station
 - b. Install new pump station and kiosk
 - c. Retain existing tankage for emergency overflow storage

Magic Lake Estates Water and Sewer Committee – April 4, 2023

Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades

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3. Upgrade Schooner WWTP:
 - a. Replace existing headworks and biological treatment processes
 - b. Replace electrical and mechanical equipment (pumps, blowers, etc.)
 - c. Provide a new emergency standby generator
 - d. Retain existing tankage for emergency overflow storage
 - e. Remove the existing electrical and blower sheds
 - f. Improve the sludge dewatering process
 - g. Improve access, landscaping and screening around the facility

The original pump station and treatment plant project estimate in 2020, when the grant application was submitted prior to COVID, world events, and market supply shortages was \$7,709,350. In November 2022, McElhanney updated their cost estimate to \$8,556,000 and then at the end of January 2023, just as the tender was issued, McElhanney updated their estimate again to \$9,000,000. Other additional scope changes, not included in the updated cost estimate, are environmental approvals/restoration for working in a 'wetland' and upgraded radio communication requirements.

Based on McElhanney's revised January estimate and deducting the pre-purchased equipment and engineering costs, the pre-tender budget estimate for construction was \$6,400,000. Further details on the overall project budget are noted in the Financial Status table on the next page.

An invitation to tender (No. 2022-846) was issued on January 27, 2023 and closed on March 14, 2023. Four tenders were received as noted below.

Tenderer	Total Tender Amount (excluding GST)
Coast Utility Contracting Ltd.	\$7,693,550.00
Industra	\$8,329,618.41
Tritech Group Ltd.	\$10,972,312.46
CanWest Mechanical Ltd.	disqualified

CanWest Mechanical Ltd. submitted their tender past the Tender Closing Time and was therefore not opened. The lowest tender from Coast Utility Contracting Ltd. is about 20% over McElhanney's pre-tender cost estimate. McElhanney has reviewed the tenders and determined that there are cost increases across all disciplines, but the largest increases were for general requirements, mechanical and electrical items (see Appendix B for McElhanney's review of the tender). Recently closed tenders on other CRD projects have also exceeded budget estimates by 20-30% indicating that market conditions are still being affected by supply chain issues, energy costs, and construction inflation. See Appendix C for a staff report presented to the CRD Juan de Fuca Water Distribution Service which provides a more detailed explanation on the cost drivers behind increasing tender amounts.

Staff advised the Committee in the September 13, 2022 Progress Report, that remaining funds from the sewer replacement project will have to be allocated towards the treatment plant and pump station project in order to cover the cost increase. In addition, three pump stations will have to be deleted from the project scope in order to ensure that key scope items, Schooner WWTP, Cannon, Galleon and Schooner Pump Stations, can be completed.

Magic Lake Estates Water and Sewer Committee – April 4, 2023

Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades

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By removing three pump stations from the scope, the total revised tender price from the lowest tenderer would be \$6,465,550 plus \$119,000 for the Supervisory Control and Data Acquisition (SCADA) upgrades (excluding GST). The Financial Status Table below summarizes how the key project scope items can still be completed with the remaining funds available.

Financial Status of Whole Project (as of March 20, 2023)

Projects/Tasks	Revised Budget	Actual and Committed Cost To Date	Remaining Cost To Complete	Variance
20-01 Pipe Replacement (Phase 1)	\$2,403,266	\$2,363,357	\$0 <i>Note 1</i>	\$39,909
21-01 WWTP and Pump Station (Phase 2/3)	\$9,000,000	\$1,925,015	\$7,092,894	(\$17,909)
<i>Construction</i>	\$7,400,000	\$1,091,075	\$6,465,550 <i>Note 2</i>	(\$156,625)
<i>Implementation</i>	\$ 200,000	\$2,343	\$197,657 <i>Note 3</i>	\$0
<i>Design and Inspection</i>	\$ 900,000	\$831,597	\$68,403	\$0
<i>Contingency</i>	\$500,000	\$0	\$361,284 <i>Note 4</i>	\$138,716
Project Management	\$250,000	\$84,864	\$165,136	\$0
23-01 SCADA Upgrades	\$90,000	\$0	\$112,000 <i>Note 5</i>	(\$22,000)
Total (all projects)	\$11,743,266	\$4,373,236	\$7,370,030	\$0

1. The Pipe Replacement remaining cost to complete is shown as \$0 so that the Variance of \$39,909 can be allocated to Phase 2/3 (to complete the WWTP Upgrades and 3 pump stations).
2. The Construction remaining cost to complete of \$6,465,550 is based on tender 2022-846 amount with reduced scope (deleting 3 pump stations).
3. The Implementation (\$197,657) and Design (\$68,403) amounts are allocated for McElhanney and PBX to complete the programming and commissioning of the new facilities.
4. Contingency lowered to cover actual equipment and tender costs to date (about 7.0% remains for construction changes).
5. The SCADA (\$112,000) amount is based on the tender 2022-846 amount for that specific line item.

As noted in the above table, three pump stations have to be removed from the project scope to lower the construction tender amount to \$6,465,550, and the negative variances from the construction and SCADA line items can be offset by the positive variances from the pipe replacement and contingency line items. However, by reducing some scope and offsetting the variances the critical pump stations and treatment plant upgrades can proceed as committed to the Ministry of Environment and in the Infrastructure Canada Grant Agreement. The Infrastructure Grant agent has been informed of the revised scope.

Should the full contingency allowance not be required for unforeseen changes during construction, it may be possible to complete some of the other pump stations. This can be re-evaluated when the construction project nears completion in about one year.

Since the total value of this tender exceeds \$5 million, the approval to award this contract is required by the CRD Board.

Magic Lake Estates Water and Sewer Committee – April 4, 2023
Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades

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ALTERNATIVES

Alternative 1

The Magic Lake Estates Water and Sewer Committee recommends that the Electoral Areas Committee recommend to the Capital Regional District Board:

1. That Contract 2022-846, Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades, be awarded to Coast Utility Contracting Ltd., in the amount of \$6,577,550 plus GST; and
2. That staff be authorized to issue Change Orders for the project as required, up to total aggregate amount of \$361,284 from the Project Contingency.

Alternative 2

The Magic Lake Estates Water and Sewer Committee recommends that the Electoral Areas Committee recommend to the Capital Regional District Board:

That Contract 2022-846, Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades, not be awarded and that staff be directed to cancel or retender the project.

IMPLICATIONS

Financial Implications

Coast Utility Contracting Ltd. was the lowest tender and are deemed qualified and experienced to complete the work in Tender 2022-846. Their tender exceeded the budget so three pump station upgrades need to be removed, but the key scope upgrades can, and must, be completed to bring the wastewater systems back into regulatory compliance to protect the environment.

Service Delivery Implications

The Agreement with Infrastructure Canada requires this project be completed in order to receive senior government funding. They have been informed that some scope reduction is required. Additional information can be provided to the Committee and Board if necessary, but cancelling or retendering the project will delay the project schedule, prolong the Ministry of Environment's 'Out of Compliance' Order, and will likely add more cost to the project. Several pre-purchased equipment contracts have been awarded and that equipment is scheduled to arrive around September 2023.

Intergovernmental Implications

This project is supported by many agencies including the Pender Conservancy, Island Health, Ministry of Environment, and stream keeper groups. In addition, several First Nations have been informed and consulted on this project.

CONCLUSION

The Tender is ready to be awarded to Coast Utility Contracting Ltd. in the amount of \$6,577,550 plus GST. The Tender has been reviewed and it complies with the tender requirements and Coast is deemed qualified to undertake the project. With a reduction in scope, there are sufficient funds available in the approved Capital Plan and Infrastructure Canada Grant to complete the key project upgrades. Since the tender exceeds \$5 million, approval to award the contract is required by the CRD Board.

Magic Lake Estates Water and Sewer Committee – April 4, 2023
Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades

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RECOMMENDATION

The Magic Lake Estates Water and Sewer Committee recommends that the Electoral Areas Committee recommend to the Capital Regional District Board:

1. That Contact 2022-846, Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades, be awarded to Coast Utility Contracting Ltd., in the amount of \$6,577,550 plus GST; and
2. That staff be authorized to issue Change Orders for the project as required, up to total aggregate amount of \$361,284 from the Project Contingency.

Submitted by:	Malcolm Cowley, P.Eng., Manager, Wastewater Engineering and Planning
Concurrence:	Joseph Marr, P.Eng., Acting Senior Manager, Infrastructure Engineering
Concurrence:	Ian Jesney, P. Eng., Acting General Manager, Integrated Water Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENT(S)

Appendix A: Map of completed and proposed upgrades to the MLE Wastewater System

Appendix B: McElhanney's review of Tender 2022-846

Appendix C: Staff Report to Juan de Fuca Water Distribution Commission

Magic Lake Sewer

Proposed Upgrades

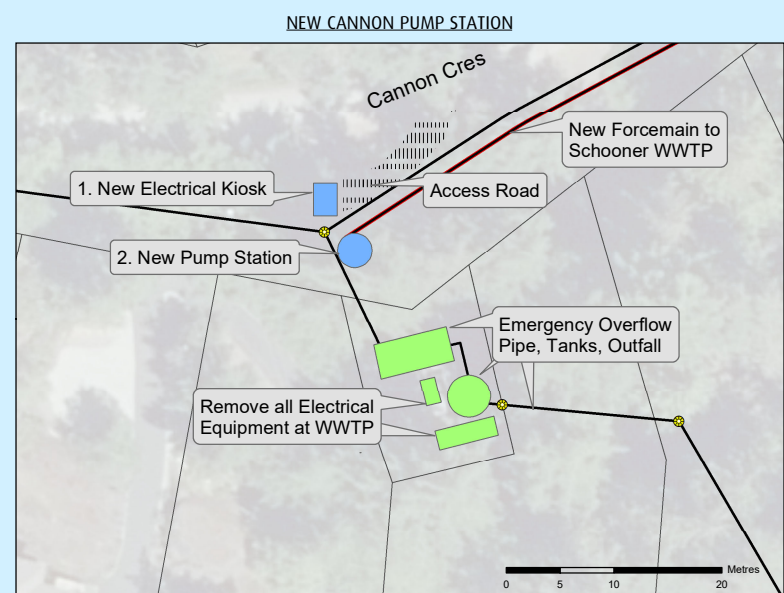
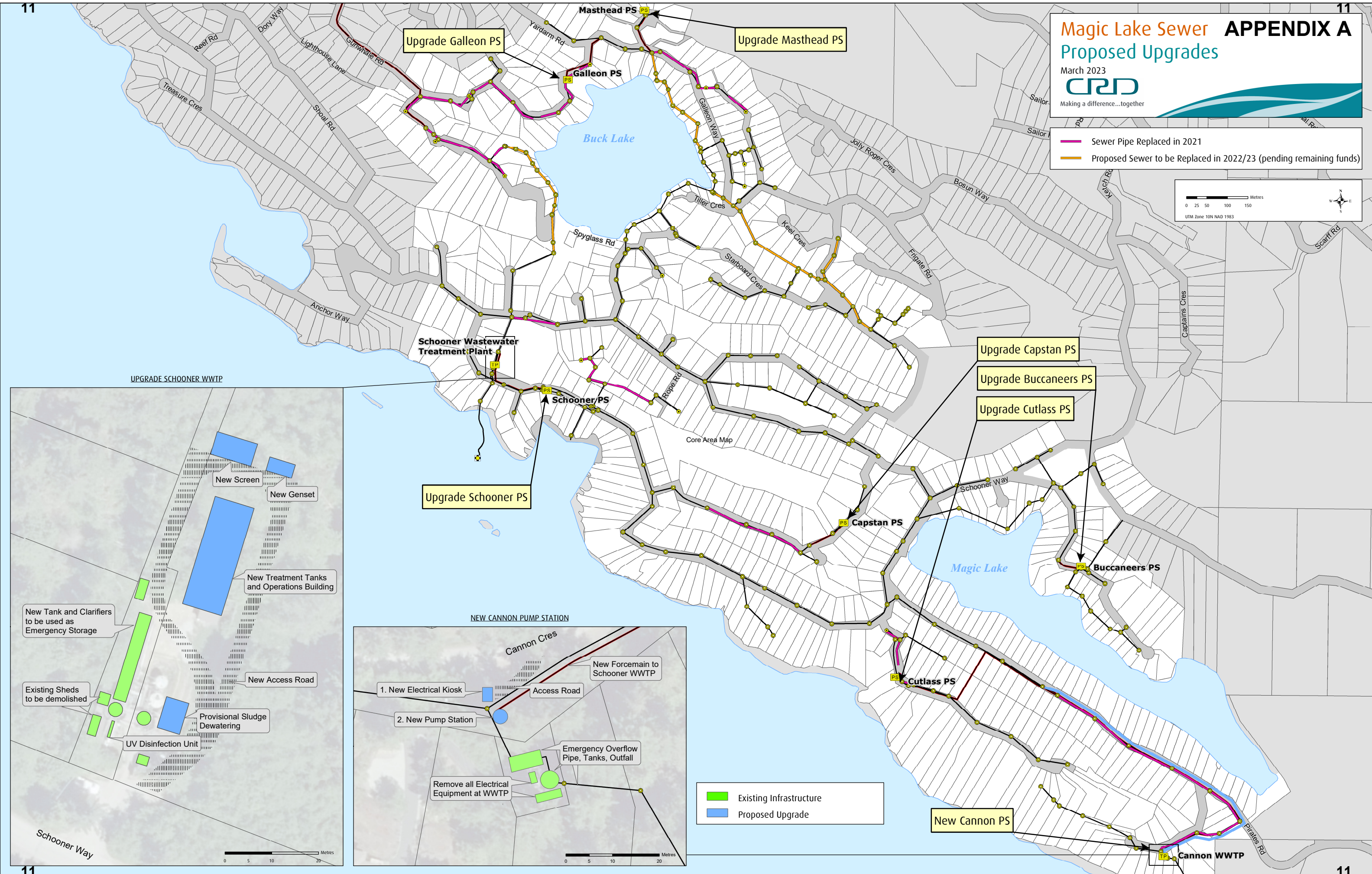
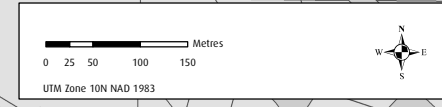
March 2023

CRD

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APPENDIX A

- Sewer Pipe Replaced in 2021
- Proposed Sewer to be Replaced in 2022/23 (pending remaining funds)



- Existing Infrastructure
- Proposed Upgrade



Our File: 2241-21182-00

MEMO

To Martina Bona, P.Eng. Wastewater Engineering & Planning, CRD	From Mitchell Hahn, P.Eng. McElhanney Ltd., Victoria
Re MLE Wastewater Pump Station and Treatment Plant Upgrades Tender Document Review	Date March 16, 2023

Dear Martina,

This memo reviews the tenders received by the Capital Regional District on March 14, 2023 for the Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades project (Tender 2022-846).

1. Tenders Received

Three tenders were received for this project, all properly signed. Total lump sum prices as per the Schedule of Prices and Estimated Quantities of the Tenderers Package are shown in the table below.

Bidder	Bid Value (excluding GST)
Coast Utility Contracting Ltd.	\$7,693,550.00
Industra	\$ 8,329,618.41
Tritech Group Ltd.	\$ 10,972,312.46

2. Arithmetic Check

An arithmetic check was performed on all three Tender Schedule of Prices and Estimated Quantities with the following errors observed:

McElhanney

500 – 3960 Quadra Street, Victoria BC Canada, V8X 4A3
Tel. 250-370-9221 | Fax. 1-855-407-3895 | www.mcelhanney.com

Page 1

Coast Utility Contracting Ltd.

Arithmetic checked OK

Industra:

There was a \$5.00 summation error in Part A of their bid. The correct amount of their tender is noted in the table above.

Tritech Group Ltd.

Arithmetic checked OK

3. Bid Bond

All three tenders provided the required Bid Bond.

4. Undertaking of Surety – Performance Bond and Labour and Materials Payment Bond

All three tenders provided the required undertaking of Surety for both the Performance Bond and the Labour and Materials Payment Bond.

5. Project Duration

The following table summarizes the number of days the Contractor's specified to substantially perform the work after the award of contract.

Bidder	Duration (Days)
Coast Utility Contracting Ltd.	365
Industra	400
Tritech Group Ltd.	730

6. Acknowledgment of Addenda

All Tenders included acknowledgement of their examination of the addenda as indicated in section 1.11, page 5 of the Instructions to Tenderers and included signed copies of the addenda.



7. Contractors Qualifications and Experience

All Bidders provided references for projects of similar size and scope and qualifications of their key personnel; and are all deemed to have acceptable qualifications to undertake this project. Any sub contractors not listed will need to be approved by the Engineer.

8. Tender Values vs Engineer's Estimate

The table below provides a summary of the Part A through G of the Tenders amounts compared to the engineer's class B cost estimate provided in January 2023. A class B estimate is considered to have a level of accuracy of (+/-15-25%). The lowest tender price is about 10-35% higher than the Class B estimate (after factoring in the + 15 to +25% range)

Estimated			Coast Utility	Industra	Tritech
Item	Class B Cost Estimate	Class B High Limit 25%	Amount (\$)	Corrected Amount (\$)	Amount (\$)
Part A - Schooner WWTP Upgrade	\$ 3,069,511	\$ 3,836,889	\$ 4,668,350.00	\$ 5,278,601.22	\$ 7,771,099.92
Part B - Cannon Pump Station	\$ 842,116	\$ 1,052,645	\$ 876,200.00	\$ 885,995.34	\$ 914,117.92
Part C - Buccaneer Pump Station	\$ 277,846	\$ 347,308	\$ 371,900.00	\$ 380,576.99	\$ 389,806.14
Part D - Capstan Pump Station	\$ 264,799	\$ 330,999	\$ 387,900.00	\$ 374,017.08	\$ 378,054.02
Part E - Galleon Pump Station	\$ 336,508	\$ 420,635	\$ 415,400.00	\$ 410,354.12	\$ 427,195.54
Part F - Masthead Pump Station	\$ 297,228	\$ 371,536	\$ 386,200.00	\$ 399,248.30	\$ 407,742.25
Part G - Schooner Pump Station	\$ 393,498	\$ 491,873	\$ 487,600.00	\$ 500,825.36	\$ 584,296.67
Subtotal of above items	\$ 5,481,508	\$ 6,851,885	\$ 7,593,550.00	\$ 8,229,618.41	\$ 10,872,312.46
Contingency Allowance (see note 2)	\$ 100,000	\$ 100,000	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00
Subtotal including contingency	\$ 5,581,508	\$ 6,951,885	\$ 7,693,550.00	\$ 8,329,618.41	\$ 10,972,312.46
Goods and Services Tax (GST)	\$ 279,075	\$ 347,594	\$ 384,677.50	\$ 416,480.92	\$ 548,615.62
Total Tendered Amount	\$ 5,860,583	\$ 7,299,479	\$ 8,078,227.50	\$ 8,746,099.33	\$ 11,520,928.08

Item	Class B Estimate plus 15%	Class B Estimate plus 25%	Coast Utility Tender Amount	Percent Difference
Part A	\$ 3,529,937.99	\$ 3,836,889.12	\$ 4,668,350.00	+ 20 to 28%
Part B	\$ 968,433.72	\$ 1,052,645.35	\$ 876,200.00	- 10 to 18%
Part C	\$ 319,523.23	\$ 347,307.85	\$ 371,900.00	+ 7 to 15%
Part D	\$ 304,519.01	\$ 330,998.93	\$ 387,900.00	+ 16 to 24%
Part E	\$ 386,984.36	\$ 420,635.18	\$ 415,400.00	+ 7 to -1%
Part F	\$ 341,812.72	\$ 371,535.57	\$ 386,200.00	+ 4 to 12%
Part G	\$ 452,522.99	\$ 491,872.82	\$ 487,600.00	+7 to -1%

The biggest cost difference appears to be on the Schooner WWTP item.



Upon review of the individual Schooner WWTP line items, the costs are higher for all disciplines and items across the board and the following list notes some of the key cost increases:

- General Requirement - \$330K (237%) higher than estimate (includes accommodations, LOA, etc)
- Earthworks - \$140K (97%) higher than estimate (includes bulk excavation, import gravel, etc.)
- Concrete - \$270K (40%) higher than estimate (imported from off-island)
- Electrical - \$479K (73%) higher than estimate
- Mechanical - \$400K (115%) higher than estimate (includes pumps, valves, piping, HVAC)

In general, the higher costs are indicative of escalating material and labour costs in every discipline. McElhanney has seen the prices of items increase monthly over several recent contracts. These costs also indicate that working on Pender is far more expensive than anticipated. Although much effort was taken to minimize the amount concrete, earthworks, and to minimize ferry traffic, the market reality is that material and labour is increasing rapidly. Getting labour and material to the island via the ferry is expensive especially with no gravel or concrete available on the island. Concrete costs alone came in at over \$3,500 per m³. This is twice what is experienced in more urban areas of BC, 40% more than remote areas on Vancouver Island.

The large spread in cost and duration between the two lower vs the high bidder could be indicative of the level of risk that some bidders may see with the project. However, this also may just be the demand that contractors are seeing now, and the high costs they are subject to and/or feel they can ask for.

McElhanney recently closed a design build bid with the City of Revelstoke where despite bidders being informed of the budget, and that the project could not proceed if over budget, all bidders came in over budget, some as much as 35%. In recent talks with our other Vancouver Island Branches, we have seen costs for civil projects in rural areas not only coming in over budget, but like this tender, having a wide margin between the low and the high bidder.

Although each PS is approximately 25% higher than the base estimate, they either fall within or are slightly lower than the high limit of the estimate. In general, the higher costs on these come from the electrical kiosks. The electrical market has been in turmoil for some time prices are incredibly hard to predict. In particular, we have seen cost increases (some as much as triple) for kiosk costs compared to prices seen in the summer of 2022. Our estimates were based on supplier pricing and estimates using previous tender results where available.

9. Cost Reduction

From experience, McElhanney does not believe that retendering this project will result in any cost reduction and often results in further cost escalation especially since, in this case, the low tenderer knows that the next tenderer's bid was about \$640,000 higher. As well material and labour costs continue to escalate, and the project has already been exposed to these escalating costs. Although some design



changes may result in some cost reduction, it is recommended that this be explored further with the contractor as Change Order credits should a contract be awarded.

With the prepurchase of the major mechanical components at the treatment plant, the main design is also constrained, as it basically builds around the equipment and cannot be reduced substantially but different materials can be explored. The design team and the CRD have spent a good deal of time refining and cutting back where possible through multiple design work shops.

Since the CRD has already purchased most of the major treatment plant equipment it is recommended to move forward with the WWTP upgrade. As such, the remaining option to lower costs such that the treatment plant upgrades can proceed would be reduce the pump stations scope of work. McElhanney has reviewed the priority of the pump stations, and it is noted that if the Canon PS is to be built, (to decommission Cannon WWTP), then the Schooner PS must be upgraded to meet the increased flows coming from Cannon. In addition, since standby generators were purchased for Galleon and Schooner Pump Stations, it is also recommended that these stations are upgraded. Therefore, the lowest priority pump stations that can be deferred without any impact to the system, include: Capstan, Buccaneers, and Masthead.

10. Recommendations

McElhanney recommends that the Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades tender be awarded to **Coast Utility Contracting Ltd**, subject to confirming the scope reduction of three pump stations from the contract. Coast's bid was found to be compliant, and they appear to have the required qualifications and experience.

Sincerely,
Mitchell Hahn



Mitchell Hahn, P.Eng.
mhahn@mcelhanney.com
778-746-7407



JWDC 21-08

**REPORT TO JUAN DE FUCA WATER DISTRIBUTION COMMISSION
MEETING OF TUESDAY, DECEMBER 7, 2021**

SUBJECT 2022 Juan de Fuca Water Distribution Service Capital Plan Amendment

ISSUE SUMMARY

It is proposed to amend the 2022 Capital Plan and adjust the budget for the following projects:

1. Project 20-06 – Sun River Reservoir Replacement
2. Project 20-07 – Goldstream AC Replacement
3. Project 23-01 – Tank 4 and McCallum Pump Station and Pump Station 7 and remaining Supply Main to Skirt Mountain Reservoir

BACKGROUND

On October 5, 2021, the Juan de Fuca (JDF) Water Distribution Commission (Commission) recommended to the Capital Regional District Board, approval of the 2022 Operating and Capital Budget and the Five Year Capital Plan. Since that time, tenders have closed on the Sun River Reservoir Replacement project with the lowest tender received being approximately 29% over budget despite the fact there were 8 bidders. Six bids were within 6% of the lowest tender. Given the competitive nature of the bids, staff feel that the budgets for the above referenced projects need to be increased to ensure adequate approved funding is available to award and complete the projects.

To better understand the volatility of the construction market, staff asked the two consultants delivering the three projects referenced above, Parsons and Stantec, to provide some bid analysis to determine construction market cost drivers in relation to the types of infrastructure projects the Capital Regional District (CRD) is delivering. They were also asked to query contractors and suppliers for their input. A summary of their responses follows:

- Construction inflation has far exceeded the general inflation reported for the region. While general inflation has been reported in the 4-5% range, construction inflation has increased in the 25-30% range for the type of projects the CRD is undertaking in the JDF service.
- The increase in construction inflation is split approximately 80% for materials and 20% for labour. Labour increases are mostly based on upward pressure on compensation due to competition in attracting staff, and the overall shortage of skilled labour. Some specific increases by component are:
 - Labour – 20%
 - Tank materials – 15%
 - Pipe - 40-50% (dependant on pipe material)
 - Fittings – 40%
 - Concrete – 15%
 - Electrical – 40%

Some of the drivers behind these increases include supply chain issues, shortage of materials due to high demand and lack of raw materials available for manufacturing. While the supply chain

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issues may resolve in the near future, it is expected material availability will continue to be an issue for some time. Senior levels of Government in both the United States and Canada have contributed to high demands with increased infrastructure spending. Volatility in pricing is expected to continue.

Given the preceding, the request for budget increases, by project, are as follows. A summary of proposed budget increases are included in Appendix A.

1. Project 20-06 – Sun River Reservoir Replacement (Sun River)
 - Original budget approved for 2022 was \$1.3 million, which included design and construction.
 - Funding is provided by \$1.1 million from JDF capital reserves, and \$200,000 from the Sun River developer.
 - Cost of construction was budgeted at \$1.1 million, however the tenders received a low bid of \$1,424,070 + GST.
 - As a result, the project is short by \$324,070 and requires additional funding.
 - To allow for contingency, staff are requesting to increase the budget by \$375,000 to \$1.675 million, which will be funded by \$1.475 million from JDF capital reserves and \$200,000 from the Sun River developer.
 - Tenders closed on November 2, 2021 and are awaiting award subject to funding approval.
2. Project 20-07 – Goldstream Asbestos Cement (AC) Replacement (Goldstream AC)
 - Original budget approved for 2022 was \$5.0 million which included design and construction.
 - Funding is provided entirely from JDF capital reserves.
 - Cost of construction was budgeted at \$4.2 million with the remaining budget of \$800,000 being engineering costs and staff time.
 - Cost escalation is expected to increase construction costs to \$5.0 million with an overall budget request of \$5.8 million for design and construction. This includes a contingency of 10%.
 - Tendering is expected to take place in December 2021.
3. Project 23-01 – Tank 4 and McCallum Pump Station, Pump Station 7 and remaining Supply Main to Skirt Mountain Reservoir (Skirt Mountain Improvements)
 - Original budget approved for 2022 was \$7.11 million which included design and construction.
 - Funding is provided entirely by the JDF Development Cost Charge (DCC) program.
 - Cost of construction was budgeted at \$6.54 million with the remaining budget of \$570,000 being engineering costs and staff time.
 - Cost escalation is expected to increase construction costs to \$8.54 million with an overall budget request of \$9.11 million for design and construction. This includes a contingency of 10%.
 - The Supply Main to Skirt Mountain Reservoir portion of the project was completed on budget in early 2021 by internal CRD staff. Tendering for the remainder of the project is expected to take place in December 2021.

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ALTERNATIVES

Alternative 1

That the Juan de Fuca Water Distribution Commission recommends to the Capital Regional District Board, that the 2022 Juan de Fuca Water Distribution Service Capital Budget and Five Year Capital Plan be amended as shown in Appendix A.

Alternative 2

That this report be referred back to staff for additional information.

IMPLICATIONS

Financial Implications

Both the Sun River and the Goldstream AC projects are funded by capital reserves which are able to fund the increased budget requests. In addition, Sun River is also funded with a developer contribution.

The Skirt Mountain Improvements project is funded entirely with DCC program reserves which are available.

Should all three budget requests be approved, there is no expected impact to the 2022 approved water rates.

Service Delivery Implications

All three of the identified projects are instrumental with regards to system hydraulic performance, system resiliency, and the continued provision of potable water to the JDF service.

Project completion in the near future is critical to maintaining overall system performance.

Staff considered deferring the projects to a time in the future when construction costs are lower but given the information available, that is not expected soon.

CONCLUSION

Due to significant increases in the cost of labour and materials, capital budget increases are being requested to deliver the Sun River, Goldstream and Skirt Mountain projects in 2022. Adequate funding is available for the proposed budget amendments associated with all three projects and there is no expected impact to the 2022 approved water rates.

RECOMMENDATION

That the Juan de Fuca Water Distribution Commission recommends to the Capital Regional District Board, that the 2022 Juan de Fuca Water Distribution Service Capital Budget and Five Year Capital Plan be amended as shown in Appendix A.

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Submitted by:	Ian Jesney, P.Eng., Senior Manager, Infrastructure Engineering
Concurrence:	Ted Robbins, B. Sc., C. Tech., General Manager, Integrated Water Services
Concurrence:	Nelson Chan, MBA, FCPA, FCMA, Chief Financial Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: Proposed Amendment to the 2022 Juan de Fuca Water Distribution Service Capital Plan

APPENDIX A

PROPOSED AMENDMENT TO THE 2022 JUAN DE FUCA WATER DISTRIBUTION SERVICE CAPITAL PLAN

Project	Current 2022 Budget	Proposed Increase \$	Proposed Increase %	Amended 2022 Budget
Project 20-06 Sun River Reservoir Replacement	\$1.3 million	\$375,000	29%	\$1.675 million
Project 20-07 Goldstream AC Replacement	\$5.0 million	\$800,000	16%	\$5.8 million
Project 23-01 Tank 4, McCallum Pump Station, Pump Station 7, Supply Main to Skirt Mountain Reservoir	\$7.11 million	\$2.0 million	28%	\$9.11 million



REPORT TO MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE MEETING OF TUESDAY, APRIL 04, 2023

SUBJECT Capital Project Status Reports and Operational Updates

ISSUE SUMMARY

To provide the Magic Lake Estates Water and Sewer Committee with capital project status reports and operational updates up to and including April 4, 2023

BACKGROUND

The Magic Lake Estates (MLE) Water System is located on the south shore of North Pender Island in the Southern Gulf Islands Electoral Area and provides drinking water and wastewater services to approximately 1,036 customers. Capital Regional District (CRD) Integrated Water Services is responsible for the overall operation of the water and wastewater systems with day-to-day operation, maintenance, design and construction of water and wastewater system facilities provided by the CRD Infrastructure Engineering and Operations Divisions. The quality of drinking water provided to customers in the Magic Lake Estates Water System is overseen by the CRD Water Quality Section.

CAPITAL PROJECT UPDATE

Magic Lake Estates Water

23-03 | SCADA and Radio Communication Upgrades

Project Description: Replace SCADA Communication infrastructure with modern radio system based on Radio Pathway Study completed under wastewater capital project 21-01.

Project Rationale: Upgrade communication equipment at water facilities as part of the wastewater upgrades (under Project 21-01) to make the entire system more secure and reliable.

Project Update and Milestones:

- The scope of work for the SCADA and Radio upgrades was included in the Wastewater Upgrade Tender.
- See attached staff report "Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades" for tender results.

Milestone	Completion Date
Detailed Design	January 18, 2023
Tender	February 21, 2023
Construction	November 30, 2023
Commissioning (Substantial Completion)	December 31, 2023
Warranty	December 31, 2025

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21-02 | Design and Construction Buck Lake and Magic Lake Adjustable Intakes

Project Description: Detailed design and construction of adjustable intakes to inform future capital works to maintain water quality.

Project Rationale: Both the Buck and Magic Lake adjustable intakes are unsafe to clean and adjust without employing divers. Funds are required to design and construct adjustable intakes.

Project Update and Milestones:

- A consultant was retained in November 2021 and they produced a draft design report summarizing design requirements for the intakes and floats on December 6, 2021.
- Design was completed.
- Tendering closed on June 29, 2022 but no bids were received.
- CRD had discussions with potential bidders who may be interested in providing quotations for this scope, only Pacific Industrial Marine (PIM) was interested in bidding.
- Recommendation to Award to PIM was signed off on November 4, 2022.
- Contract was executed on February 1, 2023 and Notice to Proceed was provided on February 7, 2023.
- Contract documents are currently being finalized prior to signatures and the stipulated Substantial Completion date is September 30, 2023.

Milestone	Completion Date
Consultant retained	November 12, 2021
Draft conceptual design report received	December 6, 2021
Design submitted to Front Counter BC for notification	April 21, 2022
Original Tender Closing (no bids)	June 29, 2022
Subsequent bid and Recommendation to Award to PIM	November 4, 2022
Contract Executed	February 1, 2023
Notice to Proceed	February 7, 2023
Substantial Completion (Anticipated)	September 30, 2023

21-04 | Buck Lake Dam Repairs - Phase 1

Project Description: Conduct additional inspections, minor repairs, and performance analysis highlighted in the 2019 Dam Safety Review. Phase 2 dam improvements to be completed in the following five years.

Project Rationale: Resulting from the Hatch 2019 Dam Safety Review, funds are required to conduct additional inspections, minor dam repairs, and performance analysis. Phase 2 dam improvements to be completed in the following five years. The November 26, 2020 staff report outlines the detailed expenditure plan for Phase 1.

Project Update and Milestones:

- Detailed scope of work and acceptable options for preventing high live loads at Buck Lake Dam's west dam have been developed. This was reviewed during the 2022 annual inspection and a scope for warning signage is being proposed to be installed in 2023.
- Consultant was been retained to conduct a dam breach analysis for both dams to confirm the dam flood area and improve the dam emergency plan. This report was finalized in January 2023.

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- Operations to coordinate with CRD Protective Services so that dam emergencies are part of CRD's Public Alert Notification System.
- CRD staff have started compiling required information for the dam emergency plan and operating and maintenance manuals. Updates are being completed as of January 2023.

Milestone	Completion Date
Consultant retained to conduct dam breach analysis	December 20, 2021
Draft Dam Breach Analysis Complete and Comments returned	July 14, 2022
Final Dam Breach Analysis Complete	January 2023

22-01 | Failed Valve Replacement

Project Description: Replace six failed water main valves.

Project Rationale: Through annual operations of the water system, three valves have been identified as having failed. Funding is required to replace these valves at Capstan Crescent, Schooner Way and Privateers, Rum Road, Schooner Way and Ketch Road, Bosun Way, and Galleon Way.

Project Update and Milestones:

- Project to commence upon CRD Board approval of the 5-year capital plan at the March 16, 2022 meeting.
- Operations has completed three of the six valve locations and determined two of the sites no longer require replacement due to increased corrective maintenance. The remaining valves will be replaced in early 2023.

22-02 | EV Charging Station

Project Description: Construct a new Electric Vehicle (EV) Charging Station at the Water Treatment Plant.

Project Rationale: Construct a new EV Charging station at the water treatment plant, project is to be partially funded through a cost matching grant and the Service.

Project Update and Milestones:

- Project delivery is currently being planned with CRD Facilities and Operations.
- This project is now anticipated to be delivered in late 2023 to align with anticipated delivery time of electric vehicles.

Milestone	Completion Date
Notification of conditional grant approval	January 18, 2022

OPERATIONAL UPDATE

This is an operational update report for February and March 2023.

- Water Treatment Plant:
 - Corrective maintenance Train 2 DAF skimmer chain and sprockets replacements.
 - Replacement of failed chlorine analyzer equipment.
 - Replacement of failed clarification tank level transducer.

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- Emergency response to Ketch Road watermain break. The event occurred on February 7, 2023, at approximately 1:30am. Standby staff were alerted to Captains Tank low water level and responded immediately. The leak was located and isolated after an hour of searching. Repairs were completed that morning and the system placed back into operation.
- Emergency response on February 27 and 28, 2023, due to an extended island wide hydro outage.
- Captains Tank metal thickness testing site preparation. Preparation includes the removal of organics and corroded metal around base of tank. Metal thickness assessment will be completed in April by a certified materials testing company.

Magic Lake Estates Sewer Utility

20-01 | Wastewater Improvements – Sewer Replacement

Project Description:

1. Replace about three kilometers (km) of failing asbestos cement (AC) pipe and install Cannon forcemain pipe (2021).
2. Replace as much failing AC pipe as possible with remaining funds left from \$6 million loan (2022-23).

Project Rationale: Several km of failing AC sewer pipe requires replacement (to be completed over three years from 2021-2023).

Project Update and Milestones:

- No change or update since the January 2023 Status Report.

Milestone	Completion Date
Construction	Substantial Completion on December 17, 2021
Warranty Period	December 17, 2022

21-01 | Wastewater Improvements – Pump Station and Treatment Plant Upgrades

Project Description:

1. Renew Buccaneer, Galleon, Schooner, Capstan, Cutlass and Masthead Pump Stations.
2. Replace Cannon Wastewater Treatment Plant (WWTP) with a new pump station.
3. Upgrade Schooner WWTP.

Project Rationale: Successfully received an Infrastructure Canada grant to complete upgrades on six pump stations, install a new pump station at Cannon to pump to Schooner WWTP, and upgrade Schooner WWTP to treat flow from Cannon and renew many components to bring the wastewater system into compliance with environmental regulations.

Project Update and Milestones:

- See the attached staff report entitled “Award of Contract 2022-846 Magic Lake Estates Wastewater Pump Station and Treatment Plant Upgrades”.
- Contracts have been assembled for the pre-purchased equipment (Gensets, Screen, Membranes, Blowers and Diffusers) and shop drawings are being reviewed.
- Waiting for Ministry approval to work in the wetland area adjacent to Schooner WWTP. The Ministry has indicated that two for one compensation is required.

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- It is hoped that Contract 2022-846 can be awarded and all permits will be received so that construction can commence in May, 2023.
- Overall, the project schedule has slipped, but the project is still anticipated to be substantially complete by the first quarter of 2024 depending on the contractor's schedule.

Milestone	Completion Date
Preliminary Design (30%)	September 2022
Detailed Design (90%)	December 2022
Tender Period	January 27 – March 14, 2023
Construction Period	May 2023 – February 2024
Substantial Completion	March 2024
Warranty Period	March 2025

OPERATIONAL UPDATE

This is an operational update report for February and March 2023.

- Emergency response on February 27 and 28, 2023, due to an extended island wide hydro outage. Protocol for wastewater hauling services from various pump station sites activated.
- Masthead Pump Station communications failure. The root cause of the failure was identified to be on the Telus infrastructure. Corrective maintenance was completed by Telus.
- Schooner WWTP sludge pump rebuild completed and will be used as a critical spare.
- Emergency response to sewer blockage on Cannon Crescent. Sewer blockage determined to be on a service lateral connection.

Table 1: Operating Permit Regulatory Non-compliance reporting for February and March 2023

Facility	February and March Reports Issued	Reports YTD 2023	Total Reports 2022	Cause
Schooner WWTP	3	4	20	Environmental Incidence Reports are issued typically as a result of: 1. Facility power outage causing loss of UV disinfection resulting in exceedance of fecal coliform (FC) regulatory requirements (permit <200 cfu/100ml). 2. Exceedance of permitted daily maximum flows (< 640m ³ /day). Flow exceedances are due to excessive collection system inflow and infiltration (I&I). 3. Exceedance of permitted total suspended solids (TSS) (<45mg/l). This type of exceedance is the result of high I&I.
Schooner Pump Station	0	0	1	Typically, these are overflow events into the marine environment (Boat Nook) due to extended power failures in the area. There is no standby power at the facility.
Cannon WWTP	0	1	12	Exceeding maximum daily flows due to storm water entering through I&I. However other non-compliances can be <ul style="list-style-type: none"> • Permit exceedance: total suspended solids (TSS) (<60mg/l) and carbonaceous biochemical oxygen demand (CBOD) (<45mg/l) • Toxicity testing

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RECOMMENDATION

There is no recommendation. This report is for information only.

Submitted by:	Malcolm Cowley, P.Eng., Manager, Wastewater Engineering and Planning
Submitted by:	Dan Robson, A.Sc.T., Manager, Saanich Peninsula and Gulf Islands Operations
Concurrence:	Jared Kelly, P.Eng., Acting Senior Manager, Infrastructure Engineering
Concurrence:	Jason Dales, B.Sc., WD IV., Senior Manager, Wastewater Infrastructure Operations
Concurrence:	Ian Jesney, P.Eng., Acting General Manager, Integrated Water Services