

**REPORT TO MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE
MEETING OF THURSDAY, JUNE 5, 2025**

SUBJECT **Capital Projects and Operational Update – June 2025**

ISSUE SUMMARY

To provide the Magic Lake Estates Water and Sewer Committee with capital project status reports and operational updates.

BACKGROUND

The Magic Lake Estates (MLE) Water and Sewer Systems are located on the south shore of North Pender Island in the Southern Gulf Islands Electoral Area and provides drinking water services to approximately 1,082 customers, and wastewater services to approximately 651 customers. Capital Regional District (CRD) Infrastructure and 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, Planning and Engineering and Operations Divisions. The quality of drinking water provided to customers in the MLE Water System is overseen by the CRD Water Quality Section.

CAPITAL PROJECT UPDATE

Magic Lake Estates Water

26-02 | WTP Process Pipe Condition Assessment

Project Description: Conduct updated condition assessment of process piping in the water treatment plant with potential repairs or segment replacement.

Project Rationale: Weld deficiencies identified following completion of the water treatment plant in 2012/2013 resulted in a settlement and funds to be utilized for future corrective work or replacement. Funding has been reallocated for 2025 to review the condition and address the most critical deficiencies.

Project Update and Milestones:

- After a leak developed at a weld location, CRD drafted a scope of work and specifications for replacement of a segment of pipe that feeds Captain's Tank.
- Caird Mechanical Contractors Ltd. have visited the site and have been issued a Purchase Order to complete the fabrication and installation. Acuren is being contracted for weld inspection quality control.

Milestone	Completion Date
Budget setup complete.	March 2025
Specifications developed for segment replacement and Contractor site visit conducted.	April 2025
Target fabrication and installation.	Q2 2025 (Target)

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 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.
- Operations to coordinate with CRD Protective Services so that dam emergencies are part of CRD's Public Alert Notification System (PANS).
- CRD staff have started compiling required information for the dam emergency plan and Operating and Maintenance Manuals. Updates were completed January 2023.
- In 2023, engineering is assessing options for installation of a v-notch weir to monitor lower flow seepage rates and will continue with design work into 2024.
- Engineering consultant onboarded for design in July 2024.
- Design complete and weir plate fabrication underway in third quarter (Q3) 2024.
- Design complete and fabrication completed in Q4 2024.
- CRD will commence contacting local Contractors in Q2 of 2025 with hopes of constructing in the summer/fall dry weather window.

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
Design of Seepage Weir on West Dam	Q2 2024
Fabrication of Weir Plate Complete	Q4 2024

WATER SYSTEM OPERATIONAL UPDATE

This is a water system operational update report for January through April 2025.

- Planned replacement of a failed hydrant isolation valve (MLE052) at Dory/Shoal. Corrective work is funded by the Operating Reserve Fund (ORF). Several additional failed isolation valves have been identified at various locations that require also require replacement. This corrective maintenance will be ongoing as resources allow.

- Water Treatment Plant annual maintenance completed, which included cleaning of the Dissolved Air Floatation (DAF) tanks and chemical static mixers.
- Buck Lake storage and workshop cleaning and organization completed during this reporting period to address ongoing safety concerns.
- Corrective maintenance completed of the dedicated water pressure system that services 1601 Shoal Road.
- Several critical alarm call outs to the water treatment plant during this operating period which included response to low chlorine residual limit, loss of hydro power and communications failures.
- Deployment of Stage 1 water conservation signage for May 1.
- Water Treatment Plant Heating Venting and Air Conditioning (HVAC) system preventative maintenance completed which identified some failed equipment that requires repair. This work is currently being evaluated to determine scope and cost.

Magic Lake Estates Sewer Utility

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

Project Description:

1. Renew Galleon and Schooner Pump Stations (upgrade communications at Buccaneer, 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 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:

- The pump stations and wastewater treatment plant have been in operation since September 2024.
- All remaining contractual deficiencies have been completed and this project is now 100% complete.
- There is ongoing optimization of the facilities as more experience is gained in operating them.
- An additional membrane is being added to help meet peak flow capacity.
- Over time, components of the old Schooner and Cannon WWTP's will be disassembled and removed.
- The final cost of the pump station and wastewater treatment upgrade project was \$9,205,789 and the budget was \$9,205,045.
- The full grant amount of \$5,653,266 has been received from senior governments.
- As a result of investing up-front payments and grant funds received earlier on in the project, a total of up to \$362,434 in interest has accumulated.
- The additional membrane is being funded from the earned interest in the amount of \$86,100.
- A portion of the remaining \$276,334 in earned interest will be used towards purchasing critical spare parts for the four remaining pump stations that still need to be upgraded, and the final remaining amount will remain in Capital Funds On-Hand and continue to earn interest to help fund future capital upgrades.

Magic Lake Estates Water and Sewer Committee – June 5, 2025
Capital Projects and Operational Update – June 2025

- This will be the last report provided for this specific capital project.

Milestone	Completion Date
Preliminary Design (30%)	September 2022
Detailed Design (90%)	December 2022
Tender Period	January 27 – March 14, 2023
Construction Period	May 2023 – November 2024
Commissioning Period	September - November 2024
Substantial Completion	December 10, 2024
Warranty Period	December 10, 2026



Schooner WWTP in Operation

WASTEWATER SYSTEM OPERATIONAL UPDATE

This is a wastewater system operational update report for January through April 2025.

- Operations of the new Membrane Bioreactor (MBR) Wastewater Treatment Plant.
 - Ongoing treatment optimization/commissioning continues.
 - Ongoing system familiarization and data collection continues.
 - First time completing an MBR preventative maintenance chemical clean to improve system permeation performance.
- Cannon wastewater treatment plant decommissioning.
- Environmental emergency response to an unplanned bypass on March 27, 2025. The bypass event was partially due to planned membrane chemical clean maintenance which requires the treatment process to be partially shut down for several hours to complete. A wet weather storm event occurred shortly thereafter which resulted in the exceedance of equalization storage and emergency storage at the facility.

Magic Lake Estates Water and Sewer Committee – June 5, 2025
Capital Projects and Operational Update – June 2025

Table 1: Operating Permit Regulatory Non-compliance reporting for January through April 2025

Facility	January to April Reports Issued	Reports YTD 2025	Total Reports 2024	Cause
Schooner WWTP	1	1	13	<p>Environmental Incidence Reports are issued typically because of:</p> <ol style="list-style-type: none"> 1. Exceedance of permitted daily maximum flows (756m³/day). Flow exceedances are due to excessive collection system inflow and infiltration (I&I). 2. Exceedance of permitted total suspended solids (TSS) (<45mg/l) or biochemical oxygen demand (CBOD) 3. Emergency facility bypasses due to equipment failure or inflows that exceed treatment equalization and emergency storage capacity.

RECOMMENDATION

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

Submitted by:	Jared Kelly, P.Eng., Manager, Capital Projects
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:	Jason Dales, B.Sc., WD IV., Senior Manager, Infrastructure Wastewater Operations
Concurrence:	Joseph Marr, P.Eng., Senior Manager, Infrastructure Planning and Engineering
Concurrence:	Alicia Fraser, P.Eng., General Manager, Infrastructure and Water Services