SPERLING HANSEN ASSOCIATES

Landfill Engineering
Solid Waste Planning
Landfill Fire Control
Environmental Monitoring

PRJ23024

June 22, 2026

Christine Miller
Manager of Wastewater
2nd Floor, 5797 Cowrie Street
Sechelt, BC V0N 3A0

Via Email: CMiller@sechelt.ca
CC: Email: mlee@sechelt.ca

Re: District of Sechelt Septage Receiving Facility Long-Term Plan – Final Report

Dear Christine,

This Final Report provides a summary of the six technical memoranda submitted to you under separate cover over the last three years in fulfillment of the scope of work outlined in the Request for Proposals submitted to the District on December 21, 2022. The six memoranda submitted include the following:

TM1 – Summary of Available Information and Data Gaps
TM2 – Demand Forecast and Statement of Requirements
TM3 – Location Options
TM4 – Conceptual Plan
TM5 – Operational and Financial Plan
TM6 – Decommissioning and Demolition Plan

Also attached under separate covers are supplier information and cost details as you requested.

This Final Report, as it represents all six technical memoranda, is authenticated by our Qualified Professional as required by Engineers and Geoscientists BC.

We trust the data and information presented in this report meet your expectations. Should you have any questions or require clarification regarding the methodology, assumptions, or findings, please do not hesitate to contact the undersigned at 604-816-2235.

Kind regards,

SPERLING HANSEN ASSOCIATES

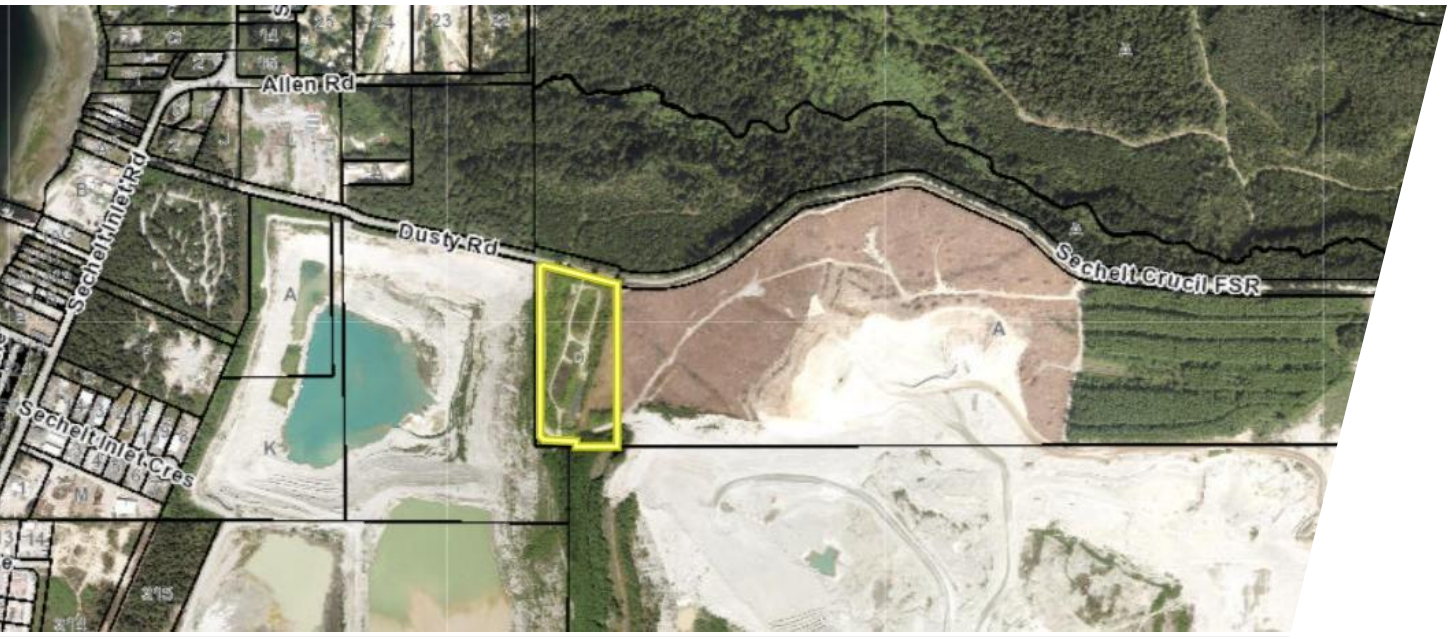
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. L. CVACI
40171

June 22, 2026

EGBC
Permit to Practice
No. 1003066

Mircea Cvaci, P.Eng., MBA
President

District of Sechelt Septage Receiving Facility Long-Term Plan



Prepared for:

District of Sechelt

FINAL REPORT

Submitted by:

Sperling Hansen Associates Inc.
Mircea Cvaci, P.Eng., MBA
President
T: 604-986-7723
E: mcvaci@sperlinghansen.com

District of SECHELT

SPERLING HANSEN ASSOCIATES

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Technical Memoranda 1 to 6

1. INTRODUCTION

The District of Sechelt (the District) is developing a Septage Receiving Facility Long-Term Plan (the Plan) to replace the Dusty Road Septage Receiving Facility (DRSRF). The Plan will guide the District in reviewing design options and locations for the new facility and servicing plans with project stakeholders.

This Final Report summarizes the technical memoranda and related deliverables prepared through the planning process. The technical memoranda are intended to be included as appendices; therefore, this report provides a concise summary of the work completed, the key planning basis, and the recommended direction for implementation.

The Plan was developed through the following technical work streams.

Deliverable	Primary Role in Final Plan
Technical Memorandum No. 1 – Summary of Available Information and Data Gaps	Established the available information base, current system context, and remaining data needs.
Technical Memorandum No. 2 – Demand Forecast and Statement of Requirements	Defined the 50-year demand forecast, design basis, influent considerations, and facility requirements.
Technical Memorandum No. 3 – Location Options	Identified and screened potential facility locations using GIS constraints and a site evaluation matrix.
Technical Memorandum No. 4 – Conceptual Plan	Developed a compact conceptual facility arrangement and process configuration for a sewer-serviced site.
Technical Memorandum No. 5 – Operational and Financial Plan	Outlined governance, operating controls, cost recovery principles, and service sustainability recommendations.
Technical Memorandum No. 6 - Decommissioning and Demolition Plan	Outlined the framework for shutdown, demolition, environmental verification, restoration, and transition to the new facility.

2. PROJECT CONTEXT AND SCOPE

The DRSRF currently provides a regional service. Although the facility is owned and operated by the District, it receives waste generated from Sechelt and the broader Sunshine Coast area, including residential septic tank waste, holding tank waste, porta-potty waste, grease trap waste, brewery waste, and treatment plant residuals. Liquid from the facility is directed to the District wastewater collection system and ultimately to the Water Resource Centre (WRC).

The existing facility is located on Crown land under a lease expiring in 2031. The planning process has therefore focused on maintaining continuity of septage receiving service while replacing aging infrastructure, improving source control, clarifying the future waste acceptance basis, and establishing a more sustainable financial model for a service used by multiple jurisdictions and generators.

The demand forecast used the District's 2% population growth rate for long-term planning. The planning basis assumed an estimated residential septage volume of approximately 7,418 m3/year in 2021, increasing to approximately 19,996 m3/year by 2071 for the residential septic system service area. The forecast assumes that haulers are not dewatering residential septage before disposal at the receiving facility. Non-residential waste streams and modified/dewatered loads remain important operational variables that must be confirmed through the final waste acceptance policy.

3. FACILITY SITING

Facility siting was reviewed through GIS-based constraint mapping and a numerical evaluation matrix. The initial property screening considered zoning, environmental constraints, riparian setbacks, drinking water protection, slope, land tenure, access, proximity to sewer and three-phase power, odour/noise separation, and compatibility with surrounding land uses.

The current Dusty Road facility scored relatively highly because it already meets the servicing requirement but the site has substantial infrastructure, operational, and lease-related constraints. Lot L has advantages because it is District-owned, has close proximity to servicing, has industrial zoning and located within the sewer catchment; however, the available footprint is limited and odour impacts to nearby users and District operations would need careful management.

The shortlisted sites require further confirmation through stakeholder engagement, First Nations engagement, land tenure review, servicing review, geotechnical and environmental due diligence, and confirmation of whether the selected treatment approach requires a sewer connection or another effluent management pathway.

4. FACILITY REQUIREMENTS

The facility requirements were developed to support a long-term, safe, and financially sustainable septage receiving service. The new facility should be designed to receive high-strength, variable septage loads while protecting downstream wastewater infrastructure and maintaining compliance with applicable District sewer discharge requirements.

Key requirements include controlled hauler access, measured receiving volumes, source tracking, screening and debris removal, odour management, equalization, solids separation/dewatering, containment of spills and process liquids, discharge monitoring, and a defined solids management pathway. The final design should also account for worker safety, traffic movement, all-season operation, asset maintenance, emergency response, and future capacity expansion or operational adjustment.

The District should confirm the waste streams to be accepted at the new facility before detailed design. Residential septic tank waste should form the core design basis. Holding tank waste and porta-potty waste may be acceptable with controls. Grease trap waste, WWTP sludge, brewery waste, lift station waste, and other non-septage liquid wastes should only be accepted if the facility is explicitly designed, permitted, and funded to manage those streams.

5. CONCEPTUAL PLAN

The conceptual plan presents a compact package-style septage receiving facility that could be located on Lot L or another suitably serviced site with access to the District sewer system. The concept includes an automated receiving and screening system, equalization/aeration tankage, polymer dosing, roll-off dewatering containers, controlled drainage, and discharge to the sewer main for treatment at the WRC.

The receiving system should include automated hauler identification, flow metering, controlled discharge connections, screening/grinding, and data capture to support billing, compliance, and operational planning. A nominal receiving capacity of 400 US gpm was identified in the operational planning work to support efficient truck unloading, generally in the order of 10 to 15 minutes per truck, subject to final equipment selection and commissioning.

The concept relies on contained solids dewatering using roll-off containers, with filtrate returned to the process/discharge system. This approach reduces the footprint compared with lagoon-based dewatering and is better suited to a compact sewer-serviced site, but it requires reliable polymer dosing, container solids handling, hauling contracts, and an approved solids disposal or reuse facility or site.

The conceptual plan remains a planning-level design. Detailed design should confirm the final accepted waste streams, hydraulic and solids loading, tank sizing, building/enclosure requirements, odour control, electrical and controls, washdown water source, solids haulage logistics, constructability, permitting, and site-specific civil works.

A new septage receiving facility is required to provide reliable long-term service while protecting the wastewater collection system and the Water Resource Centre (WRC). Effluent from septage dewatering will be directed to the WRC, which has defined hydraulic and loading capacity limits.

While the conceptual approach presented is suitable for near- to medium-term needs, the long-term capacity of the WRC to accommodate increased flows and higher-strength loads must be confirmed. This constraint will be a key consideration in final design and may influence future expansion or alternative treatment approaches.

6. OPERATIONAL PLAN

The new facility should be operated as a controlled public utility service with clear accountability for waste acceptance, worker safety, environmental protection, equipment reliability, compliance documentation, and cost recovery. The operational plan should be converted into a detailed Operations and Maintenance Manual during design, commissioning, and start-up.

A formal Waste Acceptance Policy should be adopted before commissioning. At a minimum, the policy should define the service area, eligible haulers, accepted and prohibited waste categories, mandatory load information, hauler registration requirements, audit sampling, nonconforming load response, and enforcement tools.

The facility should use automated data collection where practical, including access control, measured discharge volumes, electronic manifests, and integration with billing and compliance records. Random load inspections and sampling should be retained as a practical enforcement tool. Monthly operating summaries and quarterly trend reports should be used to track volumes, waste categories, nonconforming loads, odour complaints, solids quantities, chemical consumption, downtime, maintenance, and costs.

Contingency planning should be established for equipment failure, power or control failure, process upset, spills, extreme peak demand, loss of solids outlet, and nonconforming load events. Standby service contracts and alternative receiving/disposal arrangements should be developed before commissioning.

7. FINANCIAL PLAN

The financial plan should move the service toward full-cost recovery while recognizing that the DRSRF functions as a regional service. Capital planning should include site acquisition or tenure costs, detailed design, permitting, construction, long-lead equipment procurement, commissioning, and lifecycle replacement. The Class C capital estimate prepared for TM5 includes design/engineering, construction management, and contingency allowances; land acquisition is not included and is estimated at approximately $4.56 million.

Operating costs are expected to be driven by staffing, equipment maintenance, compliance monitoring, utilities, polymer use, solids hauling and treatment/disposal, insurance, administration, and reserve contributions. Solids management is expected to be a major cost driver and should be reviewed annually against actual dewatered solids quantities, polymer consumption, hauling rates, and the selected receiving outlet. Annual operating and maintenance costs are estimated at approximately $500,000.

A hybrid cost recovery model is recommended. Fixed costs, debt servicing, and reserve contributions should be recovered through a stable base charge or inter-jurisdictional contribution, while variable costs should be recovered through measured volume-based user fees and waste-category multipliers. Out-of-service-area surcharges, high-risk waste surcharges, contamination surcharges, and administrative penalties should be considered if supported by bylaw authority and reliable source tracking.

The District should review rates annually and test the service model under sensitivity scenarios, including lower volumes due to sewer conversions, expanded acceptance of higher-risk wastes, and a temporary disruption or cost increase for the solids outlet. This approach will reduce the risk of sudden rate shocks and underfunded reserves.

8. DRSRF DECOMMISSIONING AND DEMOLITION PLAN

The DRSRF Decommissioning and Demolition Plan provides the framework for safely shutting down, demolishing, and restoring the existing Dusty Road facility after the replacement facility is commissioned. The closure objective is more stringent than a typical demolition project because the District must remove infrastructure and restore the Crown lease area to predevelopment or otherwise approved conditions.

Closure activities include site shutdown and security, utility isolation, removal of liquids and residuals, cleaning and decontamination, hazardous materials abatement, removal of equipment and structures, removal of underground infrastructure, waste classification and disposal, environmental remediation where required, final grading, revegetation or other approved restoration, and final closure documentation.

Environmental due diligence completed for the site included Phase 1 and Phase 2 environmental assessment work. The Phase 2 work identified localized chloride exceedances in soil near the septage receiving station, with further delineation and verification recommended if certification or formal closure evidence is required. A hazardous materials assessment did not identify asbestos-containing materials but did identify lead-containing paint on selected components, as well as other materials requiring appropriate handling during demolition.

A Final Closure Report should be prepared after decommissioning. It should include decommissioning records, hazardous materials abatement documentation, waste manifests and disposal receipts, environmental sampling results, QA/QC records, photographs, as-built/record information, and restoration documentation sufficient to support lease closeout and demonstrate due diligence.

9. TRANSITION PLAN

The transition plan should be managed as an integrated program because the District must maintain service while replacing the facility and completing DRSRF closure before the 2031 lease expiry, unless a lease extension is secured. The planning schedule should retain contingency time for siting, permitting, procurement, construction delays, equipment lead times, commissioning, and decommissioning uncertainty.

The recommended transition sequence is to secure the new site, complete detailed design, procure long-lead equipment, tender and construct the new facility, commission the new facility and begin accepting trucks, close and secure the DRSRF, complete residuals removal and decommissioning, demolish and remove structures and buried infrastructure, complete any required remediation and restoration, and prepare final closure documentation.

Given the time-sensitive nature of the lease expiry and the number of parallel work streams, the District should consider assigning dedicated project management capacity to the replacement and decommissioning program. Early decisions are required on site selection, governance, accepted waste streams, funding approach, cost recovery model, and solids management outlet.

10. LIMITATIONS

This report has been prepared by Sperling Hansen Associates (SHA) on behalf of the District of Sechelt in accordance with generally accepted engineering practices to a level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions in British Columbia, subject to the time limits and financial and physical constraints applicable to the services.

The report, which specifically includes all tables and figures, is based on engineering analysis by SHA staff of data compiled during the course of the project. Except where specifically stated to the contrary, the information on which this study is based has been obtained from external sources. This external information has not been independently verified or otherwise examined by SHA to determine its accuracy and completeness. SHA has relied in good faith on this information and does not accept responsibility for any deficiency, misstatements or inaccuracies contained in the reports as a result of omissions, misinterpretation and/or fraudulent acts of the persons interviewed or contacted, or errors or omissions in the reviewed documentation.

The report is intended solely for the use of the District of Sechelt. Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, is the responsibility of such third parties. SHA does not accept any responsibility for other uses of the material contained herein nor for damages, if any, suffered by any third party because of decisions made or actions based on this report. Copying of this intellectual property for other purposes is not permitted.

The findings and conclusions of this report are valid only as of the date of this report. The interpretations presented in this report and the conclusions and recommendations that are drawn are based on information that was made available to SHA during the course of this project. Should additional new data become available in the future, Sperling Hansen Associates should be requested to re-evaluate the findings of this report and modify the conclusions and recommendations drawn, as required.

10.1 Use of Artificial Intelligence in Report Preparation

This report was prepared by Sperling Hansen Associates (SHA) in accordance with generally accepted engineering practices and applicable quality management requirements. In the preparation of this report, limited use was made of artificial intelligence (AI) tools to assist with drafting, formatting, and refinement of written content.

AI tools were used strictly as productivity aids and were not relied upon to conduct engineering analysis, interpret data, develop technical conclusions, or exercise professional judgment. All engineering assessments, assumptions, calculations, findings, and recommendations contained in this report were independently developed, reviewed, and verified by a Professional Engineer registered with Engineers and Geoscientists British Columbia (EGBC).

The responsible professional has exercised independent judgment in accordance with the Engineers and Geoscientists Act, the EGBC Code of Ethics, and EGBC Quality Management Guidelines. Consistent with EGBC guidance respecting the use of emerging technologies, SHA has maintained

direct professional oversight of all report content and has applied appropriate review procedures to confirm technical accuracy and completeness.

The use of AI does not transfer or diminish professional responsibility. The undersigned professional retains full accountability for the contents of this report.

We appreciate the opportunity to work with the District of Sechelt on this project. Please do not hesitate to contact the undersigned if you have any questions.

Sincerely,

SPERLING HANSEN ASSOCIATES

Report prepared by:

Nicole Kohnert, P.Eng.
Senior Environmental Engineer

Report reviewed by:

EGBC
Permit to Practice
No. 1003066

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. L. CVACI
40171

June 22, 2026.

Mircea L. Cvaci, P.Eng., MBA
President