

SAANICH PENINSULA LIQUID WASTE MANAGEMENT PLAN

Consolidated Version

*Originally Published October 1996
Amended and Consolidated
October 2009*

**DISTRICT OF
NORTH SAANICH**

TSEY CUM

**TOWN
OF
SIDNEY**

P L A N

PAUQUACHIN

A R E A

TSARTLIP

TSAWOUT

**DISTRICT OF
CENTRAL SAANICH**

CRD
Making a difference...together

December 2011

Saanich Peninsula Liquid Waste Management Plan Consolidated Version

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INTERPRETATION

Where this document refers to:

the "CRD BOARD" or "BOARD", it shall mean the elected Board of the Capital Regional District;

the "DISTRICT", the "REGION", the "CRD" or the "REGIONAL DISTRICT", it shall mean the Capital Regional District;

the "PENINSULA" or the "SAANICH PENINSULA", it shall mean the area occupied by the municipalities of North Saanich, Central Saanich and Sidney and the Tseycum, Pauquachin, Tsartlip and Tsawout Indian Reserves;

the "MINISTRY" or the "MINISTRY OF ENVIRONMENT", it shall mean the Ministry of Environment, Lands and Parks;

the "LIQUID WASTE MANAGEMENT PLAN", the "LWMP" or "THE PLAN", it shall mean the Saanich Peninsula Liquid Waste Management Plan which is the subject of this document;

the "CAC" or "TAC", it shall mean the Community Advisory Committee or the Technical Advisory Committee respectively;

the "MMAG", it shall mean the Marine Monitoring Advisory Group;

the "UTP", the "SPTP" or the "PENINSULA TREATMENT PLANT", it shall mean the Saanich Peninsula Sewage Treatment Plant as described in the Operational Certificate.

Amendments

**Amendment No. 1
to
Capital Regional District
Saanich Peninsula Liquid Waste Management Plan
as approved by the Minister on November 8, 1996**

SUBJECT: Chapter 4, Map 2

TYPE OF AMENDMENT: Initiated by the District of North Saanich

AMENDMENT: Amendment No. 1 amends the boundaries of Map 2, Chapter 4, Section 4.7, Rectification of On-Site Sewage Disposal Problems in North Saanich, as shown on page 31 of the Saanich Peninsula Liquid Waste Management Plan

AMENDMENT APPROVALS:

Saanich Peninsula Wastewater Committee Approval this 23rd day of August, 2001

Ministry of Water, Land and Air Protection Approval this 23rd day of January, 2002

SBM/cl

Attachment: Map 2



Deviation from Original 1990 Saanich Peninsula Liquid Waste Management Plan

(as adopted by North Saanich Council, February 19, 2001)

**Amendment No. 2
to
Capital Regional District
Saanich Peninsula Liquid Waste Management Plan
as approved by the Minister on November 8, 1996**

SUBJECT: Chapter 4, Sections 4.4.3(a) and 4.4.4

TYPE OF AMENDMENT: Capital Regional District-initiated

AMENDMENT: Amendment No. 2 replaces the commitments made in Chapter 4, Section 4.4.3(a) – Residuals Management, and Section 4.4.4 – Liquid Waste Management in Areas Outside of Sewerage Areas, with the commitments described in attachments A and B respectively to this Amendment.

AMENDMENT APPROVALS:

Capital Regional District Board Approval this	25 th	day of	May,	2005
Ministry of Water, Land and Air Protection Approval this	17 th	day of	November,	2005

AMENDMENT NO. 2

Amendment No. 2 replaces the current Section 4.4.3(a) which is as follows:

4.4.3 Residuals Management:

The Capital Regional District and its participating member municipalities commit to:

- (a) set as an objective the beneficial use of biosolids, and application to peninsula farmland as the primary option for beneficial use

with the amended Section 4.4.3(a) as follows:

4.4.3 Residuals Management:

The Capital Regional District and its participating member municipalities commit to:

- (a) implementing the following Biosolids Management Plan:

Commitments

- pursue an effective and diversified program for the beneficial use of Class A biosolids that incorporates economically viable and long-term solutions
- mitigate nuisances associated with the production and application of biosolids including odour, noise, truck traffic and dust
- manage biosolids to ensure that detrimental effects to public health and the environment are avoided.

Biosolids Management Plan

The CRD entered into a four-year contract with Sylvis Environmental Inc. commencing January 1, 2005, to deliver biosolids to Lehigh Northwest Materials Ltd. Producer's Pit in Colwood. Biosolids will be mixed with other materials at this location to fabricate top soil for reclamation of the mine site. One objective of this initiative is to develop public awareness and support within the community for the beneficial use of biosolids. This initiative also presents an opportunity to optimize the production process to achieve biosolids of exceptional quality and character for beneficial use.

Over the contract term, the CRD will identify and develop markets for future land application programs. Biosolids may be used to manufacture top soil for residential and commercial landscaping, nurseries and municipal parks and gardens. Biosolids may also be applied to farmland within the region including hayfields and pasture land.

As a contingency plan, in the event that beneficial use options fail, the CRD will haul sludge to Hartland landfill, which is owned and operated by the CRD. The CRD's Solid Waste Management Plan allows for the disposal of raw sludge at this site as a controlled waste.

AMENDMENT NO. 2

Amendment No. 2 replaces the current Section 4.4.4, which reads as follows:

4.4.4 Liquid Waste Management in Areas Outside of Sewerage Areas:

The District of North Saanich commits to reserving sufficient capacity in the Saanich Peninsula treatment plant that will enable it, within five years, to implement permanent sewage treatment and disposal solutions for areas of North Saanich that are exhibiting onsite sewage disposal problems.

with the amended Section 4.4.4 as follows:

4.4.4 Liquid Waste Management in Areas Outside of Sewerage Areas

Commitments

The District of North Saanich commits to implementing within five years permanent sewage treatment and disposal solutions for areas of North Saanich that are exhibiting onsite sewage disposal problems.

The District of North Saanich commits to requiring that all new subdivisions which will not be connected to a community sewer system shall be designed such that the cumulative hydraulic loading from onsite sewage disposal systems can be safely handled by the overall soils environment and, to meet this requirement, all such subdivisions shall comply with the requirements of the most current version of the Subdivision Assessment Standards prepared by the Vancouver Island Health Authority.

The District of North Saanich further commits to participation in the regional program for maintenance management of onsite systems and to apply the maintenance requirements throughout the District of North Saanich no later than December 31, 2007. In the event that the regional program does not proceed on schedule, the District of North Saanich commits to implementation of a program applicable within the boundaries of the District of North Saanich that requires compulsory pumping of septage tanks and compulsory maintenance of small treatment plants no later than December 31, 2007.

Management of Onsite Septic Systems

The Capital Regional District is developing a program for the management of onsite systems within the region. A representative of the District of North Saanich is a member of the Onsite Management Advisory committee that was set up to make recommendations pertaining to the development and implementation of a program.

In January 2005, the Board of the Capital Regional District approved implementation of an onsite maintenance management program proceeding in 2006, subject to budget approval in 2005. The program will require compulsory pump-outs for septage tanks and compulsory maintenance of small treatment plants, with enhanced public information to encourage voluntary inspections, so that problems are identified and systems are repaired. Region-wide implementation of the program is expected to require five years. The details of this program will be presented to the CRD Board in the spring/summer 2005.

Attachment B
Amendment No. 2 – cont'd

Septage Collection Plan

Supplementary Letters Patent provide authority to the Capital Regional District for disposal of septage. A private company, Septage Processing Limited, operates a septage receiving and disposal facility under contract to the CRD to serve an area that includes the three municipalities that are partners in the Saanich Peninsula Liquid Waste Management Plan. The municipalities rely on private sector companies to contract directly with homeowners for pumping and transport of septage to the septage disposal facility.

**Amendment No. 3
to
Capital Regional District
Saanich Peninsula Liquid Waste Management Plan
as approved by the Minister on November 8, 1996**

SUBJECT: Chapter 4, Section 4.4.3, previously amended by Amendment No. 2

TYPE OF AMENDMENT: Capital Regional District-initiated

AMENDMENT: Amendment No. 3 replaces the commitments made in Chapter 4, Section 4.4.3 – Residuals Management with the commitments described in Attachment A to this Amendment.

AMENDMENT APPROVALS:

Capital Regional District Board Approval this	10 th	day of	June,	2009
Ministry of Environment Approval this	1 st	day of	September,	2009

AMENDMENT NO. 3

Amendment No. 3 deletes the current Section 4.4.3 which is as follows:

4.4.3 Residuals Management:

The Capital Regional District and its participating member municipalities commit to implementing the following Biosolids Management Plan:

Commitments

- pursue an effective and diversified program for the beneficial use of Class A biosolids that incorporates economically viable and long-term solutions
- mitigate nuisances associated with the production and application of biosolids including odour, noise, truck traffic and dust
- manage biosolids to ensure that detrimental effects to public health and the environment are avoided.

Biosolids Management Plan

The CRD entered into a four-year contract with Sylvis Environmental Inc. commencing January 1, 2005, to deliver biosolids to Lehigh Northwest Materials Ltd. Producer's Pit in Colwood. Biosolids will be mixed with other materials at this location to fabricate top soil for reclamation of the mine site. One objective of this initiative is to develop public awareness and support within the community for the beneficial use of biosolids. This initiative also presents an opportunity to optimize the production process to achieve biosolids of exceptional quality and character for beneficial use.

Over the contract term, the CRD will identify and develop markets for future land application programs. Biosolids may be used to manufacture top soil for residential and commercial landscaping, nurseries and municipal parks and gardens. Biosolids may also be applied to farmland within the region including hayfields and pasture land.

As a contingency plan, in the event that beneficial use options fail, the CRD will haul sludge to Hartland landfill, which is owned and operated by the CRD. The CRD's Solid Waste Management Plan allows for the disposal of raw sludge at this site as a controlled waste.

Amendment No. 3 replaces the current Section 4.4.3 with the amended Section 4.4.3 as follows:

4.4.3 Residuals Management:

The Capital Regional District and its participating member municipalities commit to implementing the following Biosolids Management Plan:

Commitments

- pursue an effective and diversified program for the beneficial use of Class A biosolids that incorporates economically viable and long-term solutions
- mitigate nuisances associated with the production and application of biosolids including odour, noise, truck traffic and dust
- manage biosolids to ensure that detrimental effects to public health and the environment are avoided.

Biosolids Management Plan

The CRD has developed a "PenGrow" soil enhancer program that began as a pilot in 2008 at Hartland Landfill. Based on the success of this pilot program, it is planned to initially process about 300 tonnes of cured Class A biosolids and distribute it to the public at Hartland in bagged or bulk form. The plan is to then expand the "PenGrow" program to include processing and distributing the biosolids at the three Peninsula municipal public works yards.

The CRD plans to continue to seek opportunities to diversify biosolids beneficial use markets to include individual residences, commercial operations and farms.

In the long term, the CRD will ensure that the Saanich Peninsula biosolids management program will pursue any biosolids management opportunities that become available through the CRD's Core Area wastewater treatment project. There may be economies of scale savings to be achieved by managing the Core Area and Peninsula biosolids together.

As an interim plan, the CRD will continue to haul a portion of the sludge to Hartland landfill. The CRD's Solid Waste Management Plan allows for the disposal of raw sludge at this site as a controlled waste.

**Amendment No. 4
to
Capital Regional District
Saanich Peninsula Liquid Waste Management Plan
As approved by the Minister on November 8, 1996**

SUBJECT: Chapter 4, Sections 4.6.10, 4.6.30 and 4.6.43

TYPE OF AMENDMENT: Capital Regional District-initiated

AMENDMENT: Amendment No. 4 repeals the commitments made in Chapter 4, Sections 4.6.10, 4.6.30 and 4.6.43 – Stormwater Quality and Surface Water Resources Program with the commitments described in Attachment A to this Amendment.

AMENDMENT APPROVALS:

Capital Regional District Board Approval this	14th	day of	October,	2009
Ministry of Environment Approval this	4th	day of	August,	2010

AMENDMENT NO. 4

Amendment No. 4 repeals the Section 4.6.10 which is as follows:

4.6 Stormwater Quality and Surface Water Resources Program

Further to the objectives, strategy and commitments contained in this document, the **District of Central Saanich** specifically has completed or is committed to:

10. adoption of a bylaw for the regulation and protection of natural water courses, ditches and drains;

Amendment No. 4 repeals the Section 4.6.30 which is as follows:

4.6 Stormwater Quality and Surface Water Resources Program

Further to the objectives, strategy and commitments contained in this document, the **District of North Saanich** specifically has completed or is committed to:

30. adoption of a stormwater management bylaw for the regulation and protection of natural water courses, ditches and drains;

Amendment No. 4 repeals the Section 4.6.43 which is as follows:

4.6 Stormwater Quality and Surface Water Resources Program

Further to the objectives, strategy and commitments contained in this document, the **Town of Sidney** specifically has completed or is committed to:

43. adoption of a stormwater management bylaw for the regulation and protection of natural water courses, ditches and drains;

Amendment No. 4 replaces Sections 4.6.10, 4.6.30 and 4.6.43 with new Section 4.6.2.1:

4.6. Stormwater Quality and Surface Water Resources Program

The **Capital Regional District** commits:

- 2.1 to the adoption of a stormwater management bylaw for the regulation of discharges to natural water courses, ditches and drains and protection of the watersheds and nearshore marine environment on behalf of the participating municipalities of Central Saanich, North Saanich and Sidney.

**Saanich Peninsula
Liquid Waste Management Plan
Consolidated Version**

1.0 STAGE 1 – SUMMARY

1.1 Need for Liquid Waste Management Plan

Sidney and Central Saanich are served by sewage treatment plants which have insufficient capacity to meet current and future needs. Both plants discharge sludge to the marine environment in contravention of their permits. Bazan Bay treatment plant, serving the Dean Park Estates area in North Saanich, has occasional permit violations and is expensive to operate. Cole Bay and Union Bay Indian Reserves have collection systems, but no treatment and disposal systems. Parts of North Saanich which are unsewered have problems with their in-ground disposal systems. In addition, there was a need to deal with questions such as source control of contaminants, inflow and infiltration reduction, stormwater and septage management.

1.2 CRD Board Decision to Prepare a Plan

After obtaining agreement from Central Saanich, North Saanich and Sidney councils, the CRD Board, at its meeting of 10 August 1994, unanimously passed a resolution to prepare a Liquid Waste Management Plan for the Saanich Peninsula.

1.3 Area Served by Plan

The Plan covers the municipalities of Central Saanich, North Saanich and Sidney, as well as all Indian Reserves on the Saanich Peninsula, as shown on Figure 1.1.

1.4 List of Stage 1 Documents with Summaries

**1.4.1 Saanich Peninsula Unified Treatment Study
by Kerr Wood Leidal Gore & Storrie Inc. - May 1992**

This major engineering report compared the cost of expanding and upgrading each of the existing plants on the Saanich Peninsula with the cost of providing one "unified" Saanich Peninsula sewage treatment plant to serve all communities. The main conclusion of this report was that it was more economical to "construct a unified plant at a site near Bazan Bay, west of the Patricia Bay Highway."

**1.4.2 Saanich Peninsula Treatment Plant Site Selection Report by Kerr Wood
Leidal Gore & Storrie Inc. - March 1994**

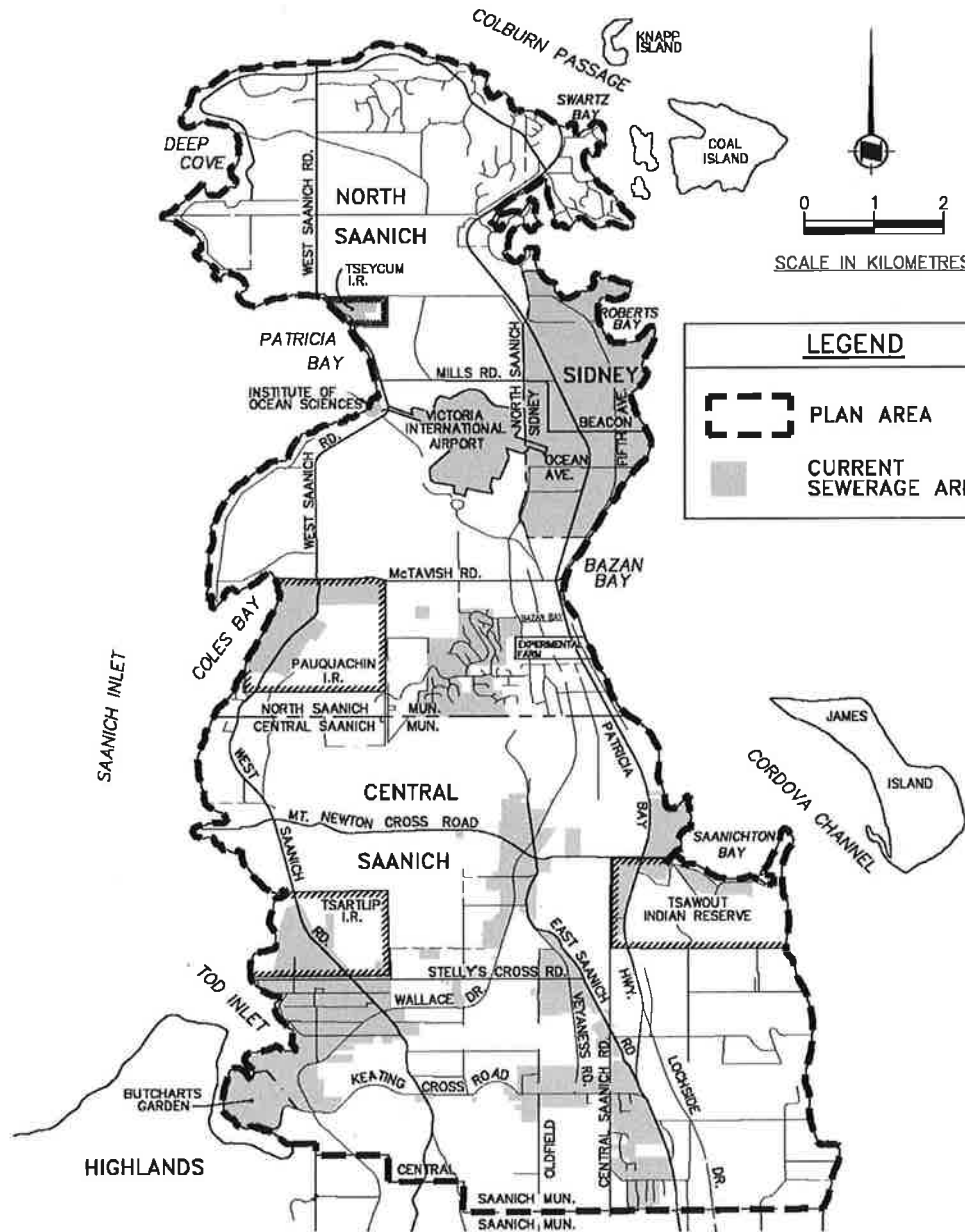
This report identified and assessed the suitability of 11 potential sites for the proposed Saanich Peninsula treatment plant. After the Steering committee and the peninsula municipal councils had short-listed these sites, the five preferred sites were evaluated in greater detail.

**1.4.3 Environmental and Social Site Assessment - Saanich Peninsula Treatment
Plant
by Westland Resource Group - April 1994**

This report evaluated the environmental and social impact of the five short-listed sites. The report found that, if a plant were located at two of the short-listed sites (sites 5/B and 9/E), there would be significant environmental and social impacts.

DATE FEB. 19, 1996

REPORT DWG. NO. 9500101



SAANICH PENINSULA
LIQUID WASTE MANAGEMENT PLAN
PLAN AREA

CAPITAL REGIONAL DISTRICT ENGINEERING ————— FIG. 1.1

1.4.4 Saanich Peninsula Treatment Plant - Report on Public Input Process by HSP Humanité Services Planning (BC) Ltd. - June 1994

This report describes the process used to obtain public input on the five short-listed sites and the findings of this process. The program included sending out 15,722 brochures to every household on the Saanich Peninsula with response coupons to be completed and returned. The brochures included notification of three open houses to be held at three Peninsula locations. 1,237 completed coupons were returned and 243 people attended the open houses. The responses indicated that environmental impact and cost were considered to be the most important factors in selecting a site. Impact on residences was judged to be next in importance. Neighbours of all five sites petitioned against the location of the plant in their neighbourhoods.

1.5 Site Selection Process

Based on the information provided in the reports listed in 1.4 above, the Steering committee, consisting of the mayors of North Saanich, Central Saanich and Sidney, selected Site D (formerly site 8), as the location for a Saanich Peninsula unified treatment plant. Site D is located immediately west of the Patricia Bay Highway and south of Bazan Bay Road. The Steering committee recommendation was subsequently endorsed by the councils of Central Saanich and Sidney and the Board of the Capital Regional District. North Saanich Council, in a tied vote, withheld support for Site D, but subsequently endorsed it by rezoning it to permit the construction of the proposed treatment plant.

1.6 Plan Committees

A Steering committee consisting of the three peninsula mayors directed the preparation of the plan.

The Steering committee was advised on technical matters by a Technical Advisory committee (TAC) consisting mainly of engineers from jurisdictions with an interest in the project. Advice on public involvement was provided by a Community Advisory committee (CAC) consisting of representatives of a cross section of peninsula communities.

1.7 Submission of Stage 1 to Ministry of Environment Lands and Parks

Stage 1 of the Saanich Peninsula Liquid Waste Management Plan was submitted to the Ministry of Environment, Lands and Parks on 10 November 1994.

1.8 Public Review of Stage 1 Submission

The general public on the Saanich Peninsula and the Community Advisory committee were provided with an opportunity to review and comment on the Stage 1 submission. Considerable public input and correspondence was received as a result of this process and this response was documented in two reports as follows:

- (i) Public Comment: Saanich Peninsula LWMP Draft Stage 1 Document, HSP Humanité Services Planning (BC) Ltd., December 13, 1994.
- (ii) Saanich Peninsula LWMP Community Advisory Committee Stage 1 Report, February 4, 1995.

1.9 Ministry of Environment, Lands and Parks Response to Stage 1

The ministry responded to Stage 1 of the plan in a letter dated 2 March 1995. The letter stated that:

"Your Stage 1 has focused on a set of options that were developed through several years of planning undertaken prior to commencing the LWMP process. The unified treatment plant and siting proposals outlined in your Stage 1 appear realistic and address many of the current concerns the Ministry has regarding the existing Saanich Peninsula Plants. Accordingly, Stage 1 of the Saanich Peninsula LWMP is approved."

2.0 STAGE 2 – SUMMARY

2.1 Terms of Reference for Stage 2

In the letter of 2 March 1995, referred to above, the ministry directed that the following issues be addressed in Stage 2:

- "(a) Septage and sludge treatment and disposal.
- (b) Wastewater reuse/recycle opportunities.
- (c) Biosolids reuse opportunities.
- (d) Source control, inflow and infiltration reduction, and stormwater management.
- (e) Sewage treatment requirements on the Saanich Peninsula for at least the next 20 years.
- (f) Liquid waste management in areas of the peninsula exhibiting health concerns due to failing on-site systems.
- (g) An outfall location and alignment must be confirmed. Information on bathymetry, current patterns, tidal information, plume modelling, marine resources, and assessment of the environmental impacts related to the proposed discharge plus other items as may be determined by the Technical Advisory Committee or the Marine Monitoring Advisory Group have to be considered.
- (h) Geotechnical and characterization studies on the site must be completed to determine the acceptability for siting a sewage treatment facility.
- (i) A rezoning process for the site must be completed.
- (j) Public/recreational use opportunities for the site should be explored. The benefits of such use may mitigate land use concerns."

The ministry also indicated that Stage 2 of the plan should provide additional opportunities for public input.

2.2 Stage 2 Reports

The following reports deal with the 10 issues listed in Section 2.1 above and were prepared and submitted to the public and the ministry as part of the Stage 2 submission:

2.2.1 Saanich Peninsula Liquid Waste Management Plan, Stage 2 Technical Design Memorandum, Wastewater Treatment and Transmission Systems by Kerr Wood Leidal Gore & Storrie Inc. - June 1995

This report provided the conceptual design for the trunk sewers, pumping stations, treatment plant and outfall to serve the Peninsula communities.

Sludge handling facilities were recommended based on the concept of applying biosolids to agricultural land.

An outfall location 1,750 metres east of the Bazan Bay shoreline, at 28 metres depth, was selected. It was recommended that receiving water monitoring for fecal coliform be carried out following construction to confirm that disinfection is not required.

2.2.2 Saanich Peninsula Treatment Plant - Separate Treatment Plant Options by Kerr Wood Leidal Gore & Storrie Inc. - July 1995

The costs of upgrading the three existing peninsula wastewater treatment plants were compared with the projected municipal shares for a single new "unified" plant. The analysis concluded that it is more cost effective for all three municipalities to participate in the new facility.

2.2.3 Report of Preliminary Geotechnical Investigation for the Proposed Saanich Peninsula Treatment Plant, Bazan Bay - Site D by B.H. Levelton and Associates Ltd., October 1994

This document presented the results of geotechnical investigations for construction of a wastewater treatment plant on Site D.

2.2.4 Saanich Peninsula Sewage Treatment Plant, Bazan Bay Road, Lot 3, Section 4, Range 3 East, North Saanich District, Plan 2453 - Environmental Site Profile by Payne Engineering Geology, December 1994

This document reported the results of Phase 1 environmental site assessment for Site D.

2.2.5 Saanich Peninsula Sewage Treatment Plant, Bazan Bay Road - Soil and Ground Water Sampling Results by Payne Engineering Geology, March 1995

This report described additional investigations of environmental conditions at Site D. The soil and groundwater conditions were judged to meet B.C. criteria for use of the site for a wastewater treatment facility.

2.2.6 Biosolids Application to Woodwynn Farm - Final Report to the Ministry of Environment for the period to December 31, 1994 by Brad Wagner EIT, Capital Regional District

This report provided details of biosolids applications to Woodwynn Farm for the period 1 June 1993 to 10 August 1994, and the results of monitoring of biosolids, soil, vegetation, and an adjacent stream. The results demonstrated that farmland application of biosolids is a practical and environmentally sound option for the use of biosolids on the Saanich Peninsula.

**2.2.7 Saanich Peninsula Treatment Plant Environmental and Social Impact Assessment
by Westland Resource Group, October 1995**

This report provides an assessment of the environmental and social impacts for the wastewater treatment plant and sewage conveyance facilities proposed by Kerr Wood Leidal Gore and Storrie Inc. in its technical design memorandum (Report 2.2.1 in this section).

**2.2.8 Saanich Peninsula - Stage 2 LWMP - Stormwater Quality and Surface Water Resources Management
by T&E Consultants Inc., April 1995**

T&E Consultants Inc. was commissioned to prepare a draft proposal for the stormwater chapter of the Stage 2 plan for consideration by the CRD and participating municipalities.

**2.2.9 Saanich Peninsula Unified Treatment Plant Wastewater Outfall: A Review, Documentation and Assessment of Existing Receiving Environment and Public Use Information
by Seaconsult Marine Research Ltd., November 1995**

This report discusses the availability of oceanographic, biological and public use information that is pertinent to the location of a wastewater effluent outfall in the area to the east of Bazan Bay. The available information was assessed in terms of its suitability for outfall design and data gaps were identified.

2.2.10 Update and Review of On-Site Sewage Failures for North and Central Saanich by Christine Bender and Erwin Dyck, CRD Health Department, January 1996

Information about on-site sewage system failures in North Saanich and Central Saanich over the last ten years was reviewed and the locations of failures were plotted. Data from previous reports was used for the period 1985 to 1990. Information for the period 1990 to 1995 was obtained from the records of the CRD Health department permit process. Failure rates of 54% and 48% over the ten year period were reported for the Deep Cove and southeast quadrant areas of North Saanich, respectively. Central Saanich did not have any significant clustering of failures.

**2.2.11 Saanich Peninsula Liquid Waste Management Plan - Septage Receiving and Disposal Options
by Kerr Wood Leidal and Associates Ltd., October 1995**

This report is a companion report to a feasibility study for a new regional septage receiving facility in the Colwood area. The feasibility of establishing a separate septage facility to serve the Saanich Peninsula communities was evaluated.

2.2.12 Saanich Peninsula Liquid Waste Management Plan - Options of Septage Receiving and Disposal at the Proposed Treatment Plant by Kerr Wood Leidal and Associates Ltd., February 1996

The report looked at the cost of receiving and treating septage at the peninsula plant. It was concluded that economic factors favour the construction of only one septage facility located in the Western Communities.

2.2.13 Saanich Peninsula Unified Treatment Plant Wastewater Outfall: Assessment of Receiving Environmental Impacts by Seaconsult Marine Research Ltd., February 1996

Seaconsult Marine Research Ltd. was commissioned to investigate the impacts of effluent from the proposed Saanich Peninsula treatment plant on biological resources and public uses of the surrounding waters. The study used the outfall location and design configuration selected by Kerr Wood Leidal Gore and Storrie Inc. in its June 1995 design memorandum (Stage 2, Report 2.2.1 above).

Under the heading **bacterial contamination**, the study concluded:

"Under all discharge conditions, including peak winter flows, the swimming standard of 200 MPN/100 mL (geometric mean) is achieved within 100 m of the location. The shellfish criterion of 14 MPN/100 mL is achieved within 500 m of the diffuser. Disinfection of the wastewater is not required to meet Provincial water quality criteria within the initial mixing zone, nor to provide protection of biological resources that may be exposed to the dispersed wastewater."

For **nutrient impacts**, it was concluded that "the incremental impacts from the effluent will be insignificant."

With respect to dissolved oxygen in the receiving waters, it was concluded that "plant BOD can have no significant impact on the receiving water."

2.2.14 Saanich Peninsula Liquid Waste Management Plan Stage 2 by Capital Regional District, May 1996

This Liquid Waste Management Plan document outlines the plans of the Capital Regional District, its participating member municipalities and First Nations for carrying out a program of management of liquid wastes from communities within the plan area. The Stage 2 document includes specific commitments to actions designed to protect the environment and human health from the impacts of liquid wastes generated as a result of human occupation and development.

Commitments are made for the following subject areas:

- (i) source control
- (ii) reduction of inflow and infiltration to sanitary sewers
- (iii) receiving water quality objectives and monitoring
- (iv) stormwater management
- (v) water conservation and wastewater recycling
- (vi) wastewater treatment and disposal

The document also provides information on population projections and waste quantities, a description of the current status of liquid waste facilities, and an outline of the opportunities provided for public involvement during the preparation of Stage 2 of the plan. These opportunities included 33 meetings of the Community Advisory committee at which opportunities for public participation were provided and an open house on the draft Stage 2 document.

2.2.15 Community Advisory Committee - Stage 2 Report March 1996

The main conclusions and recommendations of this report were as follows:

"While there is scope for improvements, the Stage 2 process has been adequate and has provided adequate opportunities for public involvement. Most issues which have been raised during the public process have been addressed. There is a need to continue with and to complete the LWMP process. However, some significant outstanding issues from earlier stages remain to be resolved. The majority of the CAC members felt that the following issues must be adequately addressed before the completion of the LWMP:

- (i) *The need for a permanent alternate access remains a very high priority and critical to the acceptance of the Unified Treatment Plant (UTP) by the surrounding neighbourhood. The CRD and the municipalities should continue to vigorously pursue all possible options,*
- (ii) *There is a public expectation that confirmation of the suitability of the marine outfall location and design would be provided in Stage Two. This matter was referred to an independent body of expert advisors, the Marine Monitoring Advisory Group (MMAG). Although MMAG appears to be satisfied with this issue, the MMAG has not yet given a final recommendation on the location and design; and,*
- (iii) *It is critical that the LWMP include a commitment to resolving problems associated with areas of failing on-site sewage treatment disposal in North Saanich within a reasonable time frame (3 to 5 years)."*

2.2.16 Marine Monitoring Advisory Group Consensus on Outfall Impact March 1996

At its meeting of 11 March 1996, the Marine Monitoring Advisory Group (MMAG) reviewed the draft report *Saanich Peninsula Treatment Plant Wastewater Outfall. Assessment of Receiving Environment Impacts*, by Seaconsult Marine Research, February 1996.

The MMAG reached the following consensus regarding the effects on receiving environment water quality of the discharge of secondary treated wastewater at the proposed Saanich Peninsula treatment plant outfall location in Bazan Bay (Kerr Wood Leidal Gore and Storrie, 1995):

- Effluent Biological Oxygen Demand - will not significantly affect oxygen levels in the receiving environment because natural levels are high
- Effluent Nutrients - are unlikely to significantly alter phytoplankton populations because effluent contributions will be small relative to natural levels and natural variability
- Effluent Chemical Contaminants - are not of concern in the water column because their levels will be low in the effluent; there remains uncertainty regarding the importance of long term accumulation of contaminants in sediments, which highlights the need for an effective source control program
- Effluent Fecal Coliform with Proper Disinfection - are not of concern because levels will be low in effluent
- Effluent Fecal Coliform without Disinfection - uncertainty remains about whether receiving environment guidelines would be met

**2.2.17 Memorandum on Saanich Peninsula Treatment Plant Outfall - Assessment of Receiving Environment Impacts
by R. Stanwick and L. Potter, April 1996**

After reviewing the Seaconsult report (Section 2.2.13 above), Dr. R. Stanwick, CRD Regional Medical Health Officer and Mr. L. Potter, CRD Director of Health Protection and Environment, stated the following in a memorandum dated 15 April 1996:

"We have now completed a review of the March 1996 report on the above noted subject. Based on the information supplied, it appears that the treated wastewater discharge will meet the required standards. However, we are of the opinion that some provision should be made for future disinfection of the wastewater should the actual values vary from the modelling values and present a potential risk to public health.

Therefore, we would recommend the following:

- (i) That the wastewater plant operate at a secondary treatment level for a trial period for which the time is yet to be determined.
- (ii) That provisions be made for disinfection, if ultimately required.
- (iii) That during the trial period, CRD Engineering regularly report and review the wastewater treatment plant and outfall operation with the Medical Health Officer to ensure on-going compliance with Health Department

2.2.18 Report on Response to the Stage 2 Report by HSP Humanité Services Planning (BC) Ltd., May 1996

A total of 66 responses were received. The most frequently mentioned topics were:

- The plant is overdue / can't wait any longer
- Health concern is a good reason to proceed
- Concern for the environment is a good reason to proceed

After receiving this report, the CAC concluded that no substantive new issues were raised by the public that had not been previously considered in the planning process.

2.3 Response of Plan Proponents to Stage 2 Issues

The Stage 2 issues that the ministry directed be addressed were responded to as follows (the pages and chapters referred to are from the Stage 2 document - Section 2.2.14 above):

- | | |
|-----------|---|
| Issue 1: | <i>Septage and sludge treatment and disposal</i> |
| Response: | This issue was addressed in reports 2.2.11 and 2.2.12 above. It was concluded that septage generated on the Saanich Peninsula should be treated by 1998 at a site that has been identified in Colwood. |
| Issue 2: | <i>Wastewater reuse/recycle opportunities</i> |
| Response: | This issue has been addressed in Chapter 10 of the Stage 2 document. |
| Issue 3: | <i>Biosolids reuse opportunities</i> |
| Response: | During Stage 2, it was concluded, as indicated in Chapter 9, that "the CRD will be able to produce a high quality pasteurized product that can be used to fertilize farm land or forest land, and sold or given away for unrestricted use by the public." |
| Issue 4: | <i>Source control, inflow & infiltration reduction, and stormwater management</i> |
| Response: | Source control is addressed in Chapter 6 and a regional Sewer Use Bylaw has already been passed by the CRD Board. Chapter 7 addresses the question of inflow and infiltration reduction and Chapter 11 deals with the question of stormwater management. |
| Issue 5: | <i>Sewage treatment requirements on the Saanich Peninsula for at least the next 20 years</i> |
| Response: | This issue is addressed in Chapter 9. The outfall, pipelines, pump stations will be designed to have sufficient capacity for the ultimate peninsula population and the treatment plant will be designed to have sufficient capacity until 2012 at which time a second module will be added if required. |

- Issue 6: *Liquid Waste Management in areas of the peninsula exhibiting health concerns due to failing on-site systems*
 Response: This issue was addressed in Report 2.2.10 above, prepared by CRD Health. North Saanich council is now actively addressing this issue.
- Issue 7: *An outfall location and alignment must be confirmed. Information on bathymetry, current patterns, tidal information, plume modelling, marine resources, an assessment of the environmental impacts related to the proposed discharge plus other items as may be determined by the Technical Advisory committee or the Marine Monitoring Advisory group have to be considered.*
 Response: The outfall location and alignment has been confirmed in reports 2.2.1 and 2.2.13 above. The other items referred to under Issue 7 were addressed in the Report 2.2.13. The Technical Advisory committee and the Marine Monitoring Advisory group concurred with the consultant's recommendations regarding the outfall location.
- Issue 8: *Geotechnical and characterization studies on the site must be completed to determine the acceptability for siting a sewage treatment facility.*
 Response: Reports 2.2.3, 2.2.4 and 2.2.5 address this issue. It was concluded that the selected site would be suitable for the proposed treatment plant.
- Issue 9: *A rezoning process for the site must be completed.*
 Response: The treatment plant site has been rezoned and purchased.
- Issue 10: *Public/recreational use opportunities for the site should be explored. The benefits of such use may mitigate land use concerns.*
 Response: This issue was addressed with the plant's neighbours. It is the preference of the neighbours to leave the portion of the property to the west of the treatment plant site in its natural state.

2.4 Public Review of Stage 2

The Stage 2 public process included an open house, 33 meetings of the Community Advisory committee at which the public were able to participate, and a 30 day opportunity for the public to comment on the Stage 2 submission.

2.5 Submission of Stage 2 to Ministry

Stage 2 of the Saanich Peninsula Liquid Waste Management Plan was submitted to the Ministry of Environment, Lands and Parks on 14 May 1996.

2.6 Response of Ministry to Stage 2

The ministry responded to the Stage 2 submission in a letter dated 31 July 1996. The letter states, "Your stage 2 has focused on a set of options that were developed through several years of planning and were confirmed in stage 1. The ... terms of reference have been addressed in stage 2 to the ministry's expectations" and, "Stage 2 of the Saanich Peninsula LWMP is approved and the CRD should now proceed with stage 3 of the planning process."

3.0 STAGE 3 – SUMMARY

3.1 Terms of Reference for Stage 3

In the letter dated 31 July 1996, referred to above, the ministry directed that the following issues be addressed in Stage 3.

- (1) A receiving monitoring program shall be developed that will confirm the modelling completed for the discharge and determine future upgrading needs, including the need for disinfection of the discharge. The First Nations, Technical Advisory Committee, and the Marine Monitoring Advisory Group should be consulted during the development of the program.
- (2) Permanent solutions with firm commitments with acceptable time lines must be developed for the areas in North Saanich that are exhibiting on-site sewage disposal problems.
- (3) An operational certificate for the sewage treatment facility must be prepared and made available for public review.
- (4) A stormwater management strategy must be developed and adopted by the three municipalities."

On other issues the ministry states:

"As you are aware, the ministry supports a LWMP that would result in consolidation of the treatment plants on the peninsula to a single unified plant and outfall. Recent indications are that the Central Saanich plant may remain in operation under First Nations ownership to serve the Tsawout Band interests, that BC Ferry Corporation, due to servicing implications, may wish to retain a separate treatment facility to serve their needs at least on an interim basis, and there were discussions about upgrading the Bazan Bay Sewage Treatment Plant and allowing it to continue operating. Should one of the first two facilities continue to operate it must be identified in your plan and be capable of producing an effluent quality at least equivalent to the discharge from the unified treatment plant, which includes sludge management facilities and a receiving environment monitoring program for each discharge. Based on the results of the monitoring programs, it may be necessary to realign and/or extend the outfalls for these discharges or increase the level of treatment if the plants are to remain in operation over the longer term. BC Ferry Corporation and the Tsawout Band should be aware of these implications when considering their options and strategy. For the Bazan Bay plant, it is our position that we could not support this plant operating in such close proximity to the proposed unified treatment plant once this plant is operational, since this would conflict with the basic premise of the plan, which was to minimize costs for the residents of the peninsula while protecting the environment. It is also inconsistent with the decisions made in the planning process to date."

3.2 Response of Plan Proponents to Stage 3 Issues

- Issue 1: *A receiving monitoring program shall be developed that will confirm the modelling completed for the discharge and determine future upgrading needs, including the need for disinfection of the discharge. The First Nations, Technical Advisory committee, and the Marine Monitoring Advisory group should be consulted during the development of the program.*
- Response: A receiving monitoring program was developed and is included in Section 4.3 of the plan. The First Nations, the Technical Advisory committee, and the Marine Monitoring Advisory group were consulted during the development of the program.
- Issue 2: *Permanent solutions with firm commitments with acceptable timelines must be developed for the areas in North Saanich that are exhibiting on-site sewage disposal problems.*
- Response: This issue was addressed by North Saanich council in a number of resolutions which are contained in section 4.7 of the plan.
- Issue 3: *An operational certificate for the sewage treatment facility must be prepared and made available for public review.*
- Response: An operational certificate was prepared and is part of the plan document. It was reviewed by the public at an open house on 26 September 1996.
- Issue 4: *A stormwater management strategy must be developed and adopted by the three municipalities.*
- Response: A stormwater management strategy was developed by the CRD and the three municipalities and is adopted by these jurisdictions as part of this plan.

3.3 Public Review of Stage 3

- 3.3.1** Some significant resolutions passed by the Community Advisory committee on 10 September 1996 at the end of the plan preparation process are as follows:
- That the CAC considers that the liquid waste management planning process has been adequate and that there have been adequate opportunities for public participation throughout the process.
 - That the two year LWMP process has resulted in significant improvements to the original plans for the UTP and that there is an increasing need to implement the solutions proposed in the LWMP.
 - That the CAC recommends that the minister of environment, lands and parks endorse the LWMP subject to appropriate conditions and with follow-up by the minister to ensure that the plan is implemented appropriately and expeditiously.
- 3.3.2** The following is a summary of the Stage 3 open house which took place on September 26, 1996:

As a conclusion to the preparation of the LWMP and operating certificate, a public presentation/open house was held at the Sanscha Hall Annex from 3 p.m. to 9 p.m. on September 26, 1996.

Advertisements were placed in the two local newspapers, the Beachcomber on September 18 and 25, and the Peninsula News Review on September 18. Residents were invited to view the displays and express their views on any aspect of the LWMP and the operating certificate.

Sixty-nine residents attended. Each was given a questionnaire which provided an opportunity for commenting on the LWMP and on any LWMP-related topics. Forty-one respondents (59.4% of those attending) completed the questionnaire. Completed questionnaires were kept in a ballot box until the next day.

Thirty-eight respondents (92.7%) indicated their community of residence. These are as follows:

North Saanich	22	(53.7%)
Central Saanich	3	(7.3%)
Sidney	10	(24.4%)
Indian Reserve	0*	
Other	3**	

* A separate meeting was held on October 7 with First Nations representatives to conclude LWMP discussions.

** Two of these were from Saanich, the other did not indicate a community.

Of the 41 respondents, 33 (80.5%) answered "yes" to the question: Do you generally agree with the commitments and objectives of the Saanich Peninsula LWMP? Four respondents (9.8%) answered "no" and 3 (7.6%) were undecided. This indicates a strong level of support for the plan as presented at the open house.

Twenty-seven respondents (65.9%) indicated that they had received adequate information, compared to 6 (14.6%) who said they had not. Twelve (29.3%) other respondents did not answer this question.

A majority of 32 (78%) said that they wished to be advised about the LWMP implementation. Only three respondents said "no". Twenty-three respondents suggested the communication medium which best suited them, all of which have been employed during the planning process (with the exception of sending information to schools).

Overall, comments were positive and supportive of the LWMP and the planning process. Analysis of the responses shows that the public's interests have shifted from topics raised in previous open houses, and the plan received many enthusiastic expressions of support. Thirteen respondents (31.7%) offered written support with such comments as "good planning" and "good stuff".

No new issues or topics were revealed. Although a few respondents alleged that, for example, the LWMP "uses out-of-date technology", or "there should not be an outfall", none of the critical comments reveal a substantiated deficiency in the plan. It is clear that, for a few, there is no limit to what constitutes public input. Although two respondents believed that the public has not been involved, and another stated that the public "has lost confidence in the (political) process", the vast majority of written comments expressed strong support for the plan generally.

Beyond the positive comments previously mentioned, two respondents stated that there has been too much attention paid to either public input or an individual's opinions. Four respondents stressed that the plant is overdue; seven respondents expressed additional personal comments of support for the treatment plant or the LWMP; one urged full cooperation between the three municipalities on the peninsula to solve our pollution problems; and two respondents specifically complimented the use of sludge on agricultural land.

The questionnaire, raw scores and respondents' written comments have been documented in a report prepared by Humanité Services Planning (B.C.) Ltd.

4.0 COMMITMENTS, MISSION STATEMENTS, DEFINITIONS AND OBJECTIVES

4.1 Source Control Program

Commitments

The Capital Regional District is committed to the following:

- Development of a program to control non-domestic waste discharges to sanitary sewer systems on the Saanich Peninsula. Source control on the Saanich Peninsula will be part of the overall CRD Source Control program which is scheduled to be phased in over the period 1993 - 1998.
- Implementation of the waste discharge permit system described in the CRD's Sewer Use Bylaw No. 1, 1994, to control non-domestic discharges to the sanitary sewer system from "point sources" which contribute high volumes of wastewater or high loadings of contaminants.
- Preparation of industry-specific "codes of practice" to control non-domestic discharges from the main groups of smaller, collectively significant, sources of contaminants known as "area sources".
- Development of monitoring and enforcement strategies to ensure compliance with permits and codes.
- Preparation and distribution of source control information and education materials for non-domestic sources.
- Continuing liaison with representatives from key industries, commercial businesses, institutions and government agencies regarding source control issues.

- Preparation and submission of an annual report, summarizing all components of the program, to the CRD Board and the Ministry of Environment, Lands and Parks (MELP). The entire program will be reviewed every five years.
- Recovery of a portion of the costs for administration, monitoring and enforcement of the program through user fees.

Source Control Mission Statement

"To reduce the quantities of chemical contaminants being discharged into sanitary sewers and storm drains throughout the CRD in order to protect the receiving environment, public health and collection and treatment systems from significant detrimental effects."

Objectives of Source Control Program

The objectives of the CRD's Source Control program are:

1. To ensure that the CRD's guidelines for marine sediment quality and water quality are not exceeded in the receiving environment adjacent to the CRD's sewage outfalls.
2. To minimize toxicity related to chemical contaminants in effluent and in the receiving environment adjacent to the CRD's sewage outfalls.
3. To protect sewerage facilities belonging to the CRD and its member municipalities against corrosion, blockage and other harmful effects related to the presence of chemical contaminants in wastewater.
4. To ensure that the health and safety of sewage workers and the general public is not put at risk due to the presence of chemical contaminants in wastewater.
5. To protect the quality of sewage sludge (biosolids) in order to allow the full range of options for its beneficial use.
6. To protect treatment plants against upset due to inhibition of treatment processes by high chemical contaminant loadings.
7. To ensure fair and balanced use of the district's sewerage facilities through education, regulation, enforcement, and the application of the "user pay" principle.
8. To promote responsible pollution prevention practices including reduction, reuse, recycling, recovery and residuals management.

Specific goals associated with some of these objectives were identified in 1993 using information from "core area" source sampling programs, the CRD's contaminants database and long-term results of source control initiatives in other jurisdictions. These goals have been modified for the Saanich Peninsula to suit the existing and planned treatment level for the area. The goals, predominantly set for the year 2003 are outlined in Table 4.1.

TABLE 4.1
SOURCE CONTROL PROGRAM OBJECTIVES AND GOALS FOR THE YEAR 2000

OBJECTIVE	GOAL
Protection of the Receiving Environment	To maintain or reduce effluent contaminant loadings to the receiving environment (continued industrial, commercial and institutional growth is anticipated for the Saanich Peninsula). ^{1,2}
Protection of Sewerage Works	To reduce blockage and corrosion of sewers and "blinding" of treatment plant screens.
Protection of Public Health	To meet WCB standards for ambient air levels of volatile organic compounds (VOC's) discharged from sewerage works. ²
Protection of Sewage Sludge Quality	To meet B.C. guidelines for high grade agricultural and retail high grade sludge by 1999. ²
Protection of Treatment Processes	To eliminate plant upsets due to inhibition of treatment processes by high contaminant loadings. ²
Notes:	1. Effluent contaminant loadings will be compared to 1996 levels calculated for Sidney and Central Saanich treatment plants. 2. Ongoing influent, effluent and biosolids trend analysis will be used to identify contaminants of concern.

4.2 Reduction of Inflow and Infiltration to Sanitary Sewers

Commitments

The Capital Regional District (CRD) and its participating member municipalities, namely the districts of Central Saanich and North Saanich, and the Town of Sidney, and those federal jurisdictions located on the Saanich Peninsula, namely the Tseycum, Pauquachin, Tsartlip and Tsawout Indian Bands, the Department of Transport and the Department of Fisheries and Oceans commit:

- To develop and carry out a detailed program for identification and sources and quantity of inflow and infiltration (I & I) by the end of 1999.
- To develop guidelines for use by the member municipalities and federal jurisdictions to prioritize areas within which rehabilitation works are warranted and cost effective.
- To provide additional funds for I & I reduction that are either economically or environmentally justified by avoidance of future costs to convey, treat and dispose of I & I, or by protecting effluent quality.
- Where rehabilitation works for I & I reduction are undertaken, to measure flows before and after carrying out such works, to document I & I expenditures and achievements, and to use this information to refine cost benefit curves developed to optimize expenditures.
- To standardize and pass appropriate bylaws, or amendments to bylaws, in each municipality or jurisdiction to reduce or eliminate the incidence of stormwater connections to the sanitary sewer system.

- That in areas of high infiltration, to address concerns of exfiltration from the systems to groundwater.
- That the CRD, as an aspect of operating the wastewater treatment plant, shall monitor flows from the participants and shall advise of the need for investigation of I & I problems.

Definitions:

Inflow

Inflow is rainwater which enters into the sanitary sewer systems through directly connected sources such as roof rainwater leaders, yard drains, catch basins, basement sump pumps or manhole lids or covers lying below grade.

Infiltration

Infiltration is groundwater which enters into cracks, joints or other defects in the sewer system. *Groundwater infiltration* refers to the movement of groundwater into the system where the sewer lies in a saturated zone. *Rainfall induced infiltration* is the seepage of rainwater through permeable soil into the sewer system.

Objectives of Inflow and Infiltration Reduction Program

The objective of the program is to evaluate and quantify I & I within each municipality or federal jurisdiction and, where required, to reduce I & I to levels that minimize total conveyance, treatment and disposal system costs, coincident with reduction of I & I induced overflows to acceptable levels, in accordance with guidelines contained in the (proposed) provincial *municipal sewage discharge criteria* and with those developed under this program.

The CRD, participating member municipalities and federal jurisdictions will achieve this objective by adopting programs to determine the nature and extent of I & I and to determine the expenditure on I & I that is economically justified by avoidance of increased costs to convey and treat the additional I & I. A preliminary implementation plan will be developed and its impact on overflows of wastewater to the environment will be assessed, as well as agreement of the plan with guidelines contained in the *municipal sewage discharge criteria*. A final implementation plan will be prepared for implementation by the municipalities, federal interests and the CRD.

4.3 Wastewater and Marine Assessment Program

Commitments

The Capital Regional District (CRD) and its participating member municipalities, namely the districts of Central Saanich, North Saanich and the Town of Sidney, commit to supply an appropriate level of wastewater treatment and outfall design/siting, to provide receiving environment and human health protection, both now and in the future, by developing and carrying out a pre- and post-discharge wastewater and marine assessment program and a long term pre- and post-discharge program.

Pre- and Post-Discharge Program

Objectives

The objectives of the pre- and post-discharge assessment program are to:

- evaluate the need for disinfection of wastewater discharged through the peninsula treatment plant outfall
- identify the components of the marine environment affected by the discharge of wastewater, provide information for the design of a long-term monitoring program for the peninsula treatment plant outfall

Program to Assess the Need for Disinfection

A pre- and post-discharge assessment program will be carried out by the CRD to evaluate the need for disinfection of the Saanich Peninsula treatment plant (SPTP) wastewater. The assessment program will run for a minimum of one year following the commencement of wastewater discharge. The pre-discharge program will be designed to define shoreline and offshore conditions prior to the operation of the SPTP outfall. Surface fecal coliform concentrations in the vicinity of the SPTP wastewater discharge will be measured.

The details of the assessment program (e.g., station locations and sampling frequency) will be developed in consultation with the Marine Monitoring Advisory group (MMAG), CRD Health and First Nations. A long-term monitoring program will be developed following the evaluation of the results of the pre- and post-discharge assessment program. The assessment program will be available for review and comment by the Technical Advisory committee (TAC) and the public.

Post-discharge results will be reviewed by CRD Engineering, the Marine Monitoring Advisory Group and the CRD Health department, and copies of the results will be provided to the three peninsula municipalities. To ensure a timely response, CRD Engineering will review results immediately following sample analysis (not more than 10 days following sample collection). Initially, the MMAG and CRD Health review schedule will be monthly. If results indicate that receiving waters are in compliance with water quality guidelines, the review schedule will change to quarterly until program completion. Results will be evaluated to determine if the primary contact recreation water quality guideline is being met in surface waters and the shellfish guideline in shellfish growing areas.

The need for disinfection of SPTP wastewater will be determined by a multi-agency panel, the Water Quality Review Panel. This panel will be made up of representatives from CRD Health, First Nations, the Ministry of Environment, Lands and Parks, Environment Canada, the Department of Fisheries and Oceans and CRD Engineering. The chair of the MMAG will attend review panel meetings as a technical advisor to CRD Engineering.

Program to Assess Environmental Impacts

The design of a monitoring program for the SPTP will require information on the components of the receiving environment most likely to be affected by the wastewater discharge. To identify these components, a pre- and post-discharge assessment program will be carried out. The assessment will collect data on the parameters listed in Table 4.3. The details of this program will be developed in consultation with the MMAG (e.g., station locations, sampling frequency, program duration). Following the completion of the pre- and post-discharge assessment program, a long-term monitoring program will be designed in consultation with the MMAG.

**TABLE 4.3
PARAMETERS TO BE EXAMINED IN THE
PRE- AND POST-DISCHARGE INVESTIGATIONS**

Water Column	Fecal Coliforms Nutrients Temperature, Salinity, Oxygen
Sediments	Chemistry
Biota	Benthic Communities Shellfish Tissue Bacteria Chemicals
Effluent ¹	Flow, TSS, BOD, NH ₄ , NO ₃ , NO ₂ , TKN, Fecal Coliforms, Selected Priority Pollutants, pH, Toxicity
¹ Effluent will only be examined post-discharge, as it will not be available until this time.	

Long Term Monitoring Program

The objectives of the long-term monitoring program are to:

1. assess the effects of the wastewater discharge on the marine environment and human health risk;
2. detect temporal changes in the effects of the wastewater discharge on the marine environment and human health risk;
3. determine waste loads;
4. supply information to the CRD's Source Control program;
5. provide scientific guidance to wastewater managers regarding the use of the marine environment for the disposal of municipal wastewater.

4.4 Wastewater Treatment and Disposal

Commitments

1. Wastewater Treatment

The CRD and its participating member municipalities commit to:

- a. provision of a wastewater treatment and disposal system that is protective of human health and the environment;
- b. provision of a wastewater treatment facility on land that has been purchased and rezoned by the CRD at a location immediately to the southwest of the junction of Bazan Bay Road and the Patricia Bay Highway in North Saanich and which is legally described as Lot A, Section 4, Range 3 east, North Saanich District, Plan VIP59835, parcel identifier 018-957-749;
- c. provision of a wastewater treatment facility that is designed, constructed and operated to have less than significant impacts on the neighbourhood;
- d. provision of a wastewater treatment facility that is sized for projected flows to the year 2012, that may be readily expanded to accommodate projected flows for the next 20 years, and beyond, and that will:
 - treat average daily flow up to 2.0 times average dry weather flow to achieve biochemical oxygen demand (BOD) and total suspended solids (TSS) levels equal to or better than 45 mg/l;
 - treat the remainder of the flow to achieve BOD and TSS levels equal to or better than 130 mg/L;
- e. design of the wastewater treatment facility to facilitate conversion to wastewater recycling, when future circumstances make it appropriate.

2. Effluent Disposal

The Capital Regional District and its participating member municipalities commit to:

- a. disposal of wastewater to the marine environment in an area east of the Bazan Bay shoreline and north of James Island, at a location that will achieve a high level of initial and secondary dilution;
- b. design of the outfall diffuser to maximize initial dilution;
- c. disinfection of the effluent if the receiving environment monitoring program indicates that human health will not be protected in accordance with provincial standards, or if shellfish growing areas are not protected in accordance with federal standards.

3. **Residuals Management**

Section 4.4.3 repealed by Amendment No. 3, 2009 to the Saanich Peninsula Liquid Waste Management Plan

4. **Liquid Waste Management in Areas Outside of Sewerage Areas**

Section 4.4.4 repealed by Amendment No. 2, 2005 to the Saanich Peninsula Liquid Waste Management Plan

4.5 Water Conservation and Wastewater Recycling

Commitments

The Capital Regional District and the participating member municipalities commit to:

1. encouraging and promoting the conservation of water in partnership with the Greater Victoria Water District and the peninsula municipalities;
2. consulting the farming community and other groups with a need for irrigation water on the Saanich Peninsula to determine their interest in using reclaimed effluent from the proposed plant, on the understanding that the users would pay for the additional treatment, transmission and storage costs;
3. designing the peninsula treatment plant to facilitate the conversion to wastewater recycling, when future circumstances make it appropriate;
4. availing of opportunities as they arise for increasing water conservation and wastewater recycling.

4.6 Stormwater Quality and Surface Water Resources Program

Commitments

The **Capital Regional District** commits:

1. to plan, promote and coordinate a program for management of stormwater quality and surface water resources in cooperation and consultation with the participating municipalities of Central Saanich, North Saanich and Sidney, and other Saanich Peninsula communities and local governments to:
 - a. limit the impacts of stormwater runoff on the environment and public health and well being;
 - b. protect freshwater and near-shore marine ecosystems and resources.
2. to promote education about water quality issues and to develop educational materials;
- 2.1 **Section 4.6.2.1 added by Amendment No. 4, 2010 to the Saanich Peninsula Liquid Waste Management Plan**

The **participating municipalities** commit:

3. to act on priorities within their jurisdiction to protect stormwater quality, the physical environment and aquatic habitat, and to reduce the levels of contaminants in stormwater discharges to accepted government standards in watercourses and near-shore marine areas;
4. to use resources available to municipal governments to achieve these reductions;
5. to amend bylaws, as necessary, to ensure that new development takes place in accordance with appropriate best management practices.

Further to the objectives, strategy and commitments contained in this document, the **District of Central Saanich** specifically has completed or is committed to:

6. preparation of a master drainage plan for the Hagan Creek watershed;
7. ongoing monitoring of water quality in Hagan/Graham creeks;
8. cooperation with Environment Canada to monitor flows in the Hagan Creek watershed;
9. maintenance and monitoring of rainfall recording stations to generate data for coordination of rainfall data with storm flows in sewers and drains;
10. **Repealed by Amendment No. 4, 2010 to the Saanich Peninsula Liquid Waste Management Plan**
11. adoption of a development cost charge bylaw to generate funds for drainage channel improvements;
12. revision of its stream setback bylaw to reflect Ministry of Environment concerns;
13. a requirement for the provision of oil/water separators for stormwater runoff from paved areas associated with commercial and industrial properties;
14. conducting smoke tests, as required, to identify improper connections and correction of problems;
15. regular surveillance and maintenance of storm drain systems, including video inspections;
16. encouraging and permitting systems to promote ground water recharge on lots with estate residential and agricultural zoning;
17. use of stormwater retention systems and biofiltration swales in new rural and semi-rural subdivisions;
18. establishment of design criteria for stormwater retention ponds;
19. consideration of establishing flood plain elevations for the Hagan Creek drainage basin;

- 20. working towards understanding the needs of agriculture and habitat in stormwater management;
- 21. immediate action on spills;
- 22. a regular street sweeping program to reduce the introduction of street litter and contaminants into waterways;
- 23. a regular catch basin cleaning program to ensure that catch basins effectively intercept and retain street litter and contaminants.

Further to the objectives, strategy and commitments contained in this document, the **District of North Saanich** specifically has completed or is committed to:

- 24. updating the District of North Saanich master drainage plan;
- 25. working cooperatively with the Town of Sidney, Department of Fisheries and Oceans and volunteer groups on the creek salmon enhancement projects;
- 26. working cooperatively with the Tseycum Band to resolve stormwater runoff problems associated with Tseycum Creek and its tributaries;
- 27. immediate action on spills;
- 28. a regular catch basin cleaning program;
- 29. the provision of oil/water separators for stormwater runoff from paved areas associated with commercial, industrial and institutional properties;
- 30. **Repealed by Amendment No. 4, 2010 to the Saanich Peninsula Liquid Waste Management Plan**
- 31. regular inspection and maintenance of the storm drainage system;
- 32. working towards understanding the needs of agriculture and habitat in stormwater management.

Further to the objectives, strategy and commitments contained in this document, the **Town of Sidney** specifically has completed or is committed to:

- 33. work cooperatively with Sidney's Environmental Advisory committee on environmental matters;
- 34. work cooperatively with the District of North Saanich, Department of Fisheries and Oceans and volunteer groups on the Reay Creek Salmon Enhancement project;
- 35. immediate action on spills;
- 36. a regular street sweeping program to reduce the introduction of street litter and contaminants into waterways;

37. a regular catch basin cleaning program to ensure that catch basins effectively intercept and retain street litter and contaminants;
38. provision of "sur traps" in catch basins in sensitive areas to reduce the discharge of petroleum oils to surface waters;
39. completion of a \$1.5 million sewer rehabilitation program designed to reduce the amount of inflow and infiltration to sanitary sewers and the related incidence of sewage overflows to surface waters;
40. provision of audible alarms, lights, signage indicating emergency phone numbers, and power connections for portable generating capability at all wastewater pump stations;
41. future provision of a supervisory control and data acquisition (SCADA) system to monitor wastewater pump stations;
42. a requirement for the provision of oil/water separators for stormwater runoff from private parking areas;
43. **Repealed by Amendment No. 4, 2010 to the Saanich Peninsula Liquid Waste Management Plan**
44. regular inspection and maintenance of the storm drain system, including video inspection, smoke testing and dye testing as necessary;
45. elimination of sanitary sewer and storm drain cross connections;
46. education programs, including mail-outs to residents on appropriate use of property, driveway, house and street drains;
47. working towards understanding the needs of agriculture and habitat in stormwater management.

Further to the objectives, strategy and commitments contained in this document, **Transport Canada - Victoria Airport** specifically has completed or is committed to:

48. updating the 1985 Stormwater Management Plan and the 1988 Engineering Facilities Study on Field Drainage for Victoria Airport;
49. ongoing monitoring of water quality in Reay Creek and Airport (West) Creek;
50. the provision of oil/water separators for stormwater runoff from paved areas associated with commercial and industrial properties;
51. regular inspection and maintenance of the storm drain systems, including video inspection, smoke testing and dye testing as necessary;
52. immediate action on spills;
53. work cooperatively with the Town of Sidney, District of North Saanich, Department of Fisheries and Oceans, the First Nations Bands and volunteer groups on the Reay Creek salmon enhancement project;

54. continue consultations regarding Airport stormwater issues with environmental stakeholders through the Victoria Airport Environmental Advisory committee;
55. installation of monitoring systems to monitor wastewater pumping systems;
56. adoption of best management practices for stormwater for the regulation and protection of natural water courses, ditches and drains;
57. maintaining stream setback requirements to reflect Ministry of Environment, Lands and Parks and Department of Fisheries and Oceans requirements.

Objectives

The objectives of the **Stormwater Quality and Surface Water Resources Program** are:

1. to develop a program based on the best available information and technology;
2. to investigate stormwater discharges with an emphasis on priority listing for remedial action and to identify possible remedial measures;
3. to research, adopt and enforce, where applicable, best management practices for both existing and proposed urban developments;
4. to research and promote agricultural best management practices;
5. to develop policy statements on stormwater quality for inclusion in the official community plans of the participating municipalities;
6. to research the sources of contaminants in municipal stormwater systems;
7. to participate in and promote the principles of watershed management including public involvement and education programs;
8. to prioritize watersheds for consideration of an integrated watershed management approach.

General

Jurisdictional considerations determine the activities that the CRD and municipalities will undertake to manage stormwater quality. As the storm drain systems are owned and operated by the municipalities, the municipalities will continue to budget for and carry out necessary remedial measures. The CRD will undertake a coordinating role and will develop an overall stormwater quality and surface water resources program, carry out discharge monitoring, coordinate inter-municipal improvement projects, and provide technical information, direction and assistance.

Strategy for Program Development

1. Coordination - 1996 – Ongoing

Continue with the small working group representing the participating municipalities, the CRD, the Ministry of Environment, Lands and Parks, peninsula

communities and local governments to develop consensus on program objectives and strategies and to assist in coordinating a stormwater quality and surface water resources program on the Saanich Peninsula.

2. Stormwater Bylaw Adoption – 1996-1997

Consider for adoption by the municipalities, a stormwater bylaw that includes the stormwater quality provisions of the model bylaw prepared by the CRD and core municipalities.

3. Documentation – 1997

The CRD will prepare a report that will include the following tasks:

- a. review current jurisdictional issues and identify problems and potential solutions (runoff quality from agricultural lands, septic tank systems, etc.);
- b. assemble information on federal, provincial, CRD and other stormwater programs;
- c. document corrective measures implemented by the municipalities and other jurisdictions - e.g., low-flow pumping, outfall extensions, elimination of sewage inflow. (A brief description about current programs will be included in the document.);
- d. document BMP's for both urban and rural activities;
- e. review public involvement and education programs.

4. Monitoring – 1997-Ongoing

- a. set up a database on the stormwater quality and surface water resources of the peninsula;
- b. prepare base mapping and inventory of discharges;
- c. sample discharges and the receiving environment;
- d. monitor for fecal coliform, chemical contaminants and suspended matter, where appropriate;
- e. prepare a shoreline sensitivity report to assess flushing characteristics, habitat sensitivity and level of public use;
- f. report findings, review annually and modify this monitoring program as required.

5. Program Planning and Financing – 1996-Ongoing

Based on discussions with the municipalities and MELP, the CRD will provide an estimate of the annual costs to each municipality to complete the tasks included in the planning for the Stormwater program for the following year. This will allow the three municipal councils to consider for authorization an annual program budget.

4.7 Rectification of On-Site Sewage Disposal Problems in North Saanich

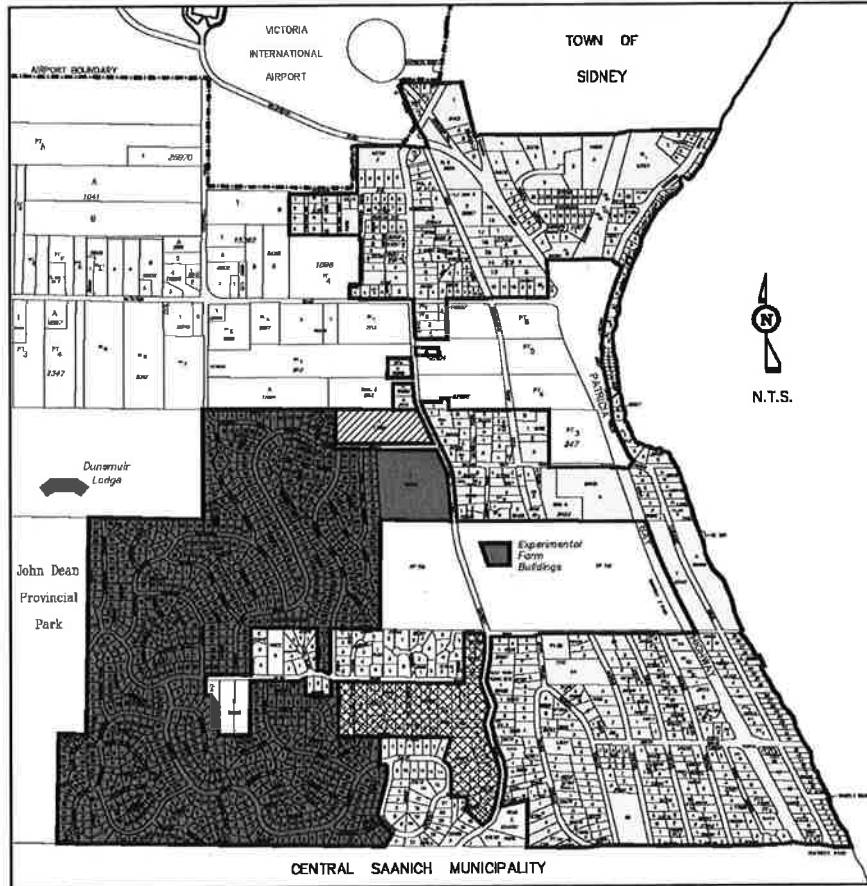
Commitments

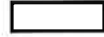
1. That the District of North Saanich make a firm commitment to establish a permanent solution to those areas with existing and potential on-site sewage disposal problems within the next five years.
2. That the following areas be confirmed as exhibiting on-site sewage disposal problems:
 - a) On Map 1, the areas identified as:
 - (i) "Proposed Southeast Quadrant Sewer Area", and
 - (ii) "Additional Proposed Southeast Quadrant Sewer Area"; and
 - b) On Map 2, the areas identified as:
 - (i) "Proposed Deep Cove Sewer Area, and
 - (ii) "Additional Proposed Deep Cove Sewer Area"
3. That the District of North Saanich invite proposals from qualified firms having geotechnical expertise to review the information prepared by the Ministry of Environment on soil constraints affecting septic tank effluent disposal and submit a report to council on the soil suitability for septic tank effluent disposal of all areas of the municipality.
4. That the District of North Saanich retain the services of a qualified consulting firm to:
 - a. call for proposals for alternate sewage disposal systems for the Deep Cove area;
 - b. evaluate proposals; and
 - c. report back to council on their feasibility as a permanent solution in Deep Cove, including a recommendation of a proposal (if any) which would best address the sewage collection and disposal issue in Deep Cove.
5. That the District of North Saanich enlist the cooperation and support of the Capital Regional District and the Ministry of Environment in following the proposed procedure, and that the CRD be requested to delegate its authority to the District of North Saanich to undertake the above proposed investigations.
6. That staff be requested to further explore funding alternatives in order to carry out all of the previously referred to studies.
7. That public input be obtained after receipt of the soils report for the South East Quadrant; and that public input be obtained for the Deep Cove area after receipt of the soils report, and further opportunities for public input be scheduled based on the evaluation of proposals for alternate technology and recommendations of the consultant.
8. That staff be directed to work with the Capital Regional District to initiate an education program and report back to council with recommendations with respect to on-site sewage treatment and disposal throughout the District.

4.8 Follow Up On Commitments 4.1 to 4.7 Inclusive

The Capital Regional District and participating member municipalities commit to carrying out independent performance audits on the above commitments. The audits will take place on the third and fifth anniversaries of approval of the plan by the minister of the environment, lands and parks.

DWG. NO. 1-S11B-1 DATE: OCT. 1, 1956

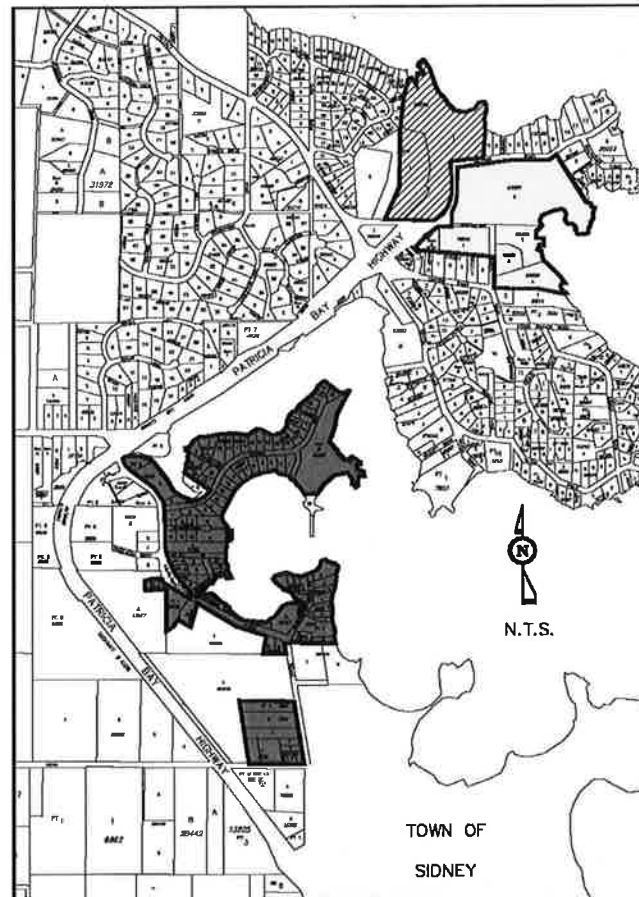


-  Existing Dean Park Sewered Area
-  Forest Park Drive School Site
-  Proposed Southeast Quadrant Sewer Area
-  Additional Proposed Southeast Quadrant Sewer Area

DISTRICT OF NORTH SAANICH PROPOSED SEWER AREAS

CAPITAL REGIONAL DISTRICT ENGINEERING ——— MAP 1 ———

**Map 2 amended by Amendment No. 1, 2002 to the
Saanich Peninsula Liquid Waste Management Plan**



DISTRICT OF NORTH SAANICH
PROPOSED SEWER AREAS

CAPITAL REGIONAL DISTRICT ENGINEERING ——— MAP 3 ———

5.0 SEWAGE TREATMENT AND DISPOSAL OPTIONS SELECTED BY PENINSULA MUNICIPALITIES, FIRST NATIONS, AND FEDERAL AND PROVINCIAL AGENCIES

5.1 Introduction

All sewage collected on the Saanich Peninsula will receive a minimum of treatment to produce an effluent quality at least equal to that of the Saanich Peninsula unified treatment plant. Sludge management facilities will be provided by all plants to ensure that the biosolids produced can be safely applied to land rather than being dumped in the ocean or landfilled. In addition, a receiving environment monitoring program will be carried out at all discharges to ensure that public health and the environment are protected.

The following are the sewage treatment and disposal plans for the various jurisdictions.

5.2 Town of Sidney

All sewage generated in the municipality will be transmitted to the Saanich Peninsula unified treatment plant and treated as described in Section 4.4. The sludge will be stabilized and pasteurized to produce a high-quality biosolids product that is suitable for a wide range of uses. The primary option for biosolids use is the application to peninsula land as a soil conditioner/fertilizer. The effect of the outfall on the receiving environment east of Bazan Bay and north of Cordova Channel will be monitored as described in Section 4.3.

5.3 District of Central Saanich

The sewage generated from the sewered areas of the District of Central Saanich will be managed the same as described in 5.2 above.

5.4 District of North Saanich

The sewage generated from the currently sewered area of North Saanich (Dean Park) will be managed as described in Section 5.2.

North Saanich council has requested that capacity be reserved in the Saanich Peninsula Treatment Plant for sewage generated in the south east quadrant and Deep Cove areas of North Saanich as well as a small capacity allowance for other areas of the municipality as the need arises. If some of these areas are not connected to the peninsula treatment plant, they will be managed as described in Section 5.1 above.

5.5 Tsartlip Indian Reserve

Sewage generated from the sewered areas of the Tsartlip Indian Reserve will be managed as described in Section 5.2 above.

5.6 Tseycum, Pauquachin and Tsawout Indian Reserves

Sewage generated on the Tseycum, Pauquachin and Tsawout Indian Reserves may be treated at separate treatment plants on these reserves and managed to a standard at least equal to that described in Section 5.2 above. Alternatively, these First Nations may elect to execute agreements that would permit use of the Saanich Peninsula Unified Treatment Plant.

5.7 Airport and Institute of Ocean Sciences

Sewage generated by the Victoria International Airport and the Institute of Ocean Sciences will be managed as described in Section 5.2 above.

5.8 BC Ferries

Sewage generated by BC Ferries Swartz Bay ferry terminal will be treated at a separate treatment plant at the terminal and managed to a standard at least equal to that described in Section 5.2 above. BC Ferries expects to eventually connect to the peninsula treatment plant and has therefore reserved a capacity allowance for that purpose.

Operational Certificate



MINISTRY OF ENVIRONMENT,
LANDS AND PARKS

Vancouver Island Region
Pollution Prevention
2080-A Labieux Road
Nanaimo, British Columbia
V9T 6J9
Telephone: (250) 751-3100
Fax: (250) 751-3103

OPERATIONAL CERTIFICATE

ME-15445

Under the Provisions of the Waste Management Act

Capital Regional District

524 Yates Street

P.O. Box 1000

Victoria British Columbia

V8W 2S6

is authorised to discharge effluent to Cordova Channel from a municipal wastewater collection and treatment system located on the Saanich Peninsula, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the Waste Management Act and may result in prosecution.

1. AUTHORISED DISCHARGES

1.1 This subsection applies to the discharge of effluent from a **MUNICIPAL WASTEWATER TREATMENT PLANT**. The site reference number for this discharge is E230904.

1.1.1 The maximum authorised rate of discharge is 56,000 m³/d.

1.1.2 The average daily rate of discharge based on an annual averaging period is as follows:

Year	Average Daily Discharge m ³ /d	Year	Average Daily Discharge m ³ /d
1999	12,200	2006	15,168
2000	12,585	2007	15,648
2001	12,983	2008	16,142
2002	13,394	2009	16,652
2003	13,817	2010	17,179
2004	14,253	2011	17,721
2005	14,704	2012	18,280

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Regional Waste Manager

OPERATIONAL CERTIFICATE: ME-15445

1.1.3 The characteristics of the discharge shall not exceed:

5-day Biochemical Oxygen Demand - 45 mg/L
Total Suspended Solids - 45 mg/L

For that portion of average daily flow in excess of two times average dry weather flow, the characteristics of the discharge shall not exceed:

5-day Biochemical Oxygen Demand - 130 mg/L
Total Suspended Solids - 130 mg/L

For all flows:

pH - 6 - 9 pH units

1.1.4 The authorised works are inlet screening, grit removal, activated sludge process, sludge dewatering and pasteurisation facilities, odour control, standby power and an outfall extending 1700 m from mean low water to a depth of 28 m below mean low water, and related appurtenances approximately located as shown on attached Site Plan A.

1.1.5 The authorised works must be complete and in operation when the discharge authorised by this permit commences.

1.1.6 The location of the facilities from which the discharge originates is Lot A, Section 4, Range 3 East, North Saanich District, Plan VIP59835, Parcel Identifier 018-957-749.

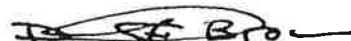
1.1.7 The location of the point of discharge is Cordova Channel east of Bazan Bay.

2. GENERAL REQUIREMENTS

2.1 Maintenance of Works and Emergency Procedures

The Capital Regional District shall inspect the authorised works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the Capital Regional District which prevents effective operation of the approved method of pollution control, the Capital Regional District shall notify the Regional Waste Manager immediately and take appropriate remedial action.

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Regional Waste Manager

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2.2 Bypasses

The Capital Regional District shall ensure that no waste is discharged without being processed through the authorised works unless prior written approval is received from the Regional Waste Manager.

2.3 Plans - New Works

Plans and specifications of the works authorised in Subsection 1.1.4 shall be submitted to the Regional Waste Manager for review. The works shall be constructed in accordance with such plans.

2.4 Posting of Outfall

The Capital Regional District shall erect a sign along the alignment of the outfall above high water mark. The sign shall identify the nature of the works. The wording and size of the sign requires the approval of the Regional Waste Manager.

2.5 Outfall Inspection

The Capital Regional District shall conduct a dye test on the outfall line (or inspect by another method approved by the Regional Waste Manager) every five years. An outfall inspection report shall be submitted to the Regional Waste Manager within 60 days of each inspection.

2.6 Sludge Management

Sludge generated by the treatment plant shall be managed in a manner approved by the Regional Waste Manager and in accordance with the sludge management strategies developed in the Saanich Peninsula Liquid Waste Management Plan.

2.7 Standby Power

The Capital Regional District shall provide auxiliary power facilities to insure that during power outages, the discharge from the authorised works continue to meet the effluent criteria specified in this operational certificate.

2.8 Odour Control

Should objectionable odours, attributable to the operation of the sewage treatment plant, occur beyond the property boundary, as determined by the Regional Waste Manager, measures or additional works will be required to reduce odour to acceptable levels.



After the sewage treatment plant commences operation, the Capital Regional District shall meet annually for three years, and thereafter as directed by the Regional Waste Manager, with representatives of the neighbourhood to consider any odour related issues associated with the treatment facility, to assess the effectiveness of the odour control facilities at the plant and to discuss and establish appropriate remediation strategies, if necessary.

2.9 Disinfection

Although disinfection of the effluent is not required at this time, suitable provisions should be made to include disinfection facilities in the future. If disinfection is by chlorination, dechlorination facilities will also be required.

2.10 Facility Classification and Operator Certification

The Capital Regional District shall have the works authorised by this operational certificate classified (and the classification shall be maintained) by the Environmental Operators Certification Program Society (Society). The works shall be operated and maintained by persons certified within and according to the program provided by the Society. Certification must be completed to the satisfaction of the Regional Waste Manager. In addition, the Regional Waste Manager shall be notified of the classification level of the facility and certification level of the operators, and changes of operators and/or operator certification levels within 30 days of any change.

Alternatively, the works authorised by this operational certificate shall be operated and maintained by persons who the Capital Regional District can demonstrate to the satisfaction of the Regional Waste Manager, are qualified in the safe and proper operation of the facility for the protection of the environment.

2.11 Effluent Upgrading

Based on receiving environment monitoring data and/or other information obtained in connection with this discharge, the Capital Regional District may be required to provide additional treatment facilities.

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OPERATIONAL CERTIFICATE: ME-15445

3. MONITORING AND REPORTING REQUIREMENTS

3.1 Discharge Monitoring

3.1.1 Sampling And Analyses

The Capital Regional District shall install a suitable sampling facility and obtain a sample of the effluent in accordance with the following schedule:

<u>Parameter</u>	<u>Frequency</u>	<u>Type</u>
5-day Biochemical Oxygen Demand	twice per week	24-hr composite
Total Suspended Solids	twice per week	24-hr composite
Ammonia Nitrogen	once per month	24-hr composite
pH	twice per week	grab
Faecal Coliform	twice per month	grab
Other selected parameters	as directed	as directed

The composite sample is to consist of samples taken over a 24-hour period in proportion to flow and mixed to form a single sample. Proper care should be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.

3.1.2 Flow Measurement

Provide and maintain a suitable flow measuring device and record once per day the effluent volume discharged over a 24-hour period.

3.1.3 Receiving Environment Monitoring

A receiving environment monitoring program shall be carried out by the Capital Regional District. The program shall be developed in consultation with the Marine Monitoring Advisory Group, CRD Health, First Nations and the Regional Waste Manager. The main objectives of the monitoring program are to:

- i) assess the need for disinfection of wastewater discharge through the sewage treatment plant outfall,
- ii) identify components of the marine environment that may be potentially affected by the discharge, and



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Regional Waste Manager

- iii) establish need and scope for a long-term monitoring program for the discharge.

A pre-discharge monitoring program to determine pre-discharge conditions in the area of the proposed discharge should commence at least one year prior to discharge.

The proposed monitoring program shall be submitted to the Regional Waste Manager for review. Based on the results of this monitoring program, the Capital Regional District monitoring requirements may be extended or altered by the Regional Waste Manager.

3.2 Monitoring Procedures

3.2.1 Sampling and Analytical Procedures

Flow Measurement shall be carried out in accordance with the procedures described in "Field Criteria for Sampling Effluents and Receiving Waters", April 1989, or by suitable alternative procedures as authorised by the Regional Waste Manager.

Copies of the above manual may be obtained from the Pollution Prevention Division, Ministry of Environment, Lands and Parks, PO Box 9342, Stn. Prov. Govt. Victoria, British Columbia, V8W 9M1. The manual is also available for review at all Pollution Prevention Offices.

Sampling shall be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples. 1996 Edition (Permittee)", or by suitable alternative procedures as authorised by the Regional Waste Manager.

Analyses are to be carried out in accordance with procedures described in the "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials (March 1994 Permittee Edition)", or by suitable alternative procedures as authorised by the Regional Waste Manager.

Copies of the above manuals may be purchased from the Queen's Printer Publications Centre, PO Box 9452, Stn. Prov. Govt. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409), and are also available for inspection at all Pollution Prevention offices.



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3.3 Reporting

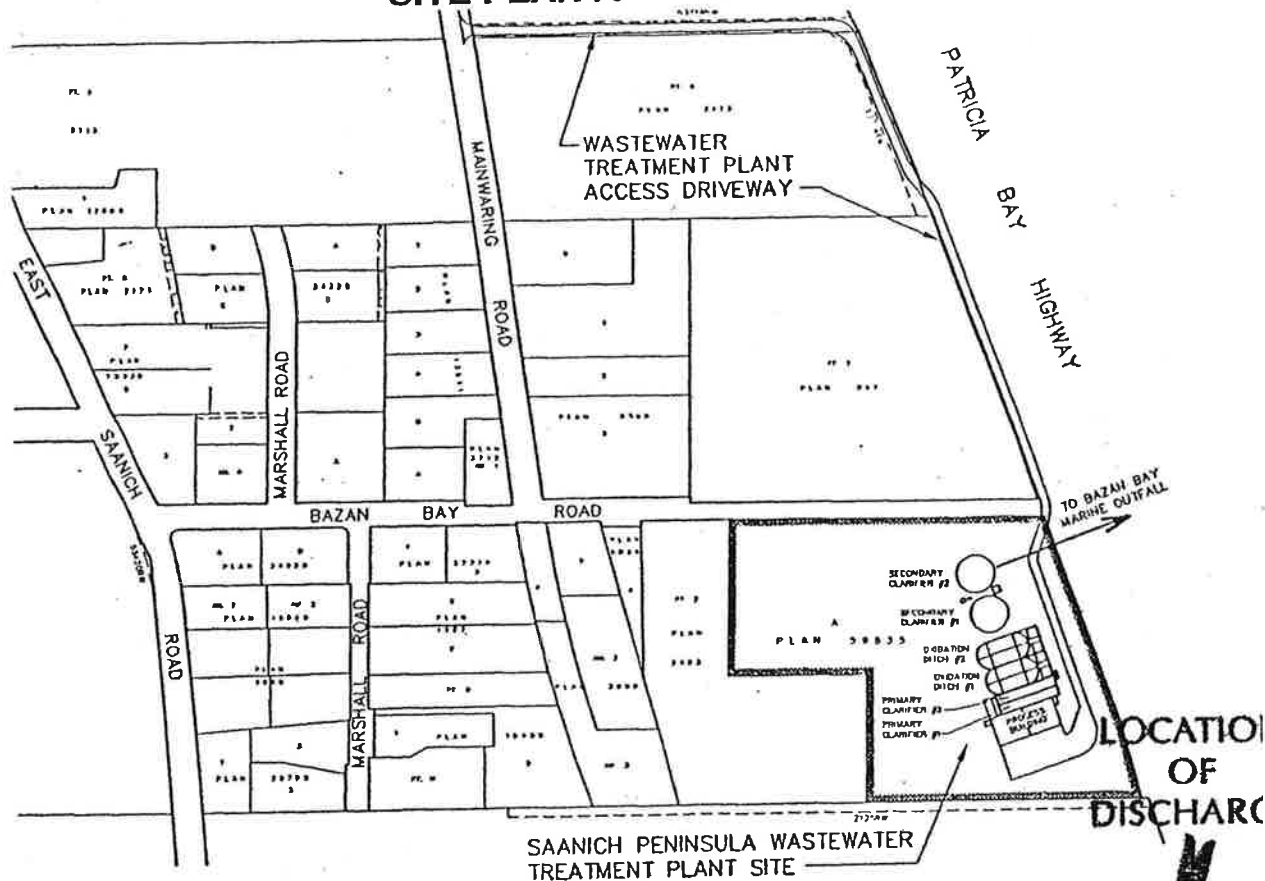
Maintain data of analysis and flow measurements for inspection, and every three months, submit the data, suitably tabulated, to the Regional Waste Manager for the previous quarter. All reports shall be submitted within 30 days of the end of the quarter.

An annual report, suitable for public review, shall be submitted to the Regional Waste Manager. The report shall include a summary and interpretation by a qualified professional of the discharge and receiving environment monitoring results for the previous year and shall provide an assessment of the impact of this discharge on the receiving environment and recommended changes (if any) to the monitoring program. The first report shall be submitted on or before December 31, 1999.

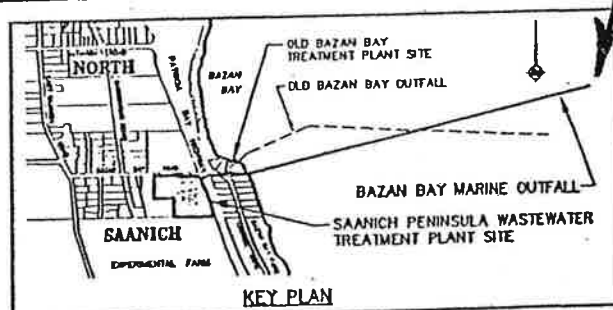


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SITE PLAN A

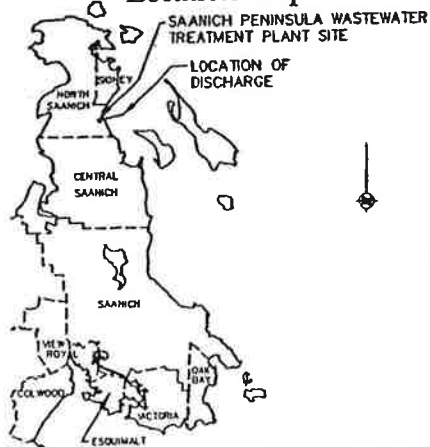


SITE PLAN



Scale: Not to Scale

Location Map



Operational Certificate: ME-15445

Date: JAN 20 1999

D.F. Brown

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Regional Waste Manager
Vancouver Island Region