

**REGIONAL DISTRICT OF NANAIMO**

**COMMITTEE OF THE WHOLE  
TUESDAY, JULY 8, 2008  
7:00 PM**

*(RDN Board Chambers)*

**A G E N D A**

**PAGES**

**CALL TO ORDER**

**DELEGATIONS**

4-17                    **Gabriola Island Trust Committee**, re Natural Area Protection Tax Exemption Program (NAPTEP).

**MINUTES**

18-27                    Minutes of the regular Committee of the Whole meeting held June 10, 2008.

**BUSINESS ARISING FROM THE MINUTES**

**COMMUNICATIONS/CORRESPONDENCE**

28-32                    **Sheila Malcolmson, Gabriola Island Local Trustee**, re Affordable Housing Needs Assessment Initiative, RDN Support.

**CORPORATE ADMINISTRATION SERVICES**

**FINANCE AND INFORMATION SERVICES**

**DEVELOPMENT SERVICES**

**BUILDING & BYLAW**

33-34                    Notice of Bylaw Contravention – 1310 Wilson Road – Area B.

*Delegations wishing to speak to Notice of Bylaw Contravention at 1310 Wilson Road -- Area*

## **ENVIRONMENTAL SERVICES**

### **LIQUID WASTE**

- 35-40 Pump & Haul Local Service Area Amendment Bylaw No. 975.48 – 1846 Ballenas Road – Area E.

### **UTILITIES**

- 41-46 Fairwinds Sewerage Facilities Local Service Area Amendment Bylaw No. 947.04 – Inclusion of Strata Lots 1-49, DL 78, Nanoose District, Plan VIS745 into the Fairwinds Sewerage Facilities Local Service Area – Area E.
- 47-103 Electoral Area 'E' Water Source Assessment Study – Information Report.

## **TRANSPORTATION AND SOLID WASTE SERVICES**

### **SOLID WASTE**

### **TRANSPORTATION**

### **COMMISSION, ADVISORY & SELECT COMMITTEE**

#### **Electoral Area 'A' Parks and Open Space Advisory Committee.**

- 104-106 Minutes of the Electoral Area 'A' Parks and Open Space Advisory Committee meeting held May 15, 2008. (for information)

- 1. That the Ministry of Transportation be advised that the Electoral Area 'A' Parks and Green Space Advisory Committee has no objection to the proposed road closure of 2347 South Wellington Road.*

#### **Electoral Area 'E' Parks and Open Space Advisory Committee.**

- 107-108 Minutes of the Electoral Area 'E' Parks and Open Space Advisory Committee meeting held June 2, 2008. (for information)

#### **District 69 Recreation Commission.**

- 109-123 Minutes of the District 69 Recreation Commission meeting held June 19, 2008. (for information)

- 1. That the program, admission and rental fees for Oceanside Place in 2008/09 be approved as outlined in Appendix A.*
- 2. That the program, admission and rental fees for Ravensong Aquatic Centre in 2009 be approved as outlined in Appendix B.*

3. *That Recreation Coordinating program fees and recovery rates, administration fee, and revenue-sharing percentage ratio for Term Instructor (Companies) agreements in 2009 be approved as outlined in Appendix C.*

**ADDENDUM**

**BUSINESS ARISING FROM DELEGATIONS OR COMMUNICATIONS**

**NEW BUSINESS**

**BOARD INFORMATION** (Separate enclosure on blue paper)

**ADJOURNMENT**

**IN CAMERA**



# Islands Trust

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 Toll Free via Enquiry BC in Vancouver 660-2421. Elsewhere in BC **1.800.663.7867**  
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 Web [www.islandstrust.bc.ca](http://www.islandstrust.bc.ca)

June 19, 2008

Chair Joe Stanhope and Board Members  
 Regional District of Nanaimo  
 6300 Hammond Bay Rd.  
 Nanaimo, BC V9T 6N2

RDN		
CAO	<input checked="" type="checkbox"/>	GMF&IS
GMDS		GMR&PS
GMES		GMYS
JUN 24 2008		
SMCA		
CHAIR		BOARD <input checked="" type="checkbox"/>
<i>Coxes.</i>		

File Number: NAPTEP-9

Dear Chair and Board Members:

**Re: Natural Area Protection Tax Exemption Program (NAPTEP)**

On May 15<sup>th</sup> we enjoyed a productive meeting with your CAO, senior parks and planning staff, and Area B Director Berni Sperling. One of the topics discussed was our desire to see the islands in our shared jurisdiction be eligible for the land conservation tax exemption program successfully pioneered by the Islands Trust in the Sunshine Coast and Capital Regional Districts.

This letter is to seek your Board's approval on a resolution that would expand program delivery to the islands in our shared jurisdiction. The motion could be as simple as the following:

*Be it resolved that the Regional District of Nanaimo Board agrees to the implementation of the Natural Area Tax Exemption Program in the Regional District of Nanaimo, on the islands within the jurisdiction of the Islands Trust.*

With your permission, our staff could immediately begin promoting this program to island land owners to encourage them to permanently protect the ecologically important features on their property with a conservation covenant. With a 65% reduction in taxes on the land protected by the covenant, we will have a valuable new incentive to offer land owners looking for affordable ways to protect their property from development when it changes ownership.

Your staff's time is not required to administer the program, as it is administered entirely by the Islands Trust. From our experience in the Capital Regional District, we expect to see only two or three applications per year, so there will be no measurable "tax-shift" to other tax payers. We enclose a map and several documents which should answer most of your questions.

Representatives of the Gabriola Local Trust Committee would like to attend your July 8<sup>th</sup> meeting as a delegation, to present this project and to answer questions. In the meantime, you may call me at 604-619-2933 or Trust Area Services Director Lisa Dunn at 250-405-5174.

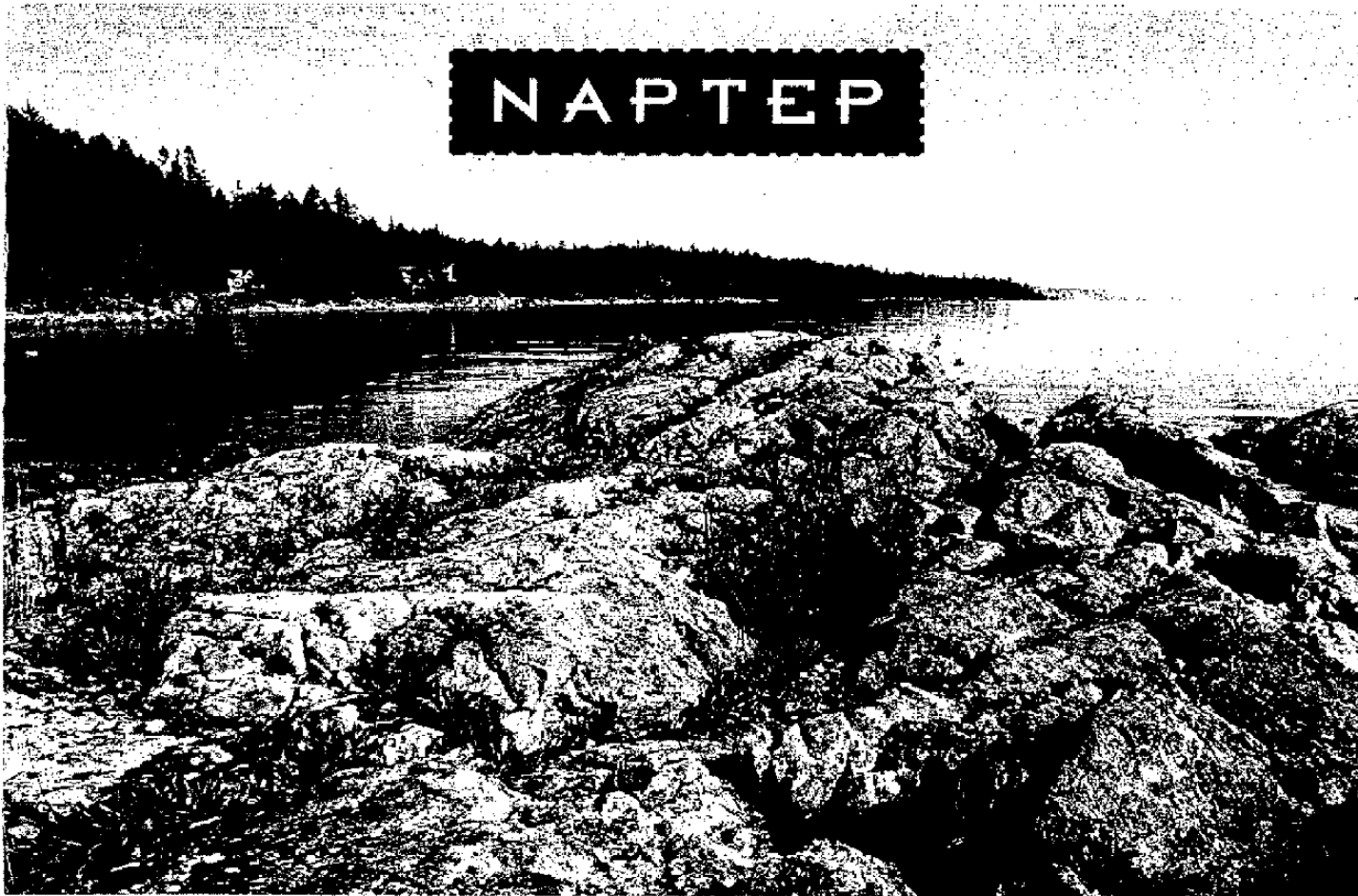
Yours truly,

Kim Benson  
 Chair, Islands Trust Council  
[kbenson@islandstrust.bc.ca](mailto:kbenson@islandstrust.bc.ca)

Preserving **Island** communities, culture and environment

Bowen Denman Hornby Gabriola Galiano Gambier Lasqueti Mayne North Pender Salt Spring Saturna South Pender Thetis

# The Natural Area Protection Tax Exemption Program



**PROTECT YOUR LAND AND SAVE MONEY**

An incentive program to reduce taxes for Gulf Island landowners

## A Special Part of the World

The Canadian Gulf Islands are renowned and cherished for their stunning physical beauty, gentle climate, and rural charm. These characteristics have led to a steadily increasing demand for land on these islands resulting in higher property values and taxes. More development also means more pressure on sensitive island ecosystems that are frequently home to rare and endangered species.

Some people who bought land on the islands to be close to nature and to enjoy the serenity of island life are now faced with the difficult decision of logging or developing their properties to pay for their high property taxes. Living in paradise has become expensive.

The **Natural Area Protection Tax Exemption Program (NAPTEP)** provides a property tax incentive to protect the natural features of the islands.

## Background

In response to development and population growth pressures facing the region, the British Columbia government created the Islands Trust in 1974 to make land use decisions that preserve and protect the Gulf Islands. In 1990, the Province also created the Islands Trust Fund to act as a conservation land trust. NAPTEP is a joint initiative between the Islands Trust and the Islands Trust Fund. The Sunshine Coast Regional District and the Capital Regional District are the first regional districts to join the program. Other regional districts may become program partners in the future.

## Eligible Lands and Features

To qualify for NAPTEP a landowner must be willing to permanently protect, through a NAPTEP conservation covenant, one or more of the eligible features on their property. Eligible features include:

- Areas relatively undisturbed by human activity that are good examples of important ecosystems such as forests over 80 years old, woodlands, water features, sparsely vegetated natural areas, coastal bluffs, etc.
- Areas relatively undisturbed by human activity that are key habitat for rare native plant species or plant communities.
- Areas that are critical habitat for native animal species in relation to breeding, rearing, feeding or staging.
- Special geological features.

There are no minimum or maximum lot size requirements. However, the program may not be beneficial for small properties with a low assessed value. Each situation is unique based on a landowner's personal tax circumstances.

As there are other tax reduction programs to protect forest and agricultural land, lands in the Agricultural Land Reserve (ALR) or lands designated as Private Managed Forest Lands (PMFL) are not eligible for NAPTEP. Properties must be classified as "residential" by BC Assessment to qualify for the program.

SUNSET OVER ST. MARY'S LAKE,  
▼ SALT SPRING ISLAND.  
PHOTO BY JONATHAN GRANT

## SAVE MONEY BY PROTECTING LAND

The Natural Area Protection Tax Exemption Program (NAPTEP) is available to Gulf Island landowners in the Sunshine Coast Regional District and the Capital Regional District, British Columbia, Canada. It provides landowners who permanently protect natural features of their land with the opportunity to receive a 65% exemption in property taxes on the protected portion of their land.





▲ SKUNK CABBAGE, OR SWAMP LANTERN, LIGHT UP ECOLOGICALLY IMPORTANT WETLANDS ON THE GULF ISLANDS. PHOTO BY JONATHAN GRANT

## Protecting Land Forever

Landowners who enter into a NAPTEP covenant continue to own their land. The standard NAPTEP covenant simply prevents current and future owners of the land from doing anything to the covenant area that may harm its special values. This includes:

- removal of native plants
- use of herbicides and pesticides
- alteration of natural watercourses or water bodies
- grazing of animals
- modification of the soil or geological features.

A NAPTEP covenant, once registered, is listed on the land's title forever. Violating the covenant can result in heavy penalties including, but not limited to, payment of all exempted taxes plus interest and a charge for each infraction.

**NAPTEP**

## The Application Process

There are two phases to a NAPTEP application:

**Phase One** will determine whether or not a landowner is eligible for NAPTEP.

**Phase Two** requires registration of a NAPTEP covenant on the land's title and results in the issuing of a Natural Area Exemption Certificate.

## Upfront Costs

### Phase One

#### APPLICATION FEE

**\$275** payable to the Islands Trust.

### Phase Two

#### APPLICATION FEE

**\$175** payable to the Islands Trust.

The following additional costs will vary depending on the size of the covenant area to be protected and the complexity of the covenant and survey.

- Legal advice for developing and amending your covenant
- Tax and financial advice for reviewing your situation to ensure the program is right for you
- A survey of the proposed covenant area(s)
- A report about the current state of the covenant area and its ecosystems, prepared by an approved Environmental Professional
- Covenant registration costs
- A voluntary endowment to cover future monitoring costs would be eligible for a charitable receipt

**As a landowner you will play an important role in protecting fragile Gulf Island ecosystems forever.**

## **Covenant Monitoring**

As required by NAPTEP, an Islands Trust Fund representative will visit the covenant area annually to ensure the covenant area is being managed in accordance with the covenant. The landowner has input over when the monitoring visit will take place and can meet with the monitor to discuss the property and its special features. There is no cost to the landowner for this annual visit. The Islands Trust Fund will mail a follow-up letter soon after the visit.

## **Benefits**

As a landowner participating in NAPTEP, you will not only be getting a tax exemption, you will also be creating a legacy for your community and the plants and animals that live there. And, you will play an important role in protecting fragile Gulf Island ecosystems forever.

With a Natural Area Exemption Certificate landowners will see a 65% reduction in property taxes on the protected portion of their land. Applicants will need to determine if the reduction in property tax outweighs the costs of participating in the program.

Before deciding to apply to NAPTEP, you should obtain legal, tax and financial advice to be sure you understand how a Natural Area Exemption Certificate affects you and your land.

## **Timeframe**

It will take at least six months from the time applicants submit their Phase I application until their Natural Area Exemption Certificate is issued. Applicants who wish to have their Natural Area Exemption Certificate issued for the following year's tax roll must submit their Phase I application by April 1 and must have their covenants registered by October 15.

## **Partner Agencies Working Together**

The Islands Trust Fund will assist applicants interested in applying for the Natural Area Exemption Certificate. You may also want to invite another organization such as a local or regional conservancy to co-hold the NAPTEP covenant. Conservation covenants are typically held by two organizations.

The Islands Trust is responsible for issuing the Natural Area Exemption Certificate which will officially grant a property tax exemption on the portion of the land governed by NAPTEP. This exemption will automatically be applied to future property tax statements.

The Sunshine Coast Regional District, the Capital Regional District and the governing Local Trust Committee will have the opportunity to comment on the applications to the NAPTEP program, if they wish.

## **For More Information**

For more information please contact the Islands Trust Fund at (250) 405-5186 or visit the Islands Trust Fund website at <http://www.islandstrustfund.bc.ca>.

NAPTEP is currently available in:

**Galiano Island Local Trust Area**

**Gambier Island Local Trust Area**

**Mayne Island Local Trust Area**

**North Pender Island Local Trust Area**

**South Pender Island Local Trust Area**

**Salt Spring Island Local Trust Area**

**Saturna Island Local Trust Area**



**Islands Trust Fund**

200-1627 Fort Street, Victoria BC Canada V8R 1H8

Telephone (250) 405-5186 Fax (250) 405-5155

Toll free through Enquiry BC, in Vancouver (604) 660-2421

Elsewhere in BC, 1-800-663-7867

Internet: [www.islandstrust.bc.ca](http://www.islandstrust.bc.ca)

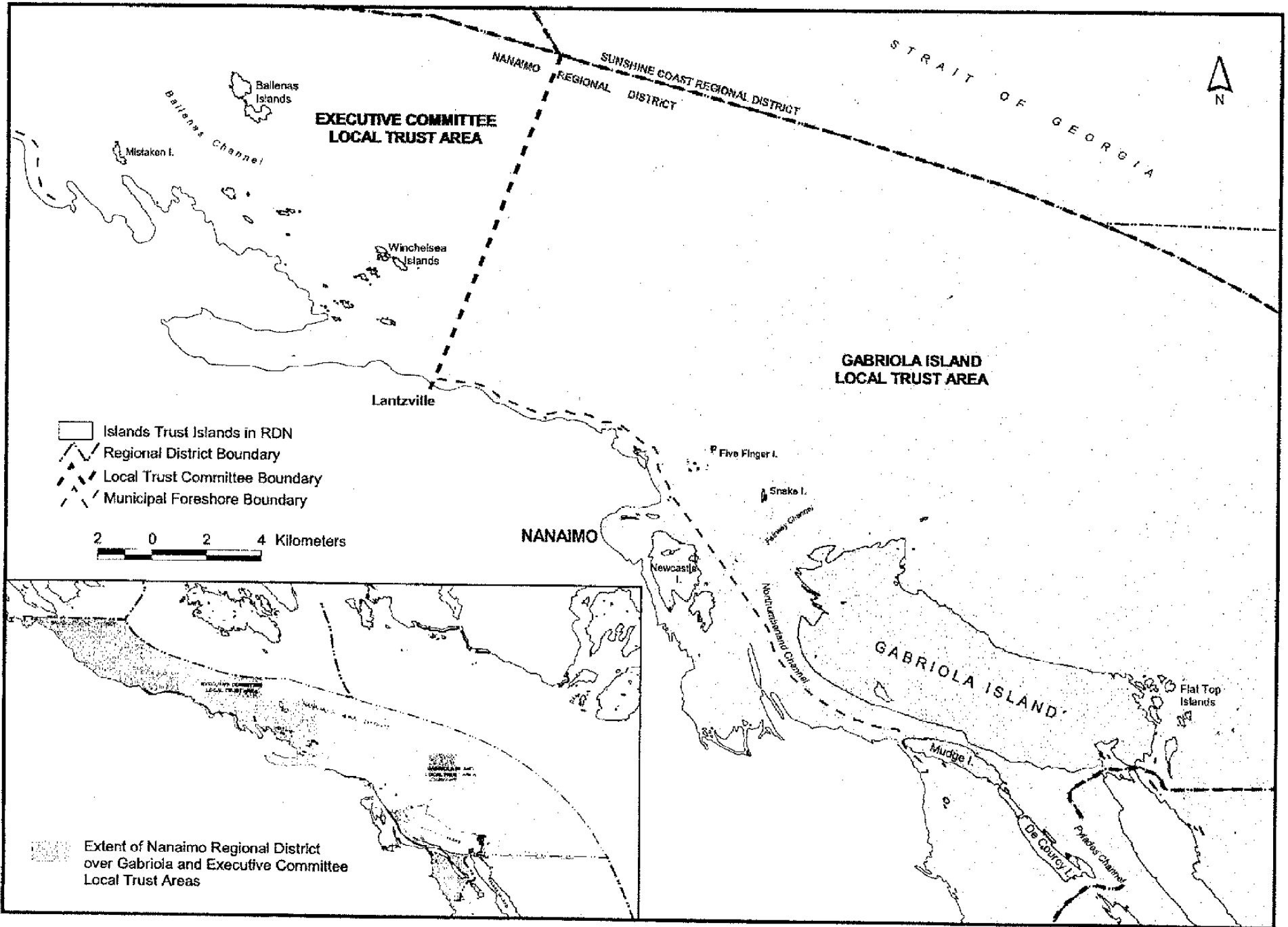
E-mail: [itfmail@islandstrust.bc.ca](mailto:itfmail@islandstrust.bc.ca)



**Islands Trust**



# Islands in the Regional District of Nanaimo to be included in NAPTEP





# Natural Areas Protection Tax Exemption Program (NAPTEP)



## FREQUENTLY ASKED QUESTIONS

### QUESTIONS ABOUT NAPTEP

#### **What does the program do?**

NAPTEP provides island landowners with the opportunity to receive a 65% property tax exemption on whatever portion of their property is protected through a NAPTEP covenant.

NAPTEP covenants will protect eligible natural, geological and cultural features on Gulf Islands in the Capital Regional District and Sunshine Coast Regional District. Through this program landowners will use conservation covenants to protect areas that give the islands their charm and biological richness.

#### **Who can apply to the program?**

Landowners in the Galiano, Gambier, Mayne, North Pender, South Pender, Saturna, and Salt Spring Local Trust areas whose land has one or more of the eligible features can apply to the program.

NAPTEP is being implemented in stages. Over the next few years, the Islands Trust will work with the five other regional districts in the Islands Trust Area to expand the program.

#### **How do I know if my property is eligible?**

Eligible properties must contain one of the following Natural Area Values and Amenities:<sup>\*</sup>

- Relatively undisturbed natural area that is a good example of an important ecosystem
- Important natural areas that provide key habitat for rare native plant species or plant communities or provide critical habitat for native animal species
- Naturally occurring geologic features such as fossil-bearing rock formations, sandstone with interesting erosional features, waterfalls, mineral springs, caves, rare glacial features, and shoreline features such as tombolos, spits and hooks

#### **After entering the program can I change my mind? What about the next owner?**

This is a permanent decision. If you or future landowners do not follow the terms of the conservation covenant, then the tax exemption certificate can be withdrawn and any previously exempted taxes will need to be repaid. If a tax exemption certificate is withdrawn, the NAPTEP covenant will continue to apply.

#### **When do I apply?**

Anytime, however, if you want to receive a Natural Areas Exemption Certificate in time to see a savings in the following year, you must submit your application by April 1<sup>st</sup>.

<sup>\*</sup> More detailed information about the eligible features listed above is available from the Islands Trust Natural Area Protection Tax Exemption Regulation ([www.qp.gov.bc.ca/statreg/reg/V41\\_2002.htm](http://www.qp.gov.bc.ca/statreg/reg/V41_2002.htm)) and the Sensitive Ecosystem Inventory ([www.env.gov.bc.ca/sei/](http://www.env.gov.bc.ca/sei/)).

## CONSERVATION COVENANT QUESTIONS

### What is a conservation covenant?

A conservation covenant is a written legal agreement between a landowner and a conservation organization that sets out specific restrictions or requirements that the landowner will uphold to ensure conservation of the land or part of the land forever. Conservation covenants are permanent and *run with the land*, meaning they also bind future property owners.

### Who holds a NAPTEP conservation covenant?

A NAPTEP covenant must be held with the Trust Fund Board. There may also be a co-covenant holder.

### Why would I place a conservation covenant on my land?

Every landowner has their own reason for considering a conservation covenant. These might include a desire to:

- make sure that the special natural features on their property are protected forever
- restrict the kinds or level of development that can happen on the property in the future
- access the property and income tax benefits available to landowners who conserve lands using conservation covenants

### Will I still own my land after placing a covenant on it?

Yes, you will simply be restricting the way you and future owners of your land can use the land.

### Will a conservation covenant allow public access or use of my property?

A conservation covenant does not grant the public access or use of your property. However, if you want to grant access to the public, wording to this effect can be added to the NAPTEP covenant.

### Does a conservation covenant have to cover my whole property?

No, in fact most people will have covenants only on a portion of their land. Under NAPTEP, applicants must keep proposed development areas, houses and major buildings outside of the covenant area. Applicants should also try to keep their driveway, septic, well areas, and other improvements outside the covenant area.

### I want to build on my property in the future. Can I still put a covenant on my property?

Yes, but we advise that you think carefully about the required setbacks and location of future septic, well, driveway, and garden areas, etc. It may be advisable to consult with Islands Trust planning staff regarding future development requirements.

### Can there be buildings and roads on the area I want to protect?

Yes. Covenants are intended to protect natural, cultural and social values so the covenant area should be designed in a way that minimizes the number of buildings and roads in the area. If it is necessary to include an existing structure (driveway, dock, path, etc) the NAPTEP covenant specifies that you are allowed to maintain these features; however, you will not be able to expand them.

### Why are covenant documents so long?

A conservation covenant is a legal document that, if it is not upheld by the owner or future owners, may be enforced through the courts. The various sections and specific wording of the covenant are drafted to ensure that the intent and restrictions are clear and that it is adequately enforceable. An interpretation of the legal covenant language is available in the **NAPTEP Annotated Covenant**. A copy of this document can be found at [www.islandstrust.bc.ca](http://www.islandstrust.bc.ca), or you can request a copy from the Islands Trust Offices located in Victoria and Salt Spring Islands.

## FINANCIAL QUESTIONS

### What will it cost me to enter NAPTEP?

In addition to the application fees for Phase 1 (\$275) and Phase 2 (\$175), there will be additional covenant costs that vary depending on size of property, accessibility of the property to the professionals undertaking assessments, and complexities of the needed assessments. There are several expenses that all landowners should be aware of. These include:

- baseline report that outlines and maps what the covenant area is like at the time the covenant is put on title (e.g., natural features, rare plants and animals, human-made features, etc.);
- survey or reference plan prepared by a qualified surveyor;
- legal advice to ensure all of your legal interests are addressed
- tax advice to ensure all of your financial, tax, and estate planning interests are addressed
- covenant registration costs

### If I enter the program how much money will I save?

The Islands Trust Fund recommends that landowners considering conservation covenants seek advice from a tax specialist familiar with conservation covenants and their possible tax implications.

Your property tax exemption through NAPTEP will depend on the assessed value of your property and the percentage of your property that you protect.

### Will a NAPTEP covenant affect my property's value?

BC Assessment will continue to assess your property as though the covenant does not apply. The market value of your property may or may not change depending on your personal circumstances. All applicants are advised to get legal and financial advice.

### Do I have to get legal and tax advice?

If you are considering an application to the NAPTEP program, it is very important that you get independent legal and tax advice to ensure you are aware of all the implications for your personal financial situation.

## ADDITIONAL INFORMATION

### What is the difference between Islands Trust and Islands Trust Fund?

The Islands Trust is a unique federation of local island governments with a provincial mandate (from the *Islands Trust Act*) to make land use decisions that will "preserve and protect" British Columbia's southern Gulf Islands (the Islands Trust Area). Trust Council is the body that issues the Natural Areas Exemption Certificates.

The Islands Trust Fund is the conservation land trust of the Islands Trust, established in 1990 to preserve and protect unique ecological or cultural properties in the Islands Trust Area. The Trust Fund Board governs the Islands Trust Fund and is the most likely body to hold NAPTEP covenants.

### Where can I get more information?

Application packages are available on the Islands Trust and Islands Trust Fund websites ([www.islandstrust.bc.ca](http://www.islandstrust.bc.ca) and [www.islandstrustfund.bc.ca](http://www.islandstrustfund.bc.ca)), from the Islands Trust Fund office in Victoria at 200-1627 Fort Street, Victoria, BC V8R 1H8, or in person from the Islands Trust office on Salt Spring Island at 1-500 Lower Ganges Road, Salt Spring Island.

For inquiries please call the Islands Trust Fund at (250) 405-5186 or toll-free via Enquiry BC at 1-800-663-7867 ((604) 660-2421 in Vancouver), or e-mail questions to [tfmail@islandstrust.bc.ca](mailto:tfmail@islandstrust.bc.ca).

Revised: April 2008

**2.1.x Procedure**

**ADMINISTRATION OF NATURAL AREA PROTECTION TAX  
EXEMPTION PROGRAM**

Trust Council: September 13, 2002

Amended: March 12, 2004; December 8, 2006 and June 15, 2007

**A: PURPOSE:**

1. To define policies and procedures that will ensure a fair, effective and coordinated process to implement the *Islands Trust Natural Area Protection Tax Exemption Regulation* in accordance with related policies of Islands Trust Council.

**B: REFERENCES:**

1. *Islands Trust Act* (7.1)  
*Islands Trust Natural Area Protection Tax Exemption Regulation*
2. Policy Manual:
  - 2.1. Protocol Agreement Process: Government (2.1.iv)
  - 2.2. Administrative Fairness Principles (7.1.i.)
  - 2.3. Trust Fund Board Natural Area Protection Policy (Ref No. TFB02008)
3. Protocol Agreements:
  - 3.1. SCR D Protocol Agreement and Memorandum of Understanding
  - 3.2. CRD agreement (in development)

**C: DEFINITIONS:**

*(Note: The following definitions are based on the Islands Trust Natural Area Tax Exemption Regulation)*

1. **eligible natural area property** means land that meets all the following requirements:
  - (a) it must be in an area designated under section 49.2 of the *Islands Trust Act*;
  - (b) it must be land in relation to which there is one or more natural area values or amenities prescribed under section 53(2)(k) of the *Islands Trust Act*;
  - (c) it must be subject to a covenant under section 219 of the *Land Title Act* that relates to the protection of values or amenities referred to in paragraph (b) of this definition;
  - (d) the Trust Fund Board must be a covenantee in whose favour the protection covenant is made; and
  - (e) any other requirements prescribed under section 53(2)(k) of the *Islands Trust Act*.

**ISLANDS TRUST POLICY MANUAL**

K:\Manuals\Policy\Chapter02\21x Administration of Natural Area Protection Tax Exemption Program.doc

2. **natural area exemption certificate** means a certificate under section 49.3 of the *Islands Trust Act* that is in effect.
3. **protection covenant** means a covenant referred to in paragraph (c) of the definition of eligible natural area property.

## D. POLICY and PROCEDURES

### GENERAL

1. Trust Council will consider the issuance of natural area exemption certificates in parts of the Trust Area that have been designated pursuant to section 49.2 of the *Islands Trust Act*, following an application by a landowner, provided an assessment by Trust Fund Board staff confirms eligibility for NAPTEP and the Trust Fund Board is willing to hold the required protection covenant.

### APPLICATION PROCESS

2. Staff will use the following process for applications for natural area exemption certificates:
  - a. A property owner or agent submits a complete application form, enclosing the Phase I application fee and all information required to assess eligibility for NAPTEP. In order for Trust Council to consider issuing a natural area exemption certificate by October 31<sup>st</sup> of any year, the applicant must apply by March 1 of that year.
  - b. Trust Fund Board staff will complete an initial assessment of the application to confirm eligibility according to the *Islands Trust Act*, the *Islands Trust Natural Area Protection Tax Exemption Regulation* and any written agreements with the relevant regional district or municipality.
  - c. If staff determines that the application is not eligible for NAPTEP, they will advise the applicant, and include reasons for the determination. The applicant will have the option of amending the application or providing additional information.
  - d. If staff determines that the application is eligible for NAPTEP, they will send it to the Local Trust Committee and the relevant regional district or municipality for comment, before making recommendations to the Trust Fund Board or Trust Council.
  - e. Trust Fund Board staff will confirm that the Trust Fund Board is willing to hold the required protection covenant, before making recommendations to Trust Council regarding issuance of a natural area exemption certificate.
  - f. Trust Fund Board staff will submit a Request for Decision to Trust Council, with recommendations regarding the issuance of a natural area exemption certificate. Responses from the Local Trust Committee and the relevant regional district or municipality will be included for consideration. If staff recommends in favour of an application, it will recommend that the certificate be issued if and when the applicant has provided an appropriate property baseline assessment (meeting guidelines approved by Islands Trust Council and the Trust Fund Board) and has

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## ISLANDS TRUST POLICY MANUAL

- registered the required protection covenant (meeting guidelines approved by Islands Trust Council and the Trust Fund Board) on the relevant property title.
- g. If Trust Council is in favour of the application, it will normally pass a standard resolution instructing the Secretary to issue a certificate upon receipt of an acceptable baseline assessment and proof of registration of the required protection covenant.
  - h. Within two years of the Trust Council resolution in favour of an application, the applicant must provide an acceptable baseline assessment and register the required conservation covenant against the title of the subject property in order to receive the natural area exemption certificate. If the applicant does not complete these steps within two years, the applicant must reapply for the natural area exemption certificate.
  - i. Once the applicant has registered the required protection covenant, the Islands Trust Secretary will issue the natural area exemption certificate.
  - j. Trust Fund Board staff will notify the Land Titles Office and the area assessor of all natural area exemption certificates issued within 30 days of their issuance.
  - k. Once the exemption certificate is issued, the Trust Fund Board can issue a news release jointly with the Local Trust Committee announcing the certificate.

### PROTECTION COVENANTS

3. All NAPTEP protection covenants must be in the Trust Fund Board's standard form, subject to changes approved by the Trust Fund Board.
4. Covenants will be monitored annually by the Trust Fund Board, following guidelines approved by Islands Trust Council and the Trust Fund Board at no cost to the land owner.
5. Where Trust Council issues a natural area exemption certificate in regards to public access features, the protection covenant will require that the property owner maintain public access.
6. Trust Council will consider developing a process whereby existing conservation covenants can be transferred into NAPTEP, provided the conservation covenant meets the required standards, or the coventor is willing to make the necessary amendments. Where an existing covenant is being transferred into NAPTEP, application fees may be reduced.

### COVENANT HOLDERS

7. The Trust Fund Board is the only party authorized to hold covenants related to applications for natural area exemption certificates, until other Islands Trust bodies have a similar capacity to administer and enforce protection covenants.  
*(Note: The Trust Fund Board has adopted a policy indicating its willingness to hold covenants on lands that are qualified in categories 2(a) through 2(d) of the Natural Area Protection Tax Exemption Regulation, subject to the availability of resources and an acceptable covenant)*
8. If the Trust Fund Board is unwilling to hold the required protection covenant, Trust Fund staff will notify the relevant Local Trust Committee to determine if it is willing

## ISLANDS TRUST POLICY MANUAL

- and has the capacity to hold and monitor the required protection covenant. The final decision on the capacity lies with Trust Council.
9. If neither the Trust Fund Board nor the relevant Local Trust Committee is willing or able to hold the required protection covenant, and if the applicant still wishes to proceed, Trust Fund Board staff will request a decision from the Islands Trust Council as to whether it is willing to hold the required protection covenant.
  10. Protection covenants may be held jointly with other eligible organizations.

#### **PROGRAM COSTS AND FEES**

11. Applicants will bear the costs of the required baseline, survey, personal legal and financial advice.
12. Application fees are governed by Bylaw 115
13. Trust Council will direct staff to allocate all application fees received to the processing and assessment of applications, including the retention of contract staff, as necessary. The Chief Administrative Officer is to manage these funds.

#### **CANCELLATION OF TAX EXEMPTION CERTIFICATES**

*Note: Cancellation of tax exemption certificates is regulated by sections 49.4 through 49.5 of the Islands Trust Natural Area Tax Exemption Regulation*

14. Trust Council intends that protection covenants related to NAPTEP are to be permanent.
15. Where a contravention of a protection covenant takes place, Trust Council may consider cancellation of the tax exemption certificate until the contravention has been rectified.
16. Where a contravention of a protection covenant takes place and cannot be rectified, Trust Council will consider cancellation of the related tax exemption certificate, according to regulations in the *Islands Trust Natural Area Exemption Regulation*.
17. Trust Council will seek agreements with the Minister of Finance to distribute to Trust Council any recaptured taxes related to the cancellation of tax exemption certificates. Any such funds will be used for the conservation of natural areas in the trust area.

#### **RECORD KEEPING AND REPORTS**

18. Trust Fund Board staff will maintain a record of all natural area tax exemption certificates in the Trust Area Property Information System (TAPIS).
19. Trust Fund Board staff will provide an annual report to Trust Council regarding natural area exemption certificates.

#### **PROGRAM MONITORING**

20. Trust Fund Board staff will notify holders of natural area exemption certificates of the timing of annual monitoring visits in relation to their protection covenant.
21. Trust Fund Board staff will send copies of monitoring reports to land owners and co-covenant holders.

### **ISLANDS TRUST POLICY MANUAL**



22. Trust Fund Board staff will advise Trust Council of any irreparable contraventions of protection covenants, including failures to provide the required annual monitoring report.

#### **AGREEMENTS WITH OTHER AGENCIES**

23. Trust Council will enter into agreements with the Trust Fund Board, the Local Trust Committee, regional districts, and provincial and federal agencies as necessary to ensure the effective implementation of the NAPTEP.

#### **PROGRAM ASSESSMENT**

24. Trust Council will monitor NAPTEP to ensure the fair and efficient administration of the program, and will assess staff and financial resources for possible expansion to additional Local Trust Areas.

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### **ISLANDS TRUST POLICY MANUAL**

**REGIONAL DISTRICT OF NANAIMO**

**MINUTES OF THE COMMITTEE OF THE WHOLE  
MEETING HELD ON TUESDAY, JUNE 10, 2008 AT 7:00 PM  
IN THE RDN BOARD CHAMBERS**

**Present:**

Director J. Stanhope	Chairperson
Director J. Burnett	Electoral Area A
Director B. Sperling	Electoral Area B
Director M. Young	Electoral Area C
Director G. Holme	Electoral Area E
Director L. Biggemann	Electoral Area F
Director D. Bartram	Electoral Area H
Director S. Herle	City of Parksville
Director T. Westbroek	Town of Qualicum Beach
Director C. Haime	District of Lantzville
Alternate	
Director J. Cameron	City of Nanaimo
Director B. Bestwick	City of Nanaimo
Director J. Manhas	City of Nanaimo
Alternate	
Director L. Sherry	City of Nanaimo
Director B. Holdom	City of Nanaimo
Director L. McNabb	City of Nanaimo

**Also in Attendance:**

C. Mason	Chief Administrative Officer
M. Pearce	Senior Manager, Corporate Administration
N. Avery	Gen. Manager of Finance & Information Services
D. Trudeau	General Manager of Transportation Services
J. Finnie	General Manager of Environmental Services
P. Thorkelsson	General Manager of Development Services
T. Osborne	General Manager of Recreation & Parks
N. Tonn	Recording Secretary

**CALL TO ORDER**

The Chairperson welcomed Alternate Directors Cameron and Sherry to the meeting.

**DELEGATIONS**

**Thomas Mackey, Nanaimo Correctional Centre, re Proposed Memorandum of Understanding for Evacuation and/or Civil Emergency.**

Mr. Mackey provided an overview of the Nanaimo Correctional Centre's ability to sustain itself within the complex in the case of many types of emergency and the need for an evacuation process in the case of emergencies which would require that the complex be evacuated and the inmates and staff transported to a suitable temporary location.

**Kevin McNeill & Chris Fernandez, Nanaimo Search & Rescue, re Proposed Search & Rescue Bylaw.**

Mr. McNeill, NSAR member, and Mr. Fernandez, RCMP emergency liaison, spoke in favour of the proposed Search and Rescue Establishing Bylaw No. 1552.

**Dr. John Peirce, Gabriola Land Conservancy & Gabriola Land and Trails Trust, re Management Planning for 707 Acre Park – Area ‘B’.**

Dr. Peirce spoke on the importance of a management plan for 707 Acre Park on Gabriola Island, and requested that the Board allocate funds to complete a management plan this year if at all possible, or the beginning of 2009 at the latest.

**Tom Kendall, Decourcy Island Community Association, re Boat Harbour Proposal.**

Mr. Kendall spoke in favour of the proposed Boar Harbour development and noted the continued need for an accessible marina and public boat launch.

**Doug McLennan, re Board Harbour Proposal.**

Mr. McLennan, representing the four properties on the escarpment adjacent to the proposed Board Harbour development, raised his concerns with the development not meeting the criteria for the Electoral Area ‘A’ Official Community Plan or the Regional Growth Strategy.

**Townline Ventures, re Boat Harbour Proposal.**

Mr. Lowden provided an update with respect to Townline Ventures' Boat Harbour proposal which included addressing many concerns raised by the Board, staff and the residents at the Committee of the Whole meeting held October 9, 2007.

**LATE DELEGATION**

MOVED Director Westbrook, SECONDED Director Holme, that a late delegation be permitted to address the Committee.

CARRIED

**Amos Wheeler, re Garbage & Recycling Fees.**

Mr. Wheeler was not in attendance.

**MINUTES**

MOVED Director Westbrook, SECONDED Director McNabb, that the minutes of the Committee of the Whole meeting held May 13, 2008 be adopted.

CARRIED

**COMMUNICATIONS/CORRESPONDENCE**

**T. Scott, Boat Harbour & Area Residents Committee, re Boat Harbour Proposal.**

MOVED Director Westbrook, SECONDED Director McNabb, that the correspondence from the Boat Harbour & Area Residents Committee regarding the proposed Boat Harbour project, be received.

CARRIED

***CORPORATE ADMINISTRATION SERVICES***

**COMMUNICATIONS**

**Public Consultation/Communication Framework.**

MOVED Director Holme, SECONDED Director Westbrook, that the amended Public Consultation/Communication Framework be approved.

CARRIED

***FINANCE AND INFORMATION SERVICES***

**FINANCE**

**Nanaimo Regional Hospital District Borrowing Bylaw Nos. 144 (Renal Project), 145 (Emergency Department Redevelopment) and 146 (Boiler Plant Upgrade).**

MOVED Director Westbrook, SECONDED Director Manhas, that "Nanaimo Regional Hospital District (NRGH Renal Project) Borrowing Bylaw No. 144, 2008" be introduced and read three times.

CARRIED

MOVED Director Westbrook, SECONDED Director Manhas, that "Nanaimo Regional Hospital District (NRGH Renal Project) Borrowing Bylaw No. 144, 2008" be adopted.

CARRIED

MOVED Director Westbrook, SECONDED Director Manhas, that "Nanaimo Regional Hospital District (NRGH Emergency Department Redevelopment) Borrowing Bylaw No. 145, 2008" be introduced and read three times.

CARRIED

MOVED Director Westbrook, SECONDED Director Manhas, that "Nanaimo Regional Hospital District (NRGH Emergency Department Redevelopment) Borrowing Bylaw No. 145, 2008" be adopted.

CARRIED

MOVED Director Westbrook, SECONDED Director Manhas, that "Nanaimo Regional Hospital District (NRGH Boiler Plant Upgrade) Borrowing Bylaw No. 146, 2008" be introduced and read three times.

CARRIED

MOVED Director Westbrook, SECONDED Director Manhas, that "Nanaimo Regional Hospital District (NRGH Boiler Plant Upgrade) Borrowing Bylaw No. 146, 2008" be adopted.

CARRIED

**Quarterly Financial Statements.**

MOVED Director Holdom, SECONDED Director Bartram, that the summary report of financial results from operations to April 30, 2008 be received for information.

CARRIED

**Bow Horn Bay Fire Protection Local Service Area Amendment Bylaw No. 1385.03.**

MOVED Director Bartram, SECONDED Director Burnett, that "Bow Horn Bay Fire Protection Local Service Area Amendment Bylaw No. 1385.03, 2008" be introduced and read three times.

CARRIED

**Temporary Storage of Firefighting Vehicles (Meadowood).**

MOVED Director Biggemann, SECONDED Director Young, that the General Manager, Finance & Information Services and the Senior Manager, Corporate Administration, execute a lease for the purpose of storing firefighting vehicles and equipment, between the Regional District of Nanaimo and Pat and Janis McPhalen, with respect to a building located at 1897 Galvin Place, at a monthly cost of \$375 as outlined in this report.

CARRIED

**DEVELOPMENT SERVICES****BUILDING & BYLAW****Notice of Bylaw Contravention – 2835 Shady Mile Way – Area ‘C’.**

MOVED Director Young, SECONDED Director Burnett, that staff be directed to register a Notice on title pursuant to Section 57 of the *Community Charter* and take the necessary legal action to ensure Lot 11, Section 15, Range 4, Plan VIP68509, Mountain District, is in compliance with “Regional District of Nanaimo Building Regulations & Fees Bylaw No. 1250, 2001”.

CARRIED

**Notice of Bylaw Contravention – 1995 Walsh Road – Area ‘A’.**

MOVED Director Burnett, SECONDED Director McNabb, that staff be directed to register a Notice on title pursuant to Section 57 of the *Community Charter* and take the necessary legal action to ensure Lot 3, Section 16, Range 8, Plan 25384, Cranberry District, is in compliance with “Regional District of Nanaimo Building Regulations & Fees Bylaw No. 1250, 2001”.

CARRIED

**Notice of Bylaw Contravention – 2161 Walsh Road – Area ‘A’.**

MOVED Director Burnett, SECONDED Director Holme, that staff be directed to register a Notice on title pursuant to Section 57 of the *Community Charter* and should the outstanding bylaw contraventions not be resolved within ninety (90) days, that legal action be pursued to ensure Lot 1, Section 16, Range 1, Plan 47095, Cedar Land District, is in compliance with “Regional District of Nanaimo Building Regulations & Fees Bylaw No. 1250, 2001”.

CARRIED

**Notice of Bylaw Contravention – 3470 Juriet Road – Area ‘A’.**

Mr. Ken Gregory assured the Committee that he is in the process of obtaining the necessary structural certification to demonstrate the building is safe for use.

MOVED Director Burnett, SECONDED Director McNabb, that if a Professional Engineer’s certification is not received within three (3) weeks, staff be directed to register a Notice on title pursuant to Section 57 of the *Community Charter* and take the necessary legal action to ensure Lot A, Section 4, Range 6, Plan VIP81417, Cedar Land District, is in compliance with “Regional District of Nanaimo Building Regulations & Fees Bylaw No. 1250, 2001” and “Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987”.

CARRIED

**EMERGENCY PLANNING****Search & Rescue Establishing Bylaw No. 1552.**

MOVED Director Burnett, SECONDED Director Young, that elector assent for the participating areas be obtained by using the alternative approval process for the entire District 68 service area.

CARRIED

MOVED Director Burnett, SECONDED Director Young, that "Southern Community Search and Rescue Contribution Service Bylaw No. 1552, 2008" be introduced for first three readings, forwarded to the Ministry of Community Services for approval and proceed through the alternative approval process to obtain assent of the electors in the Municipalities of Nanaimo and Lantzville and Electoral Areas 'A', 'B' and 'C'.

CARRIED

MOVED Director Burnett, SECONDED Director Young, that the attached Search and Rescue Contribution Service Elector Response Form be approved for use with Bylaw No. 1552.

CARRIED

MOVED Director Holme, SECONDED Director McNabb, that staff be directed to begin discussions with the Arrowsmith Search and Rescue and the northern communities for the establishment of a similar contribution service for District 69.

CARRIED

## **PLANNING**

### **Agricultural Advisory Committee.**

MOVED Director Bartram, SECONDED Director Young, that this item be referred back to staff for further discussion at a Board seminar.

CARRIED

### **Boat Harbour Resort – Compliance with Policy 6C of the Regional Growth Strategy.**

MOVED Director Burnett, SECONDED Director Manhas, that the proposed tourist resort at Boat Harbour meets the conditions for a destination resort as outlined in Policy 6C of the RGS.

CARRIED

### **Built Environment & Active Transportation Community Planning Grant.**

MOVED Director Bestwick, SECONDED Director Cameron, that the Regional District of Nanaimo Board support the submission of a full application package for a community planning grant to the Union of British Columbia Municipalities to develop an Active Transportation Plan for Electoral Area 'A'.

CARRIED

MOVED Director Bestwick, SECONDED Director Cameron, that the Board authorize staff to provide overall grant and financial management.

CARRIED

## ***ENVIRONMENTAL SERVICES***

### **LIQUID WASTE**

#### **Pump and Haul Local Service Area Amendment Bylaw No. 975.47 – Exclusion of 910 Poplar Way – Area 'F'.**

MOVED Director Biggemann, SECONDED Director Cameron, that the boundaries of the RDN Pump and Haul Local Service Area Bylaw 975 be amended to exclude Lot 22, DL 74, Plan 29012, Cameron District, (910 Poplar Way, Electoral Area 'F').

CARRIED

MOVED Director Biggemann, SECONDED Director Cameron, that "Regional District of Nanaimo Pump & Haul Local Service Area Amendment Bylaw No. 975.47, 2008" be introduced and read three times.

CARRIED

**French Creek Pollution Control Centre – Stage 3 Upgrade (Phase 1B) – Bylaw No. 1554.**

MOVED Director Westbrook, SECONDED Director Bartram, that D. Robinson Contracting Ltd. be awarded the construction phase of FCPCC Stage 3 (Phase 1B) Upgrade project – Grit Channel/Skimming Upgrade for the tendered amount of \$567,000.

CARRIED

MOVED Director Westbrook, SECONDED Director Bartram, that Northern Community Development Cost Charge funds in the amount of \$645,105 be approved as a source of funds for this project.

CARRIED

MOVED Director Westbrook, SECONDED Director Bartram, that "Northern Community Sewer Local Service Area Development Cost Charge Reserve Fund Expenditure Bylaw No. 1554, 2008" be introduced and read three times.

CARRIED

MOVED Director Westbrook, SECONDED Director Bartram, that "Northern Community Sewer Local Service Area Development Cost Charge Reserve Fund Expenditure Bylaw No. 1554, 2008" be adopted.

CARRIED

**UTILITIES**

**Nanoose Bay Peninsula Water Service Area – Well Sequencing Approach.**

MOVED Director Holme, SECONDED Director Manhas, that the Board approve the Well Sequencing approach to reduction of iron and manganese in the Nanoose Bay Peninsula Water Service Area.

CARRIED

**San Pareil Water Service – Installation of Well Head Works – Bylaw No. 1395.**

MOVED Director Westbrook, SECONDED Director Holdom, that the Board authorize a drawdown of \$110,000 from the "San Pareil Water Service Security Issuing Bylaw No. 1395, 2004" for the installation of the San Pareil #3 well head works.

CARRIED

**TRANSPORTATION AND SOLID WASTE SERVICES**

**SOLID WASTE**

**Residential Food Waste Field Test Survey.**

MOVED Director Holdom, SECONDED Director Bartram, that the Board receive the Residential Food Waste Collection Field Test summary and analysis of survey responses and focus group report for information.

CARRIED

**COMMISSION, ADVISORY & SELECT COMMITTEE**

**Electoral Area 'E' Parks and Open Space Advisory Committee.**

MOVED Director Holme, SECONDED Director Bartram, that the minutes as amended, of the Electoral Area 'E' Parks and Open Space Advisory Committee meeting held April 7, 2008 be received for information.

CARRIED

MOVED Director Holme, SECONDED Director Bartram, that the Nanoose Bay Parents Advisory Committee playground project at Nanoose Bay Elementary School be referred to Parks Staff for review, which would include liability insurance, the overall cost of the project and ownership of the equipment once installed, and in addition should the project be deemed feasible, the Committee will revisit the issue prior to the 2009 budget process to consider funding.

CARRIED

**Electoral Area 'F' Parks and Open Space Advisory Committee.**

MOVED Director Biggemann, SECONDED Director Cameron, that the minutes of the Electoral Area 'F' Parks and Open Space Advisory Committee meeting held April 21, 2008 be received for information.

CARRIED

**District 69 Recreation Commission.**

MOVED Director Bartram, SECONDED Director Herle, that the minutes of the District 69 Recreation Commission meeting held May 22, 2008 be received for information.

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that the District 69 Recreation Commission review in the fall 2008 and winter 2009 the Ravensong Aquatic Centre expansion project and prepare a recommendation on the future of the project.

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that the Regional District continue to use the Recreation and Parks Department's 15-passenger van with changes to procedures, and limitations and restrictions, as outlined in Appendix I to be written in a formal policy and procedure, and that staff continue to explore alternative modes of transportation.

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that the following District 69 Youth and Community Recreation Grants be approved:

***Youth Recreation Grants:***

<b><i>Community Group</i></b>	<b><i>Recommended</i></b>
Bard to Broadway (Teen Musical Theatre)	\$ 1,650
District 69 Family Resource Association (Youth bus supplies)	\$ 1,500
Kidfest – youth events	\$ 1,000
One Five One – arts materials	\$ 1,500
Qualicum First Nation – youth event	\$ 1,300



*Community Recreation Grants:*

<i>Community Group</i>	<i>Recommended</i>
Bard to Broadway (Pacific Vocal Institute)	\$ 1,650
Building Learning Together (WOW Bus Supplies)	\$ 800
Coombs Candy Walk	\$ 1,500
Family Resource Association – Family Days	\$ 1,500
District 69 Mixed Orthodox League (Team equipment/uniforms)	\$ 1,000
Oceanside Ebbtide Slo-Pitch (Equipment)	\$ 1,000
Parksville Curling Club (Equipment for Special Olympics & Beginner Clinics)	\$ 1,145
Parksville Seniors Athletic Group – Equipment	\$ 1,000
Qualicum Beach Museum (Harvest Festival/Children’s Museum Day)	\$ 950
Qualicum Beach Seedy Saturday (Cloth grocery bags)	\$ 1,000

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that the Community Grant in Aid request received from The Nature Trust of BC, Brant Wildlife Festival in the amount of \$1,500, be deferred to the 2009 Grant in Aid program.

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that the Building Learning Together Community Grant in Aid request in the amount of \$2,500 be received, and that a Transportation Plan be submitted to the District 69 Recreation Commission prior to final approval of the grant request.

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that the Community Grant in Aid request Building Learning Together for Goosetrax in the amount of \$1,500 to purchase swim/skate program passes be denied, as the swim/skate passes have already been donated to the organization through a separate request.

CARRIED

MOVED Director Bartram, SECONDED Director Herle, that staff prepare a Memorandum of Understanding with the Lighthouse Recreation Commission on the provision of Recreation Services in Electoral Area ‘H’.

CARRIED

**ADDENDUM**

***DEVELOPMENT SERVICES***

**EMERGENCY PLANNING**

**Emergency Management Agreement Renewal.**

MOVED Director McNabb, SECONDED Director Haime, that the Emergency Management Agreement with the City of Nanaimo, the District of Lantzville, the City of Parksville, the Town of Qualicum Beach and the Qualicum, Nanoose and Snuneymuxw First Nations be renewed, as presented, for a five year term from May 1, 2008 to May 1, 2013.

CARRIED

**BUSINESS ARISING FROM DELEGATIONS OR COMMUNICATIONS**

**Proposed Memorandum of Understanding for Evacuation and/or Civil Emergency.**

MOVED Director Holme, SECONDED Director Manhas, that the proposal from the Nanaimo Correctional Centre for a memorandum of understanding for evacuation and/or civil emergency at the Correctional Centre be referred back to staff for further information.

CARRIED

**IN CAMERA**

MOVED Director Holme, SECONDED Director Herle, that pursuant to Section 90(1)(e) of the *Community Charter* the Board proceed to an In Camera Committee of the Whole meeting to consider items related to land issues.

CARRIED

**ADJOURNMENT**

MOVED Director Holme, SECONDED Director Herle, that this meeting adjourn to allow for an In Camera meeting.

CARRIED

TIME: 8:40 PM

**RISE AND REPORT**

**Wind Farm Proposal – 707 Acre Community Park – Area ‘B’.**

MOVED Director Sperling, SECONDED Director Bartram, that the request from Zero Emission Energy Development to investigate and develop a wind farm on the 707 acre Electoral Area ‘B’ Community Parkland on Gabriola Island be denied.

CARRIED

**BUSINESS ARISING FROM DELEGATIONS OR COMMUNICATIONS**

**K. Zakreski, Gabriola Radio Society, re Tower at 707 Acre Community Park – Area ‘B’.**

MOVED Director Sperling, SECONDED Director Bartram, that the request from the Gabriola Radio Society to erect a tower in the 707 community park on Gabriola Island, be denied.

CARRIED

**ADJOURNMENT**

MOVED Director Bartram, SECONDED Director Holme, that the meeting terminate.

CARRIED

TIME: 9:01 PM

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CHAIRPERSON

**Burgoyne, Linda**

**From:** Tonn, Nancy  
**Sent:** Thursday, June 26, 2008 12:21 PM  
**To:** Burgoyne, Linda  
**Subject:** FW: Affordable Housing Needs Assessment Initiative: RDN support  
**Importance:** High  
**Attachments:** letter-of-inquiryREF.doc

CAO		GMF&IS	
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<b>JUN 26 2008</b>			
SMCA			
CHAIR		BOARD	<input checked="" type="checkbox"/>
<i>Carrey</i>			

**From:** Sheila Malcolmson [mailto:smaicolmson@islandstrust.bc.ca]  
**Sent:** Thursday, June 26, 2008 11:45 AM  
**To:** Tonn, Nancy  
**Cc:** Gabriola Island Local Trust Committee; Chris Jackson; bernisperling@gmail.com  
**Subject:** Affordable Housing Needs Assessment Initiative: RDN support  
**Importance:** High

Dear Chairperson Stanhope and Regional District of Nanaimo Directors;

The Gabriola Local Trust Committee has submitted a grant application to the Real Estate Foundation's *Communities in Transition* program, for a community housing/affordable housing needs assessment. We have cleared the first stage of the application process and have been invited by the Real Estate Foundation to submit a more detailed proposal (the initial application is attached, as a draft). Our chances of receiving the funds are greatly improved if we can demonstrate support from the RDN - if we had a letter to formalize that by July 15, that would help a lot. The Salt Spring Island Local Trust Committee was funded generously to conduct a housing needs assessment, in large part because the Capital Regional District was a project partner. The Gabriola Local Trust Committee and Islands Trust staff would manage the project, if we are funded.

We are looking for Project Partners - the RDN would be ideal. This would mean the RDN would provide some assistance regarding statistics it already holds, staff support, and help to fund additional information-gathering. If you have the budget and can commit dollars, we'd welcome that, or the RDN could make an in-kind commitment of staff time. In either case, we'd be grateful if you considered a commitment of \$3,000 (The Gabriola Local Trust Committee is committing \$4,000). If you agree, we'd add the RDN as a line item in the budget at the very end of the file attached. A more complete description of project partners is attached at the bottom of this email.

Gabriola Island is expecting continued and substantial population growth over the next 15 years. The population increased by 15% in the last census, to 4,050. The population of the Georgia Basin, which includes the Gulf Islands, is expected to grow by 35% by 2020. Over the past 5 years there has been a 316% increase in the median price of land sales and a 125% increase in the price of homes. On Gabriola there has also been a shift in demographics, measured by the number of students in elementary school, where the enrollment is dropping, representing a 20% decline. Residents of Gabriola Island are increasingly concerned about their own and their families' ability to remain on the island. Local businesses are having increasing difficulty in hiring and retaining employees due to the lack of affordable housing units.

In response, we are planning to assess Affordable Housing Needs, gathering relevant statistics and data and analyzing those in relation to qualitative data from key stakeholders. This information will frame a community survey that will be accessible to all residents of Gabriola Island. The results will inform amendments in the next review of our Official Community Plan as well as solutions that can be achieved outside of policy or legislative change.

6/26/2008

Thanks a lot for considering this. We'd appreciate whatever support the RDN can provide, to allow an affordable housing needs assessment to proceed.

Sheila Malcolmson  
Gabriola Island Local Trustee  
247-8078  
<http://www.islandstrust.bc.ca/ltc/gb/default.cfm>

The Real Estate Foundation description of partners is found below – the first reference is from the application – the second on their website.

**Project Partners and Personnel Resources:**

*List organizations and individuals that will be involved in the project, and describe the importance of their roles.*

**A Word on Partnerships:**

The Real Estate Foundation looks favourably on projects that involve all appropriate community and/or agency partners. Appropriate partnerships maximize the amount of community support, expertise, funding and in-kind support available to your project. Depending on the size and nature of your project, you might have several active partners, or just one or two. Ensure that you have at least one source of funding for your project other than the Foundation. The Foundation will rarely agree to be a project's sole funder.

## DRAFT LETTER OF INQUIRY

March 20, 2008

{Organization Contact}  
{Contact's Title}  
Gabriola Local Trust Committee  
Islands Trust  
{Organization Address}  
Gabriola, British Columbia  
V0R ...

Dear Mr. Rogozinski,

Continuing our commitment to respond to the needs of the Gabriola community, the Gabriola Island Local Trust Committee is inquiring about available funding to help us implement the Affordable Housing Needs Assessment for Gabriola Island. This request fits both the Research and Law Reform objectives of the Real Estate Foundation's Community in Transition Fund.

### **About Our Agency**

The Islands Trust is a federation of independent local governments which plans land use and regulates development in the trust area. In 1974, in recognition of the special nature of the islands in the Strait of Georgia and Howe Sound, the Government of British Columbia enacted the *Islands Trust Act* to protect this unique part of the world. The Local Trust Committees are responsible for the Official Community Plan in their jurisdiction.

There are two sections in Gabriola's Official Community plan that reference affordable housing and housing for seniors and people with disabilities. However, these sections do not respond to the current issues facing Gabriola. The Gabriola Local Trust Committee (LTC) is responsible for reviewing the Gabriola Official Community Plan on a regular basis through a community engagement process and making relevant amendments. In order to respond effectively to the needs facing the community the LTC has recognized the need to gather and analyse information relevant to affordable housing on Gabriola.

Given the mandate of the Island's Trust, which is to "preserve and protect" the Trust area and its unique amenities and environment for the benefit of the residents of the Trust area and of British Columbia generally", this study will consider environmental, social, economic and governance factors. The aim of the study will be to identify solutions that are sustainable for each of those factors.

**The Challenge:** Gabriola Island is expecting continued and substantial population growth over the next 15 years. The population increased by 15% in the last census to 4,050. The population of the Georgia Basin, which includes the Gulf Islands, is expected to grow by 35% by 2020. Over the past 5 years there has been a 316% increase in the median price of land sales and a 125% increase in the price of homes. On Gabriola, however, there is a shift in demographic, measured by the number of students in

## DRAFT LETTER OF INQUIRY

elementary school, where the enrollment is dropping, representing a 20% decline. Residents of Gabriola Island are increasingly concerned about their own and their families' ability to remain on the island. Local businesses are having increasing difficulty in hiring and retaining employees due to the lack of affordable housing units.

**The Solution:** In response to the preceding issue we are planning on implementing an Affordable Housing Needs assessment, gathering relevant statistics and data and analyzing those in relation to qualitative data from key stakeholders. This information will frame a community survey that will be accessible to all residents of Gabriola Island. The results will inform amendments in the next review of our Official Community Plan as well as solutions that can be achieved outside of policy or legislative change.

**Project Objectives:** We feel this program will help our community achieve positive, tangible results by providing the Trust Committee, housing providers (non-profit and private) and the general community with an objective view of the current and forecasted housing situation.

We are expecting the following results:

- Accurate information with respect to housing on Gabriola including income and affordability, tenure, size and suitability according to family size and composition, service and special needs.
- Analysis of the needs of the Gabriola community relative to housing availability, options, environmental impact and affordability
- Identification of alternative approaches to addressing the housing affordability needs on Gabriola Island.

We expect this research to lead to implementation of recommended solutions through both policy change and through community action.

### **Funding Request**

To help our organization successfully implement this important program, we request \$13,200 from the Real Estate Foundation's Community in Transition Fund. Funds provided will be used to implement the Affordable Housing Needs Assessment. Attached is the full budget for the project.

We appreciate your consideration in helping finance this vital project. If you have any questions or require additional information, please contact {contact information}.

Sincerely,

{Name}  
{Title/Position}

DRAFT LETTER OF INQUIRY

**Gabriola Affordable Housing Needs Assessment**

**Project Budget:**

**Project Tasks**

A. Information gathering	\$1,600	
B. Interviews	800	
C. Analysis of statistical data and Interviews	2,800	
D. Interim report	600	
E. Development of Survey tool	800	
F. Implementation of Survey	1,200	
G. Further community inquiry	1,600	
H. Analysis and recommendations – final report	<u>2,800</u>	
		12,200

**Expenses**

Room Rental	500	
Website Survey	1,000	
Printing and misc. costs	<u>1,500</u>	
		<u>3,000</u>

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<b>Total</b>		<b>\$15,200</b>
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**Source of Funds**

Real Estate Foundation (CIT)	\$13,200
Islands Trust	<u>2,000</u>

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<b>Total</b>		<b>\$15,200</b>
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RDN REPORT	
CAO APPROVAL	
EAP	
COW	✓ July 8/08
JUN 30 2008	
RHD	
BOARD	

# MEMORANDUM

**TO:** Tom Arnet  
 Manager, Building and Bylaw Services

**DATE:** June 27, 2008

**FROM:** Allan Dick  
 Building Inspection Supervisor

**FILE:**

**SUBJECT:** 1310 Wilson Road – Building Bylaw Contravention

## PURPOSE

To obtain Board approval to file a Notice of Bylaw Contravention on the title of the above-noted property.

## BACKGROUND

**Property:** 1310 Wilson Road, Gabriola Island, BC, Electoral Area 'B'  
**Legal:** Lot 7, Section 9, Gabriola Island, Nanaimo District, Plan 30347  
**Owners:** Daniel Duncan Kennedy  
**Zoning:** LRR (Islands Trust)

On April 2, 2008, Regional District of Nanaimo Building Inspection staff placed a Stop Work Order Notice on the subject property as a result of ongoing construction of a single-family dwelling and four sheds without permits. The dwelling was partially completed to the insulation stage and was occupied.

On April 7, 2008, the property owner was again notified in writing of the contravention and directed to apply for building permits. Staff was subsequently advised by a real estate agent acting for the owners that the property was for sale and prospective purchasers had retained an engineer to examine the structures. Approximately one month later the sale collapsed and, to date, building permit applications have not been submitted. The dwelling and accessory buildings continue to be used by the owner.

## ALTERNATIVES

1. That a Notice of Bylaw Contravention be registered on the title of the property and staff be directed to take the necessary legal action to bring the property into compliance with "*Regional District of Nanaimo Building Regulation & Fees Bylaw 1250, 2001.*"
2. That a Notice of Bylaw Contravention not be registered on title at this time and staff be directed to continue to seek voluntary compliance.

## SUSTAINABILITY IMPLICATIONS

There are no regional sustainability implications related to this issue.

## FINANCIAL IMPLICATIONS

The cost of legal action is estimated at approximately \$4,000.

**CONCLUSION**

On April 2, 2008, Regional District of Nanaimo (RDN) staff issued a Stop Work Order Notice on the subject property as a result of ongoing construction of four sheds and a single-family dwelling without building permits. Staff was subsequently informed that the property was listed for sale and a prospective purchaser retained an engineer to certify the buildings. The owner continues to occupy the structures and has failed to apply for Building Permits despite direction from RDN staff. Staff is, therefore, recommending that a Contravention Notice be placed on the title and that legal action be taken if necessary to resolve this building bylaw contravention.

**RECOMMENDATION**

That staff be directed to register a Notice of Bylaw Contravention on title pursuant to Section 57 *Community Charter* and that legal action be taken to ensure Lot 7, Section 9, Gabriola Island, Nanaimo District, Plan 30347, is in compliance with the "*Regional District of Nanaimo Building Regulation & Fees Bylaw 1250, 2001.*"

*D. Laustra*  
for Report Writer  
*[Signature]*  
for  
Manager Concurrence

*[Signature]*  
General Manager Concurrence  
*[Signature]*  
for CAO Concurrence

COMMENTS:



## MEMORANDUM

RDN REPORT		
CAO APPROVAL		
EAP		
COW	✓	July 8/08
JUN 27 2008		
RHD		
BOARD		
June 26, 2008		

**TO:** Sean De Pol  
Manager of Liquid Waste

**DATE:**

**FROM:** Nadine Schwager  
Liquid Waste Coordinator

**FILE:**

4520-20-41

**SUBJECT:** **Pump and Haul Bylaw Amendment**  
**1846 Ballenas Road, Electoral Area 'E'**

### PURPOSE

To consider an amendment to Bylaw 975 which established the Regional District of Nanaimo's Pump and Haul program.

### BACKGROUND

A request has been received to exclude the following property from the Pump and Haul function:

Lot 24, DL 68, Plan 30341, Nanoose District  
1846 Ballenas Road, Electoral Area 'E'

Mr. Brown has written to the RDN requesting that the pump and haul function on his property at 1846 Ballenas Road be cancelled. The property is located on Ballenas Road in Nanoose Bay.

The original inclusion of the property for pump and haul was adopted in May 2001 after Vancouver Island Health Authority indicated that the property could not accommodate a conventional septic system. In 2006, the previous owners installed an engineered system that meets the requirements of the Vancouver Island Health Authority. Therefore, this property no longer requires the pump and haul service.

### ALTERNATIVES

1. Do not accept the application.
2. Accept the application.

### FINANCIAL IMPLICATIONS

There are no financial implications. The applicant pays an application fee and an annual user fee. The Pump and Haul program is a user pay service.

### SUSTAINABILITY IMPLICATIONS

Domestic sewage from this property was previously discharged into a holding tank, then pumped and hauled to the French Creek Pollution Control Centre. In 2006, the previous owners of the property installed an engineered on-site system. This eliminated the need for hauling domestic sewage.

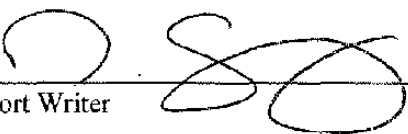
There are no sustainability implications to the recommended removal of the property from the Pump & Haul Local Service Area, as the owners are no longer using the service. Staff do advocate the removal of properties from the Pump & Haul Local Service Area by the installation of advanced on-site treatment systems. On-site treatment is a more sustainable alternative as it requires less trucking of waste and, therefore, reduced greenhouse gas emissions within the District.


**SUMMARY/CONCLUSIONS**

Based on the previous owner's undertaking to install an on-site treatment and disposal system in accordance with VIHA requirements, staff is recommending the Board remove the subject property from the pump and haul service area.

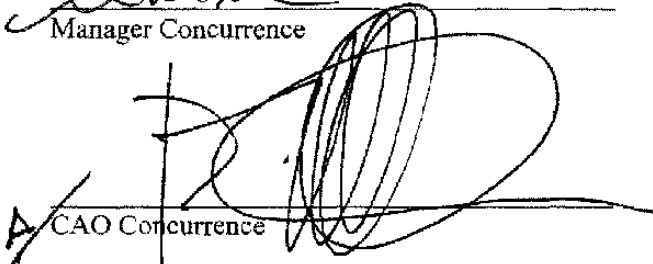
**RECOMMENDATIONS**

1. That the boundaries of the RDN Pump and Haul Local Service Area Bylaw 975 be amended to exclude Lot 24, DL 68, Plan 30341, Nanoose District. (1846 Ballenas Road, Electoral Area 'E').
2. That "Regional District of Nanaimo Pump & Haul Local Service Area Amendment Bylaw No. 975.48, 2008" be introduced and read three times.

  
Report Writer

  
Manager Concurrence

  
General Manager Concurrence

  
CAO Concurrence

COMMENTS:

**REGIONAL DISTRICT OF NANAIMO**

**BYLAW NO. 975.48**

**A BYLAW TO AMEND THE REGIONAL  
DISTRICT OF NANAIMO PUMP AND  
HAUL LOCAL SERVICE AREA  
ESTABLISHMENT BYLAW NO. 975**

WHEREAS Regional District of Nanaimo Pump and Haul Local Service Area Establishment Bylaw No. 975, as amended, established the pump and haul local service area;

AND WHEREAS the Directors of Electoral Areas 'B', a defined portion of 'C', 'E', 'F', 'G' and 'H' have consented, in writing, to the adoption of this bylaw;

AND WHEREAS the Councils of the City of Nanaimo and the District of Lantzville have consented, by resolution, to the adoption of Bylaw No. 975.48;

AND WHEREAS the Board has been requested to amend the boundaries of the local service area to exclude the following property:

Lot 24, DL 68, Plan 30341, Nanoose District (Electoral Area 'E');

NOW THEREFORE the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

1. Schedule 'A' of Bylaw No. 975 is hereby repealed and replaced with Schedule 'A' attached hereto and forming part of this bylaw.
2. This bylaw may be cited for all purposes as "Regional District of Nanaimo Pump and Haul Local Service Area Amendment Bylaw No. 975.48, 2006".

Introduced and read three times this \_\_\_\_\_ day of \_\_\_\_\_, 2008.

Adopted this \_\_\_\_\_ day of \_\_\_\_\_, 2008.

\_\_\_\_\_  
CHAIRPERSON

\_\_\_\_\_  
SR. MGR., CORPORATE ADMINISTRATION

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Chairperson

---

Sr. Mgr., Corporate Administration

**BYLAW NO. 975.48**

**SCHEDULE 'A'**

**Electoral Area 'B'**

1. Lot 108, Section 31, Plan 17658, Nanaimo Land District.
2. Lot 6, Section 18, Plan 17698, Nanaimo Land District.
3. Lot 73, Section 31, Plan 17658, Nanaimo Land District.
4. Lot 24, Section 5, Plan 19972, Nanaimo Land District.
5. Lot 26, Section 12, Plan 23619, Nanaimo Land District.
6. Lot 185, Section 31, Plan 17658, Nanaimo Land District.
7. Lot 177, Section 31, Plan 17658, Nanaimo Land District.
8. Lot 120, Section 31, Plan 17658, Nanaimo Land District.
9. Lot 7, Section 18, Plan 17698, Nanaimo Land District.
10. Lot 108, Section 12, Plan 23435, Nanaimo Land District.
11. Lot 75, Section 13, Plan 21531, Nanaimo Land District.
12. Lot 85, Section 18, Plan 21586, Nanaimo Land District.
13. Lot 14, Section 21, Plan 5958, Nanaimo Land District
14. Lot 108, Section 13, Plan 21531, Nanaimo Land District

**Electoral Area 'C' (Defined portion)**

**Electoral Area 'E'**

1. Lot 69, District Lot 68, Plan 30341, Nanoose Land District.
2. Lot 1, District Lot 72, Plan 17681, Nanoose Land District.
3. Lot 17, District Lot 78, Plan 14212, Nanoose Land District.
4. Lot 32, District Lot 68, Plan 26680, Nanoose Land District.
5. Lot 13, Block E, District Lot 38, Plan 13054, Nanoose Land District.
6. Lot 5, District Lot 78, Plan 25366, Nanoose Land District.
7. Lot 13, District Lot 78, Plan 25828, Nanoose Land District.
8. Lot 58, District Lot 78, Plan 14275, Nanoose Land District.
9. Lot 28, District Lot 78, Plan 15983, Nanoose Land District.
10. Lot 23, District Lot 78, Plan 14212, Nanoose Land District.
11. Lot 23, District Lot 78, Plan 28595, Nanoose Land District.
12. Lot 53, District Lot 78, Plan 14275, Nanoose Land District.
13. Lot 12, District Lot 8, Plan 20762, Nanoose Land District.

**Electoral Area 'F'**

1. Lot 22, District Lot 74, Plan 29012, Cameron Land District.
2. Lot 2, District Lot 74, Plan 36425, Cameron Land District.
3. Lot A, Salvation Army Lots, Plan 1115, Except part in Plan 734 RW, Nanoose Land District.
4. Strata Lot 179, Block 526, Strata Plan VIS4673, Cameron Land District.
5. Strata Lot 180, Block 526, Strata Plan VIS4673, Cameron Land District.
6. Strata Lot 181, Block 526, Strata Plan VIS4673, Cameron Land District.
7. Strata Lot 182, Block 526, Strata Plan VIS4673, Cameron Land District.
8. Strata Lot 183, Block 526, Strata Plan VIS4673, Cameron Land District.

**Electoral Area 'G'**

1. Lot 28, District Lot 28, Plan 26472, Nanoose Land District.
2. Lot 1, District Lot 80, Plan 49865, Newcastle Land District.

**Electoral Area 'H'**

1. Lot 22, District Lot 16, Plan 13312, Newcastle Land District.
2. Lot 29, District Lot 81, Plan 27238, Newcastle Land District.
3. Lot 46, District Lot 81, Plan 27238, Newcastle Land District.
4. Lot 9, District Lot 28, Plan 24584, Newcastle Land District.
5. Lot 41, District Lot 81, Plan 27238, Newcastle Land District.
6. Lot 20, District Lot 16, Plan 13312, Newcastle Land District.
7. District Lot 2001, Nanaimo Land District.
8. Lot 1, District Lot 40, Plan 16121, Newcastle District

**City of Nanaimo**

1. Lot 43, Section 8, Plan 24916, Wellington Land District.

**District of Lantzville**

1. Lot 24, District Lot 44, Plan 27557, Wellington Land District.
2. Lot A, District Lot 27G, Plan 29942, Wellington Land District.
3. Lot 1, District Lot 85, Plan 15245, Wellington Land District.





RDN REPORT		
CAO APPROVAL		
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CoW	✓	July 8/08
JUN 27 2008		
RHD		
BOARD		

**MEMORANDUM**

**TO:** Mike Donnelly, AScT  
Manager of Utilities

**DATE:** June 25, 2008

**FROM:** Deb Churko, AScT  
Engineering Technologist

**FILE:** 5500-20-FW-01

**SUBJECT:** Utilities  
Inclusion of Strata Lots 1 - 49, DL 78, Nanoose District, Plan VIS745 into the Fairwinds Sewerage Facilities Local Service Area, Electoral Area 'E'

**PURPOSE**

To consider a request to include Strata Lots 1 - 49, DL 78, Nanoose District, Plan VIS745 (3555 Outrigger Road), into the Fairwinds Sewerage Facilities Local Service Area for the purpose of sewer connection (see attached Figure 1).

**BACKGROUND**

The subject properties, Strata Lots 1 - 49, consist of the Schooner House condominium units at 3555 Outrigger Road in Nanoose Bay. Strata Council VIS 745 has petitioned the RDN, on behalf of the subject property owners, to include the condo units into the Fairwinds Sewerage Facilities Local Service Area (LSA).

The condo units were built in the 1980's and have been using a small private sewage treatment plant to treat and dispose of domestic sewage. The operation and maintenance agreement with the owner of the private sewage treatment plant expires at the end of 2008, and the condo owners wish to join the nearby RDN community sewer servicing area.

The subject properties are located within the "Urban Areas" described in the *Regional Growth Strategy* and the *Nanoose Bay OCP*. The properties are located near the Fairwinds Sewer LSA boundary, and community sewer collection mains are available nearby on Dolphin Drive. The Strata Council is currently negotiating with the adjacent property owner, the Fairwinds Community & Resort, to cost-share the installation of sewer mains on Outrigger Road.

The Fairwinds Sewerage Facilities Local Service Area Bylaw No. 947, 1994, requires amendment in order to include these properties.

Three of the adjacent properties on Outrigger Road were included in the Fairwinds Sewer Local Service Area in May 2008 through a similar boundary amendment bylaw.

**ALTERNATIVES**

1. Accept the application from Strata Council VIS 745 and include the subject properties into the Fairwinds Sewer Local Service Area.
2. Do not accept the application. Under this option, the Strata Council would need to explore private sewage disposal options.

## **FINANCIAL IMPLICATIONS**

If the application is approved for inclusion into the Fairwinds Sewer LSA, there are no financial implications to the RDN. All costs associated with the extension of sewer mains and connection to the existing community sewer system would be at the expense of the applicant. One Capital Charge is payable from the Strata Council on behalf of the condo owners. If the applications are not approved, there are no financial implications to the RDN.

## **SUSTAINABILITY IMPLICATIONS**

Domestic sewage generated from the condo units is currently being collected and treated in a small secondary treatment plant located next to the condo property. The treatment plant operates under a permit from the Ministry of Environment. The treated sewage is discharged into the Strait of Georgia through an outfall approximately 600 metres off the coastline at Schooner Cove.

By including the subject properties into the Fairwinds Sewer LSA, sewage from the condo units would be discharged to the community sewer collection system, and treated at the Fairwinds Pollution Control Centre (sewage treatment plant), a facility maintained by provincially trained and certified Wastewater Treatment Operators. A separate sewage treatment plant and outfall for the condo property would no longer be required.

A connection to the Regional District community sewer system is available, and staff are of the opinion that the community sewer system is a more sustainable alternative to the existing sewage treatment and disposal facility.

## **DEVELOPMENT IMPLICATIONS**

Strata Lots 1 - 49 are zoned Comprehensive Development CD4-J, pursuant to Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987. The "J" Subdivision District indicates a minimum parcel size of 4000 m<sup>2</sup> when the properties are serviced with community water and sewer.

Permitted uses under CD4 zoning include one multiple dwelling unit development, with a maximum of 35% parcel coverage. The existing condo development already covers roughly 35% of the parcel, therefore, additional development at this location would not be permitted under the current zoning.

## **INTERDEPARTMENTAL IMPLICATIONS**

The *Regional Growth Strategy (RGS) Bylaw No. 1309, 2003* has designated the Fairwinds area as being within the Urban Containment Boundary. The RGS supports the provision of community sewer and water services to land inside the Urban Containment Boundary to accommodate future growth and development, consistent with official community plans. The subject properties are located within the "Urban Boundary" of the Schooner Cove Neighbourhood Centre as designated within the *Nanoose Bay Official Community Plan (OCP) Bylaw No. 1400, 2005*. The Development Services Department has no objections to this application for sewer system expansion.

**SUMMARY/CONCLUSIONS**


A petition has been received from the Strata Council VIS 745 to amend the boundaries of the Fairwinds Sewerage Facilities LSA. The subject properties are located within the "Urban Areas" described in the *Regional Growth Strategy* and the *Nanoose Bay OCP*. The *Regional Growth Strategy* supports the connection of urban properties to community sewer. The subject properties are located near the existing Fairwinds Sewer LSA boundary, and community sewer collection mains are available nearby on Dolphin Drive. All costs associated with the extension of sewer mains and connection to the existing community sewer system would be at the expense of the applicant. The Strata Council is currently negotiating with the adjacent property owner, the Fairwinds Community & Resort, to cost-share in the installation of sewer mains on Outrigger Road.

Connection to the community sewer system is a more sustainable alternative to the existing sewage treatment and disposal system for reasons of energy savings and elimination of one marine sewage outfall.

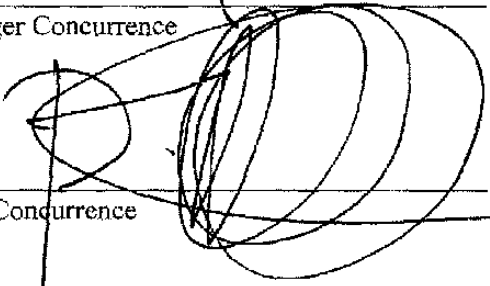
**RECOMMENDATION**

That "Fairwinds Sewerage Facilities Local Service Area Amendment Bylaw No. 947.04, 2008" be introduced and read three times.

  
\_\_\_\_\_  
Report Writer

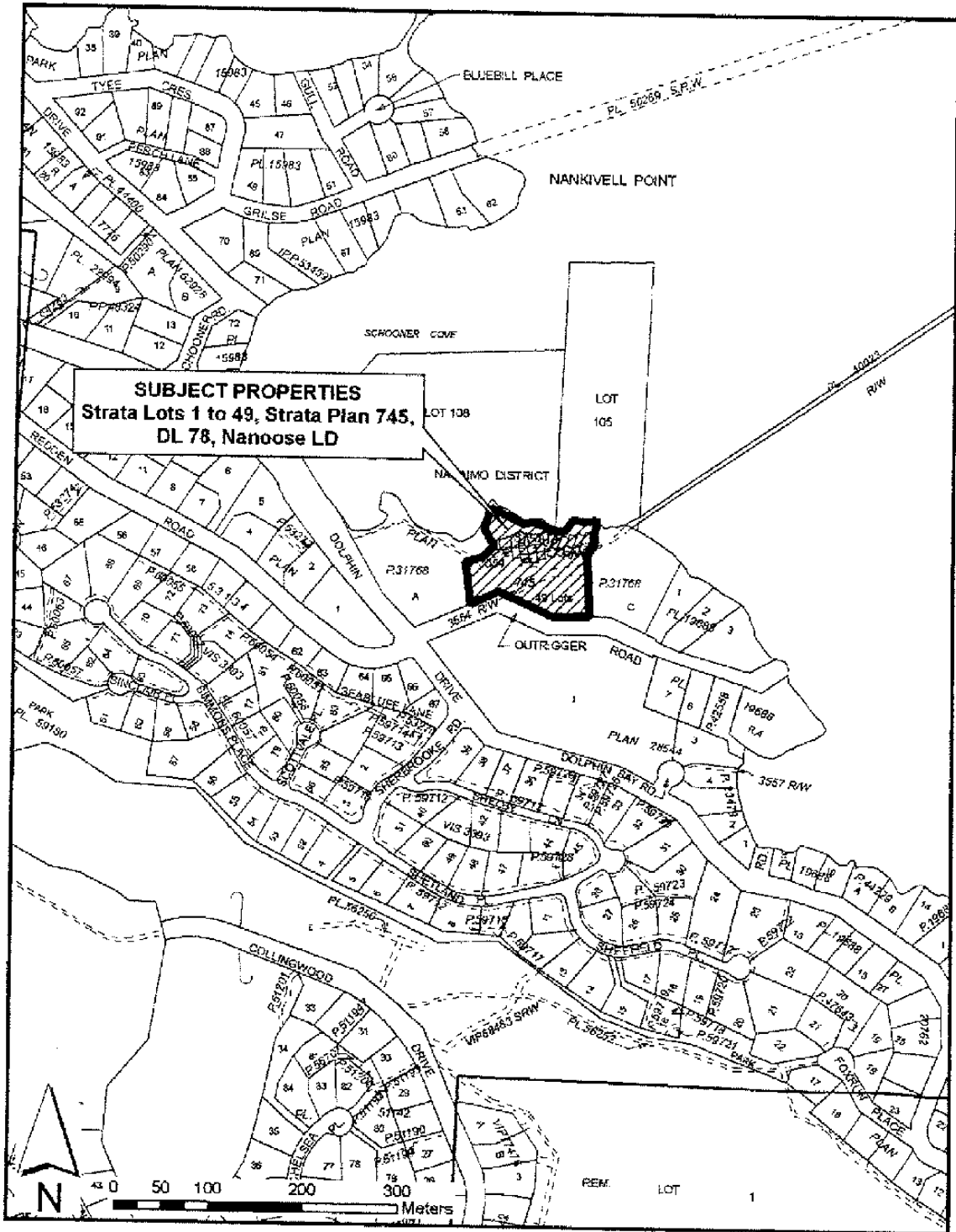
  
\_\_\_\_\_  
Manager Concurrence

  
\_\_\_\_\_  
General Manager Concurrence

  
\_\_\_\_\_  
CAO Concurrence

COMMENTS:

Figure 1 – Site Plan



BLISS MAPSHEET NO. 92F.030.3.4

**REGIONAL DISTRICT OF NANAIMO**

**BYLAW NO. 947.04**

**A BYLAW TO AMEND THE FAIRWINDS SEWERAGE FACILITIES  
LOCAL SERVICE AREA CONVERSION BYLAW NO. 947**

WHEREAS Fairwinds Sewerage Facilities Local Service Area Conversion Bylaw No. 947, 1994, as amended, establishes the Fairwinds Sewerage Facilities Local Service Area;

AND WHEREAS the Board has been petitioned to expand the local service area;

NOW THEREFORE the Board of the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

1. The boundaries of the Fairwinds Sewerage Facilities Local Service Area, established by Bylaw No. 947, as amended, are hereby further amended to include the following properties:

- **Lots 1 to 49, Strata Plan 745, District Lot 78, Nanoose Land District**

as shown outlined in black on Schedule 'B' attached hereto and forming part of this bylaw.

2. The amended boundary of the Fairwinds Sewerage Facilities Local Service Area shall be as shown outlined on Schedule 'A' attached hereto and forming part of this bylaw.
3. Schedule 'A' of Bylaw No. 947.03 is hereby repealed.
4. This bylaw may be cited as "Fairwinds Sewerage Facilities Local Service Area Amendment Bylaw No. 947.04, 2008".

Introduced and read three times this 22nd day of July, 2008.

Adopted this 26th day of August, 2008.

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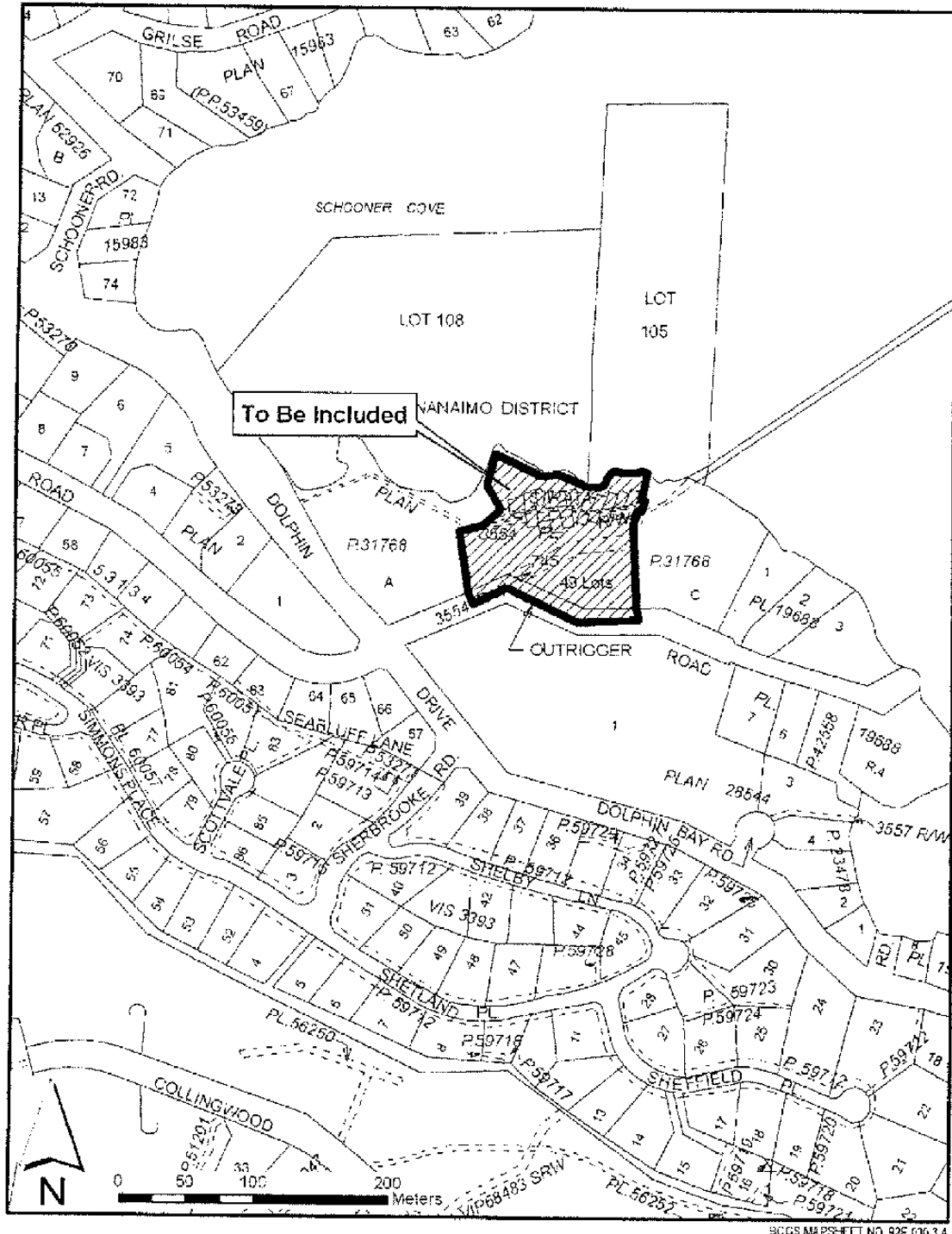
CHAIRPERSON

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SR. MGR., CORPORATE ADMINISTRATION

\_\_\_\_\_  
Chairperson

\_\_\_\_\_  
Sr. Mgr Corporate Administration





RDN REPORT	
CAO APPROVAL	
EAP	
COW	✓ July 8/08
JUN 30 2008	
RHD	
BOARD	

**MEMORANDUM**

**TO:** John Finnie  
General Manager - Environmental Services

**DATE:** June 26, 2008

**FROM:** Mike Donnelly  
Manager of Utilities

**FILE:** 5500-22-NBP-01

**SUBJECT:** Electoral Area "E" Water Source Assessment Study – Information Report

**PURPOSE**

To provide an overview of the Electoral Area 'E' Water Source Assessment Study.

**BACKGROUND**

The 2008 Nanoose Bay Peninsula Water Service Area budget included funds for an assessment of both ground water and surface water sources that would support the service area's community water supply.

This work was identified as part of a multi-year approach to acquiring additional water supplies to supplement current sources. Identifying additional sources ahead of actual need is a sound management approach to the provision of long term water supplies. Additional water sources would provide for ongoing growth, will supplement the future provision of bulk water and will provide an operational buffer should problems arise with individual wells.

The NBPWSA is currently served by 12 wells located throughout the system. The wells generated over 500,000 cubic metres of water in 2007 to serve the area population. This supply was supplemented by Englishman River water in the summer with an additional 130,000 cubic meters of water. Overall, annual water supply in the NBPWSA is 80% groundwater and 20% surface water from the Englishman River.

The report entitled "Water Source Assessment Study for Electoral Area 'E' in the Regional District of Nanaimo" has now been completed (see attached – appendices available on request). This report was developed in partnership with Pacific Hydrology Consultants Ltd. and Lowen Hydrogeology Consulting Ltd. for the groundwater portion of the report and by George Bryden, P.Eng., who completed the surface water assessment portion of the report.

The report provides detailed information in three key areas including a review of surface water opportunities, an assessment of possible ground water sources and a review of current well operating practices.

**Surface Water**

As the report notes, there are few rivers and creeks flowing within Electoral Area 'E'. Both major creeks (Bonell and Nanoose Creeks) have low flows during the summer and as such could only provide a possible source if storage was developed in their watersheds. As planning, construction and operational costs of surface supplies such as these are significant (for example, Bonell Creek development costs were estimated to be \$6,000,000 in 1989) this option will not be pursued at this time.

**Ground Water**

The report noted a number of areas that, based on the local geology and existing well records, would be worth exploring further. Of these, two key areas were identified - the Craig Bay and the Nanoose Creek/

West Bay areas. The most potential would be realized in the Craig Bay area. This was based on the amount of information available and the existing production levels in neighbouring wells.

The report has assisted staff in developing a focused approach to identifying additional ground water sources. As a result of this report key areas have been identified for further exploration and related activities have been initiated.

### Well Operating Practices

In addition to the Surface and Groundwater source focus originally identified for this report, an additional section was included that reviewed current RDN practices with respect to groundwater well management. The report suggests that there are some practices that could be modified that would result in improved production of ground water volumes.

This report provides information that can now be used to determine if there are operational changes that can be made to improve well production capacity. As a result of this report an overview of existing capacities of all RDN wells with recommendations on improvements to their operation will be carried out.

### ALTERNATIVES

1. Receive this report for information.
2. Provide alternate direction to staff.

### FINANCIAL IMPLICATIONS

Financial implications associated with actions resulting from this report will be included as part of the 2009 budget deliberations.

### SUSTAINABILITY IMPLICATIONS

The report provides information on expanding the ground water observation well inventory within the region. Ground water observation wells provide important information with respect to changes in the area's ground water aquifers. With information gathered from these sites a more thorough understanding of aquifer health can be obtained and acted upon, thereby improving the management and utilization of our drinking water resources.

### CONCLUSIONS

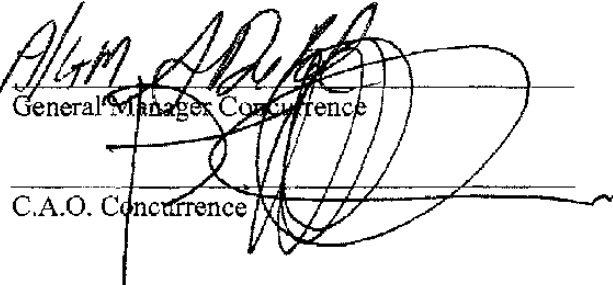
The report "Water Source Assessment Study for Electoral Area 'E' in the Regional District of Nanaimo" has now been completed. The report provides a basis and strategy for improving water source and supply management on the Nanoose Bay peninsula.

### RECOMMENDATION

That the Board receive the "Water Source Assessment Study for Electoral Area 'E' in the Regional District of Nanaimo" report for information.

\_\_\_\_\_  
Report Writer

  
\_\_\_\_\_  
General Manager Concurrence

  
\_\_\_\_\_  
C.A.O. Concurrence

COMMENTS:



PROJECT NUMBER N714101

**WATER SOURCE  
ASSESSMENT STUDY  
FOR  
ELECTORAL AREA E  
IN THE DISTRICT OF NANAIMO**

*Prepared for:*

REGIONAL DISTRICT OF NANAIMO  
6300 Hammond Bay Road  
NANAIMO, B.C. V9T 6N2

*Prepared by:*

PACIFIC HYDROLOGY CONSULTANTS LTD.  
201 - 1537 West 8th Avenue  
VANCOUVER, B.C. V6J 1T5

MAY 23, 2008

**PACIFIC HYDROLOGY CONSULTANTS LTD.** Consulting Hydrogeologists

Suite 201, 1537 West 8<sup>th</sup> Avenue, VANCOUVER, B.C. V6J 1T5  
Telephone: (604) 730-6990 Facsimile: (604) 730-6931 Website: [www.phcl.ca](http://www.phcl.ca) Email: [phcl@telus.net](mailto:phcl@telus.net)

May 23, 2008

Regional District of Nanaimo  
6300 Hammond Bay Road  
NANAIMO, B.C. V9T 6N2

Attention: Mr. Mike Donnelly  
Utilities Manager

Subject: Water Source Assessment Study for Electoral Area E in the District of Nanaimo


Dear Sirs:


Enclosed herewith is our completion report providing a water source assessment of both groundwater and surface water availability for drinking water use in Electoral Area E within the Regional District of Nanaimo (RDN).

We trust that the report meets with your requirements. We would be pleased to further discuss any aspect of the contents of the report should you require clarification or additional information.

Yours truly,  
PACIFIC HYDROLOGY CONSULTANTS LTD.

Reviewed by:

  
Carol Ma  
Junior Hydrogeologist

  
Ed Livingston, P. Eng.  
Manager



## WATER SOURCE ASSESSMENT STUDY FOR ELECTORAL AREA E IN THE DISTRICT OF NANAIMO

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## EXECUTIVE SUMMARY

This report has been prepared in reply to an invitation to provide an assessment of sources of additional potable groundwater and surface water for residents of Electoral Area E within the Regional District of Nanaimo (RDN). Pacific Hydrology Consultants Ltd. (PHCL) and Lowen Hydrogeology Consulting Ltd. (LHCL) joined forces to deal with groundwater resources and engaged Mr. George Bryden, P. Eng., to assess the surface water resources. Mr. Bryden's report is included in Appendix K. The project was authorized to proceed by RDN on July 5, 2007.

Because of hydrogeologic conditions and because of the distribution of population, the groundwater investigation covers the part of Electoral Area E lying north of the Trans Canada Highway, essentially from the boundary with City of Parksville on the West and including all of the Nanoose Peninsula.

Much of the area north of the Trans Canada Highway, except for the Nanoose Peninsula east of the head of Nanoose Bay, is underlain by overburden which, in some places, is quite thick and contains aquifers with water which ranges in quality from good to only fair, because of iron and manganese. The eastern part of the Peninsula is underlain by rock with or without a thin cover of overburden. Part of the Peninsula is underlain by plutonic rock of the Island Plutonic Suite, favourable for medium capacity wells yielding good quality water.

The hydrogeology, as shown by logs of several hundred wells, is known to be quite complex. However a feature of the hydrogeology is a broad zone extending from the head of Nanoose Bay, northwestward to Craig Creek, a distance about 5 km in which the overburden is thick, probably filling a deep bedrock trough. The zone makes up a groundwater flow system which is recharged by precipitation and perhaps from highlands to the south and which discharges at both ends – Nanoose Bay at the southeast end and near Craig Creek at the northwest end. There are flowing artesian wells in both discharge zones. Much of the water at the Nanoose Bay end of the groundwater flow system contains iron and manganese.

The main task was to investigate the complex hydrogeology to develop additional groundwater sources and to assess the present existing higher capacity wells to determine their conditions and whether programs and procedures could be developed to obtain more water from them and, if possible, improve the quality of water in the RDN water distribution system. A major factor in making this report possible was the large amount of operating data which had been collected by RDN staff mostly over the past 25 years.



## EXECUTIVE SUMMARY (cont'd)

There are several hundred existing and abandoned wells in the subject area. For most of these, there are brief records and location maps, along with more than a dozen reports on community wells which have capacities up to 20 l/sec (300 USgpm) of which several are owned by RDN and several others may be obtained by RDN in future. The RDN operating data show that most operating wells have some unused capacity even in the high demand summer period. Data also indicate that it may be possible to redevelop and restore several wells which have been abandoned. There is a discussion of pump testing and well redevelopment procedures which can be carried out by RDN. The collected data show that several wells now in use could benefit from redevelopment.

Based on existing data, the report suggests using a group of wells yielding high quality water for "base flow" and only using wells yielding water with iron and manganese to supplement the base flow in times of high water demand in order to reduce problems with iron and manganese staining.

A study of air photos was carried out and was able to identify favourable areas of overburden and bedrock lineaments which can be investigated in future by drilling.

Operating data obtained by manual measurements and, more recently, data from water level data loggers have been plotted in several ways to more easily show what has been happening, particularly over the past 15 years. These data plots do not show signs of long-term aquifer depletion.

The study of surface water resources by Mr. Bryden, P. Eng., indicates that surface water resources, except English River, are quite limited. Surface water from Englishman River, via the Parksville river intake, is used by RDN in summer months to supplement the water from wells.

The report concludes that there is more groundwater available from the existing wells in the system, particularly if several of the wells are redeveloped to improve their present capacity. A very important conclusion is that the operation and management of the system can be improved if usable water storage is increased. Most of the considerable existing water storage is reserved for fire fighting. The system can be improved by making more of the existing storage available for operation of the system or by finding other sources of water for fire fighting. The report also recommends the establishment of several water level observation wells to enable better determination of long-term aquifer capacities and to assess the effects of increasing groundwater use.

## **1.0 INTRODUCTION**

### **1.1 Project Description**

This report has been prepared by the team of Pacific Hydrology Consultants Ltd. (PHCL) and Lowen Hydrogeology Consulting Ltd. (LHCL), to provide a water source assessment of both groundwater and surface water availability for drinking water use in Electoral Area E within the Regional District of Nanaimo (RDN). Electoral Area E covers the area between Parksville and Lantzville.

Figure 1 in Appendix A (Page A – 1), is a portion of four 1:20,000 scale TRIM Map Sheets (92F.029, 030, 039 and 040), which covers the study area and shows the approximate locations of the RDN production wells and the locations of several private wells which are considered of interest for this study. Also included in Appendix A are two hydrogeological cross-sections on Figures 2 and 3, illustrating our interpretation of the surficial geology of the areas identified by this study as having most potential for groundwater source development. Figure 4 (Page A – 4), is a portion of the 1:50,000 scale N.T.S. Map Sheet (92F/8, Parksville), which shows the areas of groundwater potential and some geologic features.

### **1.2 Authority**

PHCL was invited by the RDN in a letter dated May 2007, to provide a proposal for a water source assessment of additional drinking water for the residents in the Electoral Area E. PHCL and LHCL decided to join forces to work on this project; the proposal to undertake the drinking water source assessment was submitted to the RDN office on June 29. Mr. George Bryden, P. Eng., was engaged to carry out an investigation of surface water resources in the subject area.

PHCL was informed by the RDN in a telephone discussion on July 5, 2007 that the team of PHCL and LHCL was selected to proceed with the drinking water sources assessment.

### **1.3 Purpose and Scope**

The drinking water source assessment covered by this report was carried out more or less in accordance with our proposal dated June 29, 2007. This report presents the results of the office and field investigations which were conducted during the period July to November 2007.

The scope of work covered by the desktop investigation included the following:

1. To review information on the Nanaimo Bay Peninsular Water Service Area, from various existing reports which were prepared by PHCL, LHCL and other consultants.

2. To review, compile and analyze the historical manual operational data from the Nanoose Bay Peninsula Water Service Area in Electoral Area E. The data include the monthly water production and use of all the RDN production wells and the manual static and pumping water level measurements. The data have been collected by RDN staff.
3. To review, compile and analyze the automatic water level datalogger measurements of several major wells from years 2003/04 to 2007. Automatic water level dataloggers have been installed since 2003/2004 in Madrona Well No. 4, Nanoose Wells No. 3 and 6, all three Fairwinds Wells and in West Bay Well No. 3. The dataloggers are set to measure water levels in these aforementioned wells at 30-minute intervals.
4. To review and evaluate the water license records and the information on surface water use in Electoral Area E. The review and evaluation were carried out by Mr. George Bryden, P. Eng. under a sub-contract with PHCL.
5. To review and evaluate all available water well records on file in the Ministry of Environment (MOE) office, including records of the RDN water supply wells and test holes/wells.
6. To interpret aerial photography covering Electoral Area E.

Along with the office review, information provided by the following investigations have also been essential in carrying out the study.

1. Field reconnaissance on August 10 and 11, 2007, to obtain additional information on the general topography of the study area and the advantages/disadvantages of each possible well site over the other sites, based on site geology, road access, infrastructure cost, etc.
2. Telephone discussions with Mr. Norm Burow, Chief-Operator of Utilities for the RDN, about operating procedures of the RDN water systems, experiences with the wells, and other historical information.
3. Telephone discussions with Mr. Jim Bailey, L.H.G.R.G., Well Services Director of Kleinfelder Inc., Bellevue, WA, about the redevelopment of several RDN production wells, and requests for additional data from brief pump tests carried out at the time of redevelopment.

Background information for the preparation of this report, includes the correspondence and letters covering the period July to November 2007, along with miscellaneous information and published and unpublished documents, contained in PHCL and LHCL files covering past work on groundwater exploration in the area.

These information sources and /or documents include the following:

1. TRIM Map sheets 92F.029, 92F.030, 92F.309 and 92F.040, all of scale 1:20,000 and with a contour interval of 20 metres.
2. N.T.S. Map Sheet 92F/8, **Parksville**, of scale 1:50,000 and with a contour interval of 20 metres.
3. Geological Survey of Canada Map 1112A, **Surficial Geology, Parksville, Vancouver Island, British Columbia**, of scale 1 inch to 1 mile, J.G. Fyles, 1963, Geological Survey of Canada.
4. Water license files and information on use of surface water in the study area.
5. A list of the reports in PHCL/LHCL files regarding the study area. For reference, these reports are included at the end of this report.

#### **1.4 Acknowledgements**

Initial discussions with Mr. Mike Donnelly, A.ScT, Utilities Manager of the RDN, and Mr. Al Kohut, P. Eng., an independent groundwater specialist, during a meeting in the RDN office on June, 7 2007, were essential to understanding the objectives of this project and the assistance of Messrs. Donnelly and Kohut is hereby acknowledged.

Acknowledgment of the cooperation and assistance of several individuals identified below, who contributed to the team's ability to carry out the study, is also hereby given:

1. Mr. Wayne Moorman, P. Eng., Manager of Engineering Services of the RDN, for providing copies of miscellaneous reports on construction details of the Nanoose Wells, including Nanoose Wells No. 1 to 6.
2. Mr. Norm Burow, Chief Operator Utilities of the RDN, for providing essential information on the operations of the RDN water systems and well use.
3. Ms. Deb Churko, A.ScT., Engineering Technologist of the RDN, for forwarding the well records of all the RDN wells and miscellaneous information on the Department of National Defense (DND) wells and Nanoose Wells No. 5 and 6.
4. Mr. Dave Shillabeer, P. Eng. of Koers Associates Engineering Ltd., (Koers) for providing information on the source of supply for the Fairwinds golf courses located near the eastern end of the Nanoose Peninsula.
5. Mr. Chris Downey, P. Eng. of Koers, for providing information on the design of the present water system.
6. Ms. Ann Badry, P. Geo., formerly of PHCL, for review and additional historical information.

## 2.0 PHYSIOGRAPHY, GEOLOGY AND HYDROGEOLOGY

### 2.1 Physiography

The study area lies within the Georgia Depression physiographic subdivision (Holland, 1976) of British Columbia. This is a coastal trough including the Strait of Georgia and the lowlands on the Mainland and Vancouver Island. The onshore, Vancouver Island region, is further described as the Nanaimo Lowland, which stretches from Jordan River in the south to Johnstone Strait in the north. The lowland lies below 600 m (1,965 ft) elevation. South and west of the study area are the Vancouver Island Mountain Ranges.

The lowland consists of many low, wooded ridges separated by narrow valleys. The north-westerly elongation of the ridges and of the Gulf Islands is the result of differential erosion of the Nanaimo Group sedimentary rocks which underlie most of the lowland. The ridges are underlain by hard sandstone and conglomerates, and the valleys are eroded in shales and softer rocks or along fault zones. In the study area, the topography is more varied because of the presence of older sedimentary and volcanic rocks and a granitic intrusion along with the Nanaimo Group rocks.

Elevations in the study area range from sea level to 540 m (1,770 ft) above sea level in the southern extent of Electoral Area E.

### 2.2 Geology

#### *2.2.1 Geology of the Unconsolidated Deposits*

Many episodes and modes of erosion and deposition have produced a complex mix of unconsolidated deposits (soils) in the study area. Surficial deposits and water well records indicate that the entire area was covered by glacial ice at least twice in the past and, that after the last glacial period, the land was submerged under the ocean up to a present day elevation of 120 m (395 ft) above mean sea level. Extensive deposits of marine clay, silt, sand, gravel and glacial till overlie the bedrock in much of the study area.

Generally, there is a succession of soils from surface to bedrock as follows:

Soil or Geologic Unit	Origin
Till	Glacial
Sand	Glacio-fluvial
Till or ice contact soils (mixed clay, silt, sand & gravel)	Glacial & glacial meltwater
Sand and gravel	Glacio-fluvial
Clay some silt	Marine
Bedrock	Various

As mentioned previously, two hydrogeologic cross-sections have been drawn (A-A' and B-B'; Figures 2 and 3) to aid in interpreting the unconsolidated geological patterns. The cross-sections indicate that soil units can be roughly correlated in the N – S and E – W directions. The A-A' cross-section indicates two thick till layers in the centre of the section but an absence of till in the north. There are two units of suitable aquifer material that extend the length of the cross-section; an upper sand layer and deeper sand and gravel unit. The drilled wells generally end in clay or bedrock. The B-B' cross-section shows the same upper sand and deeper sand and gravel units extend from east to west.

Both cross-sections indicate that the sand and sand/gravel permeable units are thickest in the central part of the sections. The thickest unconsolidated deposits correspond to both a topographic high and a bedrock trough. Unconsolidated deposits range from +80 m (+260 ft) to -60 m (-195 ft) relative to sea level.

### 2.2.2 Bedrock Geology

According to a simplified bedrock geology map (Appendix J) obtained online, there are six distinct bedrock types underlying the study area which are described as follows:

1. The Mount Hall Gabbro is comprised of gabbro and diorite, volcanic rocks.
2. The Buttle Lake Group, Fourth Lake Formation includes thinly bedded cherty sediments mostly of volcanic origin. Specifically argillite, siltstone, volcanic sandstone, tuff and calcarenite are included in this formation.
3. The Nanaimo Group sedimentary rocks are comprised of sandstone, shale, conglomerate with some coal locally.
4. The Buttle Lake Group of the Nanoose Complex, are described as undivided sedimentary rocks.

5. The Island Plutonic Suite (Formerly the Island Intrusions) is made up of granodiorite and quartz diorite.
6. The Karmutsen Formation is a volcanic rock unit comprised of pillow basalt, breccia tuff and minor flows.

From our research and experience in other parts of Vancouver Island, the Island Plutonics are more susceptible to fracturing and therefore have better water-bearing characteristics. The Karmutsen and Nanaimo Group rocks generally do not yield significant quantities of groundwater. The Mount Hall Gabbro is similar to Karmutsen. The water-bearing characteristics of the Buttle Lake Formation are not well known but recent testing shows that well yields greater than 6.3 //sec (100 USgpm) are possible. The simplified geology map, which shows the distribution of these rocks, is contained in Appendix J.

### **2.3 Hydrogeology**

Groundwater flow systems occur in the bedrock and unconsolidated deposits in the study area. Bedrock units are saturated at depth by infiltrated water originating from precipitation or surface water bodies. Groundwater is in motion in fractures, along bedding plane partings, lithologic contacts in the inter-flow zones of lava, in the intergranular openings of the rock and in dissolution channels in limestone. After infiltration down to the bedrock aquifer zones, the groundwater flows laterally, driven by hydraulic head. The flow is generally from areas of higher elevation to lower elevation or to the ocean.

Wells completed in the bedrock aquifer zones in the study area, yield from less than 0.06 to 12.2 //sec (1 to 193 USgpm). Some dry testholes are also reported. Since most wells are drilled for individual residences that require less than 0.06 //sec (1 USgpm) flow, well drilling is generally terminated after obtaining small flows. Therefore, the existing bedrock well database is not indicative of the bedrock aquifer(s) potential. A significant untapped groundwater resource can be developed with bedrock wells. Several areas with features of interest are noted in section 3.2.4.

At least two significant aquifer systems exist within the unconsolidated deposits. The aquifers are recharged by infiltration of either precipitation or surface water sources. They can also be recharged by flow from adjacent or underlying bedrock. The amount of water that can be extracted, depends on the permeability of the aquifer materials, the thickness and the extent of the aquifer, the rate of recharge and/or well construction. The most significant unconsolidated aquifers are the upper and lower sand/gravel saturated zones. Cross-section A-A' shows the upper sand zone is only saturated at depth in the southern half of the section. In the north, the upper sand can be dry. The lower sand and gravel zone is essentially 100% saturated. The lower sand and gravel is the most permeable soil and has the greatest hydraulic head. Both

hydrogeologic cross-sections indicate that the area just south of the Rocking Horse Subdivision on Northwest Bay Road may have the thickest sand and gravel aquifer zone.

The relationship between Englishman River and the aquifers of Electoral Area E is of some interest. The River is an important water source and the effect of pumping from the aquifers on the River should be considered. The main aquifer areas proposed for development (Areas A, B and C, which are to be discussed in Section 3.2.4) are underlain by an upper sand and deeper sand and gravel aquifer systems. The River, at its closest point to the aquifers, lies several kilometers to the west or southwest. The elevation of the River here is between 30 and 40 m (100 and 130 ft) above sea level (see cross-section B-B'). Both cross-sections A-A' and B-B' indicate that the upper sand aquifer is not connected to the River by a potential flowpath of permeable soils. Hence, no groundwater extraction in the upper aquifer can affect the River. The cross-sections also indicate that the lower sand/gravel aquifer may be connected to the Englishman River by permeable soils and the aquifer, elevations 25 m (82 ft) above to 35 m (115 ft) below sea level, is lower than the River. Aquifer water levels are also lower than the River in Area A, but higher (50 to 75 m (165 to 245 ft) above sea level) in Area C. Therefore, there can be flow under natural conditions from the River to Area A (flow to the NE). However, natural flow to the east from the River does not occur. Aquifer levels in Area C could be lowered by pumping such that flow would be induced toward the east from the river. However, if wells or well fields are offset from the River by a sufficient distance, then the flow in the River will not be affected. Also if well offsets are sufficient in Area A, impacts on the River will be negligible.

The main unconsolidated aquifer systems in the study area (underlying Areas A, B and C) lie within a trough in the bedrock and are flanked by bedrock highlands to the east and west. Water levels in the bedrock are higher (40+ m; 130+ ft) and the unconsolidated aquifers are in contact with the bedrock flow system(s), see Wells No. 4 and 5 on cross-section B-B'. Therefore, the bedrock aquifers recharge the unconsolidated aquifers.



### **3.0 INVESTIGATION OF HYDROGEOLOGIC CONDITIONS**

#### **3.1 Surface Water Resource, Present Use and Potential**

There are few rivers/creeks flowing across the Electoral Area E; the major ones are Bonell Creek and Nanoose Creek, both of which flow into the head of Nanoose Harbour. During the August 2007 field reconnaissance, there was practically no flow in either of the Creeks near their mouths.

Further discussions about the possibility of developing a sustainable surface water supply for the RDN are contained in Appendix K, which was prepared by Mr. George Bryden, P. Eng., an independent surface water hydrologist of Nanaimo.

#### **3.2 Potential Groundwater Resources**

##### ***3.2.1 General***

Our past experience with hydrogeological investigations and production drilling in Electoral Area E shows that the geologic and hydrogeologic conditions of the aquifers are complex. In order to evaluate site hydrogeology with respect to identifying areas of groundwater potential, a desktop investigation was carried out followed by a field reconnaissance.

The desktop study for potential groundwater development was focused mainly on review of available well records and examination of several sets of aerial photography and interpretations of hydrogeologic cross-sections, to better understand the overall sub-surficial geology. Electoral Area E is approximately 73.5 km<sup>2</sup> in area, from Parksville to the west and Lantzville to the east and extending approximately 6 km from Nanoose Bay South. Most of the southern part of Electoral Area E is underlain at shallow depth by bedrock and is sparsely populated; most residents are supplied with good quality groundwater from individual wells. Therefore, in this report, an overview of the groundwater situation is focused on the northern part of Electoral Area E, mainly the area north of the Island Highway (Highway 19), which is also the most densely populated part.

Following the review and plotting of wells with moderate capacities, a two-day field reconnaissance was carried out in mid-August to inspect sites of existing wells and of possible sites for test-production drilling taking into account existing infrastructure and other relevant features.

### 3.2.2 *Review of Available Well Records*

Staff from the LHCL office obtained, from the MOE office in Victoria, records for 388 wells and test wells located within the northern part of the study area. The records have been reviewed and divided into three main categories: overburden wells, rock wells and shallow dug wells. Shallow dug wells are of no interest for this project. The overburden wells are further divided into three categories: overburden wells with estimated/assigned capacities of more than 1.26 l/sec (20 USgpm), deep overburden wells which encountered bedrock during drilling, and wells that do not belong to either of the two previous sub-categories. The rock wells are divided into two categories: moderate to high capacity wells with estimated/assigned capacities of more than 1.26 l/sec (20 USgpm) and low capacity wells.

Summary spreadsheets (with relevant hydrogeological data) of all 388 well records were prepared. Locations of the overburden and rock wells with capacities of more than 1.26 l/sec (20 USgpm), along with deep overburden wells with known bedrock depth, are plotted on a well location base map, according to their well tag numbers and BCGS numbers, for use in identifying productive aquifer zones as well as area(s) for establishing water level observation wells. The spreadsheet and the base map are for internal use only, and will not be presented in this report.

In August, request letters were sent out to local water well drilling contractors for additional well information, which are not available from the provincial database and which may be useful for this study; unfortunately, no replies were received from any of the drillers.

Of the 388 well records reviewed for this study, 198 wells are completed in bedrock and 190 wells extracted groundwater from unconsolidated sediments. The most productive bedrock well was estimated to have a capacity of 12.2 l/sec (193 USgpm) and the most productive unconsolidated well, which is completed in a gravel aquifer, has a rated capacity of 19.2 l/sec (305 USgpm). The rock well (WRBC #51291) capable of supplying 12.2 l/sec (193 USgpm), which is owned by Nanoose Enterprises Ltd., is reported to be located at Nanoose Bay South; however, a formal pumping test was never carried out on this well so the actual long-term yield has not been determined. An example of an high-capacity screened well is the RDN Nanoose Well No. 2, located on Claudet Road; at the time of construction it was rated at 19 l/sec (304 USgpm). The capacity of this well is reported to have declined and redevelopment was carried out in early 2007 to increase its capacity. See Figure 1 in Appendix A for well locations.

### 3.2.3 Air Photo Interpretations

#### A. Observations in Bedrock Terrain

Geologic fault lines can be more productive bedrock well targets, as fractures may be more numerous and long fault zones may intersect many fracture systems producing a large number of interconnected fractures. Fault lines are evident as lineaments on aerial photographs. Several fault zones have been interpreted from a review of aerial photographs as outlined below:

- a) Fault line a-a', which runs SE – NW through the Fairwinds Community & Resort (Fairwinds) development, (see Figure 4). The fault is in a trough feature with wetlands and marshes. The rock type here is granitic and is favourable for extensive fracturing and higher yielding wells. One notable well (WRBC #877), 151 m (495 ft) deep and with a yield at 1.89 l/sec (30 USgpm), has been drilled in this zone. Well yields here will be limited by the relatively small recharge area and, possibly by proximity to the ocean and the threat of seawater intrusion.
- b) Fault line b-b', which runs SE – NW through the Fairwinds development west of fault a-a'. There are also small ponds along the length of this fault. There are no known wells in this region.
- c) Fault line c-c', which runs E – W through the south end of the Fairwinds development. The fault is located within the favourable granitic rock and ponds are present along the east end of the fault line. The b-b' and c-c' faults intersect as shown in Figure 4. The intersection of two fault zones in a favourable rock type makes a very favourable test drilling site. Also water quality is generally very good in granitic rock in this type of geologic setting.
- d) Fault line d-d', which runs SE – NW through Enos Lake and extends from Nanoose Bay north to the Georgia Strait. This is the most obvious fault in the area as it also is the geologic contact of the granitic rock to the east and volcanic rock (Buttle Lake Group) to the west. At the south end of the small lake/wetland just southeast of Enos Lake, the c-c' fault may intersect the d-d' fault. This is an excellent location for a bedrock test well.
- e) The southern region of Electoral Area E (South of Highway 19) is comprised of mostly bedrock at higher elevation. The rock here is massive and fault zones are limited in number. Two intersecting faults are apparent at a location 2.7 km south of the Lantzville town centre (e-e' & f-f' on Figure 4), but this promising drill site is outside the study area and too distant from population centers.

## B. Observations in the Overburden Terrain

Shallower sand and gravel aquifer systems can often be identified with aerial photographs and especially in conjunction with a surficial geology map. Many shallow sand and gravel aquifers are evident in the study area, some are confirmed by existing well records and some not. Below are areas with features of interest, which are identified from the air photo interpretation. The areas are outlined on Figure 4.

- a) An area just south of Craig Bay and between the Craig Creek Valley and the Englishman River. Abandoned ox-bows southeast of Englishman River trending to the northeast direction indicate that Englishman River flowed to Craig Bay in the past. River channel or delta deposits may be present at shallow depths here. The sand and gravel wells here show a high transmissivity aquifer with excellent recharge. These favourable conditions lead to wells like the one at the intersection of Terrien Road and Northwest Bay Road; 13 m (42 ft) deep with a 18.9 l/sec (300 USgpm) flow capacity. Additional wells of this type may be feasible in the area. Most of the area described is just outside the Electoral Area E boundary. The area 1.6 km west of the intersection of Highway 19 and the Northwest Bay Logging Road appears to be very favourable, within the described feature, and it is also within Electoral Area E.
- b) Just north of Powder Point Road, there appears to be parallel E-W trending drainage channels that flow to Enos Lake. Where these channels empty into the lake small deltas have been deposited. These features likely represent shallow sand and gravel aquifers with potential recharge from upslope areas and Enos Lake. One well completed in the south delta is 5.2 m (17 ft) deep yielding 4.4 l/sec (75 USgpm).
- c) Just west of Nanoose Hill and east of Parker Road, there is a fan-like feature that protrudes into Nanoose Bay. This feature appears to be a buried alluvial fan. One well drilled in this area (92F.030.31.3, #12) shows sand and gravel at 40 to 43 m (130 to 141 ft) where the well was terminated.
- d) South of Nanoose Harbour, half way between the mouth of Bonell Creek and Lantzville, there are long sandy beaches that relate to onshore Quadra sand deposits. One well here is 36 m (118 ft) deep and produces 31.5 l/sec (50 USgpm). (92F.030.3.1.2, #5). The aquifer here is sandy gravel, which is recharged locally and by the rocky slope to the south.
- e) Within the portion of Electoral Area E that is in the District of Lantzville and contains the Nanoose Bay Indian Reserve, air photos indicate an area of interest. The west quarter of this region, Blunden Point to 1 km south of the point, is underlain by alluvial and deltaic sands and gravels under conditions of abundant

recharge from the rocky slopes to the south. Wells in this region up to 51.2 m (168 ft) deep yield up to 4.42 l/sec (75 USgpm) (92F.030.1.4.3, #28; WRBC #75044; Provincial Observation Well No. 340).

- f) A large gravel pit is evident 1.4 km upstream from the mouth of Bonell Creek. The gravel pit is bisected by a BC Hydro Power Line. There are likely deep sand and gravel deposits forming aquifers that are recharged by Bonell Creek and the surrounding uplands. One well at the north end of the area (92F.030.3.1.3 #16, WRBC #75494), at the intersection of Highway 19 and Northwest Bay Road, is 8.5 m (28 ft) deep and yields 6.31+ l/sec (100+ USgpm).
- g) Nanoose Creek, directly south of the DND site and Highway 19, is contained within a SE – NW trending major valley. This valley may be following a bedrock fault zone. The bedrock unit here is likely the Buttle Lake Group of the Fourth Lake Formation, consisting of sediments of mostly volcanic origin. However, many drillers describe the rock as granite. Bedrock wells just south of the Creek are up to 99 m (325 ft) deep and yield up to 3.79 l/sec (60 USgpm).

### ***3.2.4 Areas of Potential Groundwater***

Following review of all the available well records and documents in PHCL/LHCL files, along with the August site visit and the interpretations of the cross-sections and air photos, the following are four areas which we believe have groundwater supply potential:

**Area A:** An area in the northwestern part of Electoral Area E, near Craig Bay.

**Area B:** An area extending from the head of Nanoose Bay where Nanoose Creek and Bonell Creek discharge into sea, northward to include the Fairwinds and other production wells (West Bay Wells) which supply the RDN system.

**Area C:** A broad area extending northwestward from Areas B to A and including the DND Reserve and the Rocking Horse Subdivision south of Northwest Bay Road.

**Area D:** Nanoose Peninsula east of a line from the head of Nanoose Bay to Dorcas Point.

These areas are outlined on Figure 4 (Page A – 4).

### *Area A*

Within Area A, there are several production wells, including the Pacific Shores Spa & Resort (Pacific Shores) Wells, Fairwinds Wells, along with a number of medium capacity wells near Terrien Road and further west on Northwest Bay Road in Parksville. Few wells in Area A are owned by the RDN.

Area A includes much of the discharge zone of a groundwater flow regime where production wells (Pacific Shores and Fairwinds Wells) are intercepting groundwater flowing from Area C to discharge in Craig Bay. Several of these production wells in the area are flowing artesian. Individual capacities of wells in Area A can be more than 6.3 l/sec (100 USgpm); however, because of mutual well interference, the capacities of some wells for simultaneous use are less than the assigned capacities which were determined during individual well capacity testing. The amount of groundwater which can be intercepted by existing wells, is only part of the total groundwater discharging to the sea in the Craig Bay area.

The quality of water from most wells in Area A is good. As expected for most groundwater, the water is hard but is low in the nuisance elements, iron and/or manganese.

### *Area B*

Area B is a groundwater discharge zone where most wells intercept the flow of groundwater moving toward discharge into Nanoose Bay. Freshwater outflow is sufficient to prevent seawater intrusion into wells near Nanoose Bay. For example, at the mouth of Nanoose Creek, at a site at elevation about one metre above high tide, there is an old drilled well, which has not been used recently, but was formerly used to supply a small system. The litholog for this well shows that the glacial debris filling the rock valley mentioned previously extends more than 23 m (76 ft) below sea level. With the well casing extending about 1.5 m (5 ft) above ground, the artesian flow was reported to be about 0.95 l/sec (15 USgpm), showing that the static water level elevation is more than 2.5 m (8.2 ft) above sea level. Artesian flow from this well flows into Nanoose Creek.

Much, if not most, of the groundwater from wells in Area B, contains sufficient iron and manganese to cause staining of plumbing fixtures and other aesthetic problems. It is otherwise a typical hard groundwater.

### *Area C*

In the study area, the largest groundwater resource is probably in Area C, a zone extending northwestward from the west end of Nanoose Bay to Craig Creek, a distance of about 5.2 km. The width of the zone (northeast to southwest) is poorly defined, but seems to be about 2.4 km. Most of the area is forest land held by Island Timberlands GP Ltd. (Island Timberlands) and is covered with replanted forest. It is accessible by way of the private logging road leading from the Englishman River Valley to the dumping ground on Northwest Bay. The central part of the area is accessible by gated fire access roads leading northward and southward from the log haul road, which is closed to public traffic during working hours.

The maximum elevation in Area C is over 120 m (395 ft). There are two wells and a test hole at the DND Reserve in the central part of the area. Both of the DND Wells are deep, with one well extending to a depth about 125 m (411 ft) and completed in overburden. Indications are that the subject area is a bedrock valley, filled mostly with glacial debris which includes patches of aquifers containing good quality water, conditions typical of ice-contact deposits.

### *Area D*

In most of Area D (Nanoose Peninsula), there is only a thin cover of overburden over bedrock, with small areas of exposed bedrock. Most drilled wells in the area are completed in bedrock, with large variation in depths and capacities of wells. Most wells have sufficient capacity for single domestic service and the water quality is generally quite good. There are also a few dug wells for which information is minimal.

According to the MOE well record database, there are four rock wells in the area which have capacities of more than 1.3 l/sec (20 USgpm). Two of the wells were drilled for Dolphin Point Estates (DPE). An attempt to locate all four wells during the field visit was unsuccessful. Because the DPE Wells were drilled to supply a subdivision, documents on groundwater quality and quantity are probably available in the RDN office.

There is some use of surface water in Area D, the largest being the use of Enos Lake and Schooner Creek to irrigate the golf course(s) at Fairwinds. We understand that Fairwinds may increase the storage in Enos Lake by raising the dam which controls the Lake level.

### 3.2.5 Discussion

#### 3.2.5.1 Unconsolidated Aquifer (Nanoose – Craig Aquifer)

As discussed previously, four areas with groundwater potential were selected based on our understanding of the geologic and hydrogeologic conditions in the northern part of Electoral Area E.

For purposes of this report, Areas A, B and C are part of the Nanoose-Craig aquifer complex, with Areas A and B representing the discharge zones and Area C being a recharge area of the regional groundwater flow system. The Nanoose-Craig Aquifer is identified as 219IIC (9) on the MOE aquifer classification system.

What is the Nanoose-Craig potential aquifer complex?

An examination of well logs, particular the deep wells in the central part of the aquifer complex shows that there is little detailed similarity between well logs, even those which are relatively close together, an indication that the sediments making up the aquifer are glacial in origin, with the possible exception being the grey silt and clay which underlies the glacial sediments in the deeper holes. We suggest that the best designation for the aquifer complex is "ice-contact deposits". Such sediments are well known on parts of the eastern side of Vancouver Island. These sediments were deposited in contact with ice, usually melting ice, probably at the end of the most recent glacial event about 10,000 years ago. The types of sediments making up these deposits depend on the origin of the ice, the amount of meltwater which was flowing, the elevation and other factors.

Ice-contact deposits often contain aquifers. Because of the nature of ice-contact deposits, the whole mass would seldom be an aquifer but often within the deposits, there are discontinuous masses of permeable sediments which are aquifers. However, such aquifers are often of limited extent and may be enclosed in less permeable sediments which limit aquifer capacity. Because of this, careful pumping tests of any wells completed in such aquifers are required. Under ice-contact conditions, groundwater exploration drilling must be done carefully, especially when the drill hole is in the saturated sediments. Samples of all water-bearing sediments should be collected. Occasionally, there may be several aquifer zones in which screens can be placed to make up a production well. In ice-contact deposits, there may be patches of very fine sand which can cause problems, if well screens are placed too close to them.



In spite of some of the cautions and problems related to ice-contact deposits, it is our opinion that the ice-contact Nanoose-Craig aquifer zone described above, has good potential as a long term source of groundwater in Electoral Area E, given that, under prevailing circumstances, the aquifer complex receives adequate recharge.

Since there is very little, if any, surface runoff from the subject area and surface conditions are favourable for groundwater recharge, the amount of groundwater flowing through the aquifer must be quite large. If an estimated five percent of the total yearly precipitation, assumed to be about one metre, recharges groundwater in the assumed area which is estimated to be about  $12 \text{ km}^2$  ( $1.2 \times 10^7 \text{ m}^2$ ), the total recharge would be about  $(5\%)(1 \text{ m})(1.2 \times 10^7 \text{ m}^2) = 6 \times 10^5 \text{ m}^3$  of water per year. This is an average of about  $1,645 \text{ m}^3/\text{day}$  ( $1.14 \text{ m}^3/\text{min}$ ;  $250 \text{ gal}/\text{min}$ ). Obviously, this is not meant to be a precise calculation. Since conditions for recharge seem to be quite favourable, the groundwater recharge may be more than 5% and the actual recharge area may be greater than the estimate used in the calculation. There may also be a significant amount of recharge from the highland area in the southern part of Electoral Area E.

### 3.2.5.2 Bedrock Aquifer

Because of thin or even absence of unconsolidated materials, the aim of exploration drilling in Area D would be primarily to intersect one, or several, major water-bearing bedrock fracture zones capable of providing a sustained supply of groundwater for a community-size water system.

According to the geologic map (see Section 2.2.1 Bedrock Geology), the rock underlying a large part of Area D is granodiorite and quartz diorite of the Island Plutonic Suite (formerly known as the Island Intrusions). Experience in other areas as well as the subject area, has shown that these rocks tend to have fractures zones and networks in which the fractures tend to be sufficiently open to carry groundwater and also that the water tends to be of quite good quality.

Wells completed in the bedrock aquifer zones in the study area yield from less than 0.06 to 12.2 l/sec (1 to 193 USgpm). Some dry testholes are also reported. Since most wells are drilled for individual residences that require less than 0.06 l/sec (1 USgpm) flow, drilling is commonly terminated once the open hole is producing 0.06 to 0.13 l/sec (1 to 2 USgpm) by air-lifting. The well is then recorded as a low yielding rock well. Almost every bedrock well in the region could be deepened to obtain an increased flow capacity.

However, when a well is drilled for a water utility, for local government or for an individual who requires rock wells of higher capacity, wells can be drilled deeper to encounter more water-bearing fractures and provide higher yields. For example, we are aware of one well drilled in volcanic rock on Parker Road, south Nanoose district. This well encountered 4 water-bearing fractures with flow increasing with each deeper fracture as follows:

- at 67.0 m (220 ft) with a yield of about 0.063 l/sec (1 USgpm);
- at 79.2 m (260 ft) with a yield of about 0.19 l/sec (3 USgpm);
- at 82.3 m (270 ft) with a yield of about 1.26 l/sec (20 USgpm); and,
- at 88.2 m (290 ft) with a yield of about 6.31 l/sec (100 USgpm).

Most customers requiring only a domestic water supply, would have terminated this well at 67.0 to 79.2 m (220 or 260 ft) being satisfied with the 0.06 to 0.19 l/sec (1 to 3 USgpm) flow. A significantly higher yield was proven in this case as the customer required a higher flow. This well could possibly be drilled deeper and obtain a higher flow still. In our experience on Vancouver Island we have encountered significant flows down to 304.8 m (1,000 ft) deep in the Metchosin volcanic rock and up to 243.8 m (800 ft) deep in the granite of Mill Bay (Island Intrusions). Both of these rock types are present on the Nanoose Peninsula.

Therefore, the existing bedrock well database is not indicative of the bedrock aquifer(s) potential. A significant untapped groundwater resource can be developed with bedrock wells. Several areas with features of interest are noted in Section 3.2.4.

However, the problem in trying to drill productive water wells in these rocks is to locate water-bearing fracture zones and networks which carry sufficient groundwater to supply productive wells. In areas where the cover of overburden over bedrock is thin, shear zones, which are less resistant to erosion than the massive rock, often show on air photos as long narrow depressions (called linears). Drilling on these linears is usually more successful than random drilling in the massive rocks. Water storage in fault zones and fracture networks is very small compared with storage in granular aquifers (sand and gravel). However, in some places, a fracture system may be connected to a granular aquifer(s) from which it can draw stored water.

### **3.2.6 Exploration Drilling**

Of the four areas, it is our opinion that the most economical sites for test-production drilling are the discharge ends (Areas A and B) of the Nanoose-Craig aquifer complex. Although there is a reasonable chance of obtaining large quantity of groundwater from the recharge part of the aquifer, an exploration program in Area C could be expensive for the reasons on the following page.

1. Evidence shows that there are only a few wells in the broadest part of Area C as most of the land is owned by Island Timberlands; hence, the hydrogeologic condition in the area can be best defined by the few wells at the former DND base and at the Rocking Horse Subdivision. Given that we have almost no information on the operation of the DND wells, such as water production data, water level measurements during pumping and non-pumping periods, it is not possible to determine the extents of the discontinuous permeable patches within the Nanoose-Craig aquifer complex and the responses of the aquifer zones to large scale groundwater extraction.
2. The exploration drilling is very likely to be deep as the area is underlain by thick overburden and none of the drilled holes in the broadest part reach bedrock. One of the two wells on the northwest side of the DND property was drilled to 134 m (439 ft) entirely in unconsolidated sediments. The ground elevation at the well is a little over 100 m (328 ft) so the bottom of the overburden at that site is below sea level. The capacities of the DND wells at the time of well construction were reported to be up to 0.63 to 11.4 l/sec (10 to 180 USgpm), but recent tests show that there are significant discrepancies between the original and the present ratings in all three DND wells, making it difficult to obtain a reliable picture of the local hydrogeologic conditions.
3. The static water levels of the wells in the area are all more than 30 m (100 ft) below ground surface, showing that the thick sediments in the area are quite well drained, considering that the centre of area is about 2 km from the main discharge zones (Area A, in the Craig Creek-Craig Bay area at the northwest end, and, Area B, at Nanoose Bay at the southeast end of the Nanoose-Craig aquifer zone).

Due to the very limited information on the hydrogeologic conditions in Area C, the likelihood of large seasonal water level fluctuation, and the high cost of exploration drilling of deep test holes, it is our opinion that the most attractive areas in Electoral Area E for obtaining additional supplies of groundwater for the RDN system, are the discharge zones (Areas A and B) of the Nanoose-Craig aquifer complex where there is information on hydrogeology and on water quality.

The productive aquifer zone near the head of Nanoose Bay (Area B), which may also include several of the Nanoose wells, is a discharge area for the Nanoose-Craig aquifer complex and there is fairly clear evidence that similar conditions exist at the northwest end of Area C near Craig Bay (Area A), where groundwater discharge is taking place and where there are flowing artesian conditions in a productive aquifer. We have long speculated that, before the most recent glacial event, Englishman River may have discharged into Craig Bay within this area (Area A).

The present course of the River is meandering in a northeasterly direction to a 90E bend before entering its modern rock canyon, a short distance upstream from the railway bridge. The rock canyon is quite a modern feature, probably dating from the time of high sea level at the end of the last glacial event about 10,000 years ago.

If this speculation is correct, the buried previous course of Englishman River would likely be a flow path for groundwater discharge of the Nanoose-Craig aquifer in the Craig Creek area. This area, part of which may be a very short distance outside of Electoral Area E, may be favourable for production wells quite close to the Northwest Bay Road water main. There are several productive shallow sand and gravel wells along the coastal plain on the southwest and south side of Craig Bay; they may be completed in the buried course of Englishman River. The aquifer near Craig Bay may also be recharged by water from the Englishman River.

However, the water analysis results for the various wells in the RDN system along with results from other wells in Electoral Area E show that there are significant differences in water quality from wells in Areas A and B.

A review of water analyses of samples taken from wells, shows that most of the water from wells in Area B near Nanoose Bay, contains manganese and/or iron close to or above the Drinking Water Guidelines Limits, while manganese and iron are not a problem in water from most wells in Area A (the Craig Creek area). The results of frequent partial analyses reported on the RDN website show that the quality of water from the various wells shows very little change over time. We do not understand why the quality of water in the two subject areas differs in this way, particularly when they are both largely recharged from the same area (Area C of this report). There may be differences in quality (and quantity) of the deep recharge water from the bedrock area to the south.

Obviously, the differences in water quality between the two areas influence the way the existing wells are used and also where the search for additional groundwater may be directed. Discussions about how changes to management of the water system may be able to improve the quality of groundwater in the Nanoose Bay Peninsula Water Service Area, will be made in more detail in Section 5.0.

## 4.0 REGIONAL DISTRICT OF NANAIMO OPERATIONAL DATA

### 4.1 General

An important step in improving the utilization of water supply from known aquifers is to evaluate each aquifer. Most aquifers have been at least partially evaluated by the pumping tests carried out on new wells or on wells which have been redeveloped. Evaluations of annual aquifer recharge and storage capacity are often based on operating data collected over a period of years, along with data from water level observation wells and data on precipitation, usually total monthly precipitation from the nearest airport or other meteorological station. The most important data for evaluation of an aquifer, are the operating data, preferably monthly water production from a totalizing water meter on each production well in the aquifer, along with the total monthly running time for each pump motor. If there are domestic wells in the same aquifer, their water withdrawal is usually estimated using typical domestic water use estimates calculated from domestic water meter readings.

In an ideal situation, there are operating data from the start of use of each well, including long-term drawdown data and water level hydrographs from observation wells in the area. However, a more common situation is where the well(s) has been in use for a long time but data collection only started after partial depletion of the aquifer was indicated. When that is the case, water production from the aquifer may have been reduced in order to allow the aquifer to recover. An approximate analysis of data may help to estimate the capacity and the available storage of an aquifer.

There are three main water distribution systems in the Nanoose Bay Peninsular Water Service Area, with all three systems interconnected to each other. Each system is described below.

1. The Fairwinds / West Bay / Arbutus Water System formerly included Fairwinds Wells No. 1, 2 and 3, West Bay Wells No. 1, 2 and 3, and the Arbutus Well. We understand that the Arbutus Well and West Bay Wells No. 1 and 2 have been abandoned.
2. The Madrona Water System originally included Madrona Wells No. 1, 2, 4 and 7. Only Madrona Well No. 4 is in use as a supplementary water source for the Madrona Water System in late fall/winter when the turbidity of water from Englishman River is high. Madrona Well No. 1 is no longer used due to its low capacity, and former Madrona Well No. 7, which is also known as the Ring Contracting Ltd. (RCL) Well, is now owned by Fairwinds. Madrona Well No. 2 was abandoned and sealed after several water samples indicated contamination; it is now reported to be under a road. Plans call for increased use of Fairwinds wells to supply the RDN system by pumping into the water main along Northwest Bay Road. Additional Fairwinds production wells are being drilled and pump tested in 2008.

3. Nanoose Water System includes Nanoose Wells No. 1 to 6. Nanoose Well No. 5, which is a rock well, had been put into production during the period 1998 to 2001, but was later abandoned because of reported seawater intrusion. Nanoose Well No. 6 is also a rock well, which is reported to have limited aquifer storage and aquifer recharge, and has only been operated in the winter months, when aquifer recharge is high.

Analyses of the historical operational data are also essential in:

- determining, if possible, whether the performance (specific capacity) of any of the RDN production wells has declined since completion; and,
- assessing whether the present groundwater resource management of the integrated RDN system requires additional instrumentation or equipment to monitor the groundwater conditions in Electoral Area E and to determine whether use of wells and water storage facilities could be modified to take better advantage of complex aquifer conditions.

Therefore, the operational data provided by the RDN in a CD-ROM were reviewed; these data tables contain, but are not limited to, the following information:

- a) Water Production Wells, which shows the summary of the high and low monthly water consumption in each water system, along with the average daily water consumption per connection. The data are sorted by years starting in 1996. We note that the number of connections in each system is updated annually.
- b) Well Capacity, which actually shows the ranges of the pumping rates of each production well in each system on charts since 1996.
- c) Well Data, which include information on the manual measurements of pumping and static water levels, depths of the dataloggers, average monthly pumping rates, monthly water production and total hours of pumping.
- d) Datalogger Records, which include automatic water level measurements since 2003/2004 of the RDN production wells, except for Nanoose Well No. 5. The dataloggers are presently set to measure water levels in the wells at 30-minute intervals. Below is a list of the datalogger summaries:

Fairwinds No. 1	–	October 2003 to present
Fairwinds No. 2	–	November 2003 to present
Fairwinds No. 3	–	August 2003 to present
West Bay No. 3	–	November 2003 to present
Nanoose No. 2	–	December 2005 to present
Nanoose No. 3	–	December 2004 to present

Nanoose No. 4 – May 2007 to present  
Nanoose No. 6 – October 2004 to present  
Madrona No. 4 – November 2003 to present.

- e) Lab Data, which contain the results of selected water quality parameters which have been measured on a monthly basis since 2000. The selected parameters include coliform bacteria, E. coli bacteria, pH, salinity, total dissolved solids, conductivity, iron and manganese.

From a telephone discussion on September 20 with Mr. Burow, we understand that many of the pumping and non-pumping water levels are bubble-tube measurements, taken about one half hour after pumping starts and stops, and that the manual water level measurements have usually been taken approximately at month ends.

## **4.2 Review of the RDN Operational Data**

### ***4.2.1 General***

The files in the RDN water system database, which are of most interest and are relevant to this project, are the annual water production reports, the well data and history and the raw datalogger measurements.

Annual water production reports, together with the files of the well operating data, organized and tabulated on an annual basis, are very useful in showing the conditions of the RDN wells during the past few years. It is our opinion that the data are being well organized by the RDN staff and are effective in showing the average monthly water consumption of each system and the average daily consumption per household. As shown on the summary of the operational data, the average daily consumption per household varies from system to system, with the average water consumption at the Fairwinds/West Bay/Arbutus System being the highest of the three RDN systems and consumption in the Nanoose Water System being the lowest. As expected, the highest water demand in all three water systems is in July when the demand may be as great as five times, the minimum demand in winter.

### ***4.2.2 Examination of Well Performance***

We understand that a rehabilitation program was carried out on Fairwinds Wells No. 1 and 2 and Nanoose Wells No. 2 and 4 in November/December 2006 and in February/March 2007, in an attempt to improve the performances of these wells, which were reported to have declined from the time of well completion.

There are several factors which may be causing a decline in performance of a well; the following are the most common:

1. Decrease in the total available drawdown due to a lower static level of the aquifer.
2. Clogging of the well screen, which blocks the screen openings and aquifer pore spaces, and which may be due to:
  - a) Mechanical clogging: a build-up of fine sediments outside of the well screen;
  - b) Chemical clogging: precipitation of calcium carbonate, or rarely, some other precipitate; and/or,
  - c) Biological (bacteria) clogging: deposition of a slimy deposit by one of several species of bacteria present in groundwater.
3. A combination of both lower static level and well screen clogging.

To determine which wells may require rehabilitation and what may have caused the decreases in well performances, we have reviewed the average monthly pumping rates, and the manual monthly static and pumping water levels of all of the operating supply wells in the Nanoose Bay Peninsular Water Service Area from 1996 to 2006, together with the datalogger data.

The following have been prepared:

1. Plots of the manual static water measurements from 1996 to 2007 in wells from each of the three systems, showing the conditions of the known aquifers. Plots (Figures 5 to 7) are contained in Appendix D.
2. Plots of manual drawdown measurements and average pumping rates for each of the operating wells over the time interval of 1996 to 2007. Plots (Figures 8 to 18) are contained in Appendix E.
3. Plots of available datalogger data for each well, in terms of water level above the transducer; these plots are useful in showing the natural seasonal water level fluctuations and well interferences. The datalogger plots for most of the wells are from 2005 to 2007; however, because there are more domestic connections on the Fairwinds/Arbutus/West Bay systems, the dataloggers plots for Fairwinds Wells and West Bay Well No. 3 are plotted from the beginning of the installation to the present. Plots (Figures 19 to 26) are contained in Appendix F.



In addition to the data plots, Tables 4 to 10 in Appendix G, contain original well performance data from the pumping test results at the time of well installation, and randomly selected datalogger well performance data for the last 3 or 4 years of operations. For analysis, we have reviewed quite carefully the amount of drawdown recorded by each datalogger in the high-demand (June, July or August) and low-demand (late February) periods, together with the duration of pumping. Experience shows that the performance (specific capacity) of a well, which is measured by dividing the pumping test rate by the final drawdown, decreases as the pumping rate increases, because of the hydraulic losses which occur in and around the well screen; the specific capacity of a well may also decrease with an increase of the length of the pumping period because of increased drawdown in the aquifer.

We note that the manual measurements of static water levels, which are reported to have been collected about one-half hour after the pumping has terminated, may be in error because the water levels in most, if not all, wells may still be recovering. Further, the bubble-tube facilities for measuring water levels have also been shown to be prone to error. The manual pumping water level readings, collected one-half hour after the pump has been running may also not be "true" readings, given that the duration of the pumping may not be long enough for the water level to approach equilibrium. For these reasons, the drawdowns, which are calculated from the manual non-pumping and pumping water level data, should not be considered to be precise. However, having stated this, these manual data are still important for providing broad/general trends in aquifer water levels and in well conditions.

Many of the manual water level measurement against pumping rate plots in Appendix E, show a scatter of points representing drawdown. A possible explanation for this is the timing of the water level observation, as noted previously. However, in spite of these sources of errors for individual measurements, data plots still give a reliable picture of what has been happening. For example, we note that a number of plots show a gradual increase of drawdowns starting some time in 2004. This raises the question: What happened in 2004? The data show that the static water levels did not change nor did the pumping rates.

The RDN operational data indicate that the rehabilitation of four wells had only minimal impact on well performance. It is our opinion that reason(s) for declines in well performance should first be determined, so that an appropriate redevelopment method(s) can be used for a particular well.

More information about well redevelopment is presented in Section 7.0 (Aquifer and Well Management).

#### **4.2.2.1 Fairwinds / West Bay / Arbutus Water System**

##### ***Fairwinds Well No. 1***

Manual data are available for Fairwinds Well No. 1 from January 1996 to July 2007. Although Fairwinds Well No. 1 was completed in 1988, the well was not put into production until June 1996. The static water level prior to start-up in 1996, was about 42 m (137.8 ft), which was about 3 m (9.8 ft) lower than that at the time of well construction. It shows that the amount of drawdown gradually increased over the period October 2003 to March 2006, during which time the pumping rate had remained more or less the same, at 110 USgpm. Randomly selected data, which were extracted from the datalogger measurements, show that the specific capacity has decreased over time, from about 4.0 USgpm/ft in late July, 2004, for drawdown of 8.4 m (27.56 ft) at a rate of 110.5 USgpm, to about 2.5 USgpm/ft in late August of 2006 for a drawdown of 12.73 m (41.8 ft) at 106 USgpm. It is not possible to examine drawdown from a fixed-interval during the summer time, as the water demand varies quite dramatically, making analysis difficult.

A similar decline in well performance was noted in winter as the specific capacity calculated during 3.5 hours of pumping in late February 2004 was 3.98 USgpm/ft at 110.5 USgpm, compared to a specific capacity (calculated using late February 2007 data) of 3.65 USgpm/ft at a rate of 123.75 USgpm for the same pumping interval. This decrease may be due to the higher pumping rate in 2007. The datalogger readings show that the natural seasonal water level fluctuation in Fairwinds Well No. 1 is usually in a range of 2.5 to 3.0 m (8.2 to 9.8 ft). It appears from the water level recorder data that, the amount of drawdown started to increase significantly in late 2006. We understand that redevelopment was carried out on Fairwinds Well No. 1 in 2006; however, the operational data show that the drawdown post-redevelopment remained more or less the same at about 10.7 m (35 ft) at a pumping rate of about 120 USgpm, for a specific capacity of 3.4 USgpm/ft.

Although manual static water level data are not available from January to September 2000, the water level in Fairwinds Well No. 1 appears to remain relatively constant with occasional small fluctuations.

##### ***Fairwinds Well No. 2***

Behaviour of Fairwinds Well No. 2 is more or less the same as Fairwinds Well No. 1, with well performance declining since the time of well construction in 1988. Based on the data from the original pumping test, which was carried out in late July, 1988 for about 1.7 days, the original specific capacity was 4.26 USgpm/ft, based on a final drawdown of 17.76 m (58.27 ft) when

pumping at 1350 m<sup>3</sup>/day (248 USgpm). It is noted that the specific capacity of Fairwinds Well No. 2 declined to a range of 1.55 to 2.85 USgpm/ft in the summer high demand periods since late 2003, and between 2.11 to 3.25 USgpm/ft in winter when the percentage of pumping time is significantly less. The natural seasonal water level fluctuation recorded in Fairwinds Well No. 2 is about 3 to 4.3 m (9.8 to 14.1 ft); the fluctuations in the water level are similar to that observed in Fairwinds Well No. 1. We note that the location of the datalogger was changed following redevelopment work, which was completed on March 1, 2007.

### *Fairwinds Well No. 3*

Fairwinds Well No. 3 was completed in 1990, but was not put into use until January 2004. Based on the available manual data, the pumping rate and drawdown remained relatively constant until 2006, with a specific capacity of about 6.8 USgpm/ft. It seems that there was a slight rise (less than 1 m (3.3 ft)) in the static water level from 2004 to the present. However, there are some contradictions between the manual and the datalogger measurements. From the datalogger plot, which is available from August 2003 to the present, the drawdown observed during pumping was at an average of about 9.5 m (31 ft) from 2003 to 2005, with the seasonal water level fluctuation ranging within about 2 m (6.6 ft). However, the seasonal water level fluctuation increased significantly in 2006, with about 5 m (16.4 ft) of fluctuation; the amount of drawdown during pumping also increased to about 11 to 12 m (36 to 39 ft). The pump in the well was off for about 6 months starting at the end of 2006, with only periodic pumping. During the shut-off periods, interference in Fairwinds Well No. 3 due to the use of other two Fairwinds Wells, and West Bay Well No. 3, was observed; the amount is usually within 0.8 to 1 m (2.6 to 3.3 ft), but sometimes can be up to about 2 m (6.6 ft), depending on the durations of pumping and the pumping rates. The drawdown during pumping of Fairwinds Well No. 3 apparently decreased to about 1.7 m (5.6 ft), which is similar to what was observed prior to 2006. The reason for the change in the well performance is unknown.

### *West Bay Well No. 3*

The natural water level fluctuation in West Bay Well No. 3 is about 4 m (13 ft), with the highs in December to February and lows in July and August. Based on the manual and the datalogger measurements, the static water level in West Bay Well No. 3 has gradually risen since early 2006 by about 2.5 m (8 ft). The drawdown during pumping has increased gradually, by about 2.5 m (8 ft) over the past 4 years, starting in 2004, during which the pumping rate has remained more or less the same at 225 USgpm. Note that there has been about 5 m (16.5 ft) of decline in the water level in the aquifer since completion of West Bay Well No. 3 in 1982.

#### **4.2.2.2 Madrona Water System**

As mentioned earlier, the Madrona Water System originally consisted of four production wells: Madrona Wells No. 1, 2, 4 and 7. The manual operational data sheets show that Madrona Wells No. 1, 2 and 7 were in use for at least a few years during the period 1996 to 2000; pumping of these three wells was terminated in early 2001 for various reasons. As a result, Madrona Well No. 4 is the only production well which is currently in use supplying water to the RDN Madrona Water System. From the datalogger plot (see Figure 23), Madrona Well No. 4 has been turned off during the periods May 21 to October 5, 2005, May 19 to August 12, 2006 and September 25 to November 2006, with infrequent pumping during high demand periods. The pumping rate (21 to 24 USgpm) and the drawdown (13.5 to 15 m; 44 to 49 ft) have remained relatively constant from 2005 to the present; however, according to the manual data, the drawdown prior to 2005 was in a range of 8 to 10 m (26 to 33 ft) at similar pumping rates. The static water level in Madrona Well No. 4 has gradually risen from about 29 m (95 ft) in April 1996 to 27.5 m (90 ft) in May 2007. The original static water level was reported to be 20.8 m (68 ft) in April 1986.

The seasonal water level fluctuation in Madrona Well No. 4 is about 3 m (9.8 ft). The datalogger plot shows a slow recovery in water level following each pumping period.

The present pumping rate for Madrona Well No. 4 is below the original rated capacity of about 30 USgpm, which was assigned at the time of well completion.

#### **4.2.2.3 Nanoose Water System**

As mentioned previously, the Nanoose Water System currently consists of Nanoose Wells No. 1, 2, 3, 4 and 6; Nanoose Well No. 5 was in use for a few years, but is presently disconnected from the system because of signs of seawater intrusion.

The water levels in Nanoose Wells No. 1, 2 and 4 appear to decline over the last 11 years; the declines are within a range of 1.2 to 1.5 m (3.6 to 3.9 ft). On the other hand, the water level in Well No. 3 has remained quite constant.

##### ***Nanoose Well No. 1***

Because of lack of datalogger data, only manual operational data sheets were reviewed and analyzed for Nanoose Well No. 1. According to the available data from 1996 to 2007, the drawdown, which was observed in Nanoose Well No. 1 during pumping at 80.5 USgpm, remained at about 7 m (23 ft) from January 2000 to July 2004, for a specific capacity of about 3.5 USgpm/ft. The pumping rate was reduced in July 2004 for unknown reasons to about

57 USgpm for a drawdown of about 5 m (16.5 ft) and a similar specific capacity of about 3.45 USgpm/ft.

### *Nanoose Well No. 2*

The manual data show that the pumping rate of Nanoose Well No. 2 has been adjusted several times since 1996 and a rough specific capacity rating was calculated for each change. It appears that, as expected, the specific capacity increases as the pumping rate decreases. Rehabilitation was carried out on Nanoose Well No. 2 in late November/December 2006. Following the rehabilitation, an automatic datalogger was installed to monitor more closely the response of Nanoose Well No. 2 to pumping. Although a set of datalogger measurements is missing between April 4 and May 9, 2007, perhaps due to technical problems, the datalogger readings show that the average drawdown, which has occurred in the Well during pumping at a rate of about 110 USgpm, has remained relatively constant at 3.3 m (10.8 ft). The datalogger readings also show that Nanoose Well No. 2 interferes with other Nanoose production wells (screened wells) and that the pump in the Well is on and off quite frequently, with pumping periods of about 2 to 4 hours at a rate of about 110 USgpm in the winter of 2006. The maximum drawdown observed since the installation of a datalogger in Nanoose Well No. 2 on May 21, 2007 (post-development), during which the well had been pumped continuously at 110 USgpm for about 16 hours, was 3.6 m (11.8 ft). Note that the drawdown observed post-redevelopment seems to be larger than the average pre-redevelopment drawdown of about 2.5 m (8.2 ft). The seasonal water level fluctuation in Well No. 2 is in a range of 0.3 to 0.5 m (1 to 1.6 ft), based on the 2007 datalogger data.

### *Nanoose Well No. 3*

Nanoose Well No. 3 was drilled in 1979 and pump tested at 12.6 l/sec (200 USgpm) and rated at 10.2 l/sec (162 USgpm). It was pumped at about 6.3 to 7.89 l/sec (100 to 125 USgpm) from 1995 to 2004 and then reduced to about 50 USgpm. A plot of drawdown shows a large scatter of points.

The datalogger plot of the water level in Nanoose Well No. 3 shows the following:

1. The Well was not in use from October 31, 2005 to February 20, 2006 and, from April 11 to September 23, 2006.
2. The drawdown during the low demand periods is about 2.5 to 2.6 m (8.2 to 8.5 ft) and about 3 m (9.8 ft) during the high demand period in summer, perhaps due to longer periods of pumping.

3. The seasonal water level fluctuation in Nanoose Well No. 3 is about 0.36 m (1.2 ft).

According to the manual operational data sheets, the pumping rate of Nanoose Well No. 3 has been cut back gradually since late 2003 from 120 USgpm to about 55 USgpm as of early 2007; however, the drawdown remained relatively constant, in the 2.5 to 3 m (8.2 to 8.5 ft) range. This raises a question about the accuracy of the water meter, as less drawdown is expected at a lower pumping rate.

#### *Nanoose Well No. 4*

Well No. 4 was drilled in 1981 with a depth of 57.6 m (189 ft) and static level 32.9 m (108 ft). The specific capacity, pumping at 8.83 l/sec (140 USgpm) was 2.87 USgpm/ft. It was rated at 7.89 l/sec (125 USgpm).

It is quite difficult to analyze the performance of Nanoose Well No. 4, given the lack of datalogger measurements. The manual data show that the pumping rate of Well No. 4 has remained at 73 to 79 USgpm and the drawdown seems to have fluctuated from 2 to 5 m (6.6 to 16.4 ft), perhaps due to the duration of pumping and the specific time the manual water level readings were measured. The pumping rate was gradually increased over the last 3 or 4 years to 110 USgpm; however, the drawdown seems to remain the same. The pumping water level post-redevelopment is more or less the same as previously, but the static water level is about 7 m (23 ft) higher now.

#### *Nanoose Well No. 6*

Nanoose Well No. 6 is a 106.7 m (350 ft) deep rock well, which was originally drilled for DPE in 1996; the Well has been connected to the RDN System since 2001. Because the pumping rate and drawdown vary significantly during the use of Nanoose Well No. 6, the manual operational data were reviewed but not analyzed for this particular well; only datalogger measurements were analyzed. It seems that Nanoose Well No. 6 can be pumped on and off at about 50 USgpm for 4 months, with a drawdown of about 20 m (65.6 ft), after which the drawdown increases significantly to about 40 m (130 ft), perhaps due to inadequate groundwater recharge and/or limited aquifer storage. The data show that an increase in drawdown started in May of each year, when the heavy precipitation ends. The pattern of the water level in Well No. 6 over the last three years is more or less the same. The initial water level recovery is relatively satisfactory, but full recovery requires about 2 months.

### 4.2.3 Examination of the Intensity of Well Use

#### 4.2.3.1 General

We have modified the RDN Well Data worksheets and present the data differently on spreadsheets included in Appendix H. The reason for modifying the RDN format is mainly to analyze the data obtained from each well on a long-term basis – that is to say, 2000 to 2007 instead of year to year. From these data, we have calculated the percentage time of pumping for each operating well, so that the intensity of well use from month to month can be examined. For each well, we have also calculated the average pumping rates, when they are not available in the RDN data, using the total amount of water pumped during the month and the total operating hours for the pump.

Therefore, on our spreadsheet, the data, which were extracted from the RDN database, have been tabulated into six (6) columns representing the following:

1. "Month & Year".
2. "Hours in the Month" shows the total hours for each month. For example, there are 720 hours in the month of June.
3. "Total Water Pumped" is the sum of the amounts for the period, shown by the "totalizing water meter" at each well during each month.
4. "Total Pump Hours" is the total number of pumping hours for each well which was in use during the month. The hours may vary from well to well, depending on the water demand and the reservoir conditions in each system.
5. "Percentage of Time Pumping" is the percentage of the total hours in the month, if the pump, which was operating during the month, had run continuously for the total hours in that particular month. For example, if the total pumping hours of Fairwinds Well No. 2 in June 2007 was 336.5 and the total possible hours in June is 720, Fairwinds Well No. 2 was pumping 47% of the time, or was in use on an average of about 11.3 hours per day in June.
6. "Average Pumping Rate" is the total volume of water pumped from the well during the month divided by the total running time of the pump. Again, it varies with the water demand in each system and the conditions at the reservoirs.

The data for each well are plotted on a graph with the primary y-axis being the "Percentage of Pump Time" and the secondary y-axis being the "Average Pumping Rate"; the x-axis is the time scale from January, 2000 to July, 2007 (see Figures 27 to 36, Appendix H).

#### 4.2.3.2 Fairwinds / West Bay / Arbutus Water System

We have plotted data from all five production wells in the Fairwinds/West Bay/Arbutus Water System. In general, the plots of the intensity of well use are almost identical, an indication that they are all controlled by the same signal and not by a separate control for each well. The "percentage of running time" plots show that the capacities of the wells in this particular system are not being fully utilized. The maximum percentage of time when wells are in use was about 80% for Fairwinds Wells No.1 to 3 and for West Bay Well No. 3 in the month of July 2006.

The maximum percentage of monthly running time for several of the main supply wells in most years is not more than 60% and even then, only for a short time in mid summer. The capacity of most of the wells, determined in the past by careful testing, is based on constant pumping. A 30% or 40% safety factor is included in the original well rating calculations. Since the time of installation of variable rate pumping equipment, it is not possible to determine causes of pumping rate changes. The amount of working storage in the several balancing reservoirs in the system is an important factor in well utilization.

Based on the RDN data from wells which have a constant pumping rate over the period of record, 6½ years or less, the low percentage of pumping time, and for many wells, the low pumping rates compared to the well capacities determined from careful pump tests, indicate that more groundwater is available from these wells and that it can be obtained by running the pumps longer, as much as 100% of the time and at their rated capacities. Obviously, the amount of water being pumped is dependent on system demand, reservoir working storage and other factors, one of which is the groundwater level in the aquifer from which the water is being pumped.

#### 4.2.3.3 Nanoose Water System

The operating data show that the five Nanoose wells, which are currently in use, are all being pumped at rates which are much below their original ratings. The data also show that they are in use for most of the year but for only a small percentage of most months. In the maximum summer months, Wells No. 1, 2 and 4 are only pumped a little more than 60% of the time for one month (June or July 2006). In the summer of 2005, they were only pumped about 40% of the time. As an example of the low pumping rates compared to rated capacity, Nanoose Well No. 2 was rated at 304 USgpm, but the present pumping rate is only about 110 USgpm. The drawdown was only 2.13 m (7 ft) compared with the total available drawdown of about 13.7 m (45 ft). The static water level has remained almost constant, indicating that aquifer recharge is quite adequate.

The data indicate that much more water is available from the Nanoose wells.



## 5.0 WELL MAINTENANCE AND REHABILITATION

As briefly discussed in Section 4.2.2, a common problem with wells which are completed with well screens in granular aquifers (mostly sand and gravel) is reduced well capacity. The two most common problems which may occur with screened wells are:

- a) Decrease in well efficiency (increase in well losses).
- b) Decline of the water table, usually temporary.

A decrease in well efficiency may be noticed when production from the well decreases, when the pump begins to gulp air or when low water controls shut off the pump. When a decrease in production is noticed, it is important to determine whether the problem is due to the well performance, the pump or a lowering of the water table. This can be done by measuring the water level in the well when it is not being pumped (static water level) and when the pump is in operation (pumping level). If the static water level is significantly lower than it was when the well was first put into production, the water level in the aquifer is dropping. If the change in level during pumping (drawdown) at the same rate, is more than it was during initial testing of the well, the well efficiency has decreased. If the static water level and drawdown are about the same as when the well was constructed, then the decreased well capacity is probably due to the pump.

Decrease of well efficiency may be caused by clogging of the screen and/or clogging of the aquifer near the well with:

1. fine sand and silt (known as mechanical clogging);
2. encrustation of the screen and sometimes encrustation of the sand and gravel near the screen with carbonates or other chemical precipitates; and,
3. clogging of the screen and aquifer with slime or gel caused by bacteria which use iron or other constituents in the well water in their metabolism.

The first of these problems, mechanical clogging, is the most common. The remedy is to redevelop the well to remove the fine sediment from the zone near the screen. There are various ways of redeveloping such a well; most of them involve agitation of the water in and around the screen. Sometimes the redevelopment can be done without removing the pump from the well as long as water from the well during development can be discharged to waste, to prevent sandy or silty water from entering the system. Agitation may be accomplished by surging with a piston (surge block) in the well, by blowing compressed air or by jets of high-pressure water in the well screen.

Encrustation, the second cause of clogging of the screen and aquifer, is the deposition of a hard, stone-like chemical precipitate on the screen and sometimes also in the sand and gravel within a few centimetres of the screen. This precipitate is usually calcium carbonate, which is the main constituent of many hard waters. Precipitation tends to occur where there is a sudden reduction of pressure, as there is in the high velocity zone in and around the well screen. A properly designed well, with an adequate length of screen, is less prone to this trouble, because the velocity of water entering the well is lower than in a well constructed with slotted pipe or an inadequate screen. It is sometimes possible to predict this condition from a chemical analysis of the water and to design the well to reduce the velocity passing through the screen. The type of precipitate to be expected can also be estimated from an analysis of the water. Carbonate encrustation can usually be dealt with, by chemical treatment using acid products. It may not be necessary to remove the pump, but treatment of badly encrusted wells is aided by surging the chemical solution in the well. Several treatments may be necessary.

The third important cause of decreased well efficiency, clogging of a well screen and aquifer with iron-consuming bacteria, is probably the most troublesome problem. It is caused by the growth of several genera and species of bacteria which use iron dissolved in the water in the metabolic process. These bacteria usually produce a slimy deposit, which clogs the screen and the surrounding sand and gravel. Bits of the dark slime may show up in the water system. It is possible for a bacteriologist to identify these bacteria if they are present. It is usually a problem where the water contains iron in amounts above 0.1 mg/l, but the trouble can also occur when there is hardly any iron in the water. If iron bacteria are causing problems, periodic treatment is often required. We are not aware of bacterial clogging problems in Electoral Area E.

The most effective treatment for iron bacteria is to place strongly chlorinated water in the well to kill the bacteria. The slimy deposit can then be removed by agitation and pumping. It may be possible to completely remove the bacteria from the well, but not from the aquifer, by such disinfection. In the past, there was a common belief that the bacteria may have been introduced by allowing water from infected water mains or other sources into the well. However, investigations have shown that, in most places where iron bacteria cause problems, the bacteria are already in the aquifer.

The RDN operating data indicate that several wells presently in use in Electoral Area E, and several more which are no longer used, should be redeveloped, to increase their capacity and thus to increase the source capacity of the entire system. There is some uncertainty about the need to redevelop wells, so each well, for which operating data indicate would benefit from development, should be tested before the final decision to redevelop is made. We suggest, on the following page, the procedure.

1. From the original information on well capacity, which was collected at the time the well was constructed, review the original pump test data paying particular attention to the specific capacity, noting the length of time the well was pumped, the pumping rate and the time of year; so that these data can be compared to present day conditions.
2. After the well has not been pumped for several hours and at a time of minimum interference from other nearby wells, carefully measure the static water level, which can then be compared with the original static level at the same time of year.
3. Carry out a pumping test at least one hour but not more than 2 hours in length. Before doing this, determine how the pumping rate is to be measured, keeping in mind that a water meter may not be accurate. The preferred method of measuring flow rate is to use a standard circular orifice or by timing the filling of a container of appropriate size. The installed pump can be used but, if the capacity of the installed pump is too small, it should be removed and an appropriate test pump installed for the test. The usual schedule of water level measurements should be recorded and the pumping rate should be monitored several times during the test. The rate should be held constant for the last ½ hour of the test.
4. At the end of the test, the usual schedule of the recovery measurements should be recorded.
5. Compare the test data with those of the original pumping test, in an effort to compare drawdown at the end of the present test with drawdown after the same length of pumping period and, if possible, at a similar pumping rate.
6. Decide whether a decrease in water production during operation is due to a lower static level, lower pump capacity, or lower well performance (specific capacity), or a combination of the three.

If the testing shows that specific capacity is lower by 15% or more, redevelop the well. However, before proceeding with redevelopment, check the water chemistry to determine whether the water is corrosive, neutral or encrusting. There are several procedures for determining the type of water; we suggest the Ryznar Index analysis, which can be calculated in a few minutes using a standard chemical analysis of the water. If the water is found to be strongly encrusting, consider treating the well with acid to dissolve calcium carbonate, which is almost always the encrusting material. Otherwise, proceed with conventional redevelopment.

We strongly recommend using conventional redevelopment procedures using a cable-tool drill equipped with surge blocks, bailers and a test pump which can monitor the progress of redevelopment. In the present situation, we believe that it is the most effective and least costly development method. It is, of course, essential to have an experienced driller carry out the work.

## 6.0 MONITORING OF AQUIFER CONDITIONS

In the process of analyzing the RDN operational data for Nanoose Bay Peninsula Water Service Area, we find that there are several dataloggers installed in the production wells, but there are no water level observation wells in the subject study area. We agree with the RDN program of monitoring the behaviors of the production wells on a regular basis. According to the datalogger readings, the pumps in almost all production wells, when the demand is low, run about 3 or 4 times a day, for only about 2 to 4 hours each time, depending on the conditions at the reservoirs and the water demands. Because the pumps turn on and off frequently, accurate static water levels are seldom available in all RDN wells, making it difficult to analyze the data.

The ideal situation is to have water level observation wells in place before major pumping takes place in the aquifer, so that the full effects of pumping can be observed. If the production wells are equipped with totalizing water meters (and hour meters), it may then be possible to correlate the relationship between aquifer drawdown and water production. The objective of good management is not to maintain conditions as they were before groundwater production started, but to withdraw as much water as possible at a more or less steady-state water level in the aquifer. It is possible to speculate about aquifer capacities, the volume of groundwater recharge and other factors, but there are also many unknown factors and variables. However, regular collection of data over a period of several years, from the RDN production wells, along with data from a few observation wells and monthly precipitation at the nearest airport or other established meteorological station, enable reliable estimates of aquifer capacities and other factors to be made. The big disadvantage with the procedures outlined above, is the time period involved. When there are groundwater resource problems, (or in some cases, perceived problems), immediate estimates and solutions are demanded. When this occurs, the resulting speculation is likely to be very conservative and may cause useful wells to be abandoned and may discourage groundwater use because of a belief that the groundwater resource cannot be reliably estimated.

Therefore, we strongly recommend that several water level observation wells be established in undisturbed areas of each important aquifer, so that the water level conditions in the regional groundwater regimes can be monitored. To minimize the cost of installation of new wells specifically for observation purposes, we suggest that the RDN try to locate unused wells in the less developed areas and that wells, which are suitable for observation, be monitored by monthly manual measurements or be equipped with automatic water level dataloggers programmed for measurements at six-hour intervals. Analysis of these observation readings, along with other information, should be carried out on an annual basis, to determine whether pumping of production wells is causing long-term depletion in the aquifer complexes from which the wells withdraw water.

Since the flow of water in and out of a water level observation well is extremely small, wells which have been abandoned as "dry holes" can often serve as satisfactory water level observation wells. A simple test to determine whether an abandoned well **may** be satisfactory for observations is to measure the water level in the well, pour in a bucket of water and then observe, by repeated measurements, how the water level declines. If it does not decline by a measurable amount in 15 minutes, the well is probably not suitable for an observation well. A deep well of the DND system and a well in the Rocking Horse Subdivision would be ideal observation wells for the RDN system.

## 7.0 GROUNDWATER MANAGEMENT STRATEGY

The RDN system of wells, must serve the demands of the water supply system that has fluctuating daily demands and with seasonal demand variations of five to one or even more. The key to getting the most out of such a system, is optimum utilization of aquifer storage, so that there is a maximum amount of water in aquifer storage at the start of the high demand period in summer, and also that all of the stored water is not depleted before the high demand period ends.

Under the conditions prevailing in much of Electoral Area E, maximum use should be made of wells which intercept water discharging from the aquifer complexes and which can supply a constant (sustained) rate of flow throughout the year. The system can be supplemented during times of maximum demand, usually the summer months, by water from aquifers which have capacities that are limited by limited recharge, by limited groundwater storage and/or by other factors.

A system in which all of the wells operate in unison (all on or all off) is not able to utilize aquifer storage effectively. The wells drawing water from small aquifers, deplete the stored water so that their pumping rate is eventually reduced to the rate of recharge of the aquifer and the amount of water in aquifer storage is always low. If the pump(s) in a well(s) in a small aquifer(s) is turned off during the entire low-demand period, the aquifer becomes recharged, probably completely, and the stored groundwater is then available during the summer high demand period for pumping at a rate which depletes the stored water by the end of the summer. Operating data show that there are such aquifers and wells in Electoral Area E.

We suggest that the best operating strategy for such wells cannot be devised from pumping tests, but is best worked out from operating data, usually monthly totals of water pumped, total pump running hours and observations of water levels with the pump running and also after the pump has been at rest.

In any system which supplies residential areas, the demand for water fluctuates seasonally from peaks on summer weekends to low flow in winter, which may be 25%, or even as little as 20% of the peak summer demand. Thus, it is possible that the "base flow" for the entire water system can be supplied from a group of production wells yielding good quality groundwater, and use wells yielding poorer quality water as supplementary sources, when the "base flow" can no longer meet the demand of the system. This would ensure that there is a sufficient flow of good quality water in the system to dilute the lesser quality water so that staining and other problems may be much reduced or even eliminated. The order of which wells to use as supplementary water sources when the "base flow" from Area A wells can no longer meet the demands of the system, should depend on the water quality; for example Madrona Well No. 4 would be put into

the system, then the wells in the Fairwinds/West Bay/Arbutus system, and finally the Nanoose wells.

We are recommending a management strategy, in which wells that are known to be completed in aquifers of limited size and/or of poorer groundwater quality, would be used only during a period(s) each year when water demand is high. Such a strategy is somewhat equivalent to adding water storage to the water supply system. For example, if there is a well that can be pumped continuously at a rate of 4.54 l/sec (72 USgpm) for 30 days, this is equivalent to adding (30 days)(1440 minutes) (72 USgpm) = 11.77 million litres (3,110,400 USgal) storage to the system.

Note that this Section is not presented to outline how the RDN system in Nanoose Bay Peninsula Water Service Area should be operated, but to show how it is possible to develop a fairly simple operating strategy and pump control system to fit the complex aquifer conditions found in Electoral Area E and probably in other areas in the Regional District. We are not recommending a centralized control office where there are displays of the water levels in each well and each reservoir, etc. Instead, we are suggesting a system with provisions for periodic manual readings of meters and water levels and a control system which is adapted to conditions rather than an "all on - all off" control.

## 8.0 SUMMARY AND CONCLUSIONS

From our reviews of the situation in Nanoose Bay Peninsula Water Service Area, we conclude the following:

1. Based on our review of the available well records, examination of the aerial photography and interpretation of the hydrogeologic cross-sections, we have outlined four areas of potential groundwater resources: Areas A, B, C and D. Area A is an area in the northwestern part of Electoral Area E, near Craig Bay. Area B is an area near the head of Nanoose Bay, where Nanoose Creek and Bonell Creek discharge into the sea. Area C is a broad, elongate area, which covers the area from Areas A to B, including the DND Reserve and the Rocking Horse Subdivision. Area D is the Nanoose Peninsula east of a line from the head of Nanoose Bay to Dorcas Point. Exploration drilling in Areas A, B and C would be in overburden and drilling in Area D would be in fractured bedrock.
2. Areas A, B and C are part of the Nanoose-Craig aquifer complex, or MOE Aquifer 219IC (9). The Nanoose-Craig aquifer complex is composed almost entirely of ice-contact deposits. These sediments were deposited in contact with ice, usually melting ice, during the last glacial event. The types of sediments making up these deposits depend on several factors, such as the origin of the ice, the amount of sediment-laden meltwater which was flowing, etc. Hence, the nature of ice-contact deposits is heterogeneous in which wells only a short distance apart may show very little similarity between lithology and capacity. Because of the ice-contact conditions, groundwater exploration drilling must be carried out with extra care. Despite the difficulties which may be encountered during exploration drilling, we believe that the Nanoose-Craig aquifer zone still has good potential to develop additional groundwater for the Nanoose Bay Peninsula Water Service Area, given that the aquifer complex receives adequate recharge from undeveloped upland.
3. Of the three designated areas, the discharge ends, that is Areas A and B, of the aquifer complex have the most potential. Due to the limited information on the hydrogeologic condition in Area C and its higher elevation, drilling in Area C is expected to be deep and groundwater fluctuation is expected to be larger than in Areas A and B. A review of the water analyses of waters from wells in Areas A and B, shows that water from the RDN wells near Nanoose Bay (Area B) contains elevated iron and/or manganese which cause nuisance problems, but water from several private wells (Pacific Shores Wells and Fairwinds Wells) in Area A is of better quality. Hence, preference should be given to obtaining water in Area A, because the overall water quality is somewhat better than in Area B.



4. Although experience has shown that wells completed in randomly-distributed rock fractures can sometimes be used as high-capacity production wells for a water system, we do not recommend exploration drilling in Area D at the present time, because the results of drilling in Areas A and B, where productive aquifer complexes have been identified are likely to be better than exploration drilling in bedrock.
5. Data from operation of the production wells indicate that performance (specific capacity) of several wells has declined and that they may require redevelopment. The most important reason for improving well performance is because inefficient wells cannot make optimum use of aquifer capacity. In this report, there is discussion of redevelopment including procedures for testing to determine the cause of performance decline and how to redevelop wells. Some wells are unnecessarily being pumped at much lower rates than the rating assigned after careful test pumping at the time the wells were completed. The clue to this situation is the small amount of drawdown compared to the total available drawdown. We do not know how this type of situation came about, but speculate that the capacity of the pump, at the time the well was put in service, may have been chosen to match the water demand at the time and was not based on the capacity of the well. Anyhow, much more water can be made available from such wells by installing pumps of higher capacity based on the well capacity. On the other hand, the data show, in some cases, that even the low capacity pumps in such wells seldom pump more than 50% of the time, even in the high demand months, probably largely because of lack of useable water storage in the system, and perhaps also because of the pump control system.
6. The data collected by the RDN indicate that the total capacity of the wells now connected to the system is much greater than the present demands of the system, but is partly limited due to the available water storage in the system. On top of that, several wells, which are no longer used but could be used (West Bay Wells No. 1 and 2) and several privately-owned wells (for example, Pacific Shores wells) within easy reach of the system, could increase the total well capacity even further. Because of the large seasonal fluctuation of water demand, much of the well capacity is only required during about three months of the year, so that operating strategy should be based largely on meeting the high demand during summer months and making use of the best quality water during the long period of low demand by selective pumping of certain groups of wells. To increase system capacity at times of high demand, consideration should also be given to reconnecting some of the abandoned wells, for example West Bay Wells No. 1 or 2, to the system.

7. As an example of a concept which we suggest would help to make the most of aquifers which have limited size, is to consider the limited aquifer storage which is slowly recharged by a small flow of groundwater as storage which can be managed for use in times of maximum water demand. Such a well-aquifer system is much less useful if it is pumped throughout the year because then most of the aquifer storage is essentially not used. Obviously, the aquifer storage in such a system is also available during emergencies, fires, power failures, etc. There are several such small aquifers in Electoral Area E and nearby; some were in use but have since been abandoned, but might be used again at low cost as long as the wells which pump water from them have not been destroyed.

## 9.0 LIST OF RECOMMENDATIONS WITH ESTIMATED COSTS

It is essential to establish several water level monitoring wells for the existing RDN System. This can often be done by locating unused and/or abandoned wells, not necessarily limited to wells owned by the RDN. It is often possible to use privately owned wells, based on a simple one-page agreement which, allows the RDN access to the well to modify the wellhead and to collect water level data as required. The agreement requires that the well owner give the RDN a period of notice (one month?) to make other arrangements, if the owner wishes to terminate the agreement. The Provincial Government uses observation wells under such agreements.

As discussed previously in Section 8.0 (Summary and Conclusions), we believe that additional groundwater can be obtained from the present system. Therefore, the most important recommendation dealing with the production wells of the present system is, that the operation of each production well presently in use be reviewed, based on the data which are presently being collected along with the original pump test data, most of which are on file. Points to review are:

- a) The original static water level, making allowance for the time of year and has it changed significantly?
- b) The original pumping test results, including the well capacity rating, the specific capacity, etc.
- c) Chemical analyses, particularly regarding manganese and iron, to decide whether the well could be part of the group of wells supplying "base flow" or should mainly be used as a supplementary source during high demand periods.

The previous discussion of procedure should be considered a guideline. Because the results of the investigation are important and may lead to well abandonment or redevelopment or even rehabilitation of abandoned wells, all data sources should be assessed: Is the water meter reasonably accurate? Are the water level measurements accurate? Has there been sufficient time for water level recovery, etc.? Are other, more recently installed wells interfering with the well?

After all of the present production wells have been assessed, consider assessing each of the wells which have been abandoned with the objective of bringing some of them back into the system. This may not be possible if a well has been sealed as was done at the Arbutus Well. In assessing abandoned wells, the first question is: Why was the well abandoned and is the reason valid at this time and is it clearly supported by data? For example, we understand that West Bay Well No. 1 which was a flowing artesian well was abandoned because the water is high in sodium, which is about 100 mg/l while the water quality guideline maximum is 200 mg/l. The well is no

longer owned by the RDN, so it is no longer available. Was that sufficient reason for abandonment especially considering that the water would be mixed with other waters lower in sodium?

Most of the things we are suggesting for increasing the groundwater supply can be carried out by the RDN staff mostly using equipment already on hand. We are recommending procedures which require a minimum of assistance from consultants, for example simple analyses and plots of data, additional water level measurements, occasional monitoring of water conductivity where seawater intrusion may be suspected and other day-to-day observations and procedures.

Estimated costs to carry out the above-outlined recommendations, as part of a review of the present water system in the Nanoose Bay Peninsula Water Service Area are included in the list of tasks as follows:

1. Establish four (or more) water level observation wells, preferably by locating suitable unused wells. One well should be in Area C perhaps the northern DND well or a well in Rocking Horse Subdivision. Wellheads of existing wells should be modified for manual measurement of water levels. Cost can range from \$2,000. to \$15,000. for a new well. Budget for \$25,000.
2. Carry out a careful pump test of each production well in the system to collect sufficient data to compare with data from the original pump tests to assess the need for redevelopment of wells and to check pump capacities. This can be done by RDN personnel using installed pumps. Estimated costs, including extras such as replacement or calibration of water meters etc., are about \$2,000. per well not including cost of labour by RDN staff. For 10 wells, the estimated cost is \$20,000.
3. Redevelop wells which have been shown by pump testing to have reduced specific capacity, by using a cable tool drill, surging equipment and a test pump. Cost per well is estimated at \$6,000.; for six wells, the estimated cost is \$35,000.
4. Carry out careful pump tests of some abandoned wells, if access is possible, to determine their present capacities and to determine whether the capacities of installed pumps are or were appropriate for the wells. If necessary, replace pumps and then operate the wells as production wells, taking manual water level measurements to be compared with data from the test at the time of well construction. If testing shows that well performance has declined, consider redeveloping the wells. If pump testing is done by the RDN staff, the cost would be quite low, perhaps \$1,000. per well; for four wells, about \$4,000. If results show that the installed pumps have insufficient capacity, pump replacements would be part of the costs of better utilizing the wells.

5. We note that seawater intrusion occurred at one rock well so it was abandoned. Such wells can sometimes be used for short periods, say two or three weeks as long as they are then shut off to allow natural groundwater discharge to drive back the intruding sea water. It may also be possible to use such a well at a reduced rate that does not induce seawater intrusion.

Each well where seawater intrusion is suspected, should be tested using a similar procedure to the testing of wells for capacity, except that the conductivity of the water would be monitored to determine the start of seawater intrusion before it could be tasted. Again, if this is done by RDN staff, the cost is estimated at about \$1,000, per well.

6. Future subdivisions and developments in the study area should be developed with the preservation of groundwater supplies in mind. Many construction techniques and materials have come into common usage lately that enhance infiltration of rainwater runoff into the sub-soil. Porous pavers, permeable concrete sidewalks, storm water retention ponds with exfiltration, bio-swales and underground storage of storm water run-off with enhanced infiltration are a few examples for consideration. These strategies not only help preserve the groundwater resource but reduce the size or eliminate the need for other land drainage structures.

## 10.0 LIST OF REFERENCES

1. Letter from Kleinfelder Inc. to RDN, titled, "Nanoose Bay & Fairwinds Well Rehabilitation" dated July 26, 2007.
2. Letter-report from PHCL to Koers, titled, "Groundwater Potential Study for Fairwinds Community & Resort" dated September 19, 2006
3. Memorandum from Pacific Hydrology Consultants Ltd. (PHCL) to Koers & Associates Engineering Ltd. (Koers), titled, "Regional District of Nanaimo – Nanoose Interconnection Study/Well Redevelopment" dated March 26, 2001.
4. Report from Terracon Geotechnique Ltd. to RDN, titled, "Review of Dorcas Point Subdivision Bedrock Water Wells Nanoose Peninsula, British Columbia" dated April 17, 1996.
5. Report from PHCL to Breakwater Enterprises Ltd., titled, "Completion Report Construction and Testing of Pacific Shores Well No. 2-94 in the Craig Bay Area East of Parksville, B.C." dated December 14, 1994.
6. Report from Terracon Geotechnique Ltd. to RDN, titled, "Regional Groundwater Study Nanoose Peninsula, British Columbia" dated October 27, 1994.
7. Report from PHCL to Koers, titled, "Completion Report Construction and Testing of Fairwinds Wells 2-1988 and 3-1990" dated November 30, 1990.
8. Report from PHCL to Ring Contractor Ltd., titled, "Completion Report Test-Production Drilling, Construction and Testing of a Production Well on Lot A, D.L. 22, Plan 445R, Nanoose District" dated September 7, 1990.
9. Report from PHCL to Koers, titled, "Completion Report Construction and Testing of Fairwinds Test Well No. 1" dated July 8, 1988.
10. Report from PHCL to Koers, titled, "Fairwinds Development Pump Testing of the RDN Rowland Road and Powder Point Road Wells and a Program of Exploration to Develop Additional Groundwater" dated December 22, 1987.
11. Report from PHCL to Koers, titled, "Fairwinds Well Programme Second Pump Test of Nanoose Lions Playfield Well" dated November 23, 1987.
12. Report from PHCL to Koers, titled, "Fairwinds Well Programme Pump Test of Nanoose Lions Playfield Well" dated October 27, 1987.

13. Report from PHCL to RDN, titled, "Madrona Water Specified Area Test-Production Drilling and Construction of Well No. 5" dated July 17, 1986.
14. Report from PHCL to Regional District of Nanaimo (RDN), titled, "Madrona Water Specified Area Test-Production Drilling and Construction of Well No. 4." dated May 20, 1986.
15. Letter from Brown, Erdman & Associates Ltd. to Arbutus Park Estates Ltd., titled "Groundwater Supply - Well 1 Ranch Point Subdivision", dated July 14, 1980.

**REGIONAL DISTRICT OF NANAIMO**

**MINUTES OF THE ELECTORAL AREA 'A' PARKS AND GREEN SPACE ADVISORY  
REGULAR COMMITTEE MEETING AT CEDAR HERITAGE CENTRE  
THURSDAY, MAY 15, 2008**

- Attendance:** Frank Garnish, Chair  
Joe Burnett, Director, RDN Board  
Kerri-Lynne Wilson  
Jim Fiddick  
Lynne Aldcroft, Secretary
- Staff:** Jonathan Lobb, Parks Operations Coordinator
- Absent:** Gay Cunningham  
Margaret Johnson  
Joe Materi  
Barbara Metcalf
- 

**CALL TO ORDER**

- 1 Chair Garnish called the meeting to order at 7:37pm.

**MINUTES**

- 3 Committee members noted the Minutes of the March 20, 2008, meeting should be amended as follows:

Kerri-Lynne Wilson should be noted as "Absent"  
Item 8.2, correct spelling of Materi  
Item 8.3, should be Ritten Road  
Item 8.4, should be Ms. Metcalf

MOVED J. Fiddick, SECONDED K. Wilson, that the Minutes of the Electoral Area 'A' Parks and Green Space Advisory Committee Meeting held March 20, 2008, be approved as amended.

CARRIED

**BUSINESS ARISING FROM THE MINUTES**

- 4 Mr. Lobb noted Dave Friesen has confirmed the cost to improve the access to Ritten Road should come in close to the estimated price of \$665 plus taxes. Mr. Burnett noted up to \$2,000 in funding has been approved for the project.

**REPORTS**

**8.1 Director's Report**

Mr. Burnett presented a verbal report highlighting the following items:



- Forty people attended the OCP review held May 10, 2008. Staff will draft a technical background report in order to inventory and analyse the current land use policies and regulations. Public participation will continue in the fall.
- Sustainability Public Workshops are scheduled to be held at Parksville Community and Conference Centre May 24, and at Oliver Woods Community Centre, June 7, from 1:00 to 5:00 pm.
- Community Works Funds are a component of the federal Gas Tax program which are distributed directly to local governments and can be used for any of the purposes identified under the program including infrastructure improvements, application of innovative technology or capacity building. In the 2008 Electoral Area 'A' budget, \$97,215 was designated for OCP background review reports, with a further \$60,000 requested for 2009 and \$10,000 to be used for a new bus shelter.
- A grant application in the amount of \$25,000 to the Built Environment and Active Transportation Community Planning Grant Program will be prepared. The monies will be used to develop an active transportation plan as part of the EA Area 'A' OCP review.

### 8.3 Staff Update

Mr. Lobb presented a verbal Staff Update Report noting the following items:

- Thelma Griffiths Park is almost complete with only a few finishing touches required.
- An MOT permit will be applied for to cover improvement costs to the Quennell Lake access off Ritten Road.
- Engineering drawings for a rock causeway with culverts to replace the bridge over Thatcher Creek tributaries, on the Morden Colliery Trail, have been requested. The design is to include allowance for access by horseback riders.
- The Skate Park Application for a Non-Farm Use permit sent to the Agricultural Land Commission has been approved.

MOVED K. Wilson, SECONDED J. Fiddick, that the Reports be received.

CARRIED

## NEW BUSINESS

### 9.1 Amendment to Electoral Area 'A' Community Parks Bylaw No. 798

Mr. Burnett explained that in November 2006 other Electoral Areas amended their bylaws to permit financial support for operations and improvements to facilities, owned and operated by incorporated non-profit organizations. A decision was deferred in Electoral Area 'A' pending the Recreation & Culture Master Plan Review.

Mr. Burnett noted the Electoral Area 'A' Recreation and Culture Commission budget supports only the construction and operation of recreation and cultural facilities owned by the Regional District; therefore, staff recommend amending the Bylaw No. 798 in a manner similar to the model in the other Electoral Areas.

Committee members requested clarification on the following points:

- Could a one time grant be given for a specific reason at budget time?
- Where would the funds come from – the parks acquisition fund or the annual operations budget?

- Should facilities be handed over to the Regional District to own and operate?

MOVED J. Fiddick, SECONDED K. Wilson, that the amendment to the Electoral Area 'A' Community Parks Bylaw No. 798 be referred back to staff for clarification of alternative methods of funding.

CARRIED

**9.2 Proposed Road Closure – 2347 South Wellington Road**

MOVED F. Garnish, SECONDED J. Burnett, that the Ministry of Transportation be advised that the Electoral Area 'A' Parks and Green Space Advisory Committee has no objection to the proposed road closure of 2347 South Wellington Road.

CARRIED

**COMMITTEE ROUND TABLE**

- 10 Mr. Materci's resignation from the Parks and Green Space Advisory Committee and as Chair of the Cedar-South Wellington Community Trail Group was received with regret.

**COMMITTEE INFORMATION**

**11.1 Fire Control Cost Sharing Agreement – Ministry of Forests**

MOVED L. Aldcroft, SECONDED K. Wilson, that the Electoral Area 'A' Parks and Open Space Advisory Committee support the Fire Control Cost Sharing Agreement with the Ministry of Forest Fire Protection Branch as outlined in the April 22, 2008, report.

CARRIED

**ADJOURNMENT**

- 13 MOVED K. Wilson, SECONDED J. Fiddick, that pursuant to Section (90) (1) E of the Community Charter the Committee proceed to an In Camera meeting to consider land issues.

CARRIED

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Chair

**REGIONAL DISTRICT OF NANAIMO**

**MINUTES OF THE ELECTORAL AREA 'E' PARKS AND OPEN SPACE ADVISORY  
REGULAR COMMITTEE MEETING HELD  
MONDAY JUNE 2, 2008**

**Attendance:** George Holme, Director RDN Board  
Frank Van Eynde, Chair  
Gabrielle Cartlidge  
Scott Wroe  
Floyd Harry  
Steven Watson

**Staff:** Elaine McCulloch, Parks Planner  
Mike Donnelly, Manager of Utilities

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**CALL TO ORDER**

1 Chair Van Eynde called the meeting to order at 7:00pm.

**MINUTES**

3.1 MOVED S. Watson, SECONDED G. Holme, that the Minutes of the Electoral Area 'E' Parks and Open Space Advisory Committee Meeting held April 7, 2008, be approved.

CARRIED

**REPORTS**

**8.2 Staff Update**

Staff called for discussion on the Area E Park Survey – Trail Linkages and Priorities document initially presented by staff at the February 4, 2008, POSAC meeting. Committee members requested the discussion be postponed until the next meeting.

MOVED G. Holmes, SECONDED S. Watson, that the Reports be received.

CARRIED

**NEW BUSINESS**

**9 Claudet Road Park**

Regional District Manager of Utilities, Mike Donnelly, reported that a test well is being drilled in Claudet Road Park. He noted that the well currently being tested is providing 200 US gallons per minute over a three day period. Mr. Donnelly stated there would be minimal impact on wells in the area. The proposed community well will be placed near the road, minimizing interference with the park. Given the apparent success of the current test well, the RDN may look at drilling multiple wells in this location.

**COMMITTEE ROUND TABLE**

10 Mr. Van Eynde reported that the Nanoose Bay Parents Advisory Committee had received \$30,000 from the Rick Hansen Society.

Mr. Watson requested a written update on Coventry Place Community Park.

Mr. Holme reported Park Place Community Park requires weed maintenance.

**ADJOURNMENT**

12 MOVED G. Holme, SECONDED S. Watson, that the meeting be adjourned at 8:00 pm.

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Chair

## REGIONAL DISTRICT OF NANAIMO

### MINUTES OF THE DISTRICT 69 RECREATION COMMISSION REGULAR MEETING HELD ON THURSDAY, JUNE 19, 2008 AT OCEANSIDE PLACE

**Attendance:** Frank Van Eynde, Electoral Area 'E', Chair  
Dave Bartram, Director, RDN Board  
Reg Nosworthy, Electoral Area 'F'  
Eve Flynn, Trustee, School District 69  
Patty Biro, Electoral Area 'H'  
Jennifer O'Farrell, Electoral Area 'G'  
Charles Robinson, Councilor, City of Parksville  
Jack Wilson, Councilor, Town of Qualicum Beach

**Staff:** Tom Osborne, General Manager Recreation and Parks  
Marilynn Newsted, Recording Secretary

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#### CALL TO ORDER

- 1 Chair Van Eynde called the meeting to order at 2:00pm.

#### MINUTES

- 2 MOVED Commissioner Bartram, SECONDED Commissioner Flynn, that the Minutes of the District 69 Recreation Commission Meeting held May 22, 2008, be approved.

CARRIED

#### COMMUNICATION/CORRESPONDENCE

- 4 MOVED Commissioner Nosworthy, SECONDED Commissioner Biro, that the following Correspondence be received:

- M. Macey, Re: Thank You, Use of Ravensong Aquatic Centre
- T. Osborne to Parksville Curling Club, Re: Sublease of District 69 Arena
- Nanoose Bay Elementary School, S. Hamilton, Re: Thank you, Youth Grant
- Rotary Conference Chair, M. Procter, Re: Thank you, District 5020 Conference at Oceanside Place

CARRIED

MOVED Commissioner Nosworthy, SECONDED Commissioner Biro, that the late Correspondence A. Ward, 2009 Scotties BC Women's Curling Championships Sponsorship Committee, Re: Sponsorship, be received.

CARRIED

## **FUNCTION REPORTS**

### **5.1 Recreation Services**

Mr. Osborne highlighted the following items:

- A successful Youth Week was held which included fourteen events through out the Community and wrapped up with a barbecue at Ravensong Aquatic Centre hosted by the Recreation and Parks Department.
- The Oceanside Walking Challenge has been successful with over 214 participants registered for 2008.
- The first Move for Health Day Department event, a noon hour walk in Parksville, was held May 9.
- 153 U17 World's Hockey Challenge ticket packages have been sold to date.
- The U17 World' Hockey Challenge games to be hosted at Oceanside Place are:
  - Team Germany vs. Team Quebec, December 28, 7:00 pm
  - Team Russia vs. Team Germany, January 2, 2:00 pm
  - Team USA vs. Team West, January 2, 7:00 pm
- The annual Minor Lacrosse League has begun at Oceanside Place.
- 214 elementary and middle school students participated in the Eat Well, Get Moving swim hosted at the Ravensong Aquatic Centre, May 29 and 30.
- A Track and Field Facility Project Open House was held in June for public input.
- The Area 'H' Programmer attended the Lighthouse Recreation Commission's AGM and has volunteered her services in Area 'H' which has provided her opportunity to meet and become familiar with area residents.

### **5.2 Regional Parks and Trail and Community Parks (EA 'E' – 'H')**

Mr. Osborne highlighted the following items:

- The assessment of the Malcolm property in Area 'F' has begun. Staff are also working with the Ministry of Forests with regard to a fire protection work for the park..
- Regular garbage service has been begun in the Plummer Road area, in Area 'G'.
- A mowing contract for Dunsmuir Community Park is in place for 2008. Some vandalism has occurred in the Park, especially around the tennis courts.
- A fire within Mt. Benson Regional Park was responded to by Ministry of Forests and was contained. The Regional District, Ministry of Forests Fire Protection Branch and stakeholders are involved in a task force to source work on long term solutions for arson problems in the area.
- The Regional District is also working with the Ministry of Forests Fire Protection Branch to establish a Fire Service Protection Agreement for regional parks and some community parks which are outside of fire protection boundaries.
- The final draft of the Englishman River Regional Park Management Plan will be presented to stakeholders for their input shortly.
- A gazetted highway has caused some concern for residents in Area 'G' who were not aware the road crossed through their property. Portions of the 1955 gazetted highway are designated for regional trail use in the 2005 Regional Parks and Trail Plan.
- Community Tourism Program second phase funding was approved and a portion of the funds will be used for the E & N Trail Feasibility Study which is scheduled to begin in September. The balance of the funding will be used for the 707 Community Park Management Plan, on Gabriola Island.

- A new generator, an inverter, a battery storage system and a future solar capture system, will be installed at Horne Lake Regional Park.

MOVED Commissioner O'Farrell, SECONDED Commissioner Biro, that the Reports be received.

CARRIED

## NEW BUSINESS

### 8.1 Arrowsmith Mountain Bike Club Grant

Mr. Osborne reported staff did contact Hugh Fletcher of the Arrowsmith Mountain Bike Club (AMBC), regarding their transfer of \$1,000 to the Qualicum Beach Middle School (QBMS) Mountain Bike Club, from their Regional District Youth Grant of \$2,500. The Arrowsmith and the QBMS Mountain Bike Club are two different entities; however, they do share some of the same board members. Mr. Osborne stated nothing untoward did occur, rather a misunderstanding of the grant program procedure.

Commissioners suggested the District 69 Recreation Commission Youth and Community Grants Criteria should be amended to reflect that grant monies received must be used by the group named and for the purpose stated on the application form.

Commissioners requested staff forward a letter to Arrowsmith Mountain Bike Club to clarify the intent of the grant process for their future reference.

### 8.2 District 69 Recreation Services Fees and Charges 2008/2009

MOVED Commissioner Bartram, SECONDED Commissioner Wilson, that the program, admission and rental fees for Oceanside Place in 2008/09 be approved as outlined in Appendix A.  
CARRIED

MOVED Commissioner Bartram, SECONDED Commissioner Wilson, that the program, admission and rental fees for Ravensong Aquatic Centre in 2009 be approved as outlined in Appendix B.  
CARRIED

MOVED Commissioner Bartram, SECONDED Commissioner Wilson, that Recreation Coordinating program fees and recovery rates, administration fee, and revenue-sharing percentage ratio for Term Instructor (Companies) agreements in 2009 be approved as outlined in Appendix C.  
CARRIED

## COMMISSIONER ROUNDTABLE

- 9 Commissioner Nosworthy noted the following items:
- POSAC members, with the assistance of Parks staff, are in the process of assessing where trails should be built on the Malcolm Property. Improvements to the property must be made prior to the year 2010.
  - The Community Activity Coordinator is working with ACES to create a community contact directory for Area 'F'.
  - Two summer camps will be held, one in each Community School.

Commissioner Flynn highlighted the following:

- Both secondary school dry grads and prom nights were held without any issues. Commencement ceremonies will be held June 26, for both schools.
- Elementary and middle school students will be out of school for the summer by the end of next week.
- The Board will receive seismic upgrade funding for Parksville schools shortly. The logistics of shuffling school children during the process will be difficult.

Commissioner Flynn reported she did attend the Track and Field Open House and noted the construction of a multiplex type of facility was not popular with those attending, rather just the construction of an appropriate track and field venue was preferred.

Commissioner Wilson noted the following happening in Qualicum Beach:

- The first ball game under the lights at the Community Park was held. From all reports players were very happy with the lighting.
- A community garden will be situated along Dollymount Trail.
- The area in the Community Park to be used for the off leash dog park has been cleared of under brush.
- The Recreation Commission has applied for a grant for a cycling plan for the Community. Qualicum Beach Council will set aside \$50,000 per year for pedestrian/cycling trails in the community.

Commissioner Van Eynde reported the Nanoose Bay Elementary School Parent Advisory Committee has approached the Area E POSAC to request they set aside funding for playground equipment at their school, in the 2009 budget.

#### **ADJOURNMENT**

- 11 MOVED Commissioner Wilson, SECONDED Commissioner Bartram, that the meeting be adjourned at 3:02pm.

CARRIED

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Frank Van Eynde, Chair





RDN REPORT	
CAO APPROVAL <i>CAW</i>	
EAP	
COW	<i>JULY 8th</i>
JUN 12 2008	
RHD	
BOARD	
<i>DOIRC - JUNE 19th</i>	

**MEMORANDUM**

**TO:** Tom Osborne  
General Manager of Recreation and Parks

**DATE:** June 12, 2008

**FROM:** Dan Porteous  
Manager of Recreation Services

**FILE:**

**SUBJECT:** District 69 Recreation Services Fees and Charges - 2008 / 2009

**PURPOSE**

To seek Board approval for setting the 2008/09 recreation services fees and charges for District 69 recreation services.

**BACKGROUND**

The District 69 recreation service fees and charges are reviewed annually and include program, admission and rental fees for Oceanside Place and Ravensong Aquatic Centre, and program fees for the Recreation Coordinating function. Upon approval fees will come in to effect September 1, 2008 through to August 31, 2009 for Oceanside Place. Fees for the Ravensong Aquatic Centre and Recreation Coordinating will come into effect starting January 1, 2009 through to December 31, 2009.

As part of the review process, a survey of rates of other mid island recreation departments is conducted and average rate fees are determined as noted on Appendix D.

**Oceanside Place**

In 2003 the Regional Board approved a recommendation that Oceanside Place admission fees be aligned with mid island averages to remain competitive and as at the time they were lower than other jurisdictions. The plan was to align the fees within a three year window and percentage increases were then applied to the various admission age categories, dependent upon the variation from the mid island averages during that time. It was later noted in the 2006 fees and charges report that although the plan had been successful, there was a concern that the admission fees at Oceanside Place would still not keep pace with the mid island averages over time, due mainly to continued significant percentage increases being implemented annually by the other recreation departments.

The challenge of keeping pace with the mid island averages for admission fees is due mainly to the larger annual increases from other departments observed in the last few years, with the majority of increases ranging between 5-10%. The RDN Recreation and Parks Department has been increasing admission fees by 2% annually for the last number of years with the exception of the aforementioned fee categories to adjust for the abnormally lower fees, and in doing so, the gap is once again widening. Also in the past two years the GST has fallen from 7% to 5%. The Regional District has reflected those reductions in the admission fees. However, some of the other departments did not change their fee structures in relation to this reduction, and this also has allowed the Recreation and Parks Department to fall further behind the mid island averages.

There is a concern that if the admission fees at Oceanside Place are not increased in September of 2008, the gap between next year's fees and the mid island averages will be further widened and more challenging to align as directed by the Board.

Table 1 outlines the mid island averages in comparison to the Department's current admission fees, the fees if a 2% across the board increase were applied in 2008-09 as currently established in the adopted Five Year Financial Plan, and proposed fees to align more closely with the mid island averages showing the associated percentages to do so. With these higher percentage increases three of the five categories would be aligned with the averages; however, the Seniors fee would still be lower than the average. At this time it would not be recommended to increase this fee by more than 20%. The Adults fee at Oceanside Place would be on par with the Ravensong Aquatic Centre fee as would the Family fee; however, the Family fee would be approximately 10% lower than the mid island average.

**Table 1: Mid Island Average for Skating Admissions**

	<b>Children</b>	<b>Youth</b>	<b>Adults</b>	<b>Seniors</b>	<b>Family</b>
<b>Mid Island Averages</b>	<b>2.60</b>	<b>3.40</b>	<b>4.86</b>	<b>3.78</b>	<b>10.00</b>
<b>Oceanside Place 2007/08 Current Fees</b>	2.30	2.96	4.40	3.07	8.32
<b>Oceanside Place 2008/09 (2%)</b>	2.35	3.02	4.49	3.13	8.49
<b>Oceanside Place 2008/09 Proposed Fees (applicable varied percentages)</b>	<b>2.60</b> 13%	<b>3.40</b> 15%	<b>4.85</b> 10%	<b>3.68</b> 20%	<b>9.06</b> 9%

Rental fees for the facility are aligned well with other arena facilities and no significant changes are recommended other than the proposed 2% increase as per the current Five Year Financial Plan. The proposed fees for Oceanside Place are listed on Appendix A.

**Ravensong Aquatic Centre**

When the Ravensong Aquatic Centre fees were established over ten years ago they were higher than the arena fees due to the different taxation equations and recovery rates established. However, due to the significant increases applied by other departments over the past number of years the fees for the Ravensong Aquatic Centre are now becoming more closely aligned with the mid island averages as noted in Appendix D.

Currently the fee structure for admissions for the Ravensong Aquatic Centre is different to admissions at Oceanside Place. The matter of aligning fees at both facilities has been discussed in the past by the Commission and staff. This has not been recommended in the past also due to the differences in relation to the taxations equations and recovery rates established at each facility, although, the approach this year would align two of the fees (Adults/Family) at each facility. During the review next year staff will be bringing forward options to align the admission fees at both facilities given that fees at both facilities will be more closely matched with the mid island averages.

Admission and rental fees for the facility are aligned well with other aquatic facilities and no significant changes are recommended other than the proposed 2% increase as per the current Five Year Financial Plan. The proposed fees for the Ravensong Aquatic Centre are listed on Appendix B.

### **Recreation Coordinating**

With respect to the Recreation Coordinating function it is proposed that cost recovery rates be maintained as planned in the current Five Year Financial Plan as the current structure is meeting all revenue objectives. The proposed fees for District 69 recreation Coordinating are listed on Appendix C.

### **ALTERNATIVES**

1. To approve the program, admission and rental fees for Oceanside Place (2008/2009) and Ravensong Aquatic Centre (2009) as respectively outlined in Appendix A and B, and the Recreation Coordinating function (2009) program fees and recovery rates, administration fee, and revenue-sharing percentage ratio for Term Instructor (Companies) agreements as outlined in Appendix C.
2. To not approve the fees and charges as outlined provide alternative direction.

### **FINANCIAL IMPLICATIONS:**

The proposed 2% increases to the majority of program, admission and rental fees for 2008/09 in all three District 69 recreation functions presented in the Appendices A-C are set in accordance with the current forecasted Five Year Financial Plan to meet the 2008-09 minimum projected revenue targets.

The proposed additional increases to the Oceanside Place admission fees, beyond 2%, would also meet the minimum projected revenue targets associated with the Five Year Financial Plan. The additional revenues that may be gained from the increased fees would be used to offset increasing operational and maintenance costs such as wages, gas, water, and electricity, which are continuing to rise each year, and in many cases at a higher rate than 2%.

These additional increases beyond the 2% could possibly have an adverse affect on revenues depending on how the increases are received by the general public. It has been observed in previous years, for example, when seniors' admission fees were increased after 2003 a number of seniors chose not to return to Oceanside Place. It took a few years to build up the participation rate for some of these skating sessions. Although the percentage increases proposed for 2008-09 could be perceived as somewhat high, the actual value is modest, at most ranging between thirty cents for a child and seventy-five cents for a family. The increases would allow the Department to position itself back in the market as had been the plan for 2006 and beyond.

If the fees and charges are not approved as presented in the report, and alternative recommendations to the fees and charges are presented by the Commission or Board, consideration needs to given to the impact of those decisions. Lower percentages across the board would likely equate to fewer revenues and surpluses being depleted requiring readjustments to the overall Five Year Plan that could subsequently affect future operational and capital plans. Higher percentages could possibly equate to increased revenues; however, it is important to note that with all fees and charges increases, the market threshold will ultimately determine the increase or decrease in actual revenue as previously noted above. For example, even by raising fees by 2% this may not necessarily correlate in an increase in revenues; in actuality, it may have an adverse affect on revenues, whereby customers choose not to participate due to the increases or more families apply for subsidized financial assistance.

## **CITIZEN IMPLICATIONS**

As long as the perceived value is deemed beneficial, customers will continue to participate; however, there will be a threshold by which they measure their involvement. In public recreation it is imperative to consider access issues for all community members, while maintaining financial accountability. The financial bottom line is just one factor that has to be considered; the social and healthy well being of area residents and visitors to the District also has to be considered. As well, the cost/benefit and supply/demand issues need to be monitored and maintained to ensure that the services and facilities will be used to their fullest potential, while at the same time being operated and maintained in a clean, safe and fiscally responsible manner, and with sensitivity to taxation subsidies and "user pay" formulas.

If the proposed fees and charges provide a financial barrier to some residents, additional support can be provided through the Financial Access Program provided through the Recreation and Parks Department.

## **SUMMARY / CONCLUSION**

The annual fees and charges for the three District 69 recreation functions are required to be set for the upcoming 2008/2009 season. In setting the fees a variety of factors have been considered, including Vancouver Island market rates, mid island averages from other organizations that provide public recreation services, and projected revenue targets in the Five Year Financial Plan.

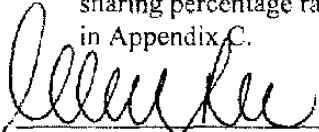
Based on Board direction, the Department has attempted to align the Oceanside admission fees with the mid island averages of other recreation departments. Although successful in 2006, Oceanside admission fees have once again fallen behind the mid island averages due largely in part to higher annual percentage increases to admission fees in other departments.

Staff are proposing a 2% increase for the majority of the program, admission and rental fees for all three District 69 recreation functions in accordance with five year fees and charges projections from 2007-08 and the adopted Five Year Financial Plan. However, to remedy the discrepancies with the Oceanside Place admission fees in relation to the mid island averages, it is proposed higher percentage increases be implemented before these fees begin to stray further behind over the next few years.


Based on the information provided in the report staff it is recommended that the Regional Board approve the 2008-09 program, admission and rental fees for the Oceanside Place, Ravensong Aquatic Centre and Recreation Coordinating functions as outlined in Appendices A, B and C.

**RECOMMENDATIONS**

1. That the program, admission and rental fees for Oceanside Place in 2008/09 be approved as outlined in Appendix A.
2. That the program, admission and rental fees for Ravensong Aquatic Centre in 2009 be approved as outlined in Appendix B.
3. That Recreation Coordinating program fees and recovery rates, administration fee, and revenue-sharing percentage ratio for Term Instructor (Companies) agreements in 2009 be approved as outlined in Appendix C.

  
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FR Report Writer

  
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General Manager Concurrence

  
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C.A.O. Concurrence

**APPENDIX A****OCEANSIDE PLACE ADMISSIONS****Note: All prices include GST. 10 X Passes = 9 Single Admissions.**

<b>Category</b>	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>
Children (0-14)	2.30	2.60	2.65	2.70	2.75	2.81
Youth (15-18)	2.96	3.40	3.47	3.54	3.61	3.68
Adult (19-54)	4.40	4.85	4.95	5.05	5.15	5.25
Senior (55+)	3.07	3.68	3.75	3.83	3.91	3.99
Family	8.32	9.06	9.24	9.42	9.61	9.80
Family w/ Rentals	13.03	13.29	13.56	13.83	14.11	14.39
Parent and Tot	5.06	5.16	5.26	5.37	5.48	5.59
Child Skate Rental	1.73	1.76	1.80	1.84	1.88	1.92
Youth / Adult / Senior Skate Rentals	2.96	3.02	3.08	3.14	3.20	3.26
SD #69 Skate Rental	1.73	1.76	1.80	1.84	1.88	1.92
Skate Sharpening	4.65	4.74	4.83	4.93	5.03	5.13

**Monthly Passes****3 Months**

Children	48.30	54.60	55.65	56.70	57.75	59.01
Youth	62.13	71.40	72.87	74.34	75.81	77.28
Adult	92.40	101.85	103.95	106.05	108.15	110.25
Senior	64.47	77.28	78.75	80.43	82.11	83.79
Family	174.72	190.26	194.04	197.82	201.81	205.80
Family with Rental	273.63	279.09	284.76	290.43	296.31	302.19
Parent and Tot	106.26	108.36	110.46	112.77	115.08	117.39

**OCEANSIDE PLACE RENTALS****Tournament Rates**

Adult Tournament	102.12	104.16	106.24	108.36	110.53	112.74
Senior Tournament	99.46	101.45	103.48	105.55	107.66	109.81
Minor Tournament	60.92	62.14	63.38	64.65	65.94	67.26
Commercial Events Prime	140.58	143.39	146.26	149.19	152.17	155.21
Commercial Events Non Prime	119.76	122.16	124.60	127.09	129.63	132.22

**Winter Rates (September 1 - March 31)**

Adult Prime	131.22	133.84	136.52	139.25	142.04	144.88
Adult Non Prime	107.23	109.37	111.56	113.79	116.07	118.39
Minor Prime	69.72	71.11	72.53	73.98	75.46	76.97
Minor Non Prime	60.92	62.14	63.38	64.65	65.94	67.26
Senior Prime	131.22	133.84	136.52	139.25	142.04	144.88
Senior Non Prime	99.46	101.45	103.48	105.55	107.66	109.81
Hockey / Skating Schools	131.22	133.84	136.52	139.25	142.04	144.88
School Rentals Prime	67.68	69.03	70.41	71.82	73.26	74.73
School Rentals Non Prime	60.92	62.14	63.38	64.65	65.94	67.26
Commercial Events Prime	207.75	211.91	216.15	220.47	224.88	229.38
Commercial Events Non Prime	164.02	167.30	170.65	174.06	177.54	181.09

**Note:** Commercial Events Daily Rate is Hourly Rates x 10 hours or 15% of Gross Rev.

Portable Floor cost = staff costs for install, cleaning and removal.

Non Profit events will be charged applicable hourly rate as defined by demographic of group and time of day.

**APPENDIX A (Cont'd)****OCEANSIDE PLACE RENTALS (Cont'd)**

<b>Category</b>	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>
<b>Shoulder Season Rates (April 1 - August 31)</b>						
Adult Prime	111.53	113.76	116.04	118.36	120.73	123.14
Adult Non Prime	91.14	92.96	94.82	96.72	98.65	100.62
Minor prime	60.42	61.63	62.86	64.12	65.40	66.71
Minor Non Prime	51.75	52.79	53.85	54.93	56.03	57.15
Senior Prime	111.53	113.76	116.04	118.36	120.73	123.14
Senior Non Prime	87.76	89.52	91.31	93.14	95.00	96.90
Hockey / Skating Schools	96.51	98.44	100.41	102.42	104.47	106.56
School Rentals Prime	60.42	61.63	62.86	64.12	65.40	66.71
School Rentals Non Prime	51.75	52.79	53.85	54.93	56.03	57.15
Commercial Events Prime	191.36	195.19	199.09	203.07	207.13	211.27
Commercial Events Non Prime	109.34	111.53	113.76	116.04	118.36	120.73
<b>Shoulder Season Rates (April 1 - August 31)</b>						
<b>Dry Floor</b>						
Adult Prime	60.14	61.34	62.57	63.82	65.10	66.40
Adult Non Prime	49.21	50.19	51.19	52.21	53.25	54.32
Minor prime	43.74	44.61	45.50	46.41	47.34	48.29
Minor Non Prime	38.27	39.04	39.82	40.62	41.43	42.26
Senior Prime	60.14	61.34	62.57	63.82	65.10	66.40
Senior Non Prime	43.74	44.61	45.50	46.41	47.34	48.29
Hockey / Skating Schools Prime	65.60	66.91	68.25	69.62	71.01	72.43
School Rentals Prime	43.74	44.61	45.50	46.41	47.34	48.29
School Rentals Non Prime	38.27	39.04	39.82	40.62	41.43	42.26
Commercial Events Prime	191.36	195.19	199.09	203.07	207.13	211.27
Commercial Events Non Prime	109.34	111.53	113.76	116.04	118.36	120.73
Commercial Events Set Up	54.67	55.76	56.88	58.02	59.18	60.36
<b>Other Amenities</b>						
<b>The Pond (Leisure Ice)</b>						
Ice In Prime	41.56	42.39	43.24	44.10	44.98	45.88
Ice In Non Prime	35.62	36.33	37.06	37.80	38.56	39.33
Ice In in conjunction with full sheet	17.81	18.17	18.53	18.90	19.28	19.67
Ice Out Prime	29.68	30.27	30.88	31.50	32.13	32.77
Ice Out Non Prime	23.74	24.21	24.69	25.18	25.68	26.19
Ice Out in Conjunction with full sheet	17.81	18.17	18.53	18.90	19.28	19.67
<b>Multipurpose Room</b>						
Full Room	32.81	33.47	34.14	34.82	35.52	36.23
Half Room	16.40	16.73	17.06	17.40	17.75	18.11
Commercial Full Room	38.27	39.04	39.82	40.62	41.43	42.26
Commercial Half Room	21.86	22.30	22.75	23.21	23.67	24.14
Full Room w/ Ice/Floor Rental	21.86	22.30	22.75	23.21	23.67	24.14
Half Room w/ Ice/Floor Rental	10.94	11.16	11.38	11.61	11.84	12.08
Day Rate (Full Room)	192.96	196.82	200.76	204.78	208.88	213.06
Day Rate (Half Room)	96.48	98.41	100.38	102.39	104.44	106.53
<b>Meeting Room (Note: All regular Ice User Groups will have 3 hrs/month free access)</b>						
Meeting Room	5.21	5.31	5.42	5.53	5.64	5.75
Meeting Room w/ Ice / Floor rental	5.21	5.31	5.42	5.53	5.64	5.75

## APPENDIX B

### Ravensong Aquatic Centre Admissions

Note: All prices include GST. 10 X Passes = 9 Single Admissions.

Category	2008	2009	2010	2011	2012	2013
Children (0-14)	2.88	2.94	3.00	3.06	3.12	3.18
Youth (15-18)	3.52	3.59	3.66	3.73	3.80	3.88
Adult (19-54)	4.75	4.85	4.95	5.05	5.15	5.25
Senior (55+)	3.77	3.85	3.93	4.01	4.09	4.17
Family	8.88	9.06	9.24	9.42	9.61	9.80
Aquafit - Adult	5.70	5.81	5.93	6.05	6.17	6.29
Aquafit - Senior	4.85	4.95	5.05	5.15	5.25	5.36

### Monthly Passes

#### 3 Months

Children	74.88	76.44	78.00	79.56	81.12	82.68
Youth	91.52	93.34	95.16	96.98	98.80	100.88
Adult	123.50	126.10	128.70	131.30	133.90	136.50
Senior	98.02	100.10	102.18	104.26	106.34	108.42
Family	230.88	235.56	240.24	244.92	249.60	254.80

#### 6 Months

Children	131.04	133.77	136.50	139.23	141.96	144.69
Youth	160.16	163.35	166.53	169.72	172.90	176.54
Adult	216.13	220.68	225.23	229.78	234.33	238.88
Senior	171.54	175.18	178.82	182.46	186.10	189.74
Family	404.04	412.23	420.42	428.61	437.26	445.90

### Ravensong Aquatic Centre Rentals

#### Children's Community Groups + Schools

Main Pool	70.46	71.87	73.31	74.78	76.28	77.81
Whirl-Leisure Pool	35.25	35.96	36.68	37.41	38.16	38.92
Per Lane	11.96	12.20	12.44	12.69	12.94	13.20
Pool All	105.71	107.82	109.98	112.18	114.42	116.71

#### Youth Community Groups

Main Pool	79.14	80.72	82.33	83.98	85.66	87.37
Whirl-Leisure Pool	39.54	40.33	41.14	41.96	42.80	43.66
Per Lane	13.31	13.58	13.85	14.13	14.41	14.70
Pool All	118.68	121.05	123.47	125.94	128.46	131.03

#### Adult Community Groups

Main Pool	105.05	107.15	109.29	111.48	113.71	115.98
Whirl-Leisure Pool	52.52	53.57	54.64	55.73	56.84	57.98
Per Lane	17.62	17.97	18.33	18.70	19.07	19.45
Pool All	157.58	160.73	163.94	167.22	170.56	173.97



**APPENDIX B (Cont'd)**

**Ravensong Aquatic Centre Rentals (Cont'd)**

<b>Category</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Swim Club - Children</b>						
Main Pool	72.53	73.98	75.46	76.97	78.51	80.08
Whirl-Leisure Pool	36.28	37.01	37.75	38.51	39.28	40.07
Per Lane	12.31	12.56	12.81	13.07	13.33	13.60
Pool All	108.82	111.00	113.22	115.48	117.79	120.15
<b>Swim Club - Youth</b>						
Main Pool	81.46	83.08	84.74	86.43	88.16	89.92
Whirl-Leisure Pool	40.72	41.53	42.36	43.21	44.07	44.95
Per Lane	13.72	13.99	14.27	14.56	14.85	15.15
Pool All	122.19	124.63	127.12	129.66	132.25	134.90
<b>Swim Club - Adult</b>						
Main Pool	108.14	110.30	112.51	114.76	117.06	119.40
Whirl-Leisure Pool	54.06	55.14	56.24	57.36	58.51	59.68
Per Lane	18.13	18.49	18.86	19.24	19.62	20.01
Pool All	162.21	165.45	168.76	172.14	175.58	179.09
<b>Birthday Party Rental/Program</b>						
1 hr (pool only)	59.06	60.24	61.44	62.67	63.92	65.20
1 1/2 (pool + party)	145.13	148.03	150.99	154.01	157.09	160.23
1 hr (exclusive pool rental only)	105.71	107.82	109.98	112.18	114.42	116.71
<b>Commercial</b>						
Main Pool	175.52	179.03	182.61	186.26	189.99	193.79
Whirl-Leisure Pool	87.76	89.52	91.31	93.14	95.00	96.90
Per Lane	29.25	29.84	30.44	31.05	31.67	32.30
Pool All	281.70	287.33	293.08	298.94	304.92	311.02
<b>Patio (4 hour maximum)</b>	20.21	20.61	21.02	21.44	21.87	22.31
<b>Guards</b>						
Additional Guard(s) per 1 hr sessions	33.24	33.90	34.58	35.27	35.98	36.70

**APPENDIX C****Recreation Coordinating Fees**

1. 2% increase to all program fees effective January 1, 2009
2. Recovery rate categories for Recreation Coordinating function shall be as follows:

<b>Category:</b>	<b>Recovery Rates (%):</b>
Pre-School Programs	100
Children's Programs	100
Youth Programs	100
Adult Programs	125
Summer Camps	75
Family Programs	75
Volunteer and Leadership Development	75
Community Co-operative	100

3. The administration fee included in the development of programs shall be 15%.
4. The guideline for the revenue-sharing percentage ratio for Term Instructors (Companies) and the Regional District of Nanaimo agreements shall be 75% / 25% respectively.

**APPENDIX D****MID ISLAND FEES AND CHARGES**  
**Proposed for 2008 /2009 as of May 2008.***Light Grey Shade = Lowest Rates**Dark Grey Shade = Highest Rates*

<b>Location:</b>	<b>Children</b>	<b>Youth</b>	<b>Adults</b>	<b>Seniors</b>	<b>Family</b>
Campbell River	2.63	3.63	5.30	3.94	10.61
Comox Valley Sports Centre	<b>2.25</b>	<b>2.65</b>	4.30	3.40	8.95
Comox Valley Aquatic Centre	2.60	3.15	5.00	4.15	10.60
Cowichan Arena / Aquannis Centre	2.50	3.00	<b>4.25</b>	<b>3.00</b>	<b>8.25</b>
Fuller Lake	2.50	3.25	<b>4.25</b>	3.50	9.50
Nanaimo	2.75	<b>4.25</b>	5.50	<b>4.25</b>	11.00
Port Alberni	2.80	3.50	5.30	3.90	<b>11.20</b>
Powell River	2.75	3.75	5.00	4.10	10.00
<b>Mid Island (MI) Averages</b>	<b>2.60</b>	<b>3.40</b>	<b>4.86</b>	<b>3.78</b>	<b>10.00</b>
<b>RDN – Oceanside Place (proposed 08/09)</b>	<b>2.60</b>	<b>3.40</b>	<b>4.85</b>	<b>3.68</b>	<b>9.06</b>
<b>Difference to MI Average</b>	0	0	-0.01	-0.10	-0.94
<b>RDN – Ravensong Aquatic Centre (proposed 09)</b>	2.94	<b>3.59</b>	<b>4.85</b>	<b>3.85</b>	<b>9.06</b>
<b>Difference to MI Average</b>	0.34	0.19	-0.01	0.07	-0.94

**Note:** Some departments may not have yet adjusted projected rates for 08/09; therefore, the mid island averages will likely increase slightly by year end.