

Regional District of Nanaimo

FAIRWINDS

**Water Local Service Area
Annual Report**

2006

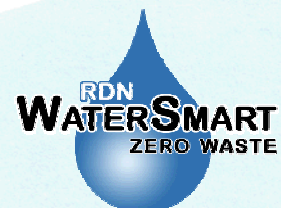


Table of Contents

1.	Introduction.....	1
2.	Fairwinds Water System.....	1
2.1	Groundwater Wells	1
2.2	Reservoirs.....	1
2.3	Distribution System.....	1
3.	Water Sampling and Testing Program.....	2
4.	Water Quality - Source Water and Distribution System.....	2
5.	Water Quality Inquiries and Complaints	2
6.	Groundwater Production and Average Consumption.....	3
7.	Maintenance Program.....	3
8.	Water System Projects.....	4
8.1	2006 Completed Projects	4
8.2	2007 Proposed Projects & Upgrades	4
8.3	2007 Proposed Studies.....	4
9.	Emergency Response Plan.....	4
10.	Cross Connection Control.....	4
11.	Closing.....	5

Appendix A - Map of Fairwinds Water Local Service Area

Appendix B - Water Quality Testing Results

Appendix C - Emergency Response Plan

1. Introduction

The following annual report describes the Fairwinds Water Local Service Area and summarizes the water quality and production data from 2006. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, the Emergency Response Plan, and the Cross Connection Control Program.

This report is to be submitted to the Vancouver Island Health Authority by the Spring of 2007.

2. Fairwinds Water System

The Fairwinds Water Service Area was established in 1988 and comprises an area around Fairwinds Drive and Dolphin Drive on the Nanoose Peninsula. The water source for the Fairwinds Water Service Area comes from a series of groundwater wells located nearby. The water source is chlorinated and stored in two reservoirs. A map of the Fairwinds Water System is provided in Appendix A for reference.

2.1 Groundwater Wells

Three groundwater production wells are present on Tippet Road and Nanoose Road, Nanoose Bay, B.C.

Well / Name	Well Depth	Wellhead Protection	Treated/Untreated with Chlorine
Fairwinds #1	69.8 m	Yes	Treated
Fairwinds #2	75.3 m	Yes	Treated
Fairwinds #3	72.2 m	Yes	Treated

2.2 Reservoirs

Two concrete service reservoirs are present at 3220 Fairwinds Drive (Notch Hill), Nanoose Bay, and have a capacity of 701 m³ (154,000 imperial gallons) each.

2.3 Distribution System

The water distribution system in Fairwinds is comprised of 100mm, 150mm, 200mm, and 250mm PVC watermain, and 250mm ductile iron. Fire hydrants are located throughout the system.

3. Water Sampling and Testing Program

Water sampling and testing is carried out weekly in the distribution system. The following table includes a summary of all testing:

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total, Fecal coliforms Temperature, pH, Conductivity Chlorine residual, Salinity Total Dissolved Solids Iron, Manganese
Weekly (Health Dept. Requirement)	North Island Labs	Total, Fecal coliforms
Annual Source Water Testing	North Island Labs	Complete potability testing of each well
Annual System Water Testing	North Island Labs	Complete potability testing of distribution system

4. Water Quality - Source Water and Distribution System

Up-to-date water quality reports and lab data are posted monthly on the RDN website (www.rdn.bc.ca/WaterSmart). Tables of water quality testing results for both the source water and distribution system are provided at the end of this report under Appendix B.

5. Water Quality Inquiries and Complaints

Several complaints and inquiries were received from the Fairwinds water service area, and were typically related to iron and manganese in the tap water.

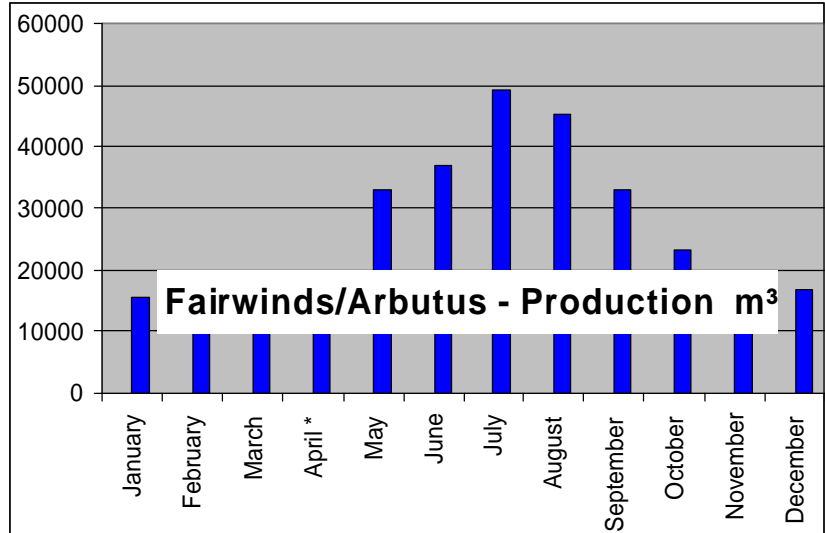
6. Groundwater Production and Average Consumption

Average monthly groundwater production (total from all wells) is shown in the table and chart below.

Monthly Production

January	15523.0	m ³
February	14846.7	m ³
March	15118.2	m ³
April*	18331.6	m ³
May	32961.2	m ³
June	37132.8	m ³
July	49224.0	m ³
August	45350.0	m ³
September	33046.5	m ³
October	23112.9	m ³
November	14399.5	m ³
December	16961.0	m ³

* indicates watermain flushing in April

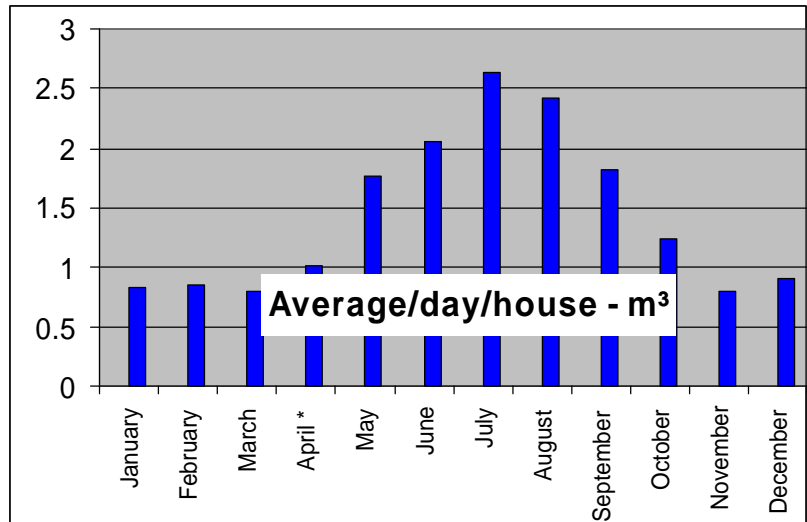


The average household water consumption per month is shown in the table and chart below.

Average / Day / House

January	0.8	m ³
February	0.9	m ³
March	0.8	m ³
April*	1.0	m ³
May	1.8	m ³
June	2.1	m ³
July	2.6	m ³
August	2.4	m ³
September	1.8	m ³
October	1.2	m ³
November	0.8	M ³
December	0.9	M ³

* indicates watermain flushing in April



Groundwater production and household water consumption both increased dramatically from May to September despite the implementation of outdoor watering restrictions.

7. Maintenance Program

Regular maintenance and inspections are completed around the wellhead areas to reduce or eliminate the risk of contamination and system failure. Watermains are flushed twice annually; in the Spring and Fall.

8. Water System Projects

8.1 2006 Completed Projects

- Water audit for the whole Nanoose Bay Peninsula (including Fairwinds) was completed.
- A water meter bench-testing accuracy program was carried out.
- Fairwinds #1 well was camera inspected (video) and the well screen was re-developed.
- A booster pump to bring bulk water to Fairwinds was installed on Northwest Bay Rd.
- An iron & manganese water quality study was completed.
- A comprehensive water conservation program was carried out from May to October.
- A Standard Operating Procedures Manual was created for all routine Utilities duties.
- The Emergency Response Plan was reviewed and updated.
- A security review was completed by an independent agency and a report with recommendations was provided.
- A web-based Capital Asset Management Program was completed to inventory all water system pipes, valves, wells, reservoirs, hydrants, and manholes, etc. to assist with infrastructure replacement priorities.

8.2 2007 Proposed Projects & Upgrades

- Iron and manganese removal pilot test (Worleyparsons Komex).
- Well sourcing and development (finding new wells).
- Chlorine analyzer to be installed at the rechlorination station near the reservoirs.
- Flushout upgrading program.
- Madrona Bulk Water Pump Station Design (to bring bulk water to Fairwinds)
- Re-keying all locked facilities.
- Improving wellhead protection.
- Other security improvements.
- Developing objectives for a SCADA system.

8.3 2007 Proposed Studies

- Innovative water supply and re-use.
- Well redevelopment planning.
- Water Use Bylaw/Best Practices Review.

9. Emergency Response Plan

The Emergency Response Plan (ERP) was reviewed and updated in 2006. A copy of the ERP is attached in Appendix C.

10. Cross Connection Control

A formalized Cross Connection Control Program will be initiated in 2007. Cross connection controls already in-place include check valves at each residential and commercial water meter.

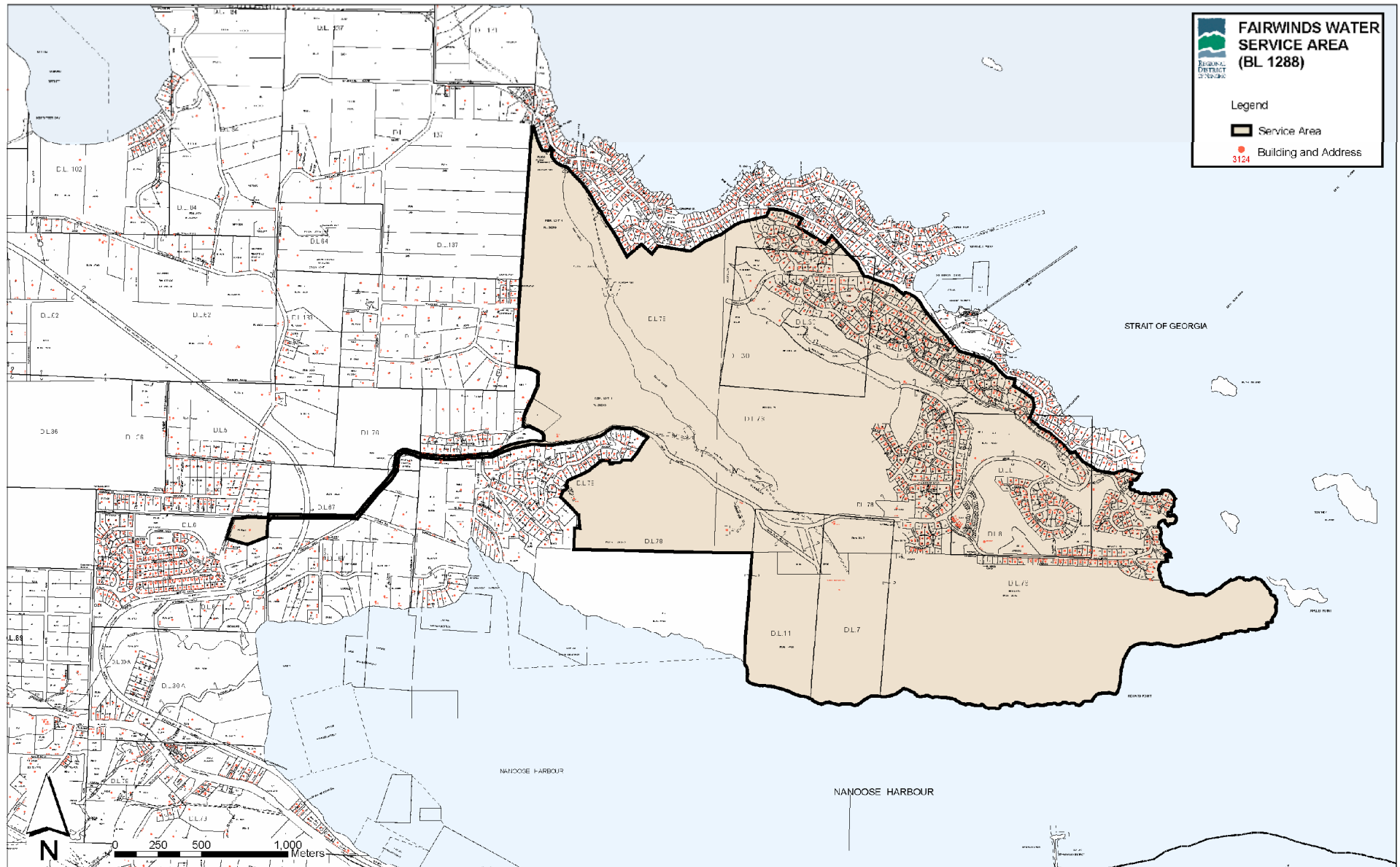
11. Closing

An annual report for the year 2007 will be prepared and submitted to the Vancouver Island Health Authority in the Spring of 2008. Annual reports are also available on our website at www.rdn.bc.ca/WaterSmart.

APPENIDX A

MAP OF FAIRWINDS WATER LOCAL SERVICE AREA

FAIRWINDS WATER LOCAL SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS

APPENDIX C

EMERGENCY RESPONSE PLAN