

# REGIONAL DISTRICT OF NANAIMO

## Water Service Area Annual Report 2019



### Westerne Heights Water Service Area

June 2020

**REGIONAL DISTRICT OF NANAIMO**

*Water & Utility Services Department*

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Appendix A - Map of Westerne Heights Water Service Area

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## 1.0 Introduction

The following annual report describes the Westerne Heights Water Service Area and summarizes the water quality and production data from 2019. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, Operator Certification, the Emergency Response Plan, and the Cross Connection Control Program. This report is to be submitted to Island Health by the spring of 2020.

## 2.0 Westerne Heights Water Service Area

The Westerne Heights Water Utility is located 2.2 kilometers south of the intersection of Highway 4 and Chatsworth Road in Whiskey Creek. The utility was established in 1995 to service properties along Westerne Heights Road. Ownership of the water utility was transferred to the RDN in September 2016. The water system is comprised of one groundwater well, two underground cisterns, a pumphouse, and a short network of watermains. There are 17 residential connections in this water system. The water source is chlorinated and pumped into the system on demand via two pressure tanks. A backup generator is present on-site in the event of a power outage. A map of the Westerne Heights Water Service Area is provided in Appendix A for reference.

### 2.1 Groundwater Wells

One groundwater production well is present at the reservoir site at 1262 Westerne Heights Road, west of Coombs, B.C.

Well / Name	Well Depth	Wellhead Protection In Place	Treated/Untreated with Chlorine
#1	26.2 m	Yes	Treated

### 2.2 Reservoirs

Two below-ground cisterns are present at 1262 Westerne Heights Road, and have a combined water storage capacity of 13 m<sup>3</sup> (2,800 imperial gallons). Water supply is pumped into the system via a dual pressure tank arrangement.

### 2.3 Distribution System

The water distribution system is comprised of 0.21 km of 75mm diameter PVC watermains. Three below-ground flushouts are present at the end of each watermain. There are no fire hydrants located within the system.

*Note: 'PVC' is poly-vinylchloride (plastic)*



Westerne Heights  
Well #1

### 3.0 Water Sampling and Testing Program

Water sampling and testing is carried out weekly in the distribution system. Notably, the chlorine residual levels are tested weekly to ensure the absence of bacterial regrowth in the water mains. The following table includes a summary of all testing.

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total coliforms, E.Coli, Temperature, pH, Conductivity, Chlorine residual, Salinity, TDS, Monthly- Iron and Manganese
Weekly	BC Centre for Disease Control	Total coliforms, E.Coli
Annual Source Water Testing (every Fall)	Bureau Veritas (formerly Maxxam)	Complete potability testing of raw well water, including T-Ammonia
Annual System Water Testing (every Spring)	Bureau Veritas (formerly Maxxam)	Complete potability testing of distribution system, including T-Ammonia

### 4.0 Water Quality - Source Water and Distribution System

Up-to-date water quality reports and lab data are posted monthly on the RDN website at [www.rdn.bc.ca/westurneheights](http://www.rdn.bc.ca/westurneheights). 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.



**Westurne Heights  
Pumphouse and  
Buried Cisterns**

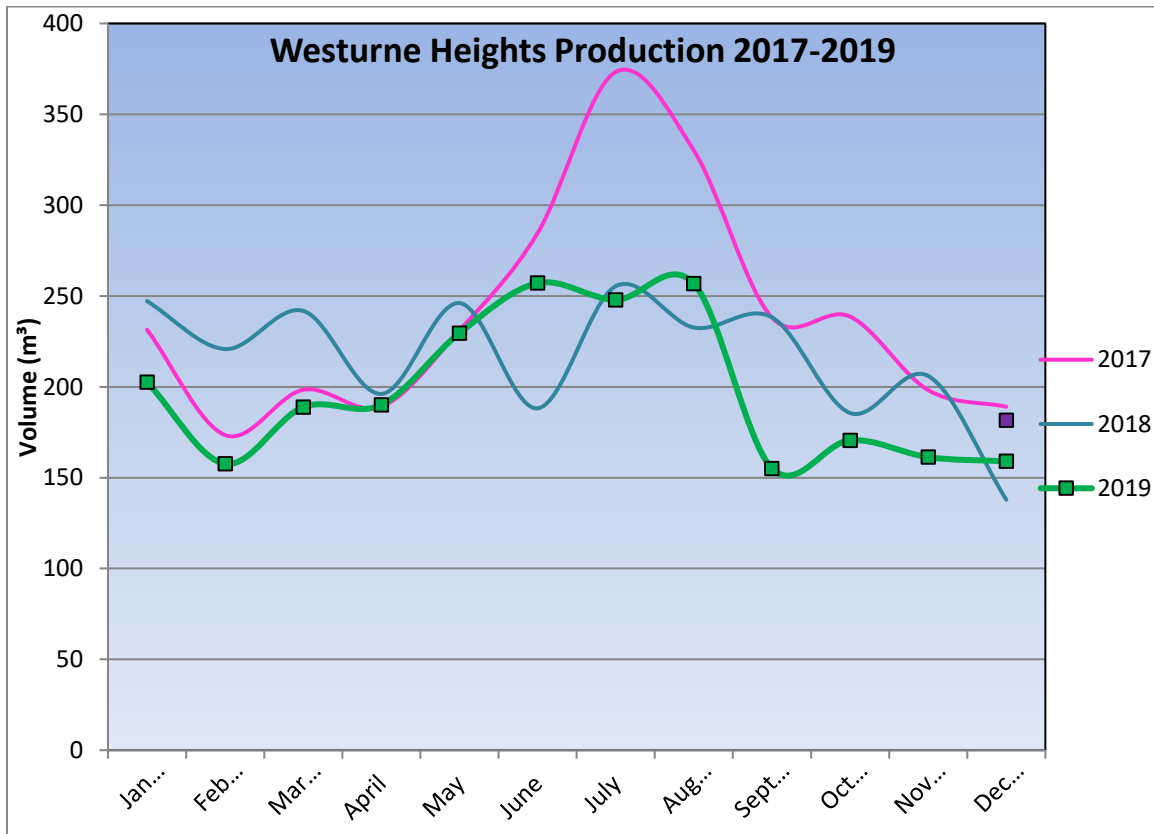
### 5.0 Water Quality Inquiries and Complaints

A few inquiries and complaints were received from the Westerne Heights water service area in 2019 and were typically related to temporary power outages in the area. The on-call water services staff respond to water system emergencies and alarms within minutes of receiving each call. A summary of the water system incidents in 2019 is given in the table below.

Activity in 2019	Date(s)	History/Notes
Boil Water Advisories	None	None
High Turbidity Events	None	None
Equipment Malfunction	None	None
Water Main Breaks	None	None
Pump Failures	Fall/Winter 2019	Temp power outages

### 6.0 Groundwater Production and Consumption

The monthly groundwater production in the Westerne Heights Water Service Area has been monitored in 2017, 2018, and 2019 but had not been monitored for a complete year previously. Groundwater production in 2019 was average in the summer months and below average in the fall and winter.



In the Fall/Winter of 2019, the average usage per home in the Westerne Heights Water Service Area was 0.25 cubic metres per day (55 imperial gallons). In the summer, the average water usage was 0.4 cubic metres per day (88 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 193 L/day (based on 2.4 people per household). This consumption is *35% lower* than the average of all the other RDN water systems of 295 L/day/capita for 2019.

## 7.0 Maintenance Program

Weekly pump station inspections are carried out to reduce or eliminate the risk of contamination and system failure, and to ensure the consistent application of chlorine for treatment purposes. Watermains are flushed once a year in the spring.

The water storage cisterns are drained and cleaned as required. Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.



Pressure tanks in the pump house

## 8.0 Operator Certification

The Regional District Water & Utility Services staff are comprised of one Manager, one Project Engineer, one Engineering Technologist, one Engineering Technician, one Chief Operator, and seven certified operators. The operators receive ongoing training and certification in:

- |                            |   |                            |
|----------------------------|---|----------------------------|
| ✓ Water Treatment          | ✓ Chlorine Handling                                       | ✓ Confined Space Awareness |
| ✓ Water Distribution       | ✓ WHMIS (Workplace Hazardous Material Information System) | ✓ Traffic Control          |
| ✓ Wastewater Collection    | ✓ TDG (Transportation of Dangerous Goods)                 | ✓ Fall Protection          |
| ✓ Cross Connection Control |   | ✓ First Aid                |
| ✓ Asbestos Awareness       |   | ✓ Silica Awareness         |

## 9.0 Water Service Area Projects

### 9.1 2019 Completed Studies & Projects

- Corresponded with residents regarding water conservation;
- Enforced outdoor sprinkling regulations;
- Completed irrigation checks for high-water users;
- Advised residents regarding water leak repairs;
- Completed the 10-year Drinking Water Action Plan;
- Adopted a Cross Connection Control Bylaw;
- Created a Cross Connection Control webpage and educational brochure;
- Completed regular watermain flushing;
- Maintained a high level of water quality;
- Continued quality control through regular testing and monitoring of water system;
- Began a Water Systems SCADA Master Plan.

### 9.2 2020 Proposed Projects & Upgrades

- Update asset database with new assets;
- Continue watermain flushing program;
- Calibrate and service all Hach spectrophotometer lab equipment;
- Implement a Water Systems SCADA Master Plan;
- Review well protection plans;
- Begin the next 10-year DWWP Water Conservation Plan; and
- Continue to offer numerous water-saving incentives via rebates.



Well site  
and fence

## 10.0 Emergency Response Plan

The Regional District Emergency Response Plan (ERP) contains procedures and contact information to efficiently respond to water system emergencies such as contamination of water supply, loss of supply, pump failure, and drought management. The ERP was reviewed and updated in 2019, and copies are available on our website, at each RDN office, in each pumphouse, and in each Water Services vehicle. A copy of the ERP is also attached to this report in Appendix C.

## 11.0 Cross Connection Control

In 2017, a more robust Cross Connection Control Plan was prepared that fully defines the CCC program, including standard operating procedures, plumbing code references, reporting procedures, survey schedules, backflow prevention standards, detailed installation schematics, blank test forms, testing reminders, and non-compliance letters. Two RDN Operators achieved their Backflow Assembly Tester re-certification in 2019. The RDN Manager of Water Services is the designated Cross Connection Control Manager.

In 2019, a stand-alone Cross Connection Control Bylaw was adopted that contains definitions, authorizations, applications, liability, rules, regulations, testing requirements, and reporting requirements. The bylaw addresses retrofits, prohibitions, special circumstances, reclaimed water use, alternate water sources, failure to comply, inspections, testing, offences, penalties and more. A webpage has been established on the Water Services website that educates RDN customers about cross connections and lists the relevant links to current standards and resources.

## 12.0 Cyber Security

The RDN uses a multi-level approach to cyber-security. Corporate network security is employed via a universal threat management gateway that implements various methods of data security, which includes daily definition updates to block known cyber threats. In addition, all RDN PC's are protected with anti-virus software. RDN water systems are connected to the corporate network via IP-Sec VPN's for remote management by information technology and equipment operators. Future infrastructure upgrades will see our water systems located on segregated networks to limit the vulnerability from cybersecurity threats.

## 13.0 Closing

An annual report for the year 2020 will be prepared and submitted to Island Health in the Spring of 2021. Annual reports are also available on our website at: <https://www.rdn.bc.ca/westurne-heights>.



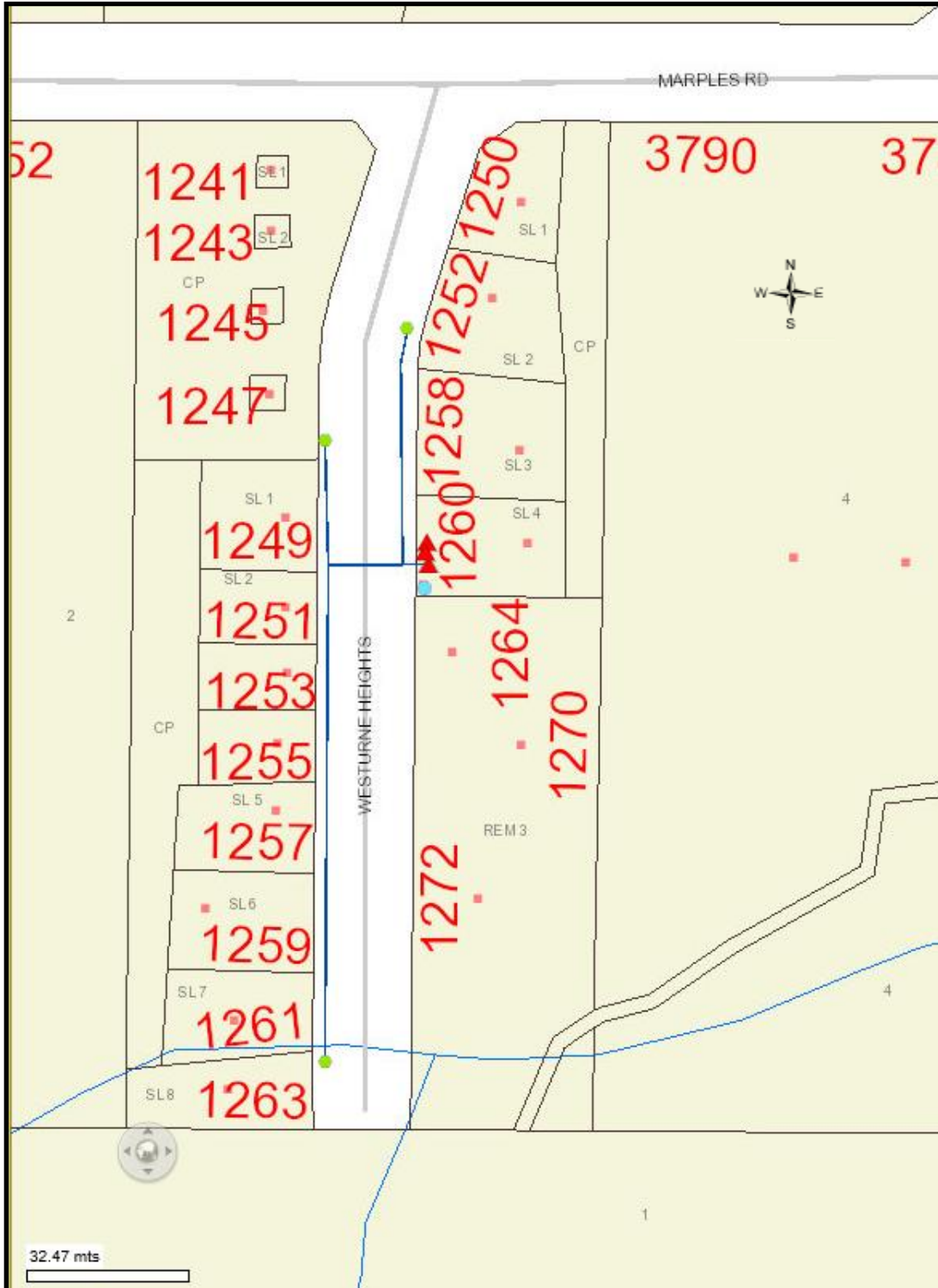


**APPENDIX A**

**MAP OF WESTURNE HEIGHTS**

**WATER SERVICE AREA**

WESTURNE HEIGHTS WATER SERVICE AREA



## APPENDIX B

### WATER QUALITY TESTING RESULTS

# WESTERNE HEIGHTS WATER SERVICE AREA


**Facility Location:**

1260 Westerne Heights Road  
Qualicum Beach

**Facility Information:**

Facility Type: 15-300 (DWC)

**Facility Sampling History:**

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
WESTERNE HEIGHTS WELLHEAD	16-Dec-2019	L1	L1
1252 WESTERNE HEIGHTS ROAD	9-Dec-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	9-Dec-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	2-Dec-2019	L1	L1
1252 WESTERNE HEIGHTS ROAD	25-Nov-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	18-Nov-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	12-Nov-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	4-Nov-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	21-Oct-2019	L1	L1
1252 WESTERNE HEIGHTS ROAD	15-Oct-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	7-Oct-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	7-Oct-2019	L1	L1
1252 WESTERNE HEIGHTS ROAD	2-Oct-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	25-Sep-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	18-Sep-2019	L1	L1
1252 WESTERNE HEIGHTS ROAD	9-Sep-2019	L1	L1
WESTERNE HEIGHTS WELLHEAD	9-Sep-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	3-Sep-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	19-Aug-2019	L1	L1
1263 WESTERNE HEIGHTS ROAD	19-Aug-2019	L1	L1
1252 WESTERNE HEIGHTS ROAD	13-Aug-2019	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
WESTURNE HEIGHTS WELLHEAD	13-Aug-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	6-Aug-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	16-Jul-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	9-Jul-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	9-Jul-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	2-Jul-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	18-Jun-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	10-Jun-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	10-Jun-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	3-Jun-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	21-May-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	13-May-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	13-May-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	6-May-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	24-Apr-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	8-Apr-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	1-Apr-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	1-Apr-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	27-Mar-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	18-Mar-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	11-Mar-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	11-Mar-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	5-Mar-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	5-Mar-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	25-Feb-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	19-Feb-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	11-Feb-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	11-Feb-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	4-Feb-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	4-Feb-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	28-Jan-2019	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
1252 WESTURNE HEIGHTS ROAD	21-Jan-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	21-Jan-2019	L1	L1
1263 WESTURNE HEIGHTS ROAD	14-Jan-2019	L1	L1
1252 WESTURNE HEIGHTS ROAD	7-Jan-2019	L1	L1
WESTURNE HEIGHTS WELLHEAD	7-Jan-2019	L1	L1

### **Interpreting Sample Reports**

At Island Health, the results of drinking water sampling are reported using the following coding system:

- L1 Less than 1 (no detectable bacteria) - Meaning: No bacteria present
- OG Overgrown - Meaning: Too many background bacteria to give an accurate count
- EST Estimated Count
- A Sample not tested; Too long in transit
- C Sample leaked/broken in transit
- D Sample not tested; No collection date given
- T Sample submitted unsatisfactory. Exceeded 30 hours holding time, please resample.
- NS No sample received with requisition