

FULFORD WATER SERVICE COMMISSION SPECIAL MEETING

Notice of Meeting on Tuesday, November 2, 2021 at 12:00 PM Fulford Community Hall, 2591 Fulford-Ganges Rd, Salt Spring Island, BC

Gary Holman **Anthony Maude** Carole Eyles Gord Singbeil Alan Martin (r) regrets

AGENDA

- 1. Territorial Acknowledgement / Call Meeting to Order
- 2. **Limited Space Meeting Resolution**

That this resolution applies to the Fulford Water Service Commission for the meeting being held on November 2, 2021, and that the attendance of the public at the place of the meeting will be limited in accordance with the applicable requirements or recommendations under the Public Health Act, despite the best efforts of the Commission because:

- a. The available meeting facilities cannot accommodate more than (175) people in person, including members of the Commission and staff, and
- There are no other facilities presently available that will allow physical b. attendance of the Commission and the public in sufficient numbers: and

That the Commission is ensuring openness, transparency, accessibility and accountability in respect of the open meeting by the following means:

- a. By making the meeting agenda, as well as the other relevant documents, available on the CRD website, and directing interested persons to the website by means of the notices provided in respect of the meeting,
- b. By making the minutes of the meeting available on the CRD website following the meeting.

Zoom Link: https://us06web.zoom.us/j/85488011499

- 3. **Approval of Agenda**
- 1
- 4. **Adoption of Minutes - None**
- 5. **New Business**
 - 5.1 **Fulford Asset Management Plans**

2-74

That the Fulford Water Service Commission receive this report for information.

- 6. Next Meeting TBD
- 7. Adjournment



TO: Fulford Water Local Area Service

FROM: Karla Campbell, Senior Manager, Salt Spring Island Electoral Area

DATE: November 3, 2020

SUBJECT: Fulford Asset Management Plans

BACKGROUND:

In 2019 the CRD engaged McElhanney Consulting Services to develop an Asset Management Plan (AMP) for each of the CRD water services on Salt Spring Island. The purpose of the AMP is to ensure that we are being sustainable in our delivery of our service and with that, the CRD has changed the name of the plan to Sustainable Service Delivery Plan (SSDP). An SSDP is essentially a plan to understand the demands of our community, the level of service that is being provided to serve that demand, risk, workforce and management of the asset's current and future lifecycle needs. It guides prioritization of future capital improvements and/or replacement through informed decision making and provides the basis to create a financial strategy for maintaining required and desired level of services. An SSDP ensures that sufficient resources are in place when needed to address the full lifecycle costs of owning tangible capital assets (assets) that are needed for delivering services. An asset is a physical component that has value, enables services to be provided, and has an economic life greater than 12 months.

The SSDP helps put some rigour and structure around the information used to make strategic decisions; and to ensure that the level of service being provided is sustainable and the assets will continue to work well, with no surprises, and provide our citizens with services by providing the following information:

- What are the demands and what is the level of service (current and desired) that is being provided?
- What performance level that each asset need to provide to provide the agreed upon level of service to the community?
- What we own, where it is, and what condition is it in?
- What is the asset's remaining useful life or service life?
- Which assets are the most critical, and what is the level of risk to their function and sustainability?
- What do we need to do to sustain the services provided by each asset? When do we need to do it by? What will it cost?

SSDP is a process used in decision making. It helps the CRD sustain the services that is delivered to the community and essential care for the infrastructure in way that considers service needs of the community; manages risks and opportunities; and uses resources wisely. In effect it is way to ensure safe and sustainable services delivered in a predictable, and cost-effective manner.

KEY FINDINGS:

- Total estimated capital infrastructure replacement is \$705,400
- Roughly 91% (\$2,999,650) of the Fulford assets¹ are overdue for renewal; a further 6% (\$208,300) in 1 5 years; and 2% (\$71,500) in 6 plus years.
- Financial planning work is required to address the asset investment while still maintaining sustainable services.
- Recommend resources be attached to improved data and records management to ensure accuracy, and create adequate system maps, working drawings, and system documentation.

Attachment(s): Fulford Water System Asset Management Plan

KC/AX:kc

.

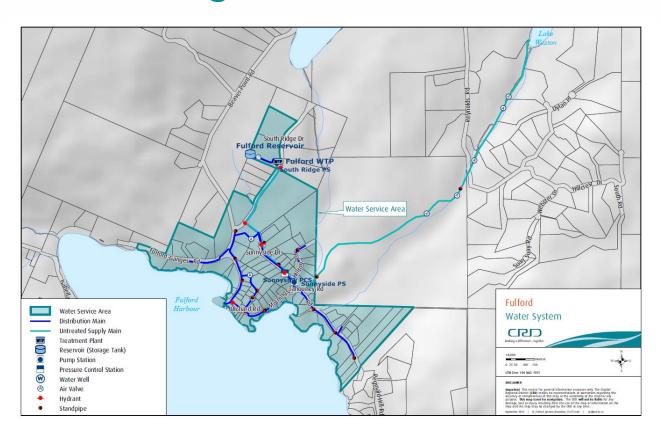
¹ Not incl. Reynolds Road building - decommissioned and hatch installation completed in 2020





CRD Salt Spring Island Electoral Area

Fulford Water System Asset Management Plan



Prepared By:

McElhanney Consulting Services Ltd.

www.mcelhanney.com

Date:

May 2020

REVISION No.	REVISION DESCRIPTION	DATE

ACKNOWLEDGEMENT

McElhanney would like to acknowledge and express their appreciation to the CRD and North Salt Spring Waterworks District (NSSWD) staff during this assignment. A team effort was required to develop this Asset Management Plan; and it could not have been completed without the invaluable assistance provided by the following key individuals.

- Luke Sturdy, CRD Operations and Maintenance Operator
- Grant Tamboline, Waterworks Supervisor, North Salt Spring Waterworks District

EXECUTIVE SUMMARY

McElhanney Consulting Services Ltd. (McElhanney) has been retained by the Capital Regional District (CRD) - Salt Spring Island Electoral Area to provide an updated asset management plan for the Fulford Water System. The asset management plan is intended to help the CRD optimize allocation of resources, support long term financial plans to fund infrastructure renewal / replacement as required, and further understand associated risks to help ensure that the Fulford Water System meets acceptable levels of service and regulatory requirements.

The asset management plan was developed through review of available system background information, site inspection of each asset, a system capacity assessment for current and future demands; and incorporation of CRD staff comments and concerns.

Based on the data gathered assembling the asset management plan, prioritized capital project recommendations to benefit the Fulford water system have been provided along with recommended time lines for implementation and cost estimates for planning purposes.

TABLE OF CONTENTS

1.	BA	CKGROUND	1
	1.1.	INTRODUCTION	1
	1.2.	SYSTEM SUMMARY	1
	1.3.	LEVEL OF SERVICE	2
	1.4.	2011 FULFORD WATER SYSTEM ASSET MANAGEMENT PLAN	3
	1.5.	REGULATORY COMPLIANCE	5
	1.6.	MAINTENANCE PROGRAM	5
2.	SYS	STEM FINDINGS	6
4	2.1.	ASSET ASSESSMENTS	6
	2.1.1	SYSTEM BACKGROUND INFORMATION REVIEW	6
	2.1.2	. CONDITION ASSESSMENTS	6
	2.1.3	. ASSET PHYSICAL CONDITION GRADING SYSTEM	6
	2.1.4	. ASSET CRITICALITY GRADING SYSTEM	7
	2.1.5	. ASSET DATA CONFIDENCE GRADING SYSTEM	7
	2.1.6	. ASSET SYSTEM CAPACITY GRADING SYSTEM	8
	2.1.7	. ASSET SERVICE LIFE	8
	2.1.8	. CRD AND NSSWD INPUT	8
2	2.2.	SYSTEM CAPACITY ANALYSIS	9
3.	REG	COMMENDATIONS	. 11
,	3.1.	GOVERNING PRINCIPLES	11
,	3.2.	COST ESTIMATES	11
,	3.3.	EVALUATION SOURCE	12
4.	FIN	ANCIAL PLANNING	. 13
5.	IMP	ROVEMENT PLAN	. 14
6.	CLO	DSURE	. 15
Αŗ	pend	lix A – Fulford Water System Boundary Map	
Αŗ	pend	ix B – Fulford Water System Background Information List	
Αŗ	pend	ix C – Fulford Asset Condition Assessment Table	
Αŗ	pend	ix D – Fulford Asset Photo Observation Sheets	
Δr	nend	ix F – Fulford Water System Recommended Capital Projects Table	

1. BACKGROUND

1.1. INTRODUCTION

McElhanney Consulting Services Ltd. (McElhanney) has been retained by the Capital Regional District (CRD) – *Salt Spring Island Electoral Area* to provide an updated Asset Management Plan (AMP) for the Fulford Water System. The goals of the Fulford Water System AMP are to help the CRD optimize allocation of resources, support the CRD's long term financial plan to fund infrastructure renewal / replacement as required, and further understand associated risks to help ensure that the Fulford Water System meets acceptable levels of service and regulatory requirements.

McElhanney developed the AMP by reviewing available background information, conducting a site inspection of each asset generating a condition assessment; assessed system capacity for current and anticipated future population; and established prioritized recommendations with related cost estimates based on the study findings.

1.2. SYSTEM SUMMARY

The Fulford Water System is located in a semi-rural residential community with an elementary school and commercial component. The water system is situated on the north side of Fulford Harbour on Salt Spring Island. Lake Weston supplies raw water to the Fulford Water System and is at an elevation of approximately 60 m above sea level with the topography of the water service area ranging between sea level and 60 m.

The area is comprised of 102 parcels of land of which 91 parcels are presently connected to the system. See the *Fulford Water System Boundary System Map* in *Appendix A*.

The Fulford Water System is primarily comprised of the following assets:

FULFORD WATER TREATMENT PLANT, RESERVOIR & PUMP STATION

The water treatment plant draws water from Lake Weston with a treatment process consisting of a rapid mix system, flocculation, dissolved air floatation (DAF), rapid filtration, ultraviolet (UV) disinfection, and chlorination. The water is then pumped to the reservoir. The Fulford reservoir has a capacity of 360 m³ (80,000 IG) and is located south west of Fulford Community Elementary School.

FULFORD DISTRIBUTION SYSTEM

Approximately 4.5 km of water distribution pipe consists of 50 mm to 100 mm asbestos cement pipe installed in 1970 and approximately 2.2 km of 50 mm to 150 mm PVC watermains installed in the late 2000s. The distribution system also includes fire hydrants, standpipes, gate valves; and water service connections complete with water meters.

SUNNYSIDE DRIVE PRESSURE REDUCING STATION

There is one (1) pressure reducing valve station, PRS Sunnyside, in front of 122 Sunnyside Drive.

SUNNYSIDE DRIVE PUMP STATION

The Sunnyside Drive pump station is located across from the Hilltop Road and Sunnyside Drive intersection, specifically at 105 Hilltop Place. The pump station boosts the water supply from Lake Weston to the water treatment plant at a simultaneous pumping rate of 2.3 L/s (30 gpm) from 2 pumps.

1.3. LEVEL OF SERVICE

The level-of-service that a water system should provide can be broken down into a few key areas as follows:

- Regulatory Compliance;
- · Capacity of the System (existing and future); and,
- Customer Expectations / Risk tolerance.

The regulatory compliance level-of-service is mandatory and must be achieved to meet minimum public health and safety standards for safe drinking water and safe operation of the system. Regulatory compliance regulations, guidelines and standards for the Fulford Water System are listed in **Section 1.5** for reference.

The capacity of the system relates to the supply, production and delivery of the drinking water to the service area. There are a number of factors that can influence the level-of-service including, how much water people consume, age of the system (reduced efficiency), growth of the service area, climate change, etc. Capacity for the Fulford Water System is discussed in **Section 2.2**.

Customer expectation and risk tolerance is related to how well customers expect the system to perform over the long-term. This can include improved water quality requirements, water storage volumes (for domestic use and fire protection), system conveyance and pressures, system reliability and fire protection (flow, capacity, hydrants, etc.). Risk tolerance also relates to how much preventative maintenance should be performed on the system, when assets should be upgraded or replaced, system redundancy, and seismic resiliency.

The CRD has defined customer expectation and risk tolerance for the Fulford Water System as follows:

- Water quality meets regulatory compliance and safe water drinking guidelines;
- Fire flows/capacities are not supported; however, some hydrants are present;
- Storage capacity is adequate for existing usage, however, does not meet requirements for peak demand, or fire flows;
- Flushing of watermains occurs once per year for maintenance of the system, including exercising valves and hydrants;
- Pipe sizing is adequate for existing usage, but does not meet minimum requires as per Fire Underwriters Society;
- There is no system wide leak detection program;
- There is no back up power at critical infrastructure;
- There is no minimum requirement for pressure or flow for individual services; and,
- Maintenance program is a combination of preventative and reactive (discussed in more detail below), with the goal leaning more towards cost savings, rather than system resiliency.

1.4. 2011 FULFORD WATER SYSTEM ASSET MANAGEMENT PLAN

The Fulford Water System was first developed in 1968 under the name 'Fulford Water Improvement District'. The CRD undertook a feasibility study in 2000 towards ownership of the system and then established the 'CRD Fulford Water Service' in 2004. In 2011, the CRD developed a Fulford Water System AMP to re-evaluate the system and recommend improvements. The following table summarizes the 2011 Fulford Water System AMP recommendations, confirms if the recommendations are currently still valid and if they have been addressed.

TABLE 1 – 2011 FULFORD WATER SYSTEM AMP EVALUATION AND IMPROVEMENTS SUMMARY

Item #	Category	Asset Name	2011 AMP Evaluation / Recommendation	Still Valid ?	Addressed as of 2018 ?
1	Water Source	WTP FULFORD	"The quality of the raw water provided by Weston Lake represents the most significant issue related to the water source. Weston Lake is considered a eutrophic lake (high in nutrients and low in oxygen). Consideration should be given to the potential needs and implementations of control programs for algae, aquatic weeds or other undesirable aquatic organisms."	YES	NO
2	General	WTP FULFORD	"The existing system is over 40 years old, with much of the infrastructure showing its age. The 2010 Annual Water Quality Report for the Fulford water system indicated that the system continues to produce safe drinking."	YES	NO
3	Disinfection and Treatment	WTP FULFORD	"The Fulford water system currently has a DAF, rapid sand filtration WTP along with UV and chlorine disinfection. The WTP has ultimately a treatment capacity of 392 m³/day. This equipment is all less than two years old."	NO	YES
4	Storage	WTP FULFORD (RES FULFORD)	"The Fulford water system existing storage capacity for treated water is considered to be adequately sized to provide emergency and equalization storage."	NO	YES

Item #	Category	Asset Name	2011 AMP Evaluation / Recommendation	Still Valid ?	Addressed as of 2018 ?
6	Distribution System	DISTRIBUTION FULFORD	"The existing distribution system currently meets the domestic needs of the community but the non-revenue water production of 40% is considered significant. The water distribution system is not designed to provide fire protection. The mains are two-thirds asbestos cement (4,500 m) and reported to have been constructed in the late 1980s, making them almost 30 years old. The other third of the mains is PVC (2,200 m) and the majority of this pipe is less than 10 years old."	YES	NO Distribution flow is considered to be adequate, provided fire flows are not required
7	Distribution System	DISTRIBUTION FULFORD	"A program to replace the asbestos cement distribution mains should be initiated to reduce the water loss in the system. It would be desirable to replace the AC mains within the next five to ten years."	YES	NO See recommendations
9	Distribution System	DISTRIBUTION FULFORD	"The system contains a number of dead-end mains that cannot be interconnected as they service narrow areas that are at the extremities of the system or difficult terrain makes them difficult to loop. Flushing these mains during the summer months will be required to ensure chlorine residual and to maintain water quality."	YES	NO See recommendations
10	Distribution System	DISTRIBUTION FULFORD	"Distribution components associated with the asbestos cement watermains will be replaced as part of any watermain replacement program. Many of these components are as old as the mains. The valves need to be located and those that operate should be exercised regularly. The valves that do not operate should be identified and only replaced if they are critical to the operation of the distribution system."	YES	NO See recommendations
11	Distribution System	DISTRIBUTION FULFORD	"The watermains would need to be upgraded to a minimum 150 mm in order to provide fire protection."	YES	NO See comments on watermain pipe sizing in the Capacity Analysis

Further discussion on the "Still Valid" 2011 AMP system evaluation and recommendations that have not been addressed as of 2018 are covered in **Section 3**.

1.5. REGULATORY COMPLIANCE

The operation and maintenance of a water utility should be compliant with Provincial and Federal legislation, regulations, guidelines and standards as listed below, but not limited to:

- Guidelines for Canadian Drinking Water Quality, Health Canada
- Drinking Water Protection Act and Regulations, British Columbia
- Dam Safety Regulations Water Act, British Columbia Water Licenses
- British Columbia Water Sustainability Act and Groundwater Protection Regulation
- Island Health Authority
- Worksafe BC

1.6. MAINTENANCE PROGRAM

The Fulford Water System currently relies on a combination of preventative maintenance for larger serviceable items and reactive maintenance for smaller non-serviceable items, but not limited to:

- Currently using Preventative Maintenance Practices, with maintenance activities (PM's) scheduled in the Strategic Asset Plan (SAP);
- Smaller replaceable assets rely on reactive maintenance (fix it when it breaks), which is common industry practice;
- A shift to more predictive maintenance practices for critical assets may provide a more reliable system;
 however, this practice would increase costs, and may not be deemed necessary for a system of this size;
- Currently, some spare parts are not stored on Salt Spring Island and are kept in a pool of spare parts to be shared with other services within the CRD in an effort to reduce costs. Maintaining an inventory of critical spare parts on-hand may provide a more reliable system; however, maintaining such inventory would increase costs; and,
- The lifecycle plan for major assets (i.e. water treatment plant, reservoir, pump stations, etc.) will be to maintain and operate until it becomes cost-prohibited to do so. This lifecycle point will be anticipated through maintenance reviews and updated AMPs, at which time options for replacement/upgrade will be evaluated.

2. SYSTEM FINDINGS

2.1. ASSET ASSESSMENTS

McElhanney undertook an investigation which included review of available CRD system information and conducted site condition assessments for each asset with CRD staff.

2.1.1. SYSTEM BACKGROUND INFORMATION REVIEW

McElhanney reviewed Fulford Water System information made available by the CRD which primarily consisted of the documents listed in *Appendix B*. Relevant information was used to further understand the system and confirm asset components.

2.1.2. CONDITION ASSESSMENTS

Site assessments were completed to determine asset physical condition, establish criticality, and estimated remaining service life. The four (4) system assets have been defined as follows:

- FULFORD WTP The water treatment plant and pump station are located on South Ridge Drive, adjacent
 to the Fulford Elementary School. A 360 m³ (80,000 IG) capacity bolted-steel water tank is located northwest of
 the water treatment plant.
- FULFORD DISTRIBUTION Approximately 4.5 km of asbestos cement and 2.2 km of PVC water distribution pipe and appurtenances located throughout the system area.
- PRS SUNNYSIDE Pressure reducing valve station located on Sunnyside Drive near Hilltop Road.
- PST SUNNYSIDE Pump station located next to Sunnyside Drive and Hilltop Road intersection.

The site assessments occurred over a two-day period on September 13th & 14th 2018. CRD staff attended the reviews to provide site access and offer relevant background information. CRD Operations staff input on the assessments is covered in *Section 2.1.7*.

Assets were assessed primarily focusing on mechanical, civil, health & safety, electrical, and structural aspects. Assessments were based on the criteria described in the following sections.

2.1.3. ASSET PHYSICAL CONDITION GRADING SYSTEM

Asset physical conditions were graded based on the level of maintenance now required and on expected renewal / rehabilitation requirements:

- Very Good Asset is physically sound, performing its function as originally intended. Generally new or recently rehabilitated. Only planned maintenance required.
- Good Asset is physically sound, performing its function as originally intended. Required maintenance
 costs as within acceptable standards but increasing. Asset has been used for some time but is within mid
 stage of expected life.
- 3. **Fair** Asset is showing signs of deterioration, performing at a lower level that originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.
- 4. Poor Asset is showing significant signs of deterioration, performance is much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life.

 Very Poor – Asset is physically unsound and/or not performing as originally intended. Asset has higher probability of failure or failure is imminent. Maintenance costs are unacceptable. Replacement / major refurbishment required.

2.1.4. ASSET CRITICALITY GRADING SYSTEM

Asset criticality grades were established focusing on system interruption risk and health and safety issues. The grades are based on the following criteria:

- 1. **Non-Critical Asset** Failure would not result in an immediate problem.
- 2. **Asset Standby Equipment Available** –Asset failure would result in replacement/repairs which could be completed relatively quickly.
- 3. **No Asset Equipment Redundancy** Asset failure could result in moderately prolonged service interruption. Asset standby equipment not readily available.
- 4. **No Equipment Redundancy & Failure of equipment not monitored by alarm** Asset failure could cause prolonged system interruption. Significant time and cost to get system back online.
- 5. No Equipment Redundancy & Failure of equipment not monitored by alarm and/or immediate Health & Safety Concerns Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.

2.1.5. ASSET DATA CONFIDENCE GRADING SYSTEM

Assets were graded based on available data and records including but not limited to; documented procedures, investigations, analyses, reports, and drawings. Data confidence grades are based on the following criteria:

- A. **Highly Reliable** Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +/- 2%.
- B. **Reliable** Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, and / or extrapolated. Dataset is complete. Accuracy estimated +/- 10%.
- C. **Uncertain** Data is based on sound records, procedures, investigations and analysis which is incomplete, unsupported, and/or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +/- 25%.
- D. Very Uncertain Data is based on unconfirmed verbal reports and/or cursory inspections and analysis.
 Dataset may not be fully complete, and most of the data is estimated or extrapolated. Accuracy estimated +/-40%.
- E. Unknown Very little or no data available.

2.1.6. ASSET SYSTEM CAPACITY GRADING SYSTEM

A capacity analysis was conducted for existing and future system requirements based on anticipated growth projections. The asset capacity analysis findings are discussed further in **Section 2.2**. Assets were graded based on capacity to meet current and long-term demands. Capacity Grades are based on the following criteria:

- A. **Excellent** The asset has the capacity to meet long-term demand up to 10 years.
- B. Good The asset has the capacity to meet medium-term demand up to 5 years.
- C. **Moderate** The asset has the capacity to meet short-term growth demands.
- D. **Borderline** The asset has the capacity to meet short-term growth demands but experiences some shortfalls.
- F. Fail The asset capacity is not meeting its current demand and experiencing frequent shortfalls.

2.1.7. ASSET SERVICE LIFE

Estimated remaining service life of each asset and/or essential components were taken into consideration for the condition assessment with known installation dates.

Asset assessment data have been compiled into the *Asset Condition Assessment Table* found in *Appendix C*. The tables summarize the assessment findings and are grouped into mechanical, civil, health and safety, electrical, and structural components. The table provides additional information such as asset equipment description, general comments, location, gradings, service life, recommendations related to asset capital projects for improvements / upgrades, along with estimated costs. Capital project recommendations and cost estimates are discussed further in *Section 3*. *Photo Observation Sheets* found in *Appendix D* provide additional photographic details of select assets.

2.1.8. CRD AND NSSWD INPUT

CRD and NSSWD operator comments and concerns were collected and incorporated into the AMP recommendations. Comments and concerns received for the Fernwood Water System are listed below:

- "The Reynolds Road meter building with strainer should be decommissioned and a vault be installed."
- "The Sunnyside air valve should be replaced."
- "The Sunnyside (PST Sunnyside) booster pump impellers were "shaved down" and need to be replaced with
 correct impellers. The impellers will allow the plant to be able to run at maximum design flow of 4 L/s instead of
 the current operating flow of 2.2 L/s."
- "The 50 mm galvanize piping in the Sunnyside pressure reducing valve station is rusted, corroded, and starting to leak."
- "The air valves on the raw water line through Frasers' Easement, from Reynolds Road to Tahouney Road, should be upgrade/replaced."
- "The reservoir should be clean and inspect, as this has never been done since installation of the reservoir."
- "The water service at 341 Reynolds Road has a direct water connection to the raw water line. Has requirements been addressed?"
- "The raw water intake pipe has never been inspected. Divers have not been there ever."
- "The weir site has not been inspected."
- "There is a beaver dam. Who is responsible for maintenance of the beaver dam?"
- "A security fence is needed at the treatment plant facility."

2.2. SYSTEM CAPACITY ANALYSIS

Existing and Future Demand

The Fulford water service area is comprised of 102 properties of which 91 are connected to the system. Within those 91 parcels, there are 95 single family equivalents (SFE) as the use on some parcels represent more than one dwelling.

Between 2014 and 2017, total water produced has varied between 27,805 m³/year and 29,506 m³/year. The Fulford Water System does not have residential water meters; therefore, water consumption was not tracked and a single-family equivalent (SFE) water consumption was calculated. As per the 2017 annual report, the SFE water demand has increased from 234 m³/year in 2016 to 238 m³/year in 2017. Water consumption by users have been fluctuating by 5.8% over the past four years. This fluctuation may be typical throughout the CRD in areas with limited population growth as demand per capita has been decreasing.

Demand in the system varies significantly over the year, with the peak occurring in July or August. The measured Maximum Day Demand (MDD) in 2011 was 191 m³/day or 1,900 L/day per service connection. This is significantly lower than the CRD design criteria for MDD of 2,680 L/day per service connection.

While population on Salt Spring is anticipated to grow by approximately 2.5% per year, it is also predicted that water consumption per person will continue to decrease. Currently 89% of the properties in the water district are serviced. Unless the boundaries of the water service area are expanded, or significant subdivision occurs within the water service boundaries, it is anticipated that future demand will remain at current levels or perhaps decrease slightly.

Water Supply

The CRD holds two water licenses for Lake Weston to divert a total of up to 106,400 m³ per year (292 m³/day) and store up to 49,300 m³. Lake Weston is estimated to have a total volume of 1,090,000 m³. Lake Weston is subject to seasonal water quality changes and is affected by algae blooms. We are not aware of any recent hydrological studies to determine the capacity of the lake. The peak volume of water withdrawn from the lake between 2014 and 2017 was 29,506 m³/ year. This peak volume is approximately 28% of the allowable capacity under the water licenses.

Lake Intake

The existing lake intake was constructed in conjunction with the current water treatment plant. The capacity of the intake meets the capacity of the treatment plant. There were no issues observed or identified with respect to the condition or operation of the existing latke intake.

Water Treatment Plant & Pump Station

The rated design flow for the water treatment plant is 4.5 L/s or 390 m³/day. This is approximately 2 times the MDD recorded in 2011. The treatment plant appears to have adequate capacity for the demand; however, further investigation should be conducted to assess plant efficiencies at lower demands. This recommendation has been captured in **Section 3**.

Water Storage

There is one water storage reservoir in the system with a capacity of 360 m³ (80,000 IG). The reservoir operates a single pressure system and is at an elevation of approximately 90 m above sea level.

Water reservoir capacity is comprised of three components: balancing storage, fire storage and emergency storage. Balancing storage should be a minimum of 25% of maximum day demand. Fire storage is dependent on the properties being protected, but for rural residential should be a minimum of 60 L/s for 1.5 hours or a total of 324 m³. Emergency storage is 25% of the balancing + fire storage.

The Fulford reservoir has a storage volume of 360 m³. It supplies water to approximately 91 properties (95 SFE). The Fulford Reservoir is fed from the South Ridge pump station. Balancing storage requirements are 47.7 m³. Fire storage is 324 m³ and emergency storage is 93 m³. The total storage for requirement for Fulford is 464.7 m³. This reservoir has adequate storage for domestic flows but lacks capacity for full fire protection.

Water Distribution

The water distribution system consists of 6.7 km of distribution main, in which there are 4.5 km of asbestos cement and 2.2 km of PVC piping. The system contains approximately half a dozen "dead end" mains. Most of these "dead ends" mains cannot be looped because they are located at the end of narrow service areas. There is an elevation drop from the Lake Weston to the properties closer to the ocean, which requires a pressure reducing stations along the route.

The 100 mm mains do not meet design guidelines and are under sized for fire flow as the friction head loss at fire flow would be excessive. At domestic flow rates, the friction head loss is lower, and the existing mains seem to provide adequate flow and pressure. The minimum size for watermains is 150 mm.

Summary

As it is anticipated that future demand will remain at current levels or perhaps decrease slightly, future system capacity analyses were not evaluated. The following table provides a brief summary of the system capacity findings based on fire flow requirements not being required.

TABLE 2 FULFORD WATER SYSTEM CAPACITY ANALYSIS SUMMARY TABLE

Asset Name	System Components	System Capacity	System Capacity Grades (Defined in Section 2.1.6)
WTP FULFORD	Water Supply (From Weston Lake)	106,507 m³/year (water license limit)	А
WTP FULFORD	Lake Intake	292 m³/day	А
WTP FULFORD	Water Treatment Plant and Pump Station	292 m³/day	А
RES FULFORD	Water Storage	360 m³ (80,000 IG)	А
DISTRIBUTION FULFORD	Water Distribution	Measured MDD in 2011 was 190 m³/day or 1,900 L/day per service	D

Evaluation Design Criteria

The system capacity analysis referenced the following list of design criteria and guidelines:

- Design Guidelines for Rural Residential Community Water System, BC
- CRD Juan de Fuca Water Distribution Engineering Specifications
- Master Municipal Construction Document Design (MMCD) Guidelines
- Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection
- American Water Works Association (AWWA) Standards
- Recommended Standards for Water Works, Health Research Inc.

3. RECOMMENDATIONS

Prioritized capital project recommendations with recommended timelines and estimated costs have been developed for the Fulford Water System to support the CRD's asset management goals. The recommendations along with supporting data have been detailed in the *Fulford Water System Recommended Capital Projects Table* in *Appendix E*. Itemized recommendations are referenced to the *Condition Assessment Table* in *Appendix C* for further information and have been sorted by timeline prioritization. Prioritization, cost estimates, and evaluation source are further described below.

3.1. GOVERNING PRINCIPLES

The capital project recommendations are prioritized based on the Fulford Water System AMP governing principles which have been developed to align with the CRD's water system level of service and asset management strategic goals. The governing principles, along with recommended timeline for project completion have been defined as follows:

- Mandated Projects (IMMEDIATE: to be completed immediately to within one (1) year)
 - These are projects that are mandated by senior level of government. Projects required to adhere to regulatory compliance is an example of this.
- Health and Safety Issues (IMMEDIATE: to be completed immediately to within one (1) year)
 These are projects, that if not completed, could impact health, safety and property.
- Community Priority (SHORT TERM: to be completed within one to five years)
 These are projects that have been identified as a higher priority to benefit the community.
- 4. Operating Efficiencies / Costs (SHORT TERM: to be completed within one to five years)

These are projects that are intended to help reduce higher than usual operations and maintenance costs, and / or improve system functionality

- 5. Economic Support (LONG TERM: to be completed after six (6) plus years)
 - These are projects that are not immediately necessary but may be provided through community funding and grants.
- 6. Sustainability (LONG TERM: to be completed after six (6) plus years)

These are projects related to asset life cycle planning. All systems deteriorate over time; as such they will require maintenance and replacement.

3.2. COST ESTIMATES

Estimated costs have been provided as an order of magnitude approximation for planning purposes. There are several limitations with preliminary budgetary estimates due to many variables and unknowns for work without detailed cost estimations, and assembling quotes, especially where the work may take place many years from now. CRD costs such as procurement, staff time, contingencies and additional operations and maintenance should be considered along with a detailed evaluation of any design, permitting, and construction costs. Timing and extent of asset upgrades and/or replacements is highly dependent on how well existing equipment is maintained in the interim and the owner following regularly scheduled AMP reassessments which are recommended to be completed every 5 years. For the Purposes of this exercise, cost estimates are generally intended to only include, engineering / design / planning, equipment procurement, and construction with a relatively small contingency (approx. 10%).

3.3. EVALUATION SOURCE

The evaluation source for each asset capital project recommendation are listed in the *Fulford Water System*Recommended Capital Projects Table. Each of the evaluation sources listed below have been detailed throughout this report:

- · Asset condition assessment;
- Review of current and future asset capacity requirements;
- · Review of previous system AMP recommendations and current status; and,
- Incorporation of system comments and concerns from CRD staff.

4. FINANCIAL PLANNING

It was identified at the outset of this AMP that there were insufficient funds available to complete Financial Planning for implementation of the AMP recommendations. As such, Financial Planning will be completed by the Manager of Engineering, Salt Spring Island Electoral Area, in cooperation with CRD's Operations and Financial departments.

5. IMPROVEMENT PLAN

To help ensure future asset management plans and re-assessments on the CRD Salt Spring Island Electoral Area's water systems are executed effectively and efficiently, the following suggestions are provided for consideration:

- Provide additional details in future asset management plan request-for-proposals on service delivery expectations, report formatting, additional system background information, and avoid setting limitations on man-hours:
- Provide CRD staff NAMS training if the CRD wish to utilize this asset management system moving forward;
- Provide more time and opportunity for Operations staff to communicate issues, concerns, histories, and system details during asset management plan updates;
- Allocate additional time and resources to CRD staff to assemble, update, and keep track of all documentation relating the water system which could assist in future asset management planning exercises;
- Provide resources for more detailed Condition Assessments of critical equipment including, but not limited to, take-down, asset inspections, and non-destructive testing;
- Provide resources to provide more thorough review maintenance records;
- Provide resources to complete financial planning for recommended works; and,
- Provide resources to update / create adequate system maps, working drawings, and record documentation.

6. CLOSURE

We thank you for the opportunity to work on advancing the CRD Salt Spring Island Electoral Area's asset management planning and strategy for the Fulford Water System and sincerely look forward to working with you in the near future

This report has been prepared by McELHANNEY CONSULTING SERVICES LTD.

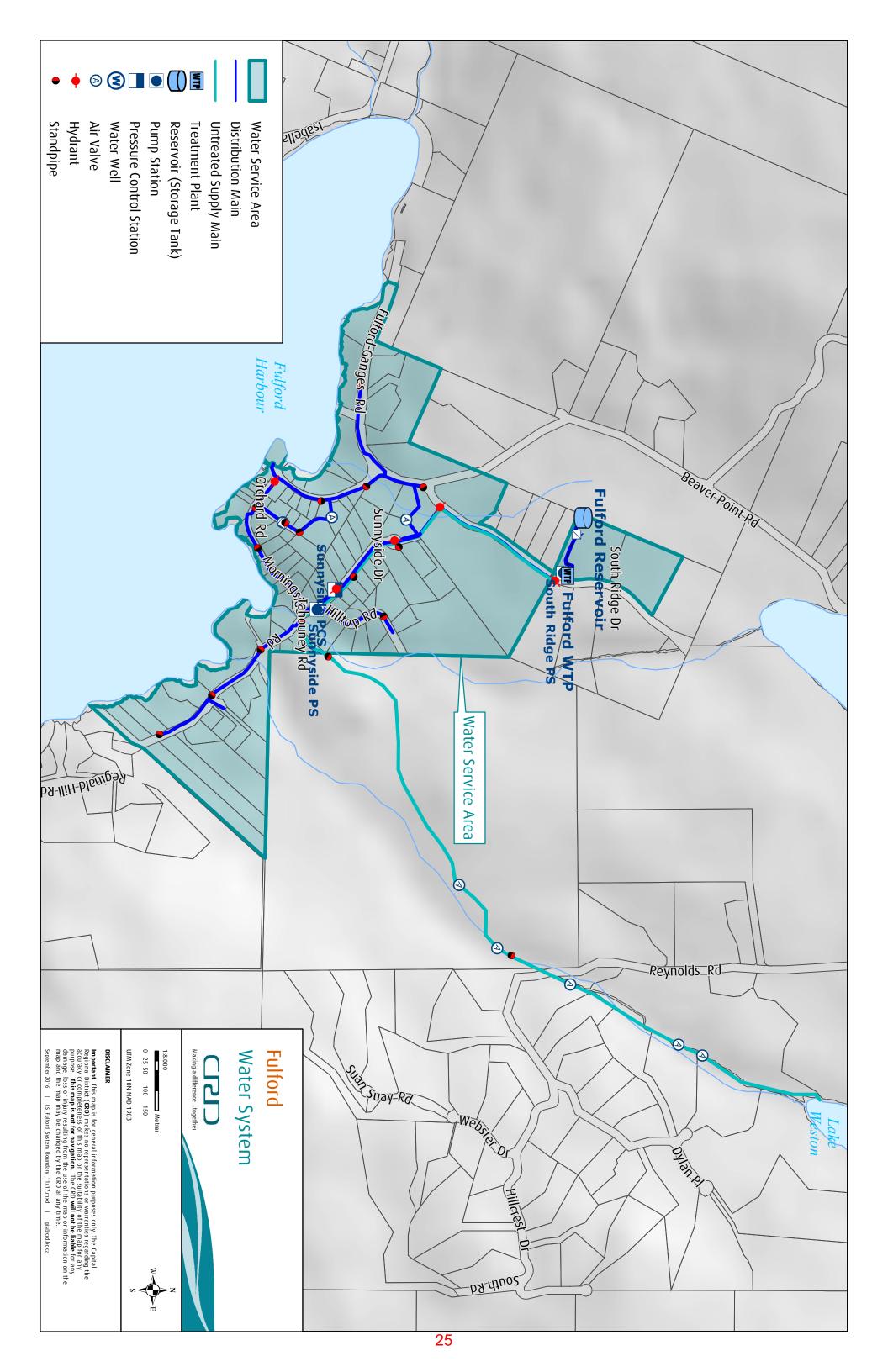
Prepared by:

Chris Lucas, P.Eng. Senior Project Manger Reviewed by:

lan Whitehead, P.Eng. Vice President

APPENDIX A

FULFORD WATER SYSTEM BOUNDARY MAP



APPENDIX B

FULFORD WATER SYSTEM
BACKGROUND INFORMATION LIST

FULFORD WATER SYSTEM DOCUMENTS

L	FULFORD WATER SYSTEM BOUNDARY AND LAYOUT
2	SAMP - UPDATED FEB 2012 (DRAFT)
3	FULFORD WATER SERVICE - 2017 ANNUAL REPORT - JUNE 4, 2018
1	WATER SYSTEM (EXISTING AND PROPOSED)
5	BYLAW MAPPING
5	FULFORD RESERVOIR AND TREATMENT PLANT
7	SUNYSIDE RESERVOIR, DISSOLVED AIR FILTRATION, AND TREATMENT PLANT

APPENDIX C

FULFORD WATER SYSTEM ASSET CONDITION ASSESSMENT TABLE

		2025	15	2010\2016	>	A	2	Tank level sensing	Backwash, Clearwell and Rinse Tanks	susceptible to damage and vandalism.	FLT, Process Instruments, Float Switch	FLT	Electrical	WTP FULFORD	Fulford
	aikainauvoo														
lel no longer supported.Investigate	Eaton VFD, MVX mod	2025	15	2010	>	A	2	Pump VFD	Pump Station	Eaton VFD, MVX model no longer supported	VFD, Variable Frequency Drive, Booster P1 and P2	VFD	Electrical	WTP FULFORD	Fulford
		2025	15	2010	Þ	Þ	2	Pump starter	Pump Station	2 Eaton motor starter	STA, Starter, Recycle Pump P1 and P2	STA	Electrical	WTP FULFORD	Fulford
		2040	30	2010	>	Þ	N 5	Electrical service and BC Hydro meter	Pump Station		ELC, 100 Amp Sub-Panel fed from WTP main service	ELC	Electrical	WTP FULFORD	Fulford
		2030	20	2010	>	Þ	ω 	Provides limited 24 volt dc power for process shutdown and Scada on power loss	Treatment Plant		POW, Power Supply, DC power, Uninterruptable	POW	Electrical	WTP FULFORD	Fulford
		2017	7	2010	>	>	ω 	Provides limited 120 volt ac power for process shutdown on power loss	Treatment Plant		POW, Power Supply, AC power, Uninterruptable	POW	Electrical	WTP FULFORD	Fulford
ory. Address safety concerns rega	Replace Panel Board Directoresetting motor overloads		15		>	>			Treatment Plant	1 Main Electrical Service Panel Board Directory Missing.	SAF, Safety Code, Panel Board Directory Missing	SAF	Electrical	WTP FULFORD	Fulford
		2020	10	2010	N/A	>	2	Emergency Backup Lighting for building egress	Treatment Plant	ω	LIT, Light, Emergency Lighting Ready-Lite	ПТ	Electrical	WTP FULFORD	Fulford
lighting	Replace T8 Lamps with LED	2020	10	2010	N/A	>	2	Lighting	Treatment Plant	8 T8 Lamps considered matured, LED replacement should be considered	LIT, Light, Begelli Fluorescent 2 lamp T8 Vapour Proof	П	Electrical	WTP FULFORD	Fulford
		2040	25	2010	>	>	2	Communications radio antenna	Treatment Plant	1 Built 2008	ANT, Antenna, GE Transnet 900 MHZ	ANT	Electrical	WTP FULFORD	Fulford
		2040	30	2010	>	Þ	2	WTP Plant Process and Scada communications	Treatment Plant	1 Built 2008	SCA, SCADA, RTU SCADA Pack 357	SCA	Electrical	WTP FULFORD	Fulford
		2025	15	2010	>	Þ	2	Electric Heat	Treatment Plant	2	HVAC, Electric Forced Air Unit Heater 5KW	HVAC	Electrical	WTP FULFORD	Fulford
	Replace Siemens unit	2025\2031	15	2010\2016	>	>	2 5	DAF level sensing	Treatment Plant	2 2010 Milltronoics unit not supported, replacement Siemens	FLT, Process Instrument, Ultrasonic Probe	FLT	Electrical	WTP FULFORD	Fulford
		2040	30	2010	Þ	>	ν 5	PLC Equipment DAF WTP process	Treatment Plant	Built 2008 PLC not supported for replacement cards or processor. DAF Control Panel PLC not supported, spare cards and processor are no longer available from Schneider Electric. Control Panel has some safety concerns, motor overload resets are not external to the controller.	ELC, PLC, Control Panel, DAF Treatment	ELC	Electrical	WTP FULFORD	Fulford
or Install larger electrical service	Replace panel board directory,	2040	30	2010	>	>	2	Electrical service and BC Hydro meter	Treatment Plant	1 Panel Board Directory Missing, limited available breaker space.	ELC, 200 Amp 120\208 Volt 3 Phase 100 KA SPD	ELC	Electrical	WTP FULFORD	Fulford
	Replace First Aid Kit			N/A	N/A	>	Q	First Aid Kit	Treatment Plant	No first aid kits were observed. Recommend to have a first aid kit inside the WTP building. This can be shared with the PS building.	FAK, First Aid Kit	FAK	Health & Safety	WTP FULFORD	Fulford
	Relocate Containers		Cī	N/A	N/A	>	2	Chlorine Containers	Treatment Plant	PACI containers should have a dedicated well-ventilated storage area with temperature ranging from 0 to 30°C	CON, Isopac Containers	CON	Health & Safety	WTP FULFORD	Fulford
				2018	N/A	Þ		Eyewash and Drench Shower	Treatment Plant	1 Eyewash and drench shower station situated too close to filing cabinet. Suggest to relocate filing cabinet.	SHO, Eyewash station and shower, Bradley Corp, Integrated eye-face wash and drench shower	SHO	Health & Safety	WTP FULFORD	Fulford
ace if required.	Inspect Fire Extinguisher and repl			2010	>	Þ	3 2	Fire Extinguisher	Pump Station	1 Expired fire extinguisher to be inspected	EXT, Fire Extinguisher, #L-256164	EXT	Health & Safety	WTP FULFORD	Fulford
ice if required.	Inspect Fire Extinguisher and repla			2010	>	Þ	3 2	Fire Extinguisher	Treatment Plant	1 Expired fire extinguisher to be inspected	EXT, Fire Extinguisher, #L-256143	EXT	Health & Safety	WTP FULFORD	Fulford
				2010	N/A	A		Access Ladder	Reservoir	1 Locking mechanism in place	LAD, Ladder, Reservoir Access Ladder	LAD	Health & Safety	WTP FULFORD	Fulford
ath to Reservoir	Maintenance should be done for page 1				N/A	A	22	Pathway to Reservoir	Treatment Plant	Informal pathway leads to Fulford Reservoir at the southwest corner of Fulford Community Elementary school property. Maintenance should be done for path to Reservoir.	PTH, Access Pathway	PTH	Civil	WTP FULFORD	Fulford
				2010	N/A	>		Access to WTP & PS	Treatment Plant	Well-graded gravel parking area in between the Fulford DAF WTP and the South Ridge PS. Well-graded gravel path from parking to WTP.	RD, Gravel Access Road and Parking	DWY	Civil	WTP FULFORD	Fulford
ovide a secured vault.	Replace flow meter facility and pr				>	>	4	Flow meter inside a wooden shed.	Reynold Rd	The asset was previously used for chlorination of raw water supply. Currently, it is used for flow metering and leak detection in the raw water supply line. The wooden shed requires replacement with a secured vault. Signs of valve corrosion are visible inside the shed.	MTR, Flow Meter, Raw Water Supply	MTR	Mechanical	WTP FULFORD	Fulford
nk. Maintenance Schedule for เ required. Improve security	Clean sediment from bottom of tank. Mai cleaning and inspection water tank require fencing around the facility.	2030	20	2010	>	Þ	ω	steel water tank at	Treatment Plant	The tank has never been cleaned. Some sediment is visible at the bottom. Tank cleaning and inspection are required. Security fence around the water tank needs improvement. No leaks were identified.	RES, Reservoir, Fulford Water	RES	Mechanical	WTP FULFORD	Fulford
tor mixer motors ent line emergency power supply for Wing pump the facility ashroom facility on site	Repair or replace both flocculate Install turbidity meters on influer Investigate feasibility of supply e Purchase a spare chlorine dosin Install security fencing around the There is a requirement for a was	2030	20	2010	>	>	Δ	T	Treatment Plant	There is only one WTP though some equipment has redundancy, such as filters, recycling/transfer pumps, coagulant pumps, and compressors. Regular maintenance taking place, as needed. Both flocculator mixer motors are leaking. There are no turbidity meters on the influent line to the WTP. Influent pump VFDs control flow to the plant on demand. There is no inventory, purchase is based on need. A spare chlorine dosing pump is needed. Jar testing equipment is shared with the Beddis WTP. Security fence around the WTP needs improvement. There are no washroom facilities at the WTP. The WTP is currently classified as a small water system though the system complexity requires Class IV, the same as the St Mary's Lake WTP.	Water Treatment Plant (WTP) - the WTP draws water from Lake Weston. The treatment process consists of a rapid mix system, flocculation, dissolved air floatation (DAF), rapid filtration, ultraviolet disinfection, and chlorination. The WTP design flow is approximately 390 m³/day (4.5 l/sec; 60 lgpm).	WTP	Mechanical	WTP FULFORD	Fulford
		Date	-	-		-	-	Fulford - 203 South Ridge Drive	WTP				-		
ement / Investigation Capital Pr	Recommended Upgrade / Replac	Anticipated Replacement / Refurbishment	Service Life	ity Date	Capacity Adaptation	ality Data Confide	Physical Critical	System Pescription Co	Location	rantity Comments	Equipment Description Qui	Object types	Component	n Asset Name	Water Syster
ect Recommendations and Cost	Capital Proj	Life	Asset Service			Asset Ratings		Equipment Location		ent Identifier	Equipme				

acceptable standards. Asset is approach	4. Poor: Asset is showing than originally intended. I acceptable standards. A	Asset Physical Condition Rating: Asset 3. Fair: Asset is shown are becoming physical are becoming physical within the later stages	2. Good: Asset is ph Required maintenand within mid stage of ex	1. Very Good: Asset rehabilitated. Only pla	81 Fulford WTP FULFORD Str	80 Fulford WTP FULFORD S	79 Fulford WTP FULFORD S		78 Fulford WTP FULFORD S	Fulford WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD Fulford WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD Fulford WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD Fulford WTP FULFORD Fulford WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD Fulford WTP FULFORD Fulford WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD WTP FULFORD Fulford WTP FULFORD	Fulford WTP FULFORD	Fulford WTP FULFORD WTP FULFORD Fulford WTP FULFORD
Asset is approachi	y si Vlaj	wing signs of deterioration, paily deficient. Required mails of expected life.	t is physically sound, perfor enance costs as within acc e of expected life.	is physically sound, anned maintenance r	tructural	Structural ELC	tructural HVAC	tructural DAV		Structural RAI	ctural	ctural ctural	ctural ctural	ctural ctural ctural	ctural ctural ctural	ctural ctural ctural ctural	ctural ctural ctural	ctural ctural ctural ctural	ctural ctural ctural ctural	ctural ctural ctural ctural ctural	uctural uctural uctural uctural uctural uctural uctural	uctural uctural uctural uctural uctural uctural	uctural uctural uctural uctural uctural uctural uctural uctural	uctural vctural vctura	uctural vctural vctura	uctural vctural vctura	uctural vctural vctura
	is of deterioration, performance much lower t is physically deficient. Required maintenance costs significantly exceed	ration, performing at a lower level that originally intended. Some components red maintenance costs exceed acceptable standards and increasing. Asset	erforming its function as originally intended. acceptable standards but increasing. Asset has been used for some time but is	, performing its function as originally intended. Generally a new or recently required	SHO/EXT, emergency eye wash station, fire extinguisher	ELC, Heater	AC HVAC, Exhaust System	/ DAV, Lifting Davit		RAI, Railing, Interior	RAI, Railing,	LAD, Stairs, Interior	STR, Structure, Cabi LAD, Stairs, Interior, RAI, Railing, Exterior	STR, Structure, Finis STR, Structure, Cabi LAD, Stairs, Interior, RAI, Railing, Exterior	STR, Structure, Roof STR, Structure, Finis STR, Structure, Cabi RAI, Railing, Exterior RAI, Railing, Interior	STR, Structure, Pool STR, Structure, Finis STR, Structure, Finis RAI, Railing, Interior, RAI, Railing, Interior	STR, Structure, Cladding STR, Structure, Openings, STR, Structure, Roof STR, Structure, Finishes, In STR, Structure, Cabinets RAI, Railing, Interior RAI, Railing, Interior	STR, Structure, Cladding STR, Structure, Openings, STR, Structure, Roof STR, Structure, Finishes, In STR, Structure, Cabinets RAI, Railing, Exterior RAI, Railing, Interior	STR, Structure, Foundation, Concrete STR, Structure, Wood Frame STR, Structure, Cladding STR, Structure, Openings, Exterior STR, Structure, Finishes, Interior RAI, Railing, Exterior RAI, Railing, Interior	STR, Structure, Foundation, Concrete STR, Structure, Wood Frame STR, Structure, Cladding STR, Structure, Cladding STR, Structure, Copenings, Exterior STR, Structure, Finishes, Interior LAD, Stairs, Interior, Aluminum RAI, Railing, Interior	SER, Service, Stormwater FEN, Fence, Perimeter STR, Structure, Foundation, Concrete STR, Structure, Wood Frame STR, Structure, Cladding STR, Structure, Openings, Exterior STR, Structure, Roof STR, Structure, Finishes, Interior RAI, Railing, Exterior RAI, Railing, Interior	SER, Service, Stormwater FEN, Fence, Perimeter STR, Structure, Foundation, Concrete STR, Structure, Foundation, Concrete STR, Structure, Cladding STR, Structure, Cladding STR, Structure, Roof STR, Structure, Roof RAI, Railing, Exterior RAI, Railing, Interior, Aluminum	PKG, Parking Lot, Gravel SER, Service, Stormwater STR, Structure, Foundation, Concrete STR, Structure, Foundation, Concrete STR, Structure, Cladding STR, Structure, Cladding STR, Structure, Chadding STR, Structure, Chadding RAI, Railing, Interior, Aluminum RAI, Railing, Interior, Aluminum	STR, Structure, Cladding STR, Structure, Finishes, Interior RAI, Railing, Interior RAI, Railing, Interior	LAD, Ladder, Enclosure SIT, Overall Site SIT, Overall Site PKG, Parking Lot, Gravel SER, Service, Stomwater FEN, Fence, Perimeter STR, Structure, Foundation, Conorete STR, Structure, Cladding STR, Structure, Cladding STR, Structure, Cladding STR, Structure, Chapterior RAI, Ralling, Interior, Aluminum RAI, Ralling, Interior	PAI, Railing, Exterior LAD, Ladder, Enclosure STT, Overall Site STR, Service, Stormwater FEN, Fence, Perimeter STR, Structure, Cladding STR, Structure, Openings, Exterior STR, Structure, Cladding STR, Structure, Cladding STR, Structure, Chadrings, Exterior RAI, Railing, Interior, Aluminum RAI, Railing, Interior RAI, Railing, Interior	LAD, Ladder, Reservoir Access Ledder RAI, Railing, Exterior RAI, Railing, Exterior RAI, Railing, Exterior RAI, Railing, Interior LAD, Ladder, Enclosure STR, Service, Stormwater STR, Service, Stormwater STR, Structure, Perimeter STR, Structure, Cladding STR, Structure, Openings, Exterior STR, Structure, Character, Interior RAI, Railing, Interior, Aluminum RAI, Railing, Interior
	4. No Equipment Redundancy & Failure of equipment not monitore system interruption. Significant time and cost to get system back online	Asset Criticality equipment not readily available. Rating: Asset failure could result in moderately equipment not readily available.	2. Asset Standby Equipment Available: Asset failure would result in relatively quickly.	1. Non-critical: Asset failure would not result in immediate problem.	St 32 15	ric unit heaters and baseboard heaters. There is operate emergency systems in case of a power	equirement for a washroom facility on site. A mechanical exhaust quired to extract blue green cyanotoxins produced by blue green T summer months.	Support for a lifting apparatus is required at ceiling level to lift the 80lb lid for the Saturator. Support for a confined space entry apparatus is required over the DAF treatment system to accommodate entry for cleaning and servicing.		1 No issues were noted with interior handrails / guardrails.	No issues were noted with exterior guardrails. The state of the state	No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails. No issues were noted with interior handrails / guardrails.	No issues were noted with the cabinets. No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails. The landing is a comparable of the parking area to include the parking	No issues were noted with interior finishes. No issues were noted with the cabinets. No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails. No issues were noted with interior handrails / guardrails.	The roof system is sloped with asphalt shingle roofing and metal gutters. m² Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with interior finishes. No issues were noted with the cabinets. No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails.	Door mutes are required to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with interior finishes. No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails.	Exterior walls are covered in horizontal cementitious siding. The caulking between the painted plywood and the cement siding at the electrical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Door mutes are required to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with interior finishes. No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails.	wTP Fulford houses the DAF water treatment system and is located on the same site as PST South Ridge. Fulford Water Treatment Plant (Main) is a single storey wood frame structure on a concrete slab on grade foundation system. No structural issues were noted. Exterior walls are covered in horizontal cementitious siding. The caulking between the painted plywood and the cement siding at the electrical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Door mutes are required to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with the interior finishes. No issues were noted with the interior stairs and landing. Access stairs are required to provide safe access to the building level from the parking area to prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardrails.	Backfilling is required at the foundation slab for the pipe entry shed to prevent further erosion of grounds under concrete slab that could cause failure of the slab. WITP Fulford houses the DAF water treatment system and is located on the same site as PST South Ridge. Fulford Water Treatment Plant (Main) is a single storey wood frame structure on a concrete slab on grade foundation system. No structural issues were noted. Exterior walls are covered in horizontal cementitious siding. The caulking between the painted plywood and the cement siding at the electrical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Door mutes are required to prevent door to frame contact. Door contactors for alarm system required to prevent door to frame contact. Door contactors for alarm system required to prevent door to frame contact. Door contactors for alarm system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with interior finishes. No issues were noted with the cabinets. No issues were noted with exterior guardrails.	Backfilling is required at the foundation slab for the pipe entry shed to prevent further erosion of grounds under concrete slab that could cause failure of the slab. WTP Fulford houses the DAF water treatment system and is located on the same site as PST South Ridge, Fulford Water Treatment Plant (Main) is a single storey wood frame structure on a concrete slab on grade foundation system. No structural issues were noted. Exterior walls are covered in horizontal cementitious siding. The caulking between the painted plywood and the cement siding at the electrical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Door mutes are required to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The roof system is sloped with asphalt shingle roofing and metal gutters. The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with interior finishes. No issues were noted with the cabinets. No issues were noted with exterior guardralis.	Positive drainage is required at the rear of the pipe entry shed. Consider tying rainwater downspout to the existing perimeter drainage for the main part of the building. 1 Perimeter fencing is required to secure the water treatment facilities. 1 Backfilling is required at the foundation slab for the pipe entry shed to prevent further erosion of grounds under concrete slab that could cause failure of the slab. WTP Fulford houses the DAF water treatment system and is located on the same site as PST South Ridge. Fulford Water Treatment Plant (Main) is a single storey wood frame structure on a concrete slab on grade foundation. No structural issues were noted. Exterior walls are covered in horizontal cementitious siding. The caulking between the painted plywood and the cement siding at the electrical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Door mutes are required to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. No issues were noted with interior finishes. No issues were noted with the interior stairs and landing. Access stairs are prevent slipping in wet and/or freezing weather. No issues were noted with exterior guardralis.	Gravel driveway is well maintained and accessible. Consider the positive drainage is required at the rear of the pipe entry shed. Consider thing rainwater downspout to the existing perimeter drainage for the main part of the building. Perimeter fencing is required to secure the water treatment facilities. Perimeter drainage for the main prevent further erosion of grounds under concrete slab that could cause failure of the slab. WTP Fulford houses the DAF water treatment system and is located on the same site as PST South Ridge. Fulford Water Treatment Plant (Main) is a single storey wood frame structure on a concrete slab on grade foundation system. No structural issues were noted.	1 Gravel driveway is well maintained and accessible. 1 Gravel driveway is well maintained and accessible. 1 Positive drainage is required at the rear of the pipe entry shed. Consider lying rainwater downspout to the existing perimeter drainage for the main part of the building. 1 Perimeter fencing is required to secure the water treatment facilities. 1 Perimeter fencing is required to secure the water treatment facilities. 1 Reackfilling is required at the foundation slab for the pipe entry shed to prevent further erosion of grounds under concrete slab that could cause failure of the slab. 1 The Funder of the slab. 1 WTP Fulford houses the DAF water treatment system and is located on the same site as PST South Ridge. Fulford Water Treatment Plant (Main) is a single storey wood frame structure on a concrete slab on grade foundation system. No structural issues were noted. Exterior walls are covered in horizontal cementitious siding. The caulking between the painted plywood and the cement siding at the electrical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Door mutes are required to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The roof system is sloped with asphalt shingle roofing and metal gutters. The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. 1.5 m² No issues were noted with the interior finishes. 1 No issues were noted with interior finishes. 1 No issues were noted with exterior guardrails. 1 No issues were noted with interior handrails / guardrails.	Ongoing maintenance is being performed by CRD personnel. Ground cover is maintained on a regular basis. Adjacent trees require trimming to prevent damage to the root system and adjacent finishes. Invasive blackberry bushes in back of WTP should be removed. Gravel driveway is well maintained and accessible. Gravel driveway is well maintained and accessible. Poslikve drainage is required at the rear of the pipe entry shed. Consider tying rainwaler downspout to the existing perimeter drainage for the main part of the building. Perimeter fencing is required at the foundation slab for the pipe entry shed. Consider tying rainwaler downspout to the existing perimeter drainage for the main part of the building. Backfilling is required at the foundation slab for the pipe entry shed to prevent further erosion of grounds under concrete slab that could cause failure of the slab. 1.5 m² prevent further erosion of grounds under concrete slab that could cause single storey wood frame structure on a concrete slab on grade foundation a single storey wood frame structure on a concrete slab on grade foundation a single storey wood frame structure on a concrete slab on grade foundation of the call that the shall be supporting structure. No structural issues were noted. Exterior walls are equired to prevent door to frame contact. Door contactors for alarm system require replacement with roller type devices. The coal system is alloped with asphalt shingle roofing and matel gutters. The root system as sloped with asphalt shingle roofing and matel gutters. The root system is sloped with asphalt shingle roofing and matel gutters. The root system is sloped with asphalt shingle roofing and matel gutters. Door mates are required to prevent damage to the roofing materials and supporting structure. Rear gutter requires replacement due to damage. 1.5 m² Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure and putters. Door materials and supporting the interior stairs and landi	Ongoing maintenance is being performed by CRD personnel. Chapoing maintenance is being performed or dispendit insert finishes. Invasive blackberry bushes in back of WTP should be removed. Gravel driveway is well maintained and accessible. Gravel driveway is well maintained and accessible. Perlimeter fencing is required at the rear of the pipe entry shed. Consider tying rainvaler downspool to the existing perimeter drainage for the main part of the building. Backfilling is required at the foundation star for the pipe entry shed to grevent further erosion of grounds under concrete stab hat could cause failure of the stab. WTP Fulloch houses the DAF water treatment system and is located on the same site as PST South Ridge. Fullord Water Treatment Plant (Main) is a single storey wood frame structure on a concrete stab on grade boundation system. No structural issues were noted. Exterior walls are covered in horizontal cementificus skiling. The caulking between the painted plywood and the cement siding at the electical mast has failed and requires replacement to prevent damage to finishes and supporting structure. Exterior mast has failed and requires replacement to prevent damage to finishes and supporting structure. Rear guiter requires replacement due to damage. The roof system is sloped with asphalt shirigle roofing and metal gutters. The roof system is sloped with asphalt shirigle roofing and metal gutters. The roof system is sloped with second and the cament to prevent damage to finishes. No issues were noted with the interior finishes. No issues were noted with the interior finishes. No issues were noted with the advance of the parking area to prevent silp and the parking area to prevent silp and the parking area to prevent silp and the parking area to prevent silp a	There were no issues noted with exterior railings. There were no issues noted with the safety of the lank. Orgoing maintenance is being performed by CRD personnel. Ground cover is maintained on a regular basis. Adjacent trees require timming to prevent damage to the oof system and adjacent finishes. Invasive blackerry bushes in back of WTP should be removed. Gravel driveway is well maintained and accessible. Positive drainage is required at the foundation of the pipe entry shed. Consider lying rainwater downspool to the existing permeter drainage for the main part of the building. Perimeter fercing is required at the foundation slab for the pipe entry shed. Consider lying rainwater downspool to the existing permeter drainage for the main part of the building. WTP Fullord houses the DAF water treatment system and is located on the same site as PST South Ruby. Fulford whater Treatment Part (Main) is a single storey wood frame structure on a concrete slab that could cause failure of the slab. WTP Fullord houses the DAF water treatment system and is located on the same site as PST South Ruby. Fulford whater Treatment Part (Main) is a single storey wood frame structure on a concrete slab and could cause failure of the slab. The caulking between the painted plywood and the cement slding at the electrical mast has failed and requires replacement for prevent damage to finishes and supporting structure. Removal of moss buildup is required to prevent damage to the roding materials and supporting structure. Rear guitter requires replacement due to damage. The roof system is aloned with apphalt shingle roding and metal guiters. The roof system is sloped with apphalt shingle roding and metal guiters. The roof system is sloped with apphalt shingle roding and metal guiters. The roof system is sloped with apphalt shingle roding and metal guiters. The roof system is sloped with apphalt shingle roding Access stairs are frequired to provide after excess to the building level from the parking area to prevent damage	The metal hatch at the bottom of the ladder enclosure requires a new lock. In the metal hatch at the bottom of the ladder enclosure requires a new lock. In There were no issues noted with the safety of the tank. Orgoing maintenance is being performed by CRD personnel. Ground cover is maintained on a regular basis. Adjacent trees require trimming to prevent damage to the roof system and adjacent finishes. Invasive blackberry busines in back of WTP should be removed. Gravel driveway is well maintained and accessible. Positive drainage is required at the rear of the pipe entry shed. Consider lying rainwater downsport to the existing perimeter drainage for the main part of the building. Perimeter fencing is required at the foundation stab for the pipe entry shed. Consider lying rainwater downsport to the existing perimeter drainage for the main part of the building. Perimeter fencing is required to secure the water treatment facilities. In Each of the pipe entry shed to green trained to prevent further erosion of grounds under concrete stab that could cause failure of the stab. WTP Fulford houses the DAF water treatment system and is located on the single store wood frame structure on a concrete stab on grade foundation is system. In some structure on a concrete stab on grade foundation is system. Each or main as the staled and requires replacement to prevent damage to finishes and supporting structure. Exterior walls are covered in horizontal connentitious stiding. Exterior walls are expired to prevent door to frame contact Door contactors for alarm system require registement with roler type devices. The roof system is sloped with asphalt shingle roding and metal guiters. The roof system is sloped with asphalt shingle roding and metal guiters. The roof system is sloped with the interior stains and landing. Access stairs are required to provide safe access to the building level from the parking area to green stairs are required to provide safe access to the building level from the parking area to develope th
to by alarm and/or immediate Books & Cafety	red by alarm: Asset Failure could cause prolonged	ly prolonged service interruption. Asset standby	replacement/repairs which could be completed		reatment Plant	Treatment Plant The	eatment Plant	Treatment Plant The		Treatment Plant Alu	φ I φ	eatment Plant eatment Plant eatment Plant	eatment Plant eatment Plant eatment Plant	eatment Plant eatment Plant eatment Plant eatment Plant	eatment Plant eatment Plant eatment Plant eatment Plant eatment Plant	eatment Plant eatment Plant eatment Plant eatment Plant eatment Plant eatment Plant	eatment Plant	eatment Plant	eatment Plant	eatment Plant	eatment Plant	eatment Plant Au Au Au Au Au Au Au Au Au A	eatment Plant Au	eatment Plant Au eatment Plant Au Au Au Au Au Au Au Au Au A	eatment Plant Au eatment Plant Au eatment Plant Au Au Au Au Au Au Au Au Au A	seatment Plant eatment Plant Au eatment Plant Au Au Au Au Au Au Au Au Au A	sservoir The seatment Plant eatment Plant catment Plant eatment Plant Au eatment Plant Au Au Au Au Au Au Au Au Au A
	D - Very Uncertain: Data is based on unconfirmed verba may not be fully complete and most data is estimated or e	Confidence Grading System C - Uncertain: Data is based on sound records, procedures, investig unsupported, or extrapolated. Dataset is substantially complete but up +- 25%	B - Reliable: Data based on sound records, procedures, investigation minor shortcomings, i.e. some data is old, missing, extrapolated. Data	A - Highly Reliable: Data based on sound records, procedures, inves and agreed as the best method of assessment. Dataset is complete.	There is a packaged emergency deluge shower and eye wash station. There is a fire extinguisher installed.	e building is heated with electric unit heaters.	There is a wash up sink installed. There is no washroom facility. There is no building exhaust system.	ere are no provisions for lifting.		rminum handrails / guardrails are attached to the DAF packaged treatment system.	ipe guardrail is installed on top of retaining wall to reduce falling hazard. minum handrails / guardrails are attached to the DAF packaged treatmen	minum stairs and landing are attached to the DAF packaged treatment syrior stairs. ipe guardrail is installed on top of retaining wall to reduce falling hazard. minum handrails / guardrails are attached to the DAF packaged treatmen	s are MDF with a laminate counter top. Im stairs and landing are attached to the DAF packaged treatment system. There stairs. Juardrail is installed on top of retaining wall to reduce falling hazard. Im handrails / guardrails are attached to the DAF packaged treatment system.	nd ceiling are covered in painted plywood sheathing. Floor is an exposed concrete are MDF with a laminate counter top. Im stairs and landing are attached to the DAF packaged treatment system. There stairs. Juardrail is installed on top of retaining wall to reduce falling hazard. Im handrails / guardrails are attached to the DAF packaged treatment system.	an asphalt shingle system with metal gutters and downspouts. In a ceiling are covered in painted plywood sheathing. Floor is an exposed concrete are MDF with a laminate counter top. In stairs and landing are attached to the DAF packaged treatment system. There stairs. Juardrail is installed on top of retaining wall to reduce falling hazard. Juardrails / guardrails are attached to the DAF packaged treatment system.	ncy hardware. an asphalt shingle system with metal gutters and downspouts. an asphalt shingle system with metal gutters and downspouts. and ceiling are covered in painted plywood sheathing. Floor is an exposed concrete stairs and landing are attached to the DAF packaged treatment system. There stairs. Juardrail is installed on top of retaining wall to reduce falling hazard. Juardrails / guardrails are attached to the DAF packaged treatment system.	Iding is clad in cement based siding with a rainscreen system. re no windows in the building. Doors are insulated metal with metal frames and ncy hardware. an asphalt shingle system with metal gutters and downspouts. s are MDF with a laminate counter top. s are MDF with a laminate counter top. guardrail is installed on top of retaining wall to reduce falling hazard. Im handrails / guardrails are attached to the DAF packaged treatment system. There	re is a wood framed wall and roof system. Iding is clad in cement based siding with a rainscreen system. The no windows in the building. Doors are insulated metal with metal frames and ncy hardware. In asphalt shingle system with metal gutters and downspouts. In stairs and landing are attached to the DAF packaged treatment system. There stairs. In handralis / guardralis are attached to the DAF packaged treatment system.	tion is a reinforced concrete foundation and slab on grade system. The is a wood framed wall and roof system. The no windows in the building. Doors are insulated metal with metal frames and ncy hardware. The no windows in the building. Doors are insulated metal with metal frames and ncy hardware. The stairs and landing are attached to the DAF packaged treatment system. There stairs. The packaged treatment system. There is a reinstalled on top of retaining wall to reduce falling hazard.	tion is a reinforced concrete foundation and slab on grade system. There is a wood framed wall and roof system. There no windows in the building. Doors are insulated metal with metal frames and ncy hardware. The no windows in the building boors are insulated metal with metal frames and ncy hardware. The notating are covered in painted plywood sheathing. Floor is an exposed concrete are MDF with a laminate counter top. The sare MDF with a laminate counter top. The packaged treatment system. There stairs. There is a wood framed wall and not top of retaining wall to reduce falling hazard. There stairs.	ater exits the site into a ditch along South Ridge Drive. It is no perimeter fencing around the site. It is a wood framed wall and roof system. It is a wood framed system. It is a wood framed system. It is a wood framed wall and roof system. It is a wood framed wall and roof system. It is a wood framed system. It is a wood framed system. It is a wood framed wall and roof system. It is a wood framed wall and roof system. It is a wood framed system.	is part of the driveway. Overflow parking on the side of South Ridge Drive. alter exits the site into a ditch along South Ridge Drive. ion is a reinforced concrete foundation and slab on grade system. ion is a reinforced concrete foundation and slab on grade system. ion is a wood framed wall and roof system. Ion windows in the building. Doors are insulated metal with metal frames and ncy hardware. an asphalt shingle system with metal gutters and downspouts. an asphalt shingle system with metal gutters and downspouts. an asphalt shingle system with metal gutters and downspouts. an asphalt shingle system with metal gutters and downspouts. an asphalt shingle system with metal gutters and downspouts. an asphalt shingle system with metal gutters and downspouts. In the packaged treatment system. There stairs. In handrails / guardrails are attached to the DAF packaged treatment system. There stairs.	is part of the driveway. Overflow parking on the side of South Ridge Drive. Is part of the driveway. Overflow parking on the side of South Ridge Drive. Is no perimeter fencing around the site. It no perimeter fencing around the site. It is a wood framed wall and roof system. The is a wood framed wall and roof system. It is a wood framed wall and roof system. The no windows in the building. Doors are insulated metal with metal frames and noy hardware. In a sphalt shingle system with metal gutters and downspouts. In a sphalt shingle system with metal gutters and downspouts. In a sphalt shingle system with metal gutters and downspouts. In a sphalt shingle system with metal gutters and downspouts. In a sphalt shingle are covered in painted plywood sheathing. Floor is an exposed concrete stairs. In the packaged treatment system. There stairs. In the packaged treatment system.	sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build driveway is shared with the chlorination building. Driveway is sloped down to South Ridge Drive. It is part of the driveway, Overflow parking on the side of South Ridge Drive. Is no perimeter fencing around the site. Is no perimeter fencing around the site. It is a wood framed wall and roof system. It is a wood framed wall and roof system. It is a wood framed wall and roof system. It is a wood framed wall and roof system. It is a reinforced concrete foundation and slab on grade system. It is a wood framed wall and roof system. It is a reinforced in cement based siding with a rainscreen system. It is a reinforced in painted plywood sheathing. Floor is an exposed concrete and ceiling are covered in painted plywood sheathing. Floor is an exposed concrete in stairs. It is no perimeter fencing are attached to the DAF packaged treatment system. There is a new possed concrete in painted plywood sheathing. Floor is an exposed concrete in stairs.	prevention at the ladder enclosure is by wey of a metal enclosure around the ladder a rhatch. Is sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build driveway is shared with the chlorination building. Driveway is sloped down to Southing is part of the driveway. Overflow parking on the side of South Ridge Drive. The state exists the site into a ditch along South Ridge Drive. The is no perimeter fencing around the site. Indiation is a reinforced concrete foundation and slab on grade system. Industry is a wood framed wall and roof system. Industry is a reinforced concrete foundation and slab on grade system. Industry is a reinforced concrete foundation and slab on grade system. In the perimeter fencing are covered in painted plywood sheathing. Floor is an exposed concrete fire states. It is an asphalt shingle system with metal gutters and downspouts. It is an asphalt shingle system with metal gutters and downspouts. It is an asphalt shingle system with metal plywood sheathing. Floor is an exposed concrete fire states. It is an asphalt shingle system with metal plywood sheathing. Floor is an exposed concrete fire states. It is an asphalt shingle are attached to the DAF packaged treatment system. There income the property is an exposed concrete fire states. There is a property in the property is an exposed concrete fire states.	metal ladder enclosure and upper railing are part of the packaged tank. prevention at the ladder enclosure is by way of a metal enclosure around the ladder a re halch. Is slopping with a Loc Block retaining wall to provide a flat area for the DAF Main build is slopping with a Loc Block retaining wall to provide a flat area for the DAF Main build ge part of the driveway. Overflow parking on the side of South Ridge Drive. Immaler exits the site into a ditch along South Ridge Drive. In permeter fencing around the site. The is no perimeter fencing are attached to the DAF packaged treatment system. There is an asphalt shingle system with metal guitters and downspouts. There is an apphalt shingle system with metal guitters and downspouts. The are no windows in the building. Doors are insulated metal with metal frames and argency hardware. The are no windows in the building. Doors are insulated metal with metal frames and argency hardware. The are no windows in the building. Doors are insulated metal with metal frames and argency hardware. The are no windows in the building with a rainscriben system. There is an asphalt shingle system with metal guitters and downspouts. There is no packaged treatment system. There is an active attached to the DAF packaged treatment system. There is an active attached to the DAF packaged treatment system.	exterior metal ladder system is part of the packaged tank. metal ladder enclosure and upper railing are part of the packaged tank. prevention at the ladder enclosure is by way of a metal enclosure around the ladder are hatch. Is sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build is sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build is sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build is sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build is sloping with a Loc Block retaining wall to provide a flat area for the DAF Main build is sloping with a candidate of South Rodge Drive. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade system. Indiation is a reinforced concrete foundation and slab on grade grade system. I
	l reports and/or cursory inspections and a extrapolated. Accuracy estimated +- 40%	res, investigations and analysis which is incomplete ornplete but up to 50% is extrapolated. Accuracy estima	investigations and analysis, documented properly but has olated. Dataset is complete. Accuracy estimated +- 10%	edures, investigations and analysis, docusis complete. Accuracy estimated +- 2%		-3	4	4				ω Δ ω	Δ Δ Δ	ω	Δ Δ Δ Ν												
	nalysis.	which is incomple ated. Accuracy es	ccuracy estimated	sis, documented propered +- 2%																							
	Dataset	ete or stimated	/ but has I +- 10%	properly	A N/A	A N/A	A N/A	A N/A																			
		Capacity Adapt Ranking Sy			A 2011	A 2011	A 2011	_	A 2011																		
	D - Borderlir	aptation C - Moderate	B - Good: Th	A - Excellent	25	25	25	25		25	25 25	25 25 25	25 25 25	25 25 15 15	25 25 15 15 25	25 25 15 15 25	25 25 15 15 25 25	25 25 15 15 25 25 50	25 25 25 25 25 50	25 25 25 25 25 25 25 25 25	25 25 25 25 25 25 25 26 25	25 25 25 25 25 25 25 25 25 25 25 25 25 2	25 25 25 25 25 25 25 25 25 25 25 25 25 2	25 25 25 25 25 25 25 50<	25 25 25 25 25 25 25 25 25 25 25 25 25 2	25 25 25 25 25 25 25 25 25 25 25 25 25 2	25 <
	line: The asset has	ate: The asset has t	The asset has the ca	nt: The asset has th	2036	2036	2036	2036		2036	2036	2036 2036 2036	2026 2036 2036	2026 2036 2036	2036 2036 2036	2036 2036 2036 2036	2036 2036 2036 2036 2036	2036 2036 2036 2036 2036	2061 2036 2036 2036 2036	2036 2036 2036 2036 2036 2036 2036	2036 2036 2036 2036 2036 2036 2036 2036	2061 2036 2036 2036 2036 2036 2036	2061 2036 2036 2036 2036 2036 2036 2036	2061 2061 2036 2036 2036 2036	2036 2036 2036 2036 2036 2036 2036 2036	2036 2036 2036 2036 2036 2036 2036 2036	2036 2036 2036 2036 2036 2036 2036 2036
	s the capacity to meet short-term growth demands but experiences some short	the capacity to meet short-term growth demands.	capacity to meet medium-term demand up to 5 years		Install hot water tank to temper water provided for eye wash station.		iirement for a n is required to ue green alga	80lb lid for the Saturator. Support for a confined space entry apparatus is required over the DAF treatment system to accommodate entry for cleaning and servicing.	Support for a lifting apparatus is required at ceiling level to lift the	Support for a lifting apparatus is required at ceiling level to lift the	Support for a lifting apparatus is required at ceiling level to lift the	Support for a lifting apparatus is required at ceiling level to lift the	Support for a lifting apparatus is required at ceiling level to lift the	Support for a lifting apparatus is required at ceiling level to lift the	Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Replace rear gutters. Support for a lifting apparatus is required at ceiling level to lift the	Install door mutes and replace roller type alarm system. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. Replace rear gutters. Support for a lifting apparatus is required at ceiling level to lift the	or mutes and replace roller type alarm system. of moss buildup is required to prevent damage aterials and supporting structure. Replace rear	place cement siding at electrical mast on facility. Itall door mutes and replace roller type alarm system. Itall movel of moss buildup is required to prevent damage fing materials and supporting structure. Replace rearched in a lifting apparatus is required at ceiling level.	ckfill is required at foundation slab place cement siding at electrical mast on facility. tall door mutes and replace roller type alarm system. moval of moss buildup is required to prevent damage fing materials and supporting structure. Replace rear	ckfill is required at foundation slab ckfill is required at foundation slab place cement siding at electrical mast on facility. place roller type alarm system. tall door mutes and replace roller type alarm system. tall moss buildup is required to prevent damage fing materials and supporting structure. Replace rear	der tying rainwater downspout to the existing perimeter ge for the main part of the building. perimeter fencing around WTP. Il is required at foundation slab Il is required at foundation slab door mutes and replace roller type alarm system. door moss buildup is required to prevent damage to the materials and supporting structure. Replace rear gutters.	stall perimeter fencing around WTP. stall perimeter fencing around WTP. stall perimeter fencing around WTP. stall door mutes and replace roller type alarm system. stall door mutes and supporting structure. Replace rear gutters.	ssitive drainage is required at the rear of the pipe entry shed. onside tying rainwater downspout to the existing perimeter ainage for the main part of the building. stall perimeter fencing around WTP. stall over the main part of the building. stall over mutes and replace roller type alarm system. stall door mutes and replace roller type alarm system. stall over moss buildup is required to prevent damage to the ofing materials and supporting structure. Replace rear gutters.	facility roofing and finishing. Stilive drainage is required at the rear of the pipe entry shed. onsider tying rainwater downspout to the existing perimeter ainage for the main part of the building. Stall perimeter fencing around WTP. Stall door mutes and replace roller type alarm system. Stall door mutes and replace roller type alarm system. Replace cement siding at electrical mast on facility. Replace rear gutters.	and bush trimming required around facility to prevent damage lity roofing and finishing. We drainage is required at the rear of the pipe entry shed. Ider lying rainwater downspout to the existing perimeter ge for the main part of the building. I) perimeter fencing around WTP. I) perimeter fencing around WTP. I) to commutes and replace roller type alarm system. I) door mutes and replace roller type alarm system. I) of moss buildup is required to prevent damage to the gmaterials and supporting structure. Replace rear gutters.	and bush trimming required around facility to prevent damage lity roding and finishing. We drainage is required at the rear of the pipe entry shed, ider fying aniwater downspout to the existing perimeter age for the main part of the building. Iperimeter fencing around WTP. It is required at foundation slab It door mutes and replace roller type alarm system. Idoor mutes and replace roller type alarm system. If door alliting apporting structure. Replace rear gutters.	new lock on metal hatch at the bottom of the tank's ladder with a salver developed and bush trimming required at the rear of the pipe entry shed. detrying aniawater downspout to the existing perimeter age for the main part of the building. It perimeter fencing around WTP. It is required at foundation slab It is required at foundation slab It of moss buildup is required to prevent damage to the gmaterials and supporting structure. Replace rear gutters.
	shortfalls.				\$3,000		\$6,000	\$25,000							\$10,000	\$10,000	\$5,000	\$5,000	\$1,000	\$10 \$10 \$2							

		Asset Physical Condition Rating:			106 Fulford	105 Fulford	104 Fulford	103 Fulford	102 Fulford	101 Fulford	100 Fulford	99 Fulford	98 Fulford	97 Fulford	96 Fulford	95 Fulford	94 Fulford	93 Fulford	92 Fulford	91 Fulford	90 Fulford	89 Fulford	88 Fulford	87 Fulford	86 Fulford	85 Fulford	84 Fulford	83 Fulford	82 Fulford		Item Water System
5. Very Poor: Asset is physically unso has higher probability of failure or failur refurbishment required	4. Poor: Asset is showing significant signs of deterioration, than originally intended. Majority of asset is physically defic acceptable standards. Asset is approaching end of expect	3. Fair: Asset is show are becoming physica within the later stages	2. Good: Asset is physically sound, performing its Required maintenance costs as within acceptable within mid stage of expected life.	1. Very Good: Asset is physically sound, rehabilitated. Only planned maintenance	PST SUNNYSIDE SI	PST SUNNYSIDE S	PST SUNNYSIDE SI	PST SUNNYSIDE Str	PST SUNNYSIDE SI	PST SUNNYSIDE SI	PST SUNNYSIDE SI	PST SUNNYSIDE SI	PST SUNNYSIDE SI	PST SUNNYSIDE Str	PST SUNNYSIDE Str	PST SUNNYSIDE SI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE EI	PST SUNNYSIDE H	PST SUNNYSIDE H	PST SUNNYSIDE Me	-	Asset Name
s physically unsou of failure or failure	wing significant sign. Majority of ass	ing signs of detaily deficient. Re	sically sound, per costs as within a pected life.	is physically soun	ructural EL	Structural D,	Structural RAI	uctural	tructural S-	tructural S-	Structural S-	tructural S-	Structural S ⁻	uctural	uctural	tructural	ectrical RE	ectrical	ectrical LIT	lectrical FLT	lectrical VF	lectrical ANT	ectrical SCA	lectrical ST	ectrical S ⁻	ectrical EI	ealth & Safety A	ealth & Safety RAI	echanical PS	_	Component O
und and/or not pe e is imminent. M	yns of deteriorati et is physically d ching end of exp	erioration, perform equired maintenan	forming its function acceptable standard	d, performing its e required	.c ELC	DAV DAV,	RAI,	AD	STR STR	TR STR	STR STR	STR STR	STR STR,	SER SER,	PKG PKG,	T SIT,	EC REC	г шт,	ר עד,	ד	:D VFD	ANT	SA SCA	STR STR,	STR STR,	ELC,	CC ACC	યા RAI,	PS,		Object types
performing as originally intended. Asset Maintenance coasts are unacceptable. Replacement / major	ion, performance much lower deficient. Required maintenance costs significantly exceed pected life	ming at a lower level that originally intended. Some components ance costs exceed acceptable standards and increasing. Asset	as originally into s but increasino	s function as originally intended. Generally a new or recently	C, Heater	V, Lifting Davit	, Railing, Exterior), Ladder, Aluminum	R, Structure, Finishes, Interior	२, Structure, Roof	र, Structure, Openings, Exterior	र, Structure, Underground Enclosure, Concrete	र, Structure, Foundation , Concrete	र, Service, Stormwater	G, Parking Lot	, Overall Site	C, Receptacles	, Light, Begelli Fluorescent 2 lamp T8 Vapour Proof	, Light, Fluorescent strip 3'	, Process Instruments, Float Switch), Variable Frequency Drive, Booster P1 and P2	Г, Antenna, GE Transnet 900 MHZ	A, SCADA Pack 350	२, Structure, Foundation, Kiosk	२, Structure, Kiosk Enclosure	C, 70 Amp Combination Main & TVSS 120/240 Volt 1 phase	C, Access Hatch, Manhole Frame & Lid	, Railing	Pressure Station, Sunnyside PS		Equipment Description
5. No Conc Asset	4. No system	Asset 3. No Criticality equipments of the control o	2. Ass	1. No	The cor	0 Provide	1 Install hazard	1 No iss	No iss	1 No iss	1 No iss	1 PRS Si	1 No fou	1 No ser	1 N/A	Ongoi 1 Groun allow a adjace		2 T8 Lar		7	2 Eaton	1		1 Mount	1 Requi	1 Pole m	1 Opera blower	1 No pro	The PS is confined s impellers.	-	Quantity
5. No Equipment Redundancy & Failure of equipment not monitored by alarm and/or immediate Health Concerns: Asset Failure could cause prolonged system interruption. Significant time and cost to get system basset essential to health and safety requirements.	. No Equipment Redundancy & Failure of equipment not monitore /stem interruption. Significant time and cost to get system back online	equipment redundancy: Asset failure could result in moderatel pment not readily available.	set Standby Equipment Available: Asset failure would result in vely quickly.	n-critical: Asset failure would not result in immediate problem.	ntrols are located in a premanufactured metal enclosure. ctrical for comments.	securing for a portable tri-pod device.	Install a full height guardrail that still allows for access but prevents a fall hazard when working on the tank.	ues were noted with the ladder.	ues were noted with interior finishes.	les were noted with the tank cover.	ues noted on access hatch.	unnyside is a reinforced concrete underground enclosure with a ded slab concrete lid.	undation issues were noted.	vice issues were noted.		ng maintenance is being performed by CRD personnel. d cover is maintained on a regular basis. Tree trimming is required to access to the PCS and to clear the electrical meter located on the entire that the power pole.		nps considered matured, LED replacement should be considered			VFD, MVX model no longer supported			ed to underground Dry Pit	es housekeeping and Preventative Maintenance routines	Pole mounted Hydro Meter. Tree trimming required around Hydro Incoming pole and BC Hydro meter	Operations staff (NSSWD) noted that they bring their tripod and portable blower for access. CRD should have their own.	tive barrier for a \sim 2 ft drop to the east of the electrical cabinet. A 4 likely likely likely and be installed.	housing duplex pumps. Access to the PS is restricted due to pace entry. The pump flow rate is 2.3 L/sec due to shaved down Replacement of impellers is required to match the WTP capacity.		Comments
Significant time a	ored by alarm: As	ely prolonged serv	n replacement/rep		Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber	Valve Chamber		
Id/or immediate Health & Safety and cost to get system back online.	0	ice interruption. Asset standby	airs which could be completed																											PST Sunnyside -	Location
		Data Confidence Grading System			The tank is heated v	There are no provisi	There is a low heigh	Access into the tank	Interior walls are exp	The tank is covered	Access to the tank i	There is no structur	Foundation is a rein	Stormwater exits the	Parking is on the sic	Site is sloping and a	Receptacles	Lighting	Lighting	Chamber Flood Floa	Booster Pump VFD	Communications ra	Site control process	Kiosk foundation / b	Aluminum Kiosk	Electrical ServiceTVSS	CFE Tripod and Wi	Railing	Booster lift station fo	122 Sunnyside D	Equipment System Description
E - Unknown: None or very little data held	D - Very Uncertain: Data is based on unconfirmed verbal reports and/or may not be fully complete and most data is estimated or extrapolated. Ac	C - Uncertain: Data is based on sound records, procedures, investigation unsupported, or extrapolated. Dataset is substantially complete but up to +- 25%	B - Reliable: Data based on sound records, procedures, investigations <i>a</i> minor shortcomings, i.e. some data is old, missing, extrapolated. Datase	A - Highly Reliable: Data based on sound records, procedures, investiga and agreed as the best method of assessment. Dataset is complete. Ac	with an electric baseboard heater.	ions for confined space entry.	nt railing located adjacent to the access hatch.	k is by way of an aluminum ladder with a safety pole.	posed concrete.	with a suspended slab roof/cover.	is by way of a secured access hatch.	e over tank.	nforced concrete foundation and slab on grade system.	ie site into a ditch along Sunnyside Drive.	ide of Sunnyside Drive.	adjacent to a deep roadside ditch.				at et		dio antenna	s Scada & Scada communications	base		/SS and BC Hydro meter	nch		or raw water supply to the Fulford WTP	Drive	Location
	or cursory inspections Accuracy estimated +	investigations and analysis te but up to 50% is extrapol	estigations and analysis, doc ed. Dataset is complete. A	es, investigations and analysis, docu omplete. Accuracy estimated +- 2%	<u> </u>	4	_	ω	-	ω	N		2	20	_	N	N	N	2	2	2	2	2	N	22	N	4	ഗ	<u> </u>	_	Physical Condition
	ons and analysis. d +- 40%	sis which is incomple polated. Accuracy es	ocumented properly but Accuracy estimated +-	ımented															7	5	2	5	Ŋ	Ŋ	Ŋ	Ŋ			N	-	Asset Ratings Criticality Data Co
	Dataset	estimated	/ but has d +- 10%	properly	7	7	7	7	Α	A	Þ	A	A	>	>	>	A	7	7	Α	A	A	A	Þ	A	Þ	A	> 	>		onfidence Cap
		Capacity Adaptat Ranking Syst			N/A 19	N/A 19	N/A 19	N/A 19	A 19	A 19	A 19	A 19	A 19	N/A 19	N/A 19	N/A 19	A 20	N/A 20	N/A 20	A 2010	A 20	A 20	A 20	>	A 20	A 20	A	N/A	A	_	Capacity Date Adaptation Installed
E - Fai:	D - Bor	aptation C - Moc System	B - Good:	A - Exc	1900 25	1900 25	1900 25	1900 25	1900 15	1900 25	1900 25	1900 50	1900 50	1900 50	1900 50	1900 50	2010 10	2010 10	2010 10	2010\2016 15	2010 15	2010 30	2010 30		2010 30	2010 30				-	Asset Service alled Life
The asset capac	derline: The asse	erate: The asset	The asset has	xcellent: The asset																										-	Ant Refu
ity is not meeting	t has the capacity	has the capacity	the capacity to m	et has the capacity t	1925	1925 Provic	1925 Install a fall I	1925	1915	1925	1925	1950	1950	1950	1950	Tree t	2020	2020 Repla	2020	2025	2025 Eaton alterna	2040	2040		2040 Provic	2040 Tree t	Recor this st	No processing cabing	Repla	-	icipated acement / rbishment Pate
its current demand and experiencing frequent shortfalls.	to meet short-term growth demands but experiences s	to meet short-term growth demands.	eet medium-term demand up to 5 years	to meet long-term demand up to 10 years		de mount area for a portable tri-pod device.	Install a full height guardrail that still allows for access but prevents a fall hazard when working on the tank.									trimming is required to allow access to the PCS and to clear lectrical meter located on the adjacent power pole.		ace T8 Lamps with LED Lighting.			ו VFD, MVX model no longer supported . Investigate atives				ide housekeeping and Preventative Maintenance routines	Tree trimming required around Hydro Incoming pole and BC Hydro meter	Recommend purchasing portable CFE tripod and winch to use at this station and others.	otective barrier for a $\sim\!2$ ft drop to the east of the electrical et. A 4 m metal rail should be installed.	ce impellers in pumps.		Capital Project Recommendations and Cost Estimate the Cost Estimat
	some shortfalls.					Refer to Item (84)	Refer to Item (83)									\$2,00					\$5				\$2,500	\$2,00	\$5,00	\$3,00	\$6,00		Estimated cost (in 2019 dollars)



Capital Regional District - Salt Spring Island Electoral Area Strategic Asset Management Plans for Local Water Services FULFORD WATER SYSTEM - ASSET CONDITON ASSESSMENT

	meeting its current demand and experiencing frequent shortfalls.	set capacity is not	E - Fail: The as				E - Unknown: None or very little data held	d by alarm and/or immediate Health & Safety gnificant time and cost to get system back online.	5. No Equipment Redundancy & Failure of equipment not monitored by alarm and/or immediate Health Concerns: Asset Failure could cause prolonged system interruption. Significant time and cost to get system be Asset essential to health and safety requirements.		and/or not performing as originally intended. Asset imminent. Maintenance coasts are unacceptable. Replacement / major		Very Poor: Asset is physically unsound has higher probability of failure or failure is refurbishment required	5. Ve has h refur
me shortfalls.	capacity to meet short-term growth demands but experiences some	: The asset has the cap	D - Borderline		nalysis. Dataset	or cursory inspections and an Accuracy estimated +- 40%	D - Very Uncertain: Data is based on unconfirmed verbal reports and/or cursory inspections and analysis may not be fully complete and most data is estimated or extrapolated. Accuracy estimated +- 40%	could cause prolonged	4. No Equipment Redundancy & Failure of equipment not monitored by alarm: Asset Failure system interruption. Significant time and cost to get system back online		leterioration, performance much lower ysically deficient. Required maintenance costs significantly exceed nd of expected life	ignificant signs of d ijority of asset is ph et is approaching e	4. Poor: Asset is showing significant signs of deterioration, pothan originally intended. Majority of asset is physically deficie acceptable standards. Asset is approaching end of expected	
	pacity to meet short-term growth demands.	The asset has the capa	stem C - Moderate:	Capacity Adaptation Ranking System	icomplete or iracy estimated	ations and analysis which is in to 50% is extrapolated. Accu	C - Uncertain: Data is based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated. Dataset is substantially complete but up to 50% is extrapolated. Accuracy estimated +- 25%	prolonged service interruption. Asset standby Grading System	3. No equipment redundancy: Asset failure could result in moderately prolonged service interruption. sting:	ts Asset Criticality Rating:	, performing at a lower level that originally intended. Some components aintenance costs exceed acceptable standards and increasing. Asset	gns of deterioration ficient. Required m pected life.	. Fair: Asset is showing signs of deterioration, performing re becoming physically deficient. Required maintenance of thin the later stages of expected life.	Asset 3. Fair: Physical are becompleted within the condition within the condition within the condition within the condition of the condition o
	y to meet medium-term demand up to 5 years	asset has the capacity	B - Good: The		properly but has stimated +- 10%	เร and analysis, documented เ เรet is complete. Accuracy es	B - Reliable: Data based on sound records, procedures , investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, extrapolated. Dataset is complete. Accuracy estimated +- 10%	result in replacement/repairs which could be completed	2. Asset Standby Equipment Available: Asset failure would result in rerelatively quickly.	∞.	its function as originally intended. ble standards but increasing. Asset has been used for some time but	/ sound, performing s as within accepta d life.	2. Good: Asset is physically sound, performing its Required maintenance costs as within acceptable within mid stage of expected life.	2. Go Requ within
	pacity to meet long-term demand up to 10 years	The asset has the capa	A - Excellent:		ented properly	res, investigations and analysis, documented properly complete. Accuracy estimated +- 2%	A - Highly Reliable: Data based on sound records, procedures, invest and agreed as the best method of assessment. Dataset is complete.		1. Non-critical: Asset failure would not result in immediate problem.		, performing its function as originally intended. Generally a new or recently required	s physically sound, perfo nned maintenance requi	. Very Good: Asset is ph shabilitated. Only planned	1. V e
\$500	Installation of a fire extinguisher is required.	2036	25	N/A 2011	Þ	3	safety devices installed.	Valve Building There are no sa	Installation of a fire extinguisher is required.	0	EXT, Fire Extinguisher	al SAF	SUNNYSIDE Structur	ulford
\$3,000	Interior requires painting to prevent damage to the plywood finishes in case of a leak in the pumping system. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	2026	15	A 2011	>	Δ.	ceiling are covered in painted plywood sheathing. Floor is an exposed concrete slab.	Valve Building Walls and ceiling	Interior requires painting to prevent damage to the plywood finishes in case of a leak in the pumping system. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	10.3 m ²	STR, Structure, Finishes, Interior	al STR	SUNNYSIDE Structural	Fulford PRS
\$2,500	Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure.	2036	25	A 2011	Þ	2	halt shingle system with metal gutters and downspouts.	Valve Building Roof is an asph	The roof system is sloped with asphalt shingle roofing and metal gutters. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure.	10.3 m ²	STR, Structure, Roof	al STR	SUNNYSIDE Structur	ulford PRS
\$1,000	Door requires painting and replacement of door sweep and weather stripping to prevent insects from entering the building. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	2036	25	A 2011	A	2	windows in the building. Door is insulated metal with metal frame and emergency	There are no w hardware.	Door requires painting and replacement of door sweep and weather stripping to prevent insects from entering the building. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards.	10.3 m ²	STR, Structure, Openings, Exterior	al STR	SUNNYSIDE Structural	ulford
		2036	25	A 2011	А	1	clad in cement based siding with a rainscreen system.	Valve Building The building is	Exterior walls are covered in horizontal cementitious siding. No cladding issues were noted.	10.3 m²	STR, Structure, Cladding	al STR	SUNNYSIDE Structural	Fulford PRS
		2061	50	A 2011	A	1	wood framed wall and roof system.	Valve Building Structure is a v	PST Sunnyside is a single storey wood frame structure on a concrete slab on grade foundation system.	10.3 m ²	STR, Structure, Wood Frame	al STR	SUNNYSIDE Structur	Fulford PRS
		2061	50	A 2011	Þ	1	a reinforced concrete foundation and slab on grade system.	Valve Building Foundation is a	No issues were noted with the foundation.	10.3 m ²	STR, Structure, Foundation	al STR	SUNNYSIDE Structur	ulford PRS
\$15,000	Perimeter fencing is required to secure the pump system.	2036	25	N/A 2011	A	υ	perimeter fencing around the site.	Valve Building There is no per	Perimeter fencing is required to secure the pump system.	0	FEN, Fence, Perimeter	ai FEN	SUNNYSIDE Structural	ulford PRS
		2061	50	N/A 2011	Þ	-1	ts the site into a ditch along Sunnyside Drive.	Valve Building Stormwater exits	No servicing issues were noted.		SER, Service, Stormwater	al SER	SUNNYSIDE Structural	ulford PRS
		2061	50	N/A 2011	A	-1	of the driveway.	Valve Building Parking is part	Gravel driveway is well maintained and accessible.		PKY, Parking Lot	al PKG	SUNNYSIDE Structur	ulford PRS
		2061	50	N/A 2011	Þ	1	y is part of the overall site.	Valve Building Gravel driveway	Gravel driveway is well maintained and accessible.	-1	DWY, Driveway, Gravel	al DWY	SUNNYSIDE Structural	ulford PRS
\$2,000	Adjacent bushes require trimming to prevent damage to the wall system and finishes. Maintenance required on surrounding vegetation, including branches around overhead telecommunications.	2061	50	N/A 2011	Α	2	covered with gravel.	Valve Building Site is flat and	Ongoing maintenance is being performed by CRD personnel. Ground cover is maintained on a regular basis. Adjacent bushes require trimming to prevent damage to the wall system and finishes. Maintenance required on surrounding vegetation, including branches around overhead telecommunications.		SIT, Overall Site	al SIT	SUNNYSIDE Structural	Fulford PRS
\$200	Inspect Fire Extinguisher and replace if required.			N/A	A	5 4	ler	Valve Building Fire Extinguisher	No fire extinguisher observed / fire extinguisher required. Fire hydrant directly adjacent to PRS building.	1	EXT, Fire Extinguisher	& Safety EXT	SUNNYSIDE Health	Fulford PRS
\$7,000	Replace piping			⊳	Þ	-	in dual bypass/main configuration.	Valve Building PRV assembly	solids. Signs of corrosion are visible from piping.	_	PRV, Pressure Reducing Valve, Sunnyside PRV	ical PRV	SUNNYSIDE Mecha	Fulford PRS
\$5,000	Install in-line strainers in front of PRV.	_												
							e Drive	PRS Sunnyside - Sunny Side Drive						
Estimated cost (in 2019 dollars)	Recommended Upgrade / Replacement / Investigation Capital Projects (ir	Anticipated Replacement / Refurbishment Date	Service Life	Capacity Date Adaptation Installed	Data Confidence A	Physical Criticality		System Description	y	Quantity	pes Equipment Description	ponent Object ty	sset Name Con	Vater System
te	Capital Project Recommendations and Cost Estimate	Life	Asset Service L		t Ratings	Asset	ment Location	Equipment	entifier	Equipment Identifier				

Refer to Item (126	Demolish existing building	1925	25	1900	Þ	A	5		Roof is covered with a tarp and leaking.	Supply Main Building Reynolds Rd.	f should be demolished as part of the	oof 6.0 m ²	STR, Structure, Roof	ral STR	Structur	FULFORD	149 Fulford
											The roof system is sloped asphalt with no gutters.					DISTRIE	
		1925	25	1900	A	A	5	≱d over. The entry door is wood.	The one window in the building has been boarde	Supply Main Building Reynolds Rd.	N/A	penings, Exterior 6.0 m ²	STR, Structure, Op	ral	NTION Structur	DISTRIBUTION FULFORD	148 Fulford
Refer	Demolish existing building	1925	25	1900	Þ	Α	5		The building is clad in vertical cedar siding.	Supply Main Building Reynolds Rd.	Exterior walls are covered in vertical cedar siding. Cladding is rotting and has exceeded its estimated service life. Demolish building.	adding 6.0 m ²	STR, Structure, Cl	ral STR	3UTION Structu	DISTRIBUTION	147 Fulford
Refer	Demolish existing building	1950	50	1900	А	1 A	5	1.	Structure is a wood framed wall and roof system	Supply Main Building Reynolds Rd.	ainer building is a single grade foundation system and has exceeded its es	ood Frame 6.0 m ²	STR, Structure, W	ral STR	3UTION Structu	DISTRIBUTION	146 Fulford
Refer	Demolish existing building	1950	50	1900	>	A	1	યાત slab on grade system.	Foundation is a reinforced concrete foundation a	Supply Main Building Reynolds Rd.	No issues were noted with the foundation. Demolish building.	undation, Concrete 6.0 m ²	STR, Structure, Fc	ral STR	RD Structu	DISTRIBUTION FULFORD	145 Fulford
		1950	50	1900	N/A	A			Storm drainage is to the adjacent swamp area.	Supply Main Building Reynolds Rd.	N/A	mwater 1	SER, Service, Stor	ral SER	RD Structur	DISTRIBUTION	144 Fulford
		1950	50	1900	N/A	Α			Parking is on Reynolds Road.	Supply Main Building Reynolds Rd.	N/A		PKG, Parking Lot	ral PKG	NTION Structur	DISTRIBUTION	143 Fulford
		1950	50	1900	N/A	Α	7	,	There is no driveway. Access is by way of a path	Supply Main Building Reynolds Rd.	ess path is well i	way 1	PTH, Access Path	ral PTH	NUTION Struct	DISTRIBUTION	142 Fulford
		1950	50	1900	N/A	A			Site is flat approximately 40m into the bushes.	Supply Main Building Reynolds Rd.	Ongoing maintenance is being performed by CRD personnel around the site. Ground cover is maintained on a regular basis.		SIT, Overall Site	ral SIT	RD Structural	DISTRIBUTION FULFORD	141 Fulford
	Replace severely corroded equipment				A	A				Supply Main Building Reynolds Rd.	uilding lights, heat and rece	3	SAF, Safety Code	al SAF	3UTION Electric	DISTRIBUTION	140 Fulford
	Replace lighting, heating, and receptacles in building.	2006	15	<1991	>	A	5			Supply Main Building Reynolds Rd.	Equipment severely corroded	teceptacles 1	ELC, Light, Heat, Ro	al ELC	₹D Electric	DISTRIBUTION	139 Fulford
		2016	25	<1991	Þ	Α	О		Electrical Panel main service	Supply Main Building Reynolds Rd.	External Mounted Panelboard. External mounted panel has safety concerns with moisture, access and security, vandalism and poor condition	el120/240 Volt 1 phase	ELC, 60 Amp Pane	al ELC	RD Electric	DISTRIBUTION FULFORD	138 Fulford
		2016	25	<1991	>	Α	5		Electrical service and BC Hydro meter	Supply Main Building Reynolds Rd.	Pole mounted Hydro Meter. Customer owned Pole mounted service has safety concerns with buried cable to feed building	omer owned pole, BC Hydro meter 120/240 Volt 1 phase	ELC, 60 Amp custor	al ELC	3UTION Electrical	DISTRIBUTION	137 Fulford
					N/A	A			Personal protective equipment	Supply Main Building Reynolds Rd.	Distilled water to be replaced on a regular basis.	Portable 1	SHO, Eyewash, Po	& Safety SHO	3UTION Health	DISTRIBUTION	136 Fulford
	All standpipes should have cap on outlet.				>	A	2		Standpipes along distribution main	Local Water Service	- All standpipes should have cap on outlet	12	STP, Standpipe	STP	RD Civil	DISTRIBUTION	135 Fulford
					>	A	2		Hydrants along distribution main	Local Water Service	- Hydrants should be exercised annually	4	HYD, Hydrant	ПАН	SUTION Civil	DISTRIBUTION FULFORD	134 Fulford
		2081	75	2006	>	δ	N 5		Distribution watermain	Local Water Service	- Watermain should have maintenance flushing schedule.	50 mm, PVC 937 m	WM, Watermain, 1	WM	RD Civil	DISTRIBUTION	133 Fulford
		2083	75	2008	D	5 A	5		Distribution watermain	Local Water Service	- Watermain should have maintenance flushing schedule.	1,126 m	WM, Watermain, 1	WM	RD Civil	DISTRIBUTION FULFORD	132 Fulford
		2081	75	2006	D	5 A	5		Distribution watermain	Local Water Service	- Watermain should have maintenance flushing schedule.	50 mm, PVC 46 m	WM, Watermain, 5	WM	RD Civil	DISTRIBUTION FULFORD	131 Fulford
		2055	75	1980	D	5 A	2 5		Distribution watermain	Local Water Service	- Watermain should have maintenance flushing schedule.	50 mm, PVC 68 m	WM, Watermain, 5	WM	RD Civil	DISTRIBUTION FULFORD	130 Fulford
based	Watermain to be replaced with new services (< 1 year). Cost ba on \$650 /m	2020	50	1970	D	5 A	2 5		Distribution watermain	Local Water Service	- Watermain should have maintenance flushing schedule.	100 mm, AC 4,391 m	WM, Watermain, 1	WM	RD Civil	DISTRIBUTION FULFORD	129 Fulford
	Watermain to be replaced with new services (+ 6 years). Cost based on \$500 /m	2030	50	1980	O	5	N 5		Distribution watermain	Local Water Service	- Watermain should have maintenance flushing schedule.	50 mm, AC 123 m	WM, Watermain, 5	WW	SUTION Civil	DISTRIBUTION FULFORD	128 Fulford
main ias a	Water service to 341 Reynolds Rd directly from RAW supply mawith no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has private treatment system.		50		D	5 A	5		Watermain service	341 Reynolds Rd	Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment system.	ater Service 1	SER, Service, Wat	SER	SUTION Civil	DISTRIBUTION	127 Fulford
nber,	Demolish and replace existing building with underground chamb		30		А	1 A	5 1		Building for raw water meter	from Weston Lake to PST Sunnyside	Building should be removed and underground chamber installed to contain raw water meter.	w, Meter 1	BLD, Building, Rav	BLD	RD Civil	DISTRIBUTION FULFORD	126 Fulford
		2083	75	2008	А	5 A	2 5		Supply watermain	from PST Sunnyside to WTP Fulford	Watermain should be flushed annually.	?aw, 150 mm, PVC, C900, Blue Brute ~730 m	WM, Watermain, R.	WM	SUTION Civil	DISTRIBUTION FULFORD	125 Fulford
	Air valves should be replaced	2083	75	2008	≻	5 A	2		Supply watermain	from Weston Lake to PST Sunnyside	Watermain should be flushed annually. Air valves (5 ea.) should be replaced	≀aw, 100 mm, PVC ~2,215 m	WM, Watermain, R	WM	3UTION Civil	DISTRIBUTION FULFORD	124 Fulford
ection	Strainer for water intake requires inspection. Underwater inspect on raw water intake should be done	2058	50	2008	A	4 A	1 4		Water intake strainer at water source	Weston Lake	Strainer recently maintained / cleaned. Need underwater diving inspections, never done.	r, stainless steel	INT, Intake Straine	INT	RD Civil	DISTRIBUTION FULFORD	123 Fulford
	All standpipes should have cap on outlet.	2058	50	2008	А	1 A	2		Standpipes along supply main	from Weston Lake to PST Sunnyside	All standpipes should have cap on outlet. Trail should have vegetation maintenance for access.	12	STP, Standpipe	STP	RD Civil	DISTRIBUTION FULFORD	122 Fulford
	Trail should have vegetation maintenance for access.			2008	>	3 A	2		Air valves on supply main	from Weston Lake to PST Sunnyside	All air valves on supply main not observed / visited - limited access. Trail should have vegetation maintenance for access.	5	VLV, Air Valves	VLV	RD Civil	DISTRIBUTION FULFORD	121 Fulford
									Distribution Fulford						_		
rojects (in 2019 dollars)	Recommended Upgrade / Replacement / Investigation Capital Pro	Anticipated Replacement / Refurbishment Date	Service Life	Date Installed	Capacity Adaptation	icality Data Confidenc	Physical Critic	Phy Con	System Description	Location	Comments	Equipment Quantity Description	types	ponent Object	et Name Cor	System Ass	Item Water S
Estimate	Capital Project Recommendations and Cost E	ife	Asset Service Lit			Asset Ratings			Equipment Location		tifier	Equipment Ider					

Capital Regional District - Salt Spring Island Electoral Area Strategic Asset Management Plans for Local Water Services FULFORD WATER SYSTEM - ASSET CONDITON ASSESSMENT

			Equipment Identifier		Equipment Location	Asset Ratings		As	Asset Service Life
No. Water System	Asset Name Component Object types	Equipment Description	Quantity	Location	System Description	Physical Criticality Data Confidence	Capacity Adaptation In	Date Installed	Anticipated Service Replacement / Life Refurbishment Date
150 Fulford	DISTRIBUTION Structural STR	STR, Structure, Finishes, Interior	6.0 m ² Interior of building is infested with rodents and is unsafe to enter. Building demolition is recommended.	Supply Main Building Reynolds Rd.	Interior finishes are not painted and are damaged.	5 1	A	1900	15 1915
151 Fulford	DISTRIBUTION Structural LAD	LAD, Stairs, Interior, Wooden	1 No issues were noted with the stairs.	Supply Main Building Reynolds Rd.	There is a small set of wooden stairs to access lower floor area.	3 1 A	N/A	1900	25 1925
152 Fulford	DISTRIBUTION Structural ELC	ELC, Heater	There is a portable electric heater in the building. 1 Building demolition is recommended.	Supply Main Building Reynolds Rd.	Heating of the building is by way of a portable space heater.	5 1 A	N/A	1900	25 1925
153 Fulford	DISTRIBUTION Structural SAF	SAF, Safety, Rodents	1 Building demolition is recommended.	Supply Main Building Reynolds Rd.	Rodent infestation makes the building unsafe to enter without personal protective equipment.	5 A	N/A	1900	25 1925
	1. Very Good: Asset is physically sound, performing its function as originally intended. rehabilitated. Only planned maintenance required	ng its function as originally intended. Generally a new or recently	1. Non-critical: Asset failure would not result in immediate problem.		A - Highly Reliable: Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete. Accuracy estimated +- 2%	ures, investigations and analysis, documented properly complete. Accuracy estimated +- 2%		>	Excellent: The asset has the capacity to meet long-term demand up to 10 years
	2. Good: Asset is physically sound, performing its function as originally intended Required maintenance costs as within acceptable standards but increasing. Asswithin mid stage of expected life.	Good: Asset is physically sound, performing its function as originally intended.Required maintenance costs as within acceptable standards but increasing. Asset has been used for some time but is within mid stage of expected life.	2. Asset Standby Equipment Available: Asset failure would result in replacement/repairs which could be completed relatively quickly.	in replacement/repairs which could be completed	B - Reliable: Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, i.e. some data is old, missing, extrapolated. Dataset is complete. Accuracy estimated +- 10%	ind analysis, documented properly but has t is complete. Accuracy estimated +- 10%		8	Good: The asset has the capacity to meet medium-term demand up to
Asset Physical Condition Rating:		3. Fair: Asset is showing signs of deterioration, performing at a lower level that originally intended. Some components are becoming physically deficient. Required maintenance costs exceed acceptable standards and increasing. Asset within the later stages of expected life.	Asset 3. No equipment redundancy: Asset failure could result in moderately prolonged service interruption. Rating:	tely prolonged service interruption. Asset standby	Confidence Grading System C - Uncertain: Data is based on sound records, procedures, investigations and analysis which is incomplete or substantially complete but up to 50% is extrapolated. Accuracy estimates the system of the confidence of the	es, investigations and analysis which is incomplete or plete but up to 50% is extrapolated. Accuracy estimated	Capacity <i>I</i> Rankii	Capacity Adaptation C -	Moderate: The asset has the capacity to meet short-term growth demands
	4. Poor: Asset is showing significant signs of deterioration, performance much lower than originally intended. Majority of asset is physically deficient. Required maintenar acceptable standards. Asset is approaching end of expected life	4. Poor: Asset is showing significant signs of deterioration, performance much lower than originally intended. Majority of asset is physically deficient. Required maintenance costs significantly exceed acceptable standards. Asset is approaching end of expected life	4. No Equipment Redundancy & Failure of equipment not monitored by alarm: Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online	tored by alarm: Asset Failure could cause prolonged าline	D - Very Uncertain: Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy estimated +- 40%	cursory inspections and analysis. Dataset curacy estimated +- 40%		D -	Borderline: The asset has the capacity to meet short-term growth demands but experiences some shortfalls
	5. Very Poor: Asset is physically unsound and/or not performing as originally intended. has higher probability of failure or failure is imminent. Maintenance coasts are unaccep refurbishment required	not performing as originally intended. Asset nt. Maintenance coasts are unacceptable. Replacement / major	5. No Equipment Redundancy & Failure of equipment not monitored by alarm and/or immediate Health & Safety Concerns: Asset Failure could cause prolonged system interruption. Significant time and cost to get system back online. Asset essential to health and safety requirements.	tored by alarm and/or immediate Health & Safety 1. Significant time and cost to get system back online.	E - Unknown: None or very little data held			m -	E - Fail: The asset capacity is not meeting its current demand and experiencing frequent shortfalls

APPENDIX D

FULFORD ASSET PHOTO OBSERVATION SHEETS



Local Water Service

FULFORD LOCAL WATER SERVICE

Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive

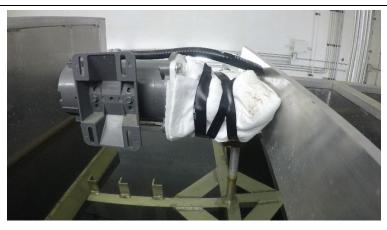


Description:

Fulford Water Treatment Plant

Observation:

Top of the rapid mix and flocculation tanks. Both mixer motors are leaking. Temporary fix implemented by wrapping the motors with fabric cloths. Drip trays are required to prevent oil from dripping into the rapid mix/flocculation tanks.



Description:

Fulford Water Treatment Plant

Observation:

Top of the rapid mix and flocculation tanks. Both mixer motors are leaking. Temporary fix implemented by wrapping the motors with fabric cloths. Drip trays are required to prevent oil from dripping into the rapid mix/flocculation tanks.



Description:

Fulford Water Treatment Plant

Observation:

Top of the dissolved air flotation (DAF) unit. Single unit only.

The WTP processing capacity is 4.5 L/sec (16.2 m³/hr).



Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

DAF duplex pressurization pumps and duplex compressor sitting on top of the air tank. Vertical pressurization vessel (blue) is seen on the left-hand side. The assembly is an integral part of the package WTP.



Description:

Fulford Water Treatment Plant

Observation:

DAF outlet manifold on the right-hand side in the background and air scour blower used for filter backwash in the foreground. DAF pressurization system on the left-hand side in the background is an integral part of the package WTP.



Description:

Fulford Water Treatment Plant

Observation:

Pressurized single UV disinfection module.



Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

DAF outlet manifold with the original valve actuators recently replaced with new Rotork actuators (blue).



Description:

Fulford Water Treatment Plant

Observation:

Effluent (filter) turbidimeters; one for each filter.



Description:

Fulford Water Treatment Plant

Observation:

Coagulant storage tank (right-hand side) and coagulant mix tank (left-hand side).



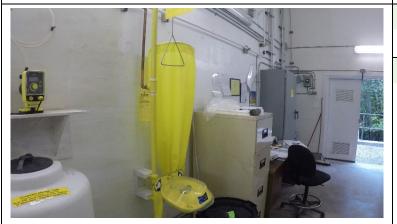
Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

Duplex chemical (coagulant) dosing pumps.



Description:

Fulford Water Treatment Plant

Observation:

Emergency eye wash and shower station located next to chemical storage/mix tanks.



Description:

Fulford Water Treatment Plant

Observation:

Coagulant storage tank (right-hand side) and coagulant mix tank (left-hand side).



Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

EOCP facility classification as a small water system.



Description:

Fulford Water Treatment Plant

Observation:

External tank collecting DAF float/scum.



Description:

Fulford Water Treatment Plant

Observation:

External tanks.



Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

Raw water influent flow meter.

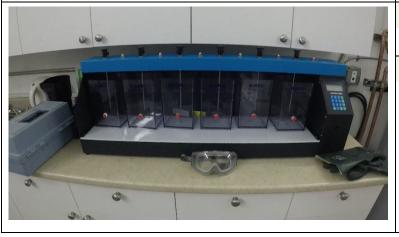


Description:

Fulford Water Treatment Plant

Observation:

Process control panel with HMI. The WTP has PLC control system for fully automatic operation.



Description:

Fulford Water Treatment Plant

Observation:

Jar testing equipment shared with Beddis WTP.



Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

Loop system for the clear well and chlorine monitoring equipment.



Description:

Fulford Water Treatment Plant

Observation:

Chlorine room with a single chlorine pump and eye wash station (green) on the right-hand side.



Description:

Fulford Water Treatment Plant

Observation:

Single chlorine recirculation pump.



Asset	Component	Location
WTP Fulford	Mechanical	203 South Ridge Drive



Fulford Water Treatment Plant

Observation:

Duplex effluent pumps enclosed in a sound insulation box.



Description:

Fulford Water Treatment Plant

Observation:

Duplex backwash and rinse water recycle pumps.



Description:

Fulford Water Treatment Plant

Observation:

Duplex effluent filters with automatic valves.

The WTP processing capacity is 4.5 L/sec ($16.2 \text{ m}^3/\text{hr}$).



Asset	Component	Location
WTP Fulford	Civil	203 South Ridge Drive



Eyewash and Drench Shower

Observation:

Eyewash and drench shower station too situated close to filing cabinet. Suggest to relocation filing cabinet.

CRD Personnel Observation:

No issues noted



Description:

Isopac Containers

Observation:

Containers to have dedicated storage and free of tripping hazards.

CRD Personnel Observation:

No issues noted



Description:

Fire Extinguisher

Observation:

Fire extinguisher is expired and requires inspection.

CRD Personnel Observation:



Asset	Component	Location
WTP Fulford	Electrical	203 South Ridge Drive



DAF Process Control Panel

Observation:

Safety concerns, no ability to reset motor overloads without opening the Control Panel

CRD Personnel Observation:

No issues noted



Description:

Electrical Main Service Panel

Observation:

Panel Directory needs to be finalized



CRD Personnel Observation:

No issues noted

Description:

DC UPS

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Asset	Component	Location
WTP Fulford	Electrical	203 South Ridge Drive



AC UPS

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Description:

Surge Suppression TVSS

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Description:

Process Scada and Communications

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Asset	Component	Location
WTP Fulford	Electrical	203 South Ridge Drive



Main Service and Radio Mast

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Description:

Fan Forced Unit Heater

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Description:

Site Main Incoming Electrical Service

Observation:

Panel Directory needs to be finalized

CRD Personnel Observation:



Asset	Component	Location
WTP Fulford	Electrical	203 South Ridge Drive



Fan Forced Unit Heater

Observation:

No issues noted



CRD Personnel Observation:

No issues noted

Description:

Booster Pump VFD's

Observation:

Eaton model MVX no longer supported.

CRD Personnel Observation:

No issues noted



Description:

Recycle Pump Starters

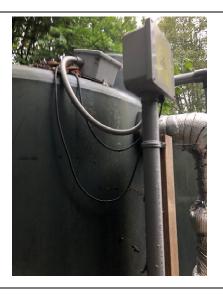
Observation:

No issues noted

CRD Personnel Observation:



Asset	Component	Location
WTP Fulford	Electrical	203 South Ridge Drive



Storage Tanks

Observation:

Onsite storage tanks have exposed cabling for level transducers and floats, all subject to vandalism.

CRD Personnel Observation:

No issues noted

Asset	Component	Location
WTP Fulford	Structural	203 South Ridge Drive

50



Description:

WTP Fulford (background) with PST South Ridge (foreground).

Observation:

Grounds are well maintained. Fencing is required around the entire site.

CRD Personnel Observation:

No issues noted



Description:

Side of WTP Fulford

Observation:

Main access route to building with no stairs for safe access. Trees to the rear of the building require trimming to avoid damage to the roof and adjacent finishes.

CRD Personnel Observation:



Asset	Component	Location
WTP Fulford	Structural	203 South Ridge Drive



Side of Water Treatment Building

Observation:

Plywood patch at electrical meter requires painting and replacement of failed caulking.

CRD Personnel Observation:

No issues noted



Description:

Side of Water Treatment Building

Observation:

Roof requires removal of moss.

Upper gutter requires replacement due to damage.

CRD Personnel Observation:

No issues noted



Description:

Rear of Water Treatment Building

Observation:

Rainwater from roof has eroded the soils away from the slab on grade.

CRD Personnel Observation:

No issues noted



Asset	Component	Location
WTP Fulford	Structural	203 South Ridge Drive



Front of Water Treatment Building

Observation:

Replacement of door alarm device and installation of weather stripping and/or door mutes is required to eliminate false alarms in stormy weather.

CRD Personnel Observation:

No issues noted



Description:

Inside Water Treatment Building

Observation:

Fire extinguishers, emergency eyewash, and emergency lighting equipment are serviced on a regular basis.

CRD Personnel Observation:

No issues noted



Description:

Inside Water Treatment Building

Observation:

Support for a lifting apparatus is required at ceiling level to lift the 80lb lid for the Saturator. Support for a confined space entry apparatus is required over the DAF treatment system to accommodate entry for cleaning and servicing.

CRD Personnel Observation:

No issues noted



Asset	Component	Location
WTP Fulford	Structural	203 South Ridge Drive



WTP Fulford (background) with PST South Ridge (foreground)

Observation:

Grounds are well maintained. Fencing is required around the entire site.

CRD Personnel Observation:

No issues noted



Description:

Front of Pump Station Building

Observation:

No issues noted

CRD Personnel Observation:

No issues noted



Description:

Side of Pump Station Building

Observation:

Roof requires removal of moss.

CRD Personnel Observation:

No issues noted



Asset	Component	Location
WTP Fulford	Structural	203 South Ridge Drive



Rear of Pump Station Building

Observation:

Roof requires removal of moss. Fencing is required to protect tampering of valves at adjacent tanks.

CRD Personnel Observation:

No issues noted



Description:

Front of Pump Station Building

Observation:

Replacement of door alarm device and installation of weather stripping and/or door mutes is required to eliminate false alarms in stormy weather.

CRD Personnel Observation:

No issues noted



54

Description:

Interior of Pump Station Building

Observation:

Fire extinguishers, emergency eyewash, and emergency lighting equipment are serviced on a regular basis.

CRD Personnel Observation:



Asset	Component	Location
WTP Fulford	Structural	203 South Ridge Drive

55



Description:

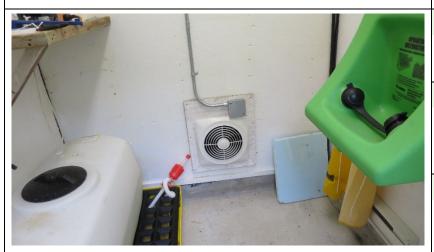
Inside of chlorine room

Observation:

Eyewash station is serviced on a regular basis. There is no hot water to temper the water.

CRD Personnel Observation:

No issues noted



Description:

Chlorine Room in Pump Station Building

Observation:

Inside of chlorine room. Exhaust fan is functional. There is a chlorine containment spill tank installed.

CRD Personnel Observation:



Asset	Component	Location
WTP Fulford	Mechanical	195 South Ridge Drive



Fulford Water Reservoir

Observation:

View of the 80,000 Imp. gallon (360 m³) bolted steel water tank at an elevation of approximately 90 masl.



Description:

Fulford Water Reservoir

Observation:

Side hatch on the wall of the 80,000 lmp. gallon (360 m³) bolted steel water tank.



Description:

Fulford Water Reservoir

Observation:

Access to the top of the 80,000 Imp. gallon (360 m³) bolted steel water tank.



Asset	Component	Location
WTP Fulford	Mechanical	195 South Ridge Drive



Fulford Water Reservoir

Observation:

Access to the top of the 80,000 Imp. gallon (360 m³) bolted steel water tank.

Asset	Component	Location
WTP Fulford	Structural	195 South Ridge Drive



Description:

RES Fulford packaged reservoir tank

Observation:

Grounds are well maintained. Fencing is required around the entire site.

CRD Personnel Observation:

No issues noted



Description:

Access path from school below.

Observation:

Grounds are well maintained.

CRD Personnel Observation:

No issues noted



Asset	Component	Location
WTP Fulford	Structural	195 South Ridge Drive



Farm side of reservoir.

Observation:

Farmers fence beside tank is damaged and not adequate to provide security at tank. Fencing is required around the entire site.

CRD Personnel Observation:

No issues noted



Description:

Access to ladder.

Observation:

Security hatch at the bottom of the access ladder requires new lock.

CRD Personnel Observation:

No issues noted

Asset	Component	Location
WTP Fulford	Mechanical	Reynolds Rd



Description:

Raw Water Flow Meter Shed

Observation:

View of the shed housing a raw water meter and strainer assembly. The asset was previously used for chlorination of raw water supply. Currently, it is used for flow metering and leak detection in the raw water supply line.



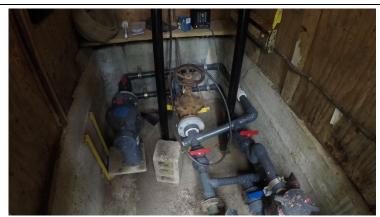
Asset	Component	Location
WTP Fulford	Mechanical	Reynolds Rd



Raw Water Flow Meter Shed

Observation:

Entrance door to the shed. The shed is in poor structural condition.



Description:

Raw Water Flow Meter Shed

Observation:

Shed interior. Signs of valve corrosion are visible.



59

Description:

Raw Water Flow Meter Shed

Observation:

Shed interior. Signs of valve corrosion are visible.



Asset	Component	Location
WTP Fulford	Mechanical	Reynolds Rd



Raw Water Flow Meter Shed

Observation:

Shed interior. Signs of valve corrosion are visible.

Asset	Component	Location
WTP Fulford	Electrical	Reynolds Rd



Description:

Site Main Incoming Electrical Service

Observation:

Service mounted external to building, exposed to vandalism.

Safety and Electrical code concerns with installation



No issues noted

Description:

Pole mounted BC Hydro meter

Observation:

Feeder burial depth not to minimum 450 mm, Safety and Electrical code concerns with installation

CRD Personnel Observation:





Asset	Component	Location
WTP Fulford	Structural	Reynolds Rd



Strainer Building.

Observation:

Roof is leaking and exterior finishes have exceeded life expectancy.

CRD Personnel Observation:

No issues noted



Description:

Ceiling of Strainer Building.

Observation:

Ceiling is rotting with signs of mould. Building should be demolished.

CRD Personnel Observation:

No issues noted



Description:

Interior of Strainer Building.

Observation:

Space heater is being used as baseboard heater is not operational.

CRD Personnel Observation:

No issues noted



Asset	Component	Location
PRS Sunnyside	Mechanical	122 Sunnyside Drive



Sunnyside Pump Station

Observation:

Top view of a booster duplex pump station feeding the water treatment plant. Access to the pump station is restricted due to confined space entry.

Asset	Component	Location
PRS Sunnyside	Civil	122 Sunnyside Drive



Description:

Railing

Observation:

Protective railing to be installed on the south side of the underground chamber, as there is an approximate 600 mm drop into a ditch on this side of the chamber.

CRD Personnel Observation:



Asset	Component	Location
PRS Sunnyside	Electrical	122 Sunnyside Drive



Site Main Incoming Electrical Service

Observation:

Annual house keeping, vacuum enclosure needs to be preformed along with kiosk maintenance plans.

CRD Personnel Observation:

No issues noted

Description:

Booster Pump VFD's

Observation:

Eaton model MVX no longer supported.



CRD Personnel Observation:

No issues noted

Description:

Pole mounted BC Hydro meter

Observation:

Tree trimming needs to be performed



CRD Personnel Observation:



Asset	Component	Location
PRS Sunnyside	Electrical	122 Sunnyside Drive



Scada and Radio communications

Observation:

Radio antenna needs tree trimming performed

CRD Personnel Observation:

No issues noted

Asset	Component	Location
PRS Sunnyside	Structural	122 Sunnyside Drive



Description:

PRS controls enclosure on concrete tank.

Observation:

Guardrail is not high enough to provide adequate fall protection.

CRD Personnel Observation:

No issues noted



Description:

Electrical meter on the power pole.

Observation:

Adjacent trees require trimming.

CRD Personnel Observation:



Asset	Component	Location
PRS Sunnyside	Structural	122 Sunnyside Drive



Access hatch to the tank.

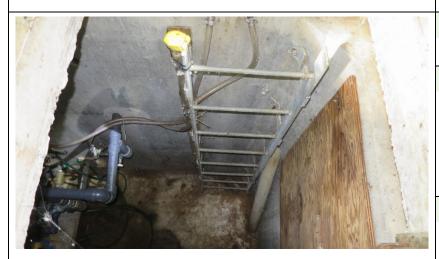
Observation:

Some rusting is occurring.

Recommend cleaning of rust and painting.

CRD Personnel Observation:

No issues noted



Description:

Ladder to the tank.

Observation:

Access ladder has safety post as per requirements. Access is considered confined space and requires lifting apparatus for personnel.

CRD Personnel Observation:

No issues noted

Asset	Component	Location
PST Sunnyside	Mechanical	Sunnyside Drive



Description:

Sunnyside PRV Station

Observation:

View of the PRV station in dual bypass/main configuration. In-line strainers are not installed in front of PRVs for protection from fine solids.



Asset	Component	Location	
PST Sunnyside	Mechanical	Sunnyside Drive	



Sunnyside PRV Station

Observation:

Signs of corrosion are visible on galvanized piping.



Description:

Sunnyside PRV Station

Observation:

Signs of corrosion are visible.



Description:

Sunnyside PRV Station

Observation:

Signs of corrosion are visible.



Asset	Component	Location	
PST Sunnyside	Mechanical	Sunnyside Drive	



Sunnyside PRV Station

Observation:

Signs of corrosion are visible.

Asset	Component	Location
PST Sunnyside	Civil/Health & Safety	Sunnyside Drive

67



Description:

Fire Extinguisher

Observation:

A fire extinguisher should be installed inside the building.

CRD Personnel Observation:

No issues noted



Asset	Component	Location	
PST Sunnyside	Structural	Sunnyside Drive	



Pumphouse.

Observation:

Moss control is required on the

CRD Personnel Observation:

No issues noted



Description:

Rear of pumphouse.

Observation:

Adjacent bushes require trimming.

CRD Personnel Observation:

No issues noted



Description:

Access door to pumphouse.

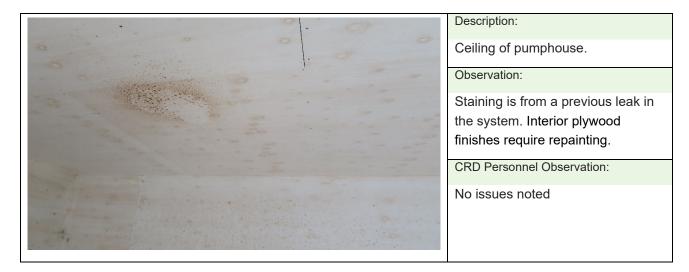
Observation:

Some rusting is occurring. Access door requires painting and replacement of weather stripping.

CRD Personnel Observation:



Asset	Component	Location	
PST Sunnyside	Structural	Sunnyside Drive	



69



Asset	Component	Location	
Distribution Fulford	Civil	Fulford Area	



Standpipe

Observation:

In general, all standpipes should have cap on outlet.

CRD Personnel Observation:

No issues noted



Description:

Eye Wash Station

Observation:

No issues noted. Raw water meter building is suggested to be decommissioned, as the building is deemed not safe.

CRD Personnel Observation:

No issues noted



70

Description:

Fire hydrant at 122 Sunnyside Drive

Observation:

Fire hydrants are in good condition but requires operational maintenance.

CRD Personnel Observation:

Fire hydrants have not been maintained.

APPENDIX E

FULFORD WATER SYSTEM RECOMMENDED CAPITAL PROJECTS TABLE



CRD Salt Spring Island Electoral Area FULFORD WATER SYSTEM RECOMMENDED CAPITAL PROJECTS

1		Condition Assessment Table Item No.	Asset Name	Evaluation Source	Description of Recommended Capital Project	Relevant Governing Principles	Timeline	Estimated Costs (in 2019 dollars)
1					• •			,
1								\$7,000
1	2	1	WTP Fulford	Condition Assessment		4, 6	Immediate to < 1 year	\$2,000
1	3	1	WTP Fulford	Condition Assessment	1	2 4 6	Immediate to < 1 year	\$5,000
								\$1,000
2					I			
1				Condition Assessment				
Secretary Conference Secretary Sec	5	2	WTP Fulford	CRD Staff Comments		1, 2, 4, 6	Immediate to < 1 year	\$8,000
registric Followspales and register of 2 in monetable for 1 geor 500 condition Assessment con	c	F	M/TD Fulford	Condition Assessment	·	2.6	Immediate to 41 year	¢E 000
1	- 0	3	W IP Fulloru	Condition Assessment		2, 0	ininediate to < 1 year	\$5,000
8 WFF Felland Condition Assessment Sequence 1, 6 Immediate to 4 a year 520.00 PS 9 PS WFF Felland Condition Assessment Sequence 1, 11 WFF Felland Condition Assessment Sequence 1, 12 Immediate 1, 12 Immediat	7	7	WTP Fulford	Condition Assessment	required.	2, 6	Immediate to < 1 year	\$200
9 WFF fallord Condition Assessment Frequency (Condition Assessment) Pales of the Condition Assessment of Trees analogy is required to a supering streaming and areas analogy is required to a supering streaming and areas analogy is required to a supering streaming analogy of the condition Assessment of the cond	0	0	M/TD Fulford	Condition Assessment		2.6	Immediate to 41 year	¢200
Second of Processing Conference on Association of Second of Processing Conference on Second on					<u> </u>			
moved damage to the config maternals and supporting maternals and suppo								\$200
15 48 WTF Failford Condition Accessment Very Metal Review (and accessment					· · ·			
12 13 16 17 18 16 18 18 18 18 18 18	11	43	WTP Fulford	Condition Assessment	Į.	4.6	Immediate to < 1 year	\$4,000
The and bush trimming required enough for an abush trimming required enough for an abush trimming required any ordinary to refer to the property of the proper		73	Wiii i dilord	Condition Assessment	- · · · · · · · · · · · · · · · · · · ·	7,0	ininiculate to < 1 year	Ş+,000
foliation Assessment A 77 WTP Fulford Condition Assessment 15 97 PRS Surryside Condition Assessment 16 97 PRS Surryside Condition Assessment 17 884 PRS Surryside Condition Assessment 18 87 PRS Surryside Condition Assessment 19 985 Surryside Condition Assessment 20 985 PRS Surryside Condition Assessment 20 985 PRS Surryside Condition Assessment 21 204 PRS Surryside Condition Assessment 22 205 PRS Surryside Condition Assessment 23 206 PRS Surryside Condition Assessment 24 109 PRS Surryside Condition Assessment 25 206 PRS Surryside Condition Assessment 26 207 PRS Surryside Condition Assessment 27 208 PRS Surryside Condition Assessment 28 208 PRS Surryside Condition Assessment 29 PRS Surryside Condition Assessment 20 PRS Surryside Condition Assessment 20 PRS Surryside Condition Assessment 21 20 PRS Surryside Condition Assessment 22 20 PRS Surryside Condition Assessment 23 20 PRS Surryside Condition Assessment 24 20 PRS Surryside Condition Assessment 25 20 PRS Surryside Condition Assessment 26 20 PRS Surryside Condition Assessment 27 20 PRS Surryside Condition Assessment 28 20 PRS Surryside Condition Assessment 29 PRS Surryside Condition Assessment 29 PRS Surryside Condition Assessment 20 PRS Surryside Condition Assessment 20 PRS Surryside Condition Assessment 20 PRS Surryside Condition Assessment 21 20 PRS Surryside Condition Assessment 22 20 PRS Surryside Condition Assessment 23 20 PRS Surryside Condition Assessment 24 20 PRS Surryside Condition Assessment 25 20 PRS Surryside Cond	12	60	WTP Fulford	Condition Assessment		2	Immediate to < 1 year	\$100
demonstration of the configuration of the configuration of the coloning materials and specified to prevent clamage to the cooling materials and specified to specifi					· ·			
Removal of moss building is required to operand the condition Assessment (Another Accessment) Removal of moss building is required to a province of the configurate rate of the operand to the configurate rate of the config	13	63	WTP Fulford	Condition Assessment	, ,	4.6	Immediate to < 1 year	\$4.000
prevent damage to the rooting materials and support of condition Assessment to						, -	, , , , , , , , , , , , , , , , , , , ,	1,7222
1					· · ·			
Second Comparison Replace impellers in pumps. 2, 1, 6 mmediate to < 1 year 5,000	14	72	WTP Fulford	Condition Assessment	ļ	4.6	Immediate to < 1 year	\$10,000
No protective barrier for a " 1 ft drop to the east of the electrical calabate." A A metal rail 2 memeritate to <1 year \$3,000		72	Wiii i dilord		Supporting structure. Replace real gatters.	7,0	ininiculate to < 1 year	710,000
Seas of the electrical cabinet. A 4 m metal rail 2 memediate to < 1 year 5,300	15	82	PRS Sunnyside	CRD Staff Comments		2, 4, 6	Immediate to < 1 year	\$6,000
Security					1 ·			
Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and winch to use at this station and others. Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE and others. Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE and Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE and Recommend purchasing portable CFE and Recommend purchasing portable CFE tripid and Recommend purchasing portable CFE and Recommend purchasing portable	16	83	PRS Sunnyside	Condition Assessment	I	2	Immediate to < 1 year	\$3,000
18			,				,	
Tree trimming required around Hydro	47	0.4	DDC Communida	Condition Assessment			luurus dista ta 11	¢5 000
18 8.5 PRS Sunnyside Condition Assessment Concening pole and BC Hydro meter Sundantification	1/	84	PRS Sunnyside	Condition Assessment		2, 4	Immediate to < 1 year	\$5,000
PRS Sunnyside	18	85	PRS Sunnyside	Condition Assessment		6	Immediate to < 1 year	\$2,000
Tree trimming is required to allow access to the PCS and to clear the electrical meter located on the algosent power pole. 1	40	0.0	DDC C	Condition Assessment			Lanca Pala Ia da Cara	¢2.500
the PCS and to clear the electrical meter coated on the adjacent power pole. Install a full height guardrail that still allows for access but prevents a fall hazard when working on the tank. 2 104 PSS sunnyside Condition Assessment working on the tank. 2 105 PSS sunnyside Condition Assessment working on the tank. 2 106 PSS sunnyside Condition Assessment working on the tank. 2 107 PSS sunnyside Condition Assessment working on the tank. 2 108 PST Sunnyside Condition Assessment equired. 2 2 Immediate to < 1 year Refer to Item No. 82 2 3 108 PST Sunnyside Condition Assessment equired. 3 4 109 PST Sunnyside Condition Assessment working on the tank. 4 4 109 PST Sunnyside Condition Assessment working on the tank. 4 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	19	86	PRS Sunnyside	Condition Assessment	Maintenance routine plan	Ь	Immediate to < 1 year	\$2,500
22 104 PRS Sunnyside Condition Assessment Provide Securing for a portable tri-pod device. 2, 4 Immediate to < 1 year Refer to Item No. 88	20	95	PRS Sunnyside	Condition Assessment	the PCS and to clear the electrical meter located on the adjacent power pole. Install a full height guardrail that still allows	6	Immediate to < 1 year	\$2,000
23 108 PST Sunnyside Condition Assessment Inspect Fire Extinguisher and replace if required. 2,6 Immediate to < 1 year \$200	21	104	PRS Sunnyside	Condition Assessment	- I	2	Immediate to < 1 year	Refer to Item No. 83
23 108 PST Sunnyside Condition Assessment Inspect Fire Extinguisher and replace if required. 2,6 Immediate to < 1 year \$200	22	405	DDC C	Constitution Assessment			Lancadia la cada cara	Defects the New May 04
23 108 PST Sunnyside Condition Assessment required. 2, 6 Immediate to <1 year 5200	22	105	PRS Sunnyside	Condition Assessment		2, 4	Immediate to < 1 year	Refer to Item No. 84
damage to the wall system and finishes. Maintenance required on surrounding vegetation, including branches around overhead telecommunications. 25 118 PST Sunnyside Condition Assessment overhead telecommunications. Removal of moss buildup is required to prevent damage to the roofing materials and supporting structure. 26 120 PST Sunnyside Condition Assessment supporting structure. Distribution Distribution Trail should have vegetation maintenance for a Distribution Distribution Condition Assessment access. All standpipes should have cap on outlet. Distribution Condition Assessment Should have cap on outlet. Distribution Condition Assessment Should be done Strainer for water intake requires inspection. Underwater inspection or raw water intake should be done Strainer for water water intake should be done Should be done Should be replaced Water service to 341 Reynolds Rd directly from RAW supply main with not reatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment System. Distribution Distribution Condition Assessment System. Distribution CRD Staff Comment System	23	108	PST Sunnyside	Condition Assessment		2, 6	Immediate to < 1 year	\$200
prevent damage to the roofing materials and supporting structure. 25	24	109	PST Sunnyside	Condition Assessment	damage to the wall system and finishes. Maintenance required on surrounding vegetation, including branches around overhead telecommunications.	6	Immediate to < 1 year	\$2,000
25 118 PST Sunnyside Condition Assessment supporting structure. 6 Immediate to < 1 year \$2,500 26 120 PST Sunnyside Condition Assessment Installation of a fire extinguisher is required. 2 Immediate to < 1 year \$500 27 121 Fulford Condition Assessment access. 6 Immediate to < 1 year \$2,000 28 122 Fulford Condition Assessment Official Condition Assessment All standpipes should have cap on outlet. 2, 4 Immediate to < 1 year \$500 29 123 Fulford CRD Staff Comments Should be done 2, 4, 6 Immediate to < 1 year \$10,000 30 124 Fulford Condition Assessment All valves should be replaced 4, 6 Immediate to < 1 year \$9,000 30 124 Fulford Condition Assessment All valves should be replaced 4, 6 Immediate to < 1 year \$9,000 31 127 Fulford CRD Staff Comment Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment System. 2, 3, 4, 6 Immediate to < 1 year \$5,000 32 129 Fulford Condition Assessment (< 1 year). Cost based on \$650 /m 2, 3, 4, 6 Immediate to < 1 year \$5,000 33 129 Fulford Condition Assessment (< 1 year). Cost based on \$650 /m 2, 3, 4, 6 Immediate to < 1 year \$5,000 34					1			
26 120	25	118	PST Sunnyside	Condition Assessment	l.	6	Immediate to < 1 year	\$2,500
Distribution 27								
27 121 Fulford Condition Assessment access. 6 Immediate to < 1 year \$2,000 28 122 Fulford Condition Assessment All standpipes should have cap on outlet. 2, 4 Immediate to < 1 year \$500 29 123 Fulford CRD Staff Comments Should be done 2, 4, 6 Immediate to < 1 year \$10,000 30 124 Fulford Condition Assessment Air valves should be replaced 4, 6 Immediate to < 1 year \$9,000 Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment system. 2, 3, 4, 6 Immediate to < 1 year \$5,000 Distribution Distribution Condition Assessment System. 2, 3, 4, 6 Immediate to < 1 year \$5,000 Watermain to be replaced with new services (< 1 year). Cost based on \$650 /m 2, 3, 4, 6 Immediate to < 1 year \$2,900,000	26	120	-	Condition Assessment	·	2	Immediate to < 1 year	\$500
Distribution Fulford Condition Assessment All standpipes should have cap on outlet. 2, 4 Immediate to < 1 year \$500 Strainer for water intake requires inspection. Underwater inspection on raw water intake phone of the properties of the propertie	27	121		Condition Assessment		6	Immediate to < 1 year	\$2,000
Strainer for water intake requires inspection. Underwater inspection on raw water intake should be done 2, 4, 6 Immediate to < 1 year \$10,000 Distribution Fulford Condition Assessment Ondition Assessment Air valves should be replaced Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment Distribution D			Distribution				·	
Distribution Condition Assessment CRD Staff Comments Should be done 2, 4, 6 Immediate to < 1 year \$10,000 to 1 year \$10,000 to 2, 4, 6 Immediate to < 1 year \$9,000 to 1 year \$9	28	122	Fulford	Condition Assessment	·	2, 4	Immediate to < 1 year	\$500
29 123 Fulford CRD Staff Comments should be done 2, 4, 6 Immediate to < 1 year \$10,000 cm 30 124 Fulford Condition Assessment Air valves should be replaced 4, 6 Immediate to < 1 year \$9,000 cm Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment system. 2, 3, 4, 6 Immediate to < 1 year \$5,000 cm Distribution Distribution Dis			Distribution	Condition Assessment	1			
Distribution Fulford Condition Assessment Air valves should be replaced 4, 6 Immediate to < 1 year \$9,000 Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment system. 2, 3, 4, 6 Immediate to < 1 year \$5,000 Distribution	29	123			·	2, 4, 6	Immediate to < 1 year	\$10,000
Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if the homeowner has a private treatment Fulford CRD Staff Comment system. 2, 3, 4, 6 Immediate to < 1 year \$5,000 Distribution Watermain to be replaced with new services Fulford Condition Assessment (< 1 year). Cost based on \$650 /m 2, 3, 4, 6 Immediate to < 1 year \$2,900,000	2.5			Constitution of	Attack to the first terms of the			4
127 Fulford CRD Staff Comment system. 2, 3, 4, 6 Immediate to < 1 year \$5,000 Particles Distribution Distri	30	124		Condition Assessment	Water service to 341 Reynolds Rd directly from RAW supply main with no treatment. Suggest CRD do further investigation to determine if water is to be treated or not or if		immediate to < 1 year	\$9,000
32 129 Fulford Condition Assessment (< 1 year). Cost based on \$650 /m 2, 3, 4, 6 Immediate to < 1 year \$2,900,000 Distribution	31	127		CRD Staff Comment	•	2, 3, 4, 6	Immediate to < 1 year	\$5,000
	32	129	Fulford	Condition Assessment	· ·	2, 3, 4, 6	Immediate to < 1 year	\$2,900,000
The result of the control of the con	33	135	Distribution Fulford	Condition Assessment	All standpipes should have cap on outlet.	6	Immediate to < 1 year	\$500





CRD Salt Spring Island Electoral Area FULFORD WATER SYSTEM RECOMMENDED CAPITAL PROJECTS

Item No.	Condition Assessment Table Item No.		Evaluation Source	Description of Recommended Capital Project	Relevant Governing Principles	Timeline	Estimated Costs (in 2019 dollars)
34	140	Distribution Fulford	Condition Assessment	Replace severely corroded equipment	2, 4, 6	Immediate to < 1 year	\$5,000
35	1	WTP Fulford	Condition Assessment CRD Staff Comments	Install security fencing around the facility	2, 5, 6	1 - 5 years	\$20,000
36	3	WTP Fulford	Condition Assessment CRD Staff Comments		2, 4, 5	1 - 5 years	\$20,000
37	12	WTP Fulford	Condition Assessment	Replace panel board directory, or Install	2 4 6	1 Events	¢12.000
38	14	WTP Fullord	Condition Assessment	larger electrical service Replace Siemens unit	2, 4, 6 2, 4, 6	1 - 5 years 1 - 5 years	\$12,000 \$5,000
39	20	WTP Fulford	Condition Assessment	Replace Panel Board Directory. Address safety concerns regarding resetting motor overloads		1 - 5 years	\$5,000
40	25	WTP Fulford	Condition Assessment	Eaton VFD, MVX model no longer supported . Investigate alternatives	2, 4, 6	1 - 5 years	\$5,000
41	27	WTP Fulford	Condition Assessment	Provide a secure vault for float and level transducer wiring	2, 4, 6	1 - 5 years	\$6,000
42	38	WTP Fulford	Condition Assessment CRD Staff Comments	Install perimeter fencing around WTP.	4, 5, 6	1 – 5 years	Refer to Item No. 1
43	42	WTP Fulford	Condition Assessment	Install door mutes and replace roller type alarm system.	2, 4, 6	1 – 5 years	\$3,000
44	47	WTP Fulford	Condition Assessment	There is a requirement for a washroom facility on site.	5	1 – 5 years	\$6,000
45	49	WTP Fulford	Condition Assessment	Install hot water tank to temper water provided for eye wash station.	5	1 – 5 years	\$3,000
46	54	WTP Fulford	Condition Assessment CRD Staff Comments	Install perimeter fencing around water reservoir.	2, 4, 5, 6	1 – 5 years	\$15,000
40	34	WIT TURIOTA	CND Starr comments	Positive drainage is required at the rear of the pipe entry shed. Consider tying rainwater downspout to the existing perimeter drainage		1 3 yeurs	\$13,000
47	66	WTP Fulford	Condition Assessment Condition Assessment	for the main part of the building.	4, 6	1 – 5 years	\$5,000
48	67	WTP Fulford	CRD Staff Comments	Install perimeter fencing around WTP.	2, 4, 5, 6	1 – 5 years	Refer to Item No. 1
49	68	WTP Fulford	Condition Assessment	Backfill is required at foundation slab Replace cement siding at electrical mast on	4, 6	1 – 5 years	\$1,000
50	70	WTP Fulford	Condition Assessment	facility. Install door mutes and replace roller type	4, 6	1 – 5 years	\$2,000
51	71	WTP Fulford	Condition Assessment	alarm system. Support for a lifting apparatus is required at	2, 6	1 – 5 years	\$5,000
52	78	WTP Fulford	Condition Assessment	ceiling level to lift the 80lb lid for the Saturator. Support for a confined space entry apparatus is required over the DAF treatment system to accommodate entry for cleaning and servicing. There is a requirement for a washroom facility on site. A mechanical exhaust system is	2, 4	1 – 5 years	\$25,000
53	79	WTP Fulford	Condition Assessment	required to extract blue green cyanotoxins produced by blue green algae in the summer months.	2, 4, 5	1 – 5 years	\$6,000
54	81	WTP Fulford	Condition Assessment	Install hot water tank to temper water provided for eye wash station.	2	1 – 5 years	\$3,000
55	90	PRS Sunnyside	Condition Assessment	Eaton VFD, MVX model no longer supported . Investigate alternatives	2, 4, 6	1 – 5 years	\$5,000
56	93	PRS Sunnyside	Condition Assessment	Replace T8 Lamps with LED Lighting.	2, 4, 6	1 – 5 years	\$300
57	107	PST Sunnyside	Condition Assessment	Install in-line strainers in front of PRV.	4, 5	1 – 5 years	\$5,000
58	107	PST Sunnyside	Condition Assessment	Replace piping Perimeter fencing is required to secure the	4, 6	1 – 5 years	\$7,000
59	113	PST Sunnyside	Condition Assessment	pump system.	2, 4, 5, 6	1 – 5 years	\$15,000
60	117	PST Sunnyside	Condition Assessment	Door requires painting and replacement of door sweep and weather stripping to prevent insects from entering the building. Prepare and paint all surfaces to the Master Painter Institute (MPI) Standards. Interior requires painting to prevent damage to the plywood finishes in case of a leak in the pumping system. Prepare and paint all surfaces to the Master Painter Institute (MPI)	5, 6	1 – 5 years	\$1,000
61	119	PST Sunnyside	Condition Assessment	surfaces to the Master Painter Institute (MPI) Standards.	5, 6	1 – 5 years	\$3,000
62	126	Distribution Fulford	Condition Assessment CRD Staff Comments	Demolish and replace existing building with underground chamber,	4, 6	1 - 5 years	\$25,000
63	139	Distribution Fulford	Condition Assessment	Replace lighting, heating, and receptacles in building.	2, 4, 6	1 - 5 years	\$1,000
64	128	Distribution Fulford	Condition Assessment	Watermain to be replaced with new services (+ 6 years). Cost based on \$500 /m	2, 3, 4, 6	6 + years	\$61,500
65	145	Distribution Fulford	Condition Assessment	Demolish existing building	2, 4, 6	6 + years	Refer to Item No. 126
66	146	Distribution Fulford	Condition Assessment	Demolish existing building	2, 4, 6	6 + years	Refer to Item No. 126
		Distribution					
67	147	Fulford Distribution	Condition Assessment	Demolish existing building	2, 4, 6	6 + years	Refer to Item No. 126
68	149	Fulford Distribution	Condition Assessment	Demolish existing building	2, 4, 6	6 + years	Refer to Item No. 126
69	150	Fulford	Condition Assessment	Demolish existing building	2, 4, 6	6 + years	Refer to Item No. 126





CRD Salt Spring Island Electoral Area FULFORD WATER SYSTEM RECOMMENDED CAPITAL PROJECTS

	Condition						
Item	Assessment			Description of Recommended	Relevant Governing		Estimated Costs
No.	Table Item No.	Asset Name	Evaluation Source	Capital Project	Principles	Timeline	(in 2019 dollars)
				There is a requirement for a washroom facility			
70	1	WTP Fulford	Condition Assessment	on site	2, 5	6 + years	\$6,000
71	18	WTP Fulford	Condition Assessment	Replace T8 Lamps with LED lighting	2, 4, 6	6 + years	\$3,000
72	29	WTP Fulford	Condition Assessment	Replace T8 Lamps with LED lighting	2, 4, 6	6 + years	\$1,000

