A picture containing sky, water, outdoor, rock

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First Nation

Infrastructure Maintenance Management Plan

**Water and Wastewater Assets**

LOGO

Month Day, Year | DRAFT

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1. Introduction

The following Maintenance Management Plan has been prepared for Sample First Nation in support of water and wastewater infrastructure assets on Lands.

The purpose of this document is to outline Maintenance plans, costs, and labour, equipment and material required to perform preventative and major maintenance tasks for Lands water and wastewater linear infrastructure.

In conjunction with this manual, operating manuals of the installed equipment must always be consulted prior to start-up and shut-down, as well as for routine operation, maintenance, inspection, and repair.

The operation and maintenance specifications contained in this document are provided for reference only and DO NOT provide a complete overview of safe operating conditions and requirements. It is the responsibility of each Operator to comply with all applicable regulations such as Workplace Hazardous Materials Information System (WHMIS) and Occupational Health and Safety Regulations.

The information contained in this manual is specific to the specified infrastructure on Lands.

1. Water and Wastewater Asset Summary

Sample First Nation water and wastewater infrastructure assets on Lands consist of the following:

|  |  |
| --- | --- |
| SANITARY SYSTEM COMPONENT | QUANTITY |
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|  |  |
| --- | --- |
| WATER SYSTEM COMPONENT | QUANTITY |
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The locations of these components are indicated on the GIS Vertisee site, accessible via the following link: xxx

* 1. List of Qualified Contractors

|  |  |  |
| --- | --- | --- |
| SERVICE | COMPANY | CONTACT |
|  |  |  |
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1. Available As-Constructed Drawings and Component Maintenance Manuals

Table - Available Drawings - Water and Wastewater

|  |  |  |
| --- | --- | --- |
| DRAWING SET NAME | ENGINEER/DESIGNER | DATE |
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Table - Maintenance Manuals - Water and Wastewater

|  |  |  |
| --- | --- | --- |
| MAINTENANCE MANUAL TITLE | ENGINEER/DESIGNER | DATE |
|  |  |  |
|  |  |  |
|  |  |  |

Digital copies of the above noted documents can be found in XX.

1. Health and Safety Policies

Table - Health and Safety Policies

REVIEW POLICIES AND ADD/REMOVE AS REQUIRED

|  |  |  |
| --- | --- | --- |
| ASSET | HEALTH AND SAFETY POLICY | REFERENCE DOCUMENT |
| WATER | OHS Guidelines Part 4: General Conditions   * Working Alone or In Isolation * Ergonomics (MSI) Requirements | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-04> |
| WATER | OHS Guidelines Part 8: Personal Protective Clothing and Equipment | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-08> |
| WATER | OHS Guidelines Part 18: Traffic Control | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-18> |
| SANITARY | OHS Guidelines Part 4: General Conditions   * Working Alone or In Isolation * Ergonomics (MSI) Requirements * Illumination | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-04> |
| SANITARY | OHS Guidelines Part 8: Personal Protective Clothing and Equipment | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-08> |
| SANITARY | OHS Guidelines Part 9: Confined Spaces | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-09> |
| SANITARY | OHS Guidelines Part 18: Traffic Control | <https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-18> |

1. Relevant Regulations, Policies, and Permits

Table - Policies and Regulations

REVIEW POLICIES AND ADD/REMOVE AS REQUIRED

|  |  |  |  |
| --- | --- | --- | --- |
| ASSET | POLICY / REGULATION | GOVERNING BODY | REFERENCE DOCUMENT |
| WATER | Water Sustainability Act | Provincial | https://www.bclaws.[gov](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/14015).bc.ca/civix/document/id/complete/statreg/14015 |
| WATER | Guidelines for Canadian Drinking Water Quality | Federal | https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html |

Table – Permits

|  |  |  |  |
| --- | --- | --- | --- |
| ASSET | PERMIT | GOVERNING BODY | REFERENCE DOCUMENT |
|  |  |  |  |

1. Preventative Maintenance Schedule

An Annual Maintenance Schedule is provided in Appendix A. The Annual Maintenance Schedule contains a list of all inspection and prevention maintenance tasks including:

* Activities with work orders numbered and grouped to indicate the work required for individual people or contractors;
* Person-hours for each activity shown weekly with a summary of total hours for the year.

1. Preventative Maintenance Budget

An Annual Budget is provided in **Appendix B**. The budget shows the Operation and Maintenance costs including:

* An estimate of the annual cost of routine preventative maintenance;
* An estimate of the annual minor preventative repair costs;
* An estimate of operating costs including fuel.

1. Work Orders

Work Orders for the Lands Infrastructure are provided in **Appendix C**.

Each Work Order describes:

* Step by step, simple instructions of the routine and special maintenance duties;
* The safe number of persons required, and the equipment, tools and materials needed;
* The frequency or level of service;
* Estimated number of person-hours involved in each task;
* Contracted services if required.
  1. Work Order Index

The following table lists all suggested work orders applicable to the water and wastewater infrastructure located on the Lands.

Table - Table of Work Orders

|  |  |  |  |
| --- | --- | --- | --- |
| ASSET | WORK ORDER | DESCRIPTION | FREQUENCY |
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* 1. Recommended Maintenance Equipment

A list of recommended tools/equipment and materials/supplies to conduct maintenance work outlined in the suggested work orders is provided below.

REVIEW EQUIPMENT AND ADD/REMOVE AS REQUIRED

|  |  |  |
| --- | --- | --- |
| SUGGESTED EQUIPMENT LIST | | |
| ❑ PPE (safety boots, glasses, gloves) | **❑** Hydrant Wrench | **❑** Compactor |
| ❑ Maintenance Truck | **❑** Hydrant Pump | **❑** Tamper |
| ❑ Traffic Cones | **❑** Valve Key | **❑** Mud Pump |
| ❑ Safety Harness | **❑** Valve Pick | **❑** Misc. Hand Tools |
| ❑ Spotlight | **❑** Meter Box Key | **❑** Compressor and blowpipe |
| ❑ Mirrors | **❑** 2.5” Valve | **❑** Shovels |
| ❑ Jet Cleaning Ball | **❑** Power Rodder | **❑** Wheelbarrow |
| ❑ Poly Rope | **❑** Inspection Log | **❑** Grease Gun |
| ❑ Manhole Jack | **❑** Control Panel Keys | **❑** Squeegee |
| ❑ Manhole Lifter | **❑** Wrench Set | **❑** Chlorine Test Kit |
| ❑ Hand Pump | **❑** Multimeter | **❑** Bobcat |
| ❑ Fire Hose | **❑** Backhoe |  |

|  |  |  |
| --- | --- | --- |
| SUGGESTED MATERIALS AND SUPPLIES LIST | | |
| ❑ Epoxy Paint (yellow, red) | ❑ Oil | ❑ Repair clamps |
| ❑ Paint brushes, rags | ❑ Lubricant | ❑ Spare parts (valves, o-rings, etc.) |
| ❑ Number stencils | ❑ Sand | ❑ Chlorine tablets |
| ❑ Cement/Grout | ❑ Gravel | ❑ Sodium thiosulphate |
| ❑ Fuel | ❑ Flow recording Strip | ❑ Pipe/repair sleeves/couplings, etc. |
| ❑ Coolant |  |  |

A list of task specific materials, supplies, and equipment can be found on individual work orders.

1. Reporting

Templates for Reporting are found in **Appendix D**. The reporting templates include layout for input such as:

* Routine inspection and special maintenance duties;
* Operation and Maintenance and monitoring data log;
* Operator’s name, training and certification information;
* Proposed O&M cost estimate for each task related to routine inspection/maintenance including:
  + Wages,
  + Service contractors,
  + Utility bills,
  + Repair/Replacement Costs.

Appendix A

Annual Maintenance Schedule

Appendix B

Annual Maintenance Budget

Appendix C

Work Orders

Appendix D

Reporting