Corporation of the Town of Collingwood

Sewage Pumping Station Design Guidelines

June 2026 (DRAFT)

TABLE OF CONTENTS

Appendices

1 General Requirements

1 General Requirements

1.1 Introduction

The Sewage Pumping Station Design Guidelines document is intended to establish a clear and consistent application of design requirements for sewage pumping station infrastructure for the Town of Collingwood. This document has been provided for use by Town staff, consulting engineers, designers, developers, and other proponents involved in the planning and design of new or the rehabilitation of existing sewage pumping station infrastructure.

Due to the varying nature of individual site conditions and requirements, these are to be considered as a guideline only, as conformity may not always be feasible. Innovative technological changes that improve or maintain the quality of the design on a life cycle cost basis may be considered at the discretion of the Town's Engineering Department.

These Guidelines describe the ideal preferences for pumping stations that can most readily be accommodated for new facility construction projects. When undertaking facility rehabilitation and upgrade projects, it is recognized that not all the specified Guidelines can be practically accommodated. As such, it is recognized that each project has its unique challenges and deviation from the design standards may be warranted in some instances. Any deviation from the minimum Town guidelines shall be specifically referred to by the Owner/Developer and/or their agent with a copy of written approval of the Town attached.

These guidelines are general in nature and do not relieve parties of their responsibility for submitting a completed product demonstrating competent engineering design in accordance with current Ministry of the Environment, Conservation and Parks (MECP) requirements and full compliance with all applicable legislation. These guidelines are to be read in conjunction with the Town's overall Development Standards.

It is the applicant's responsibility to obtain and check with the Town of Collingwood for new revisions. Copies are available from the Town or can be downloaded from the website at www.collingwood.ca.

1.2 Applicable Codes, Standards, and Guidelines

Sewage pumping station designs shall be in accordance with the more stringent of the most recent version of applicable codes and regulations, industry standards, and

Town of Collingwood's guidelines. Applicable external standards and guidelines include, but are not limited to:

- Ministry of the Environment, Conservation and Parks Design Guidelines for Sewage Works;
- MECP Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300);
- MECP's Standard Operating Policy for Sewage Works;
- National Fire Protection Association (NFPA) 820 – Standard for Fire Protection in Wastewater Treatment and Collection Facilities;
- Hydraulic Institute Standards;
- Canadian Standards Association (CSA) B139 – Installation Code for Oil Burning Equipment: as adopted by the Technical Standards and Safety Authority (TSSA);
- Ontario Building Code (OBC);
- Ontario Electrical Safety Code (OESC);
- Ontario Provincial Standards Specifications (OPSS) and Drawings (OPSD); and the
- Occupational Health and Safety Act (OHSA).

2 Design

2 Design

2.1 General

Sewage pumping station configuration shall be based on the most efficient layout of pumps and equipment for safe and cost-effective operation and maintenance of the facility. All pumping station control, monitoring and alarm equipment shall be integrated with the Town's SCADA system.

Equipment shall be selected from the Town's Equipment and Material List. Innovative technological changes that improve or maintain the quality of the design on a life cycle cost basis may be considered at the discretion of the Town's Engineering Department.

2.2 Preliminary Design Submission Requirements

A pre-design meeting shall be arranged with the Town and their operators to confirm station requirements and constraints, including design flows, station design type, and known site and operational constraints. The applicant is to submit a preliminary design report prior to detailed design, detailing the following at a minimum:

- Design criteria, including design flow, wet well volume, pump cycle times, and pipe velocities;
- System head curves;
- Pump information, including pump performance curves, make, and model;
- Site plan layout;
- Forcemain alignment; and
- Station layout.

The design shall incorporate a sufficient level of redundancy (e.g., pumps, primary and backup level control systems, etc.) such that failure of one component does not result in the failure of the system. Design solutions and selection of equipment shall consider reliability and suitability of handling all operating conditions and a life cycle cost (LCC) approach that includes factors beyond the initial purchase price of an asset. LCC costs include energy consumption, installation, maintenance, operational, replacement, and decommissioning costs.

2.3 Pumping Station Capacity

The firm capacity of sewage pumping stations shall not be less than the instantaneous peak design flow from the ultimate tributary area. Considerations shall be made to ensure the pumping station can accommodate future peak flows with minor modifications (e.g. upgrade or addition of pumps, motors, impellers, or forcemains).

The firm capacity of a sewage pumping station is defined as the pumping capacity of the facility when both the largest pump and largest forcemain (in cases where more than one forcemain exists) are out of service.

2.4 Site Considerations

When considering the site location of the sewage pumping station, the following shall be considered:

- All structures, including electrical and mechanical equipment, shall be protected from physical damage by the 100-year or regional design flood event (whichever is greater). Sewage pumping stations shall remain fully operational and accessible during the 100-year or regional flood event. Regulations and requirements of local, provincial, and federal agencies regarding flood plain obstructions must be considered.
- All buildings, wet wells, and valve chambers shall be designed to post-disaster requirements in accordance with the OBC.
- The sewage pumping station shall be readily accessible via a dedicated access road and sufficient parking space, during all weather conditions, for:
    - Emergency vehicles, including fire trucks;
    - Operations personnel access to all hatches, valves and chambers;
    - Sewer flushing truck access to the wet well, and emergency and maintenance storage tanks;
    - Vacuum truck access for cleaning of the wet well and emergency sewage haulage;
    - Forcemain inspection and cleaning;
    - Bypass pumping equipment (temporary pumps, generator, and piping to tanker trucks);
    - Fuel delivery truck for access to fuel fill station; and

- Large mobile cranes for stations with equipment weights that would require such vehicles for installation or removal.

- Protective bollards or other suitable devices around structures that could inadvertently be damaged by vehicles.

- Adequate space for snow clearing and storage on-site.

- Geotechnical and hydrogeological information, such as soil types and water table, and their impacts to project feasibility.

- Availability of utilities and services to the site. The developer shall be responsible for the connection of services to the sewage pumping station.

- Site drainage graded away from all structures with a minimum 2% slope.

- Exterior of the building and landscaping shall be designed to blend in with the surrounding area.

- Chain link fencing, 1.8 m high, with an inward swinging, lockable access gate. There shall be sufficient space to temporarily park in front of the gate without obstructing traffic on the roadway or sidewalk. In residential areas, the fencing shall be black vinyl coated.

- Exterior lighting for illumination of the site, panels and building exterior (if applicable) with zero spill of light beyond the property line.

- Authorized entry alarms with signal transmission to local authority.

- Odour and noise mitigation for sewage pumping stations near sensitive receptors.

2.5 Health and Safety

The design of all sewage pumping stations shall comply with all current health and safety guidelines and regulations. In addition, the requirements of this section also apply. It must be identified in the design report how the Town's operation and maintenance staff will be protected.

2.5.1 Confined Space

Sewage pumping stations shall be designed to eliminate confined spaces. If confined spaces can not be eliminated, all reasonable efforts must be made to minimize confined spaces and hazards. This includes valve stem extensions and operating nuts at the chamber ceiling slab level for valves located within confined spaces, proper ingress and egress, appropriate fall arrest, and retrieval safeguards. All

confined spaces must be properly identified in the design, and all equipment must be appropriately rated.

2.5.2 Fall Protection

Designs must address travel restriction, fall restriction, and fall arrest for work that may be required while working at heights. The design shall include 2 m tall, engineered post(s) as required. Posts are to be equipped with D-ring anchor points to which operators wearing harnesses can connect their safety lanyards.

2.5.3 Access and Egress

Access to below-grade structures shall be provided by personnel and equipment hatches complete with vertical access ladders and safety platforms. Refer to Sections 2.7.1 to 2.7.3 for details.

2.5.4 Separation of Spaces

Wet wells shall be physically separated from dry wells, valve chambers, and superstructures.

2.5.5 Atmospheric Hazards and Ventilation

All designs must identify atmospheric hazards, and assess these hazards with respect to emissions, and adequate ventilation. A combustible gas detection system is to be provided, where appropriate, within buildings and dry wells accessed via stairs. Hazardous gas monitoring in potentially hazardous areas shall be conducted using personal, portable devices in areas where permanent monitoring systems are not required.

2.5.6 Emergency Equipment

Emergency eyewash and deluge shower stations shall be provided in the vicinity of any chemical storage areas or where there are other potential exposure risks. The water supply should be tepid water and be compliant with American National Standards Institute (ANSI) Standard Z358.1. The water supply and eyewash/shower facilities shall be protected from freezing in the winter. All potable water lines are to include backflow preventers with isolation valves and testing ports.

2.5.7 Other Requirements

- All designs must integrate lock-out/tag-out requirements for all sources of energy. The location of disconnects shall be in the most logically safe location for access and operation.

- Proper measures to mitigate odour and noise to the environment and Town's operation staff should be considered.
- Adequate illumination for the interior and exterior of the sewage pumping station is required for worker safety.

2.6 Types of Sewage Pumping Stations

There are two major types of sewage pumping stations that may be considered by the Town, subject to design flows. The two major types are summarized below in Table 1.

Table 1: Summary of Sewage Pumping Station Types

Design Type	Design Flow	General Layout	Emergency Storage (Minimum)	Number of Pumps
1	60 L/s or less	Submersible wet well pumping station with single forcemain complete with an above-grade, exterior electrical panel, and outdoor, self-contained, standby generator	One-hour peak flow storage on-site under peak flow conditions	Minimum of two pumps (1 duty, 1 standby) with consideration for solids handling, and soft starters or Variable Frequency Drives (VFDs)
2	Greater than 60 L/s	Wet well/dry well pumping station configuration with a divided wet well and single forcemain. The pumping station will be complete with an above-grade building housing electrical equipment and controls, and an outdoor, self-contained standby generator.	One-hour peak flow storage on-site under peak flow conditions	Minimum of three pumps (lead/lag/standby) with consideration for various pump configurations (multiple duty/standby or lead/lag/standby), to be determined in consultation with Town, and VFDs

2.6.1 Type 1

Type 1 sewage pumping stations are in-ground submersible pumping stations comprised of a wet well with a minimum of two pumps (1 duty, 1 standby), each sized for the peak instantaneous design flow, and an outdoor control panel and standby generator. Grinder pumps or pumps with chopper-style impellers may be considered. These stations must provide one hour of emergency storage time within the wet well under peak flow condition. Refer to Appendix A for a schematic of the pumping station type and general configuration.

In addition to all other applicable design criteria set out in this document, the following sections apply to Type 1 stations.

2.6.1.1 Wet Well and Pumping Station Access

The design shall provide paved access for vehicular access to the sewage pumping station. Access roads shall have a minimum paved surface width of 5 m, and must be able to accommodate a vehicle with hammerhead style turnaround for pickup truck sized vehicles, sewage haulage trucks, and diesel fuel trucks. A concrete or asphalt surface shall be installed around the top of the wet well at a minimum width of 1.5 m.

The wet well shall be accessed via aluminum access hatches, appropriately sized for removal of personnel and pumps. Sockets or posts for davits are to be provided at the wet well to enable retrieval of personnel or equipment. Refer to Section 2.7 for additional requirements to the wet well.

To facilitate the changing of floats, a lockable junction box equipped with terminal strip is to be installed adjacent to the wet well. Separate lockable junction boxes are to be provided for the sewage pumps. Should there be different voltages, the designer shall ensure separate junction boxes are provided. EYS seals and any other related components shall be installed between junction boxes and control panels.

Adequate exterior lighting must be provided to illuminate both the wet well access area and the electrical panel. Lighting shall not spill past site property lines.

All equipment located in the wet well shall be suitable for installation in a Class 1, Zone/Division 1 environment, in accordance with the OESC and NFPA 820.

2.6.1.2 Valve Chamber

A separate valve chamber shall be installed to house the pump isolation and check valves, discharge flow meter, forcemain and forcemain bypass piping connection, and a means for gravity drainage back to the wet well should there be any accumulation of sewage within the chamber. All pump discharge and isolation valves shall include valve stem extensions and 50 mm square operating nuts to the top of the chamber ceiling for valve operation without confined space entry. All electrical devices are to be located above the valve chamber's flood level or be waterproof rated.

All equipment located in the valve chamber shall be suitable for installation in a Class 1, Zone/Division 2 environment, in accordance with the OESC and NFPA 820.

2.6.1.3 Control Panel

A standalone, outdoor control panel housing electrical and process controls shall be provided with a weatherproof, NEMA 4X lockable enclosure. If the sewage pumps are equipped with soft starters or VFDs, heating and cooling shall be provided. Enclosures shall include LED lighting and general-purpose receptacles.

The control panel is to be a minimum of 1.5 m away from the edge of the wet well or venting system to ensure the area is not classified under NFPA 820. The panel is to be mounted such that the bottom of panel is no less than 0.5 m above grade.

2.6.2 Type 2

Type 2 sewage pumping stations are stations with a wet well/dry well configuration, a superstructure housing electrical equipment and controls, and an outdoor standby generator. Type 2 sewage pumping stations shall be equipped with a minimum of three pumps (lead/lag/standby), with firm capacity for the peak instantaneous design flow provided with the largest pump out of service. These stations must provide one hour of emergency storage time within the wet well under peak flow condition. Refer to Appendix A for a schematic of the pumping station type and general configuration.

In addition to all other applicable design criteria set out in this document, the following sections apply to Type 2 stations.

2.6.2.1 Site Access

The design shall provide paved access for vehicular access to the sewage pumping station. Access roads shall have a minimum paved surface width of 5 m, and must be able to accommodate a vehicle with hammerhead style turnaround for pickup truck

sized vehicles, sewage haulage trucks, and diesel fuel trucks. A concrete surface shall be installed around the top of the wet well at a minimum width of 1.5 m.

2.6.2.2 Wet Well

The wet well shall be a two-cell rectangular wet well, divided by a wall fitted with a sluice gate. The wet well will receive flows from an inlet channel equipped with a grinder complete with a guide rail system. Dedicated sluice gates shall be provided along the inlet channel to control and isolate flows to the cells for cleaning and maintenance procedures.

The wet well shall be accessed via aluminum access hatches, appropriately sized for removal of personnel and the grinder. Sockets or posts for davits are to be provided at the wet well to enable retrieval of personnel or equipment. Refer to Section 2.7 for additional requirements to the wet well.

Junction boxes with terminal strips shall be provided in the wet well for the removal of the floats and grinder. EYS seals and any other related components shall be installed in compliance with the OESC.

All equipment located in the wet well shall be suitable for installation in a Class 1, Zone/Division 1 environment, in accordance with the OESC and NFPA 820.

2.6.2.3 Dry Well

The dry well will house the sewage pumps, process piping, valves, metering equipment, and forcemain bypass piping connection. For the dry well layout, the design must consider the most efficient design for the station based on:

- Number of pumps (minimum of 3)
- Configuration (lead/lag/standby)
- Use of VFDs

Dry well access hatches shall be provided following the same criteria for wet well access hatches described in Section 2.7.1.

The bottom of the dry well shall slope towards a sump equipped with a sump pump and a flood alarm. Refer to Section 2.8 for further details for the sump pump.

All equipment located in the dry well and areas that are not physically separated from the dry well shall be suitable for installation in a Class 1, Zone/Division 2 environment, in accordance with the OESC and NFPA 820.

2.6.2.4 Superstructure and Electrical/Control Room

The design shall ensure the exhaust vent from the wet well is not pointing towards the building, and ventilation for the building is on the opposite side from the wet well.

The superstructure will be adjacent to the dry well and will include, at minimum, an electrical/control room and a physically separated stairwell providing access to the dry well. Separate entrance doors shall be provided for each area. The electrical/control room is required to be physically separated from any access point to the dry well, including access hatches for equipment removal. Upon request of the Town, the design of the superstructure may include an office/work area and washroom.

The superstructure shall be connected to a water service, complete with water meter and a backflow preventer upstream of potential connection points for hoses and fixtures. At a minimum, an emergency eyewash and mop sink is to be provided.

No windows are permitted in the superstructure.

2.7 Inlet Channel and Wet Well Design

For Type 1 pumping station wet wells, the inlet sewer shall have a minimum horizontal distance of two times the volute diameter away from the pump centre line to ensure flows do not discharge directly over the submersible sewage pumps. The inlet sewer for all sewage pumping stations shall include an isolation valve, stainless steel stem extension, and 50 mm square operating nut at grade level to isolate the facility. Process valves along the discharge piping are not permitted within the wet well.

For Type 2 pumping stations, the flows from the inlet sewer shall discharge into an inlet channel equipped with a grinder. Stainless steel sluice gates along the inlet channel shall be used to control flows to a two-cell wet well. The separation wall between cells shall be fitted with a stainless steel sluice gate. Sewage pumps and process valves are not permitted in the divided wet well.

When sizing the wet wells for both Type 1 and Type 2 stations, the following apply:

- Top slab at least 300 mm above finished grade;
- Minimum wet well cross-sectional area of 4.9 m^2;
- Maximum wet well fill time of 30 minutes under average daily flow conditions to minimize potential odours;

- Minimum pump cycle time of 10 minutes for each pump and maximum of 6 pump starts per hour, or as recommended by the pump manufacturer;
- Minimum distance of 300 mm between start and stop levels for each pump;
- Minimum distance of 200 mm between the primary pump start level and the backup float; and
- Dimensional requirements to minimize turbulence and provide adequate emergency storage.

If possible, benching of all wet well floors shall slope at 60-degrees to prevent accumulation of solids. If not feasible, benching of the wet well floors shall be a minimum of 1:1. The cross-sectional area of the wet well above the benching shall remain constant.

Wet well levels and sewage pump controls will be controlled primarily via ultrasonic level sensors. Floats, complete with anti-sway hardware, shall be provided as backup.

At a minimum, passive ventilation shall be provided via 100 mm diameter stainless steel gooseneck pipes complete with insect screens, terminating above grade. Mechanical ventilation may be required, at the Town's discretion.

2.7.1 Access Hatches

Access to wet wells will be directly from outdoors through aluminum access hatches with stainless steel hinges and secondary fall protection grating. Hatches shall be spring assisted, and lockable by padlock. The hatch must be sized appropriately for removal of personnel and equipment and shall be able to lock in place in the vertical position when opened. At a minimum, hatch openings shall be no less than 750 mm by 900 mm for personnel entry access.

Sockets or posts for davits are to be provided at the hatch to enable retrieval of personnel or equipment. Sockets and posts shall be compatible with the Town's lifting equipment.

All outdoor hatches must have a concrete or paved area extending a minimum of 1 m around two sides of the hatch for safe access.

2.7.2 Vertical Access Ladders

Vertical access ladders shall continuously extend from the bottom of the wet well to the underside of the personnel entry hatch and be of anodized, non-slip aluminum. All other components of the access ladder, including mounting hardware, shall be at

least 316 stainless steel. Double-handle telescopic side rail extensions are to be provided at all personnel entry access hatches for safe entry. The access ladder must be a suitable distance away from the inlet sewer.

2.7.3 Service and Safety Platforms

A service platform is to be provided at a maximum of 300 mm above the obvert of the inlet sewer. Intermediary safety platforms are required in wet wells greater than 5 m in depth. All platforms are to be constructed with suitable materials for wet and/or corrosive conditions such as stainless steel or fiber-reinforced plastic.

All grating is required to support a uniform live load of 4.8 kPa and a concentrated load of 2.5 kN over an area of 300 mm by 300 mm. Grating shall also be capable of withstanding the impact of 3.0 kN with a permanent deflection not exceeding 1/150 of the span.

Guardrails and toe boards are to be provided along all open edges for the platforms.

2.8 Pumps

A minimum of two sewage pumps must be provided to achieve the peak instantaneous design flow. In cases where only two pumps are installed, both pumps shall be of the same size to ensure the sewage pumping station can accommodate the design flow with either pump out of service. The pump quantity and sizing shall allow optimum performance of the station during the initial years of operation and ultimate phase which is to be achieved with minimal modifications to the initial sewage pumping station.

Sewage pumping station designs shall be based on system-head calculations and curves for three conditions using the following Hazen-Williams factor “C”:

a) Low sewage level in the wet well, C = 120;
b) Medium sewage level over normal operating range in the wet well, C = 130; and
c) Overflow sewage level in the wet well, C = 140.

The system head curves shall consider all static head losses, major losses, and minor losses. System-head curve b) shall be used for selection of the pump and motor. The selected pumps are required to operate satisfactorily over the full range between conditions a) and c).

The selected pumps must be subject to hydrostatic and operating tests by the manufacturer.

Type 1 sewage pumping stations are to be equipped with submersible sewage pumps equipped with thermal and leak detection devices. Submersible pumps must be equipped with stainless steel guide rails to facilitate removal of the pumps without personnel entry into the wet well. Guide rails extending more than six metres shall have intermediate guide brackets to prevent separation. All Type 1 stations shall be equipped with a hydraulic flush valve.

Type 2 sewage pumping stations are to be equipped with dry-pit sewage pumps complete with manually activated backflow actuators on the pump discharge check valve. If the pumps are in a lead/lag/standby configuration, each pump shall have a time totalizer and the ability to interchange the lead and lag pumps shall be provided automatically and manually. Considerations shall be made for potential vibration impacts during pump operations and harmonic impacts if they are equipped with VFDs.

Sewage pumps must be capable of passing solids of at least 80 mm in diameter.

Each sewage pump shall have an individual intake and operate with a positive suction head under normal operating conditions. If the pumping station discharges directly to the Wastewater Treatment Centre or another sewage pumping station, the sewage pumps are to be equipped with VFDs. Harmonic analysis must be conducted for all VFDs.

Sump pumps in the valve chamber of Type 1 sewage pumping stations, or in the dry well of Type 2 sewage pumping stations, shall discharge back to the wet well complete with an isolation valve and check valve. Sump pumps are to be sized for the event of a pump seal failure. Alternatively, and if the design permits, sumps can drain by gravity back to the wet well, provided suitable valving is provided to prevent sewer gases from the wet well entering the valve chamber/dry well.

2.9 Emergency Storage

Emergency storage is defined as the wet well volume between the high-water level alarm and surcharge elevation (overflow or lowest basement elevation). All sewage pumping stations are to have one hour of emergency storage within the wet well structure, and a total of two hours of emergency storage when combining the emergency storage of the wet well and the volume in the upstream sewers. The lowest connection point and overflow elevation, if applicable, must be identified in the design report.

2.10 Piping and Valve Design

All process piping is to be 316 Stainless Steel and a minimum of Schedule 10 and be sized in accordance with MECP recommended ranges for suction and discharge piping velocities. The designer shall confirm the required pipe class based on the design requirements.

Where possible, the design shall avoid the use of “T” configurations. To facilitate cleaning, pipe flushing connections are to be provided with a minimum diameter of 50 mm.

Pressure gauges shall be provided at each pump discharge pipe, located above the flood line. Air release valves shall be provided, where required, at high points of the discharge piping. Each dry-pit pump should have a dedicated air release valve on the individual pump discharge headers. Hydraulic transient impacts during worst case scenarios (power failure, check valve slam and/or equivalent) must be considered and provisions for surge control shall be provided. The recommend surge control, where required, should be sized to predict the transient impact to be within the manufacturer’s allowable limits, which shall be demonstrated by applicable simulations.

Plug and non-slam check valves are to be installed downstream of the sewage pumps in the valve chamber or dry well for flow isolation and prevention of backflow to the pumps. All valves are to be installed in a horizonal position. A plug valve shall be placed at the common discharge header prior to leaving the station to isolate the forcemain. All valves shall be supplied with fully restrained dismantling coupling on the adjacent spool pipe.

A flanged magnetic flowmeter is to be installed along the common discharge header. Isolation plug valves on both ends of the flowmeter and piping bypassing the flowmeter are to be provided to keep the facility operational while the flowmeter is being serviced.

Forcemains shall be constructed of HDPE or PVC . The designer shall confirm the required pipe class based on the design requirements. The sewage pumping station system must achieve a minimum velocity of 0.6 m/s within the forcemain for self-cleansing.

A forcemain bypass connection terminating above grade shall be provided. Refer to Section 2.11 for details. Provisions should be made to allow the drainage of the forcemain into the wet well.

All valves, including the sluice gates in Type 2 stations, are to be accessible at grade level via extension stems and operators. All appurtenances and connectors shall be corrosion resistant and compatible with the piping material.

2.11 Forcemain Bypass Connection

A bypass connection complete with isolation valve shall be provided within the valve chamber and dry well for Type 1 and Type 2 sewage pumping stations, respectively. Bypass piping shall be 316 stainless steel and extend from the common discharge header in the valve chamber or dry well to terminate 1 m above finished grade with a quick connect coupling. Isolation valves in the valve chamber or dry well shall be equipped with an extension stem to finished grade, and a nut operator housed within a floor box.

Designs shall include provisions for drainage and prevention of air accumulation in the bypass piping.

2.12 Odour Control

Passive odour control is to be provided for the wet well vent pipes. For pumping stations located in residential areas, or areas that are within 100 metres of residential dwellings or commercial/institutional establishments, an adequately sized odour control unit may be required, at the discretion of the Town.

2.13 Heating and Ventilation

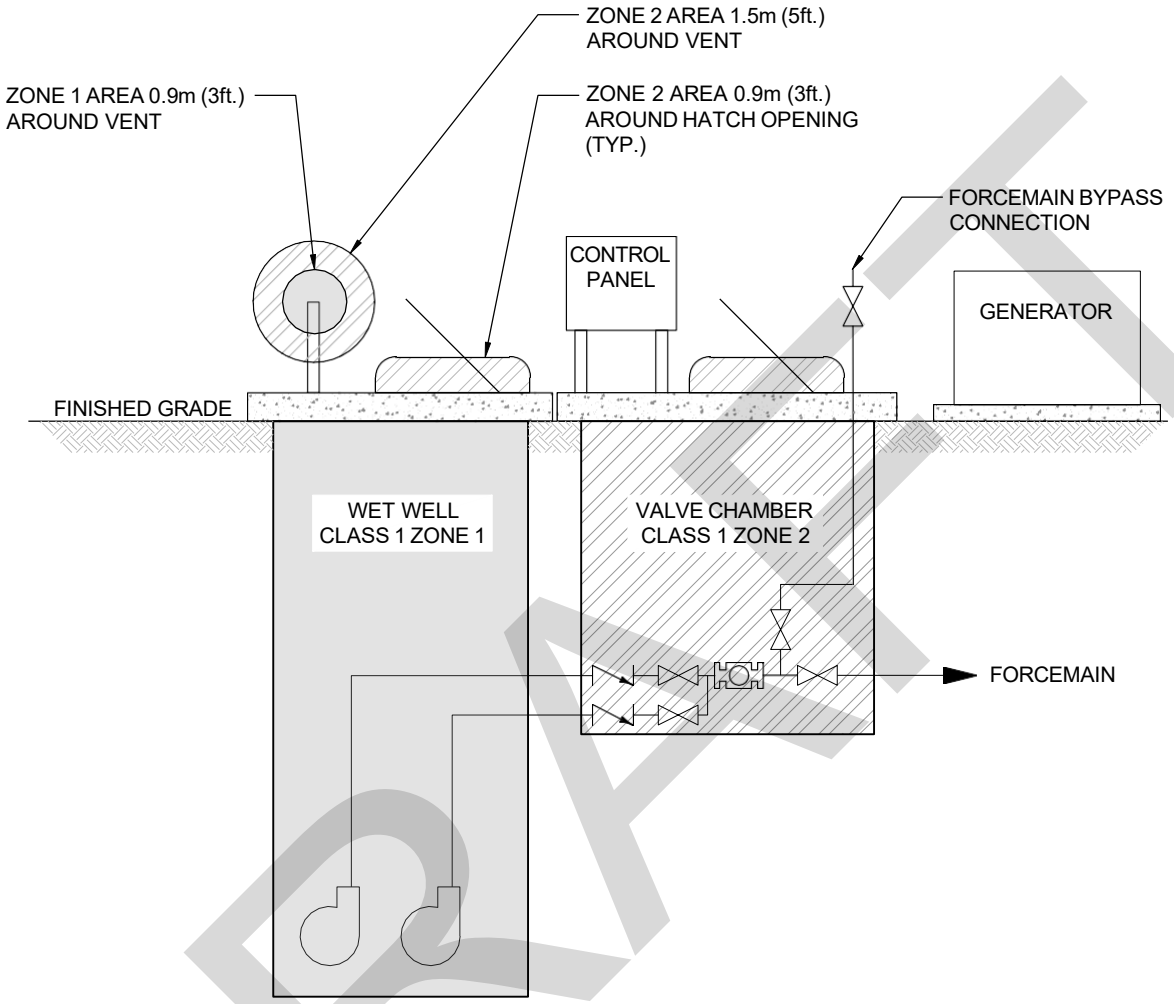
Heating and ventilation are to be provided in compliance with MECP guidelines, NFPA 820, and OESC requirements. If there are discrepancies between these documents, the more stringent terms apply. No portion of the sewage pumping station facility shall be de-energized due to a loss of ventilation.

2.14 Standby Generator

In case of power failure, a weatherproof, outdoor, self-contained standby generator complete with automatic transfer switch and 24-hour subbase double wall diesel fuel tank shall be provided at all pumping stations. Standby generators shall be sized to ensure all station loads, including the pumps, lighting, ventilation, and other auxiliary equipment can operate as per normal conditions. For Type 1 stations with a relatively low design flow, a connection for a portable generator may be considered by the Town on a case-to-case basis.

The generator shall be designed and selected to meet air and noise emission and vibration requirements in accordance with provincial regulations.

Appendix A:
Standard Drawings



LEGEND:

- CHECK VALVE
- ISOLATION VALVE
- FLOW METER
- PUMP

NOTES:

1. AREA / SPACE CLASSIFICATIONS DEFINED AS PER THE CANADIAN ELECTRICAL CODE, NFPA 820 AND SECTIONS 18 AND 22 OF THE OESC.
2. LOCATE CONTROL PANEL AND GENERATOR OUTSIDE OF HAZARDOUS AREAS.
3. VALVES TO BE ACCESSIBLE WITHOUT CONFINED SPACE ENTRY.
4. THIS SCHEMATIC IS INTENDED TO DEPICT THE GENERAL PROCESS FLOW AND LAYOUT OF THE STATION. REFER TO THE COLLINGWOOD SPS DESIGN GUIDELINES FOR ADDITIONAL REQUIREMENTS.

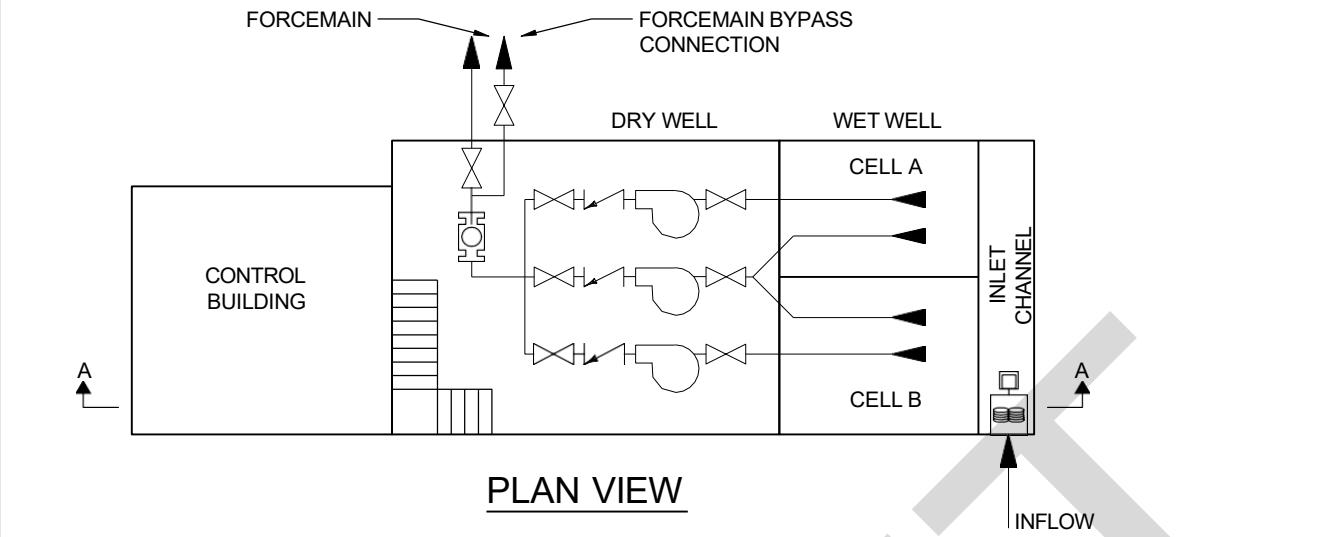
DRAFT

No.	REVISION	APR'D	DATE

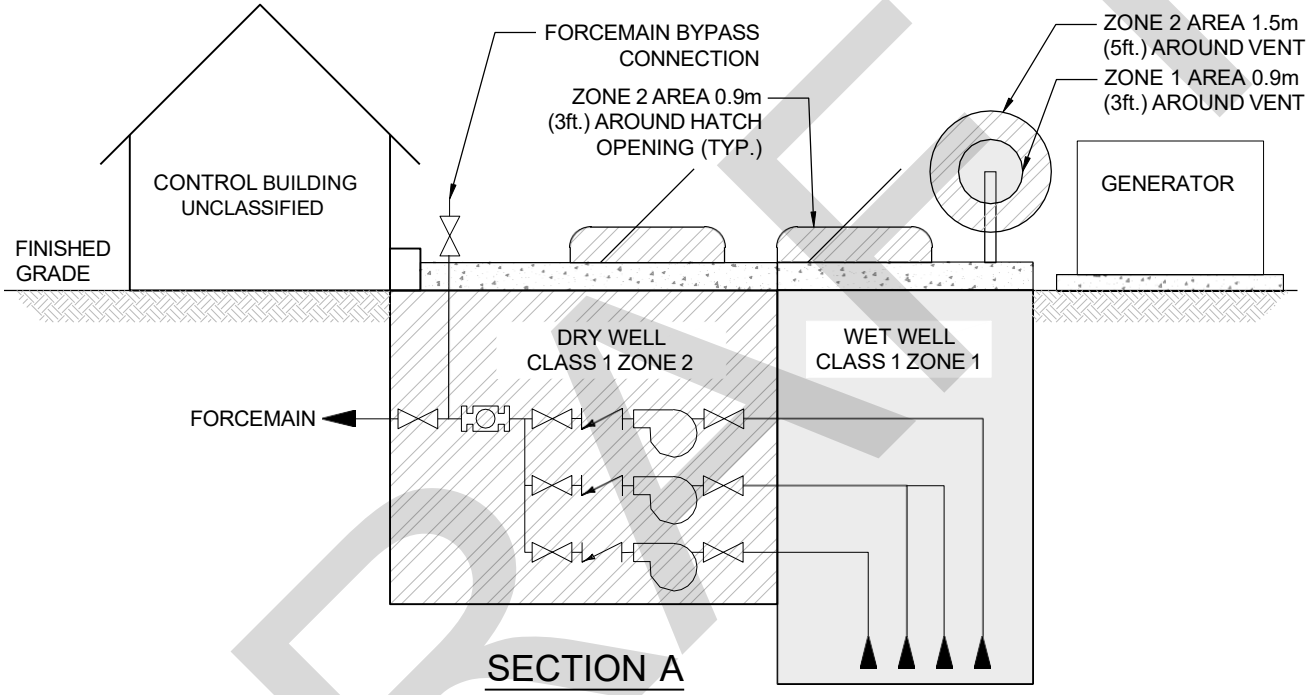
TOWN OF COLLINGWOOD

SEWAGE PUMPING STATION SCHEMATIC
TYPE 1 - RATED CAPACITY OF 60L/s OR LESS

DATE:	JUN/26
APR'D:	RL
DRAWN:	TATHAM
SCALE:	N.T.S.
FIG. No.	1



PLAN VIEW



SECTION A

LEGEND:

- CHECK VALVE
- ISOLATION VALVE
- FLOW METER
- PUMP
- GRINDER

NOTES:

1. AREA / SPACE CLASSIFICATIONS DEFINED AS PER THE CANADIAN ELECTRICAL CODE, NFPA 820 AND SECTIONS 18 AND 22 OF THE OESC.
2. LOCATE CONTROL PANEL AND GENERATOR OUTSIDE OF HAZARDOUS AREAS.
3. VALVES TO BE ACCESSIBLE WITHOUT CONFINED SPACE ENTRY.
4. THIS SCHEMATIC IS INTENDED TO DEPICT THE GENERAL PROCESS FLOW AND LAYOUT OF THE STATION. REFER TO THE COLLINGWOOD SPS DESIGN GUIDELINES FOR ADDITIONAL REQUIREMENTS.

No.	REVISION	APR'D	DATE

DRAFT

TOWN OF COLLINGWOOD

SEWAGE PUMPING STATION SCHEMATIC

TYPE 2 - RATED CAPACITY GREATER THAN 60L/s

DATE:	JUN/26
APR'D:	RL
DRAWN:	TATHAM
SCALE:	N.T.S.
FIG. No.	2

Appendix B: Equipment and Material List

Town of Collingwood Equipment and Material List

Equipment	Preferred Equipment Manufacturer
Valves	
Check Valves	Val-Matic Dezurik Clow
Control Valve	Singer Cla-Val
Surge Valve	Singer Cla-Val
Plug Valves	Val-Matic Dezurik
Knife Gates	Trueline Oribnox
Gate Valve	Mueller Clow
Butterfly Valve	Val-Matic Clow
Sluice Gates	Fontaine Orbinox Dynamic
Air Release/Vacuum	A.R.I. H-Tec Val-Matic
Ball Valves – SS	Watts Jenkins
Ball Valves – PVC	Chemline ChemKor
Pumps	
Raw Sewage Submersible Pump	Xylem/Flygt ABS (Sulzer)
Centrifugal Pump – Wastewater Process Pumping	Fairbank Morse Vaughan
Rotary Lobe Pump	Roots Volegsang
Progressive Cavity Pump	Seepex Rotopumps

Metering Pumps	Prominent Watson Marlow
Miscellaneous Equipment	
Access Hatches	MSU Mississauga Bilco
Single Pole Ladder Access	MSU Mississauga Bilco
Pump Mechanical Seals with S.S Glands	John Crane Flowserve
Inline Grinders	JWC Vogelsang
Surveillance Cameras	Must integrate with current Town system.
Entry Monitoring Devices	Must integrate with current Town monitoring service or SCADA
Confined Space	DBI/Salla Miller
Gas Detection / Monitoring Equipment	Armstrong AMC
Eyewash	Haws
Odour Control System	Continental Carbon
Electrical Equipment	
Valve Actuators – Electric	Rotork Auma
Variable Frequency Drives (VFD)	Schneider ABB Rockwell Eaton
Engine/Generator	Caterpillar Cummins
ATS Controller	Thomson Eaton Rockwell Schneider
Solenoid	Asco
Motor Control Centre	Rockwell Eaton Schneider

Power Monitoring Devices	Schneider Eaton Rockwell
Flow Instruments	
Flow Meters – Magnetic	Endress + Hauser Krohne ABB
Flow Meters – Open Channel Weir Ultrasonic	Siemens/Milltronics Endress + Hauser
Flow Meters – Mass	Endress + Hauser Krohne
Level Instruments	
Level – Ultrasonic	Siemens/Milltronics Endress + Hauser
Level - Conductivity Probes	Warrick Endress + Hauser
Level - Float Switches	Xylem/Flygt
Level - Radar	Siemens Vega
Pressure Instruments	
Pressure Transmitter	Endress + Hauser Vega
Pressure Switches	Ashcroft Trerice
Pressure Gauges & Diaphragm Seals (Liquid Filled)	Ashcroft Trerice Boshart Industries
Automation Equipment	
Programmable Logic Controllers (PLC)	As per Town PLC Standard, most current version
Uninterruptable Power Supplies UPS	As per Town PLC Standard, most current version
SCADA System Licensing	As per Town PLC Standard, most current version