

# Land Use Compatibility: Odour Assessment, 165 Lake St., Grimsby

**Prepared for:**

Sophie's Landing Development Corporation  
165 Lake St., Grimsby, ON



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## 1.0 INTRODUCTION

Independent Environmental Consultants (IEC) was retained by Sophie's Landing Development Corporation to conduct an Odour Impact Assessment for a 32-unit common elements condominium at 165 Lake Street in Grimsby, Ontario (the "Development Project") as part of a Zoning By-law Amendment application. The Odour Impact Assessment has been completed in accordance with the Ministry of the Environment, Conservation, and Parks' (MECP) D-Series Guidelines, as well as local and regional planning requirements, where available. The assessment considered the surrounding land uses in the area with respect to the following documents:

- The Provincial Policy statement [1];
- Growth Plan for the Greater Golden Horseshoe [2];
- The MECP land use compatibility guidelines (D-Series), including Guideline D-2 (Compatibility between Sewage Treatment and Sensitive Land Use), and D-6 (Compatibility between Industrial Facilities) [3], [4];
- Environmental Protection Act, Ontario Regulation 419/05: Air Pollution – Local Air Quality and its associated air quality standards and assessment requirements [5], [6] and
- MECP odour assessment guidance [7].

This report identifies and evaluates the options, where required, to achieve land use compatibility through appropriate design, buffering, and separation distances between the proposed sensitive land uses, including residential and institutional, utility, and industrial/commercial uses.

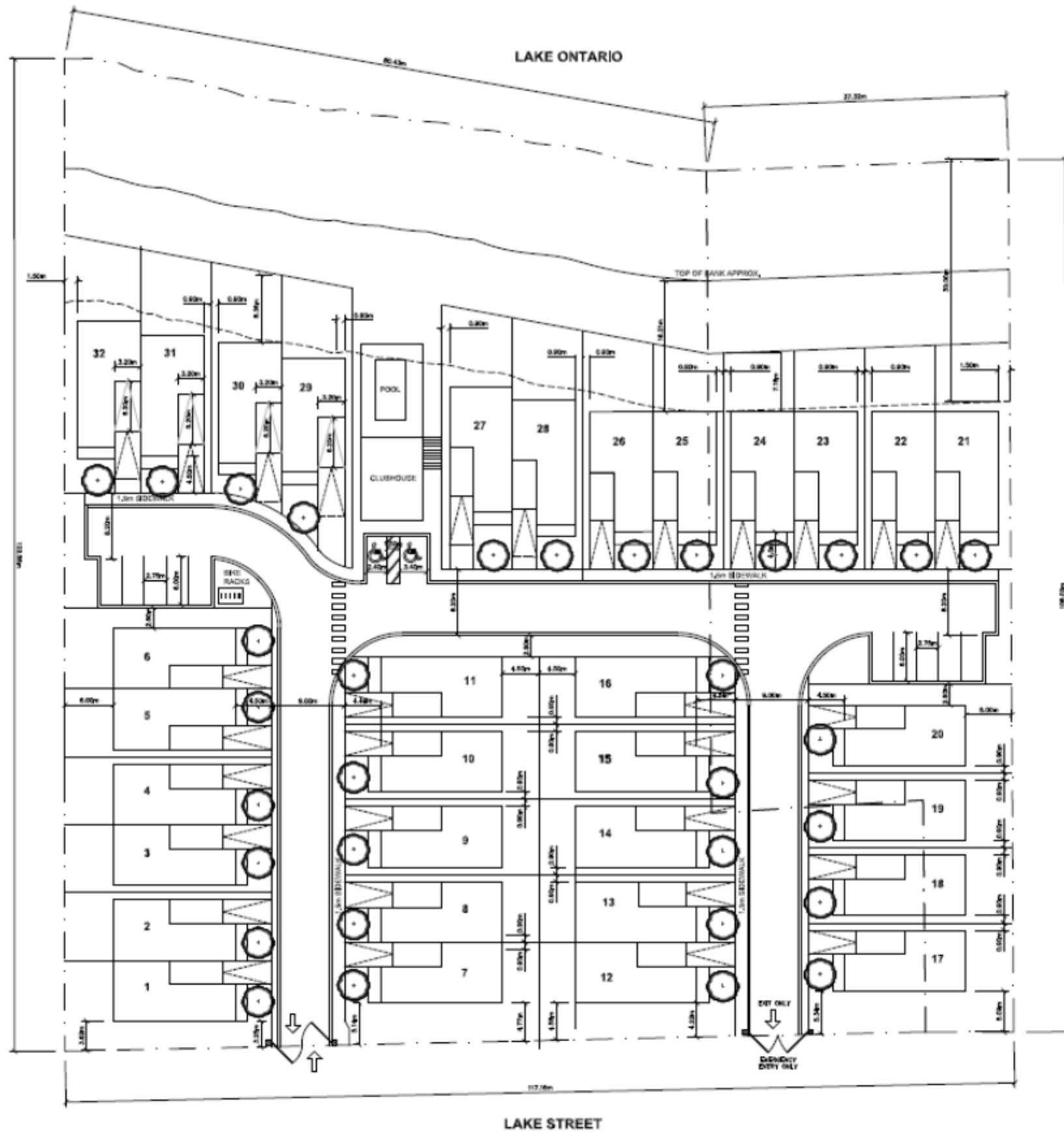
## 2.0 PROPOSED DEVELOPMENT AND SURROUNDING LAND USE

### 2.1.1 Proposed Development

The proposed development consists of a 32-unit common elements condominium consisting of 22 semi-detached units, 10 single detached units, one common elements clubhouse, and a private road (fire route). The existing single-detached dwelling at 165 Lake Street will be demolished. The proposed development plans are provided in Figure 2-1. The Town of Grimsby Zoning By-law No. 14-45 identified the Development Project site as *ND - Neighbourhood Development*. Zoning maps from the Town of Grimsby Zoning By-law No. 14-45 are provided in Appendix A. Figure A-3 shows the zoning area applicable to the Development Project.

### 2.1.2 Surrounding Land Use

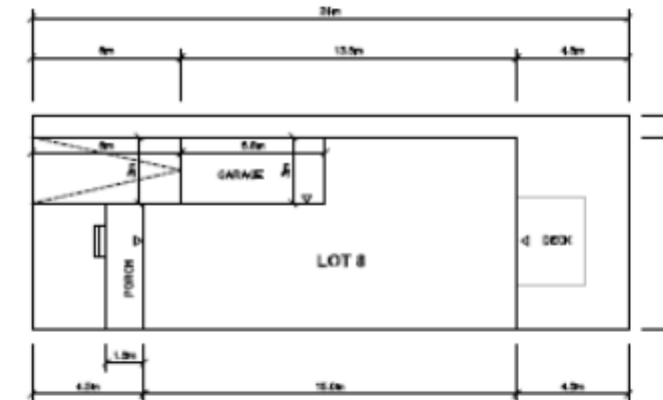
The abutting lands to the east and west of the Development Project site are zoned as *RD1 - Residential Detached 1* and *RD2 - Residential Detached 2*. Lands directly to the south and southeast are classified as *U - Utility* (Baker Road Wastewater Treatment Plant) and *I - Institutional* (Forestview Community Church). Appendix A provides additional Figures showing the applicable schedules and the designated zoning maps (5-A, 6-A, and 7-A).



**SITE STATISTICS**

ZONING: ND  
 TOTAL DWELLING COUNT • 32  
 SINGLE DETACHED DWELLINGS • 19  
 SEMI-DETACHED DWELLINGS • 27  
 PUBLIC ASSEMBLY BUILDING (CLUBHOUSE) • 1

	RM1	PROPOSED
LOT AREA	225 sq./ft.	250.74 sq./ft.
MIN. LOT FRONTAGE	7.5 m	9.4 m
MAX. LOT COVERAGE	40%	107.77 sq./m. (54%)
MAX. HEIGHT PRINCIPAL BLDG	10 m	8.4 m
SETBACKS		
FRONT	4.5 m	4.5 m
REAR	7.5 m	4.5 m
EXTERIOR SIDE	4.5 m	2.80 m
EXTERIOR SIDE (LAKE ST.)	4.5 m	3.20 m
INTERIOR SIDE	0.9 m	0.9 m
PARKING (1.5 PER UNIT)	48	48
VISITOR PARKING (25%)	12	12



REPRESENTATIVE LOT CONFIGURATION

5 0 5 10 meters

**LEGEND:**

**NOTES:**

Not to scale

**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
 Odour Assessment

**Development Concept Plan**

Drawn By: PLK	Approved By: KT	Figure No.:
Date: May 2023	Project No.: SX22-0035	<b>2-1</b>

### 3.0 ASSESSMENT FRAMEWORK

The assessment framework applied in this study considered relevant provincial and municipal requirements, which are aimed at identifying any existing and potential land use compatibility issues and evaluating the options to achieve appropriate design, buffering, and/or separation distances between the proposed land uses, including residential, institutional, utility, and commercial/industrial uses. An overview of the provincial and municipal policies and guidelines applied in this study is provided in the following sections.

#### 3.1 PROVINCIAL POLICY STATEMENT

The Provincial Policy statement [1] requires that sensitive land uses are planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour. Where avoidance is not possible, the policy requires planning authorities to protect the long-term viability of existing or planned industrial, manufacturing, or other uses that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses are only permitted if the following are demonstrated in accordance with provincial guidelines, standards, and procedures:

- there is an identified need for the proposed land use;
- alternative locations for the proposed land use have been evaluated and there are no reasonable alternative locations;
- adverse effects to the proposed sensitive land use are minimized and mitigated; and
- potential adverse impact.

#### 3.2 GREATER GOLDEN HORSESHOE GROWTH PLAN

The Growth Plan for the Greater Golden Horseshoe [2] outlines the requirement to develop *sensitive land uses* in accordance with provincial guidelines and emphasizes the need to avoid, or where avoidance is not possible, minimize and mitigate adverse impacts on industrial, manufacturing or other uses that are particularly vulnerable to encroachment.

#### 3.3 MECP D-SERIES GUIDELINES

The MECP D-Series Land Use Guidelines provide guidance and direction to municipalities and other agencies for assessing land use compatibility issues when considering development applications that require permission to rezone and/or re-designate land uses. The Guidelines are applied when a new sensitive land use requires a land use amendment and is proposed to be located within the influence of existing industrial operations. The proponent is responsible for evaluating the severity of impacts, before and after mitigation, within the influence area(s) or potential influence area(s), according to whether there will be a trivial impact (i.e., no adverse effect) or a significant impact (i.e., an adverse effect). Adverse effects are defined in Section 14 of the Environmental Protection Act and means one or more of the following:

- Impairment of the quality of the natural environment for any use that can be made of it;
- Injury or damage to property or to plant or animal life;
- Harm or material discomfort to any person;
- An adverse effect on the health of any person;
- Impairment of the safety of any person;
- Rendering any property or plant or animal life unfit for human use;
- Loss of enjoyment of normal use of property; and

- Interference with the normal conduct of business.

The most relevant D-Series guidelines to this Project are:

- D-2 Compatibility between Sewage Treatment and Sensitive Land Use [3]; and
- D-6 Compatibility between Industrial Facilities [4].

The D-2 Guideline applies to sewage treatment plants and uses a separation distance approach to minimize land use incompatibilities. With respect to sewage treatment plants, the Guideline defines recommended separation distances based on three (3) classes of design capacity, as noted in Table 3-1.

**Table 3-1: D-2 Recommended Separation Distances between Sewage Treatment Plants and Sensitive Land Use**

Wastewater Treatment Capacity (m <sup>3</sup> /day)	Recommended Separation Distance (m)
500	100
500 – 25,000	150
>25,000	150+

Section 3.1 of the D-2 Guideline recommends, where practical, to minimize the placement of sensitive land uses adjacent to sewage treatment facilities. Where an existing facility has been known to generate objectionable noise and/or odours, a larger separation distance and/or increased buffering may be required. In commenting on sensitive land use applications, the Guideline recommends examining odour complaints attributed to the facility to aid in the determination of potential odour effects. In cases where the level of odour nuisance is minimal (i.e., occurring sporadically and infrequently despite the application of all reasonable and practical on-site mitigation measures), there may be a need to request that a subdivision agreement for new developments contain warnings in offers of purchase and sale for potentially affected building lots. Such warnings would advise prospective buyers of the presence of a sewage treatment plant in the area, and of the possible presence of related odours.

The D-6 Guideline is intended to prevent or minimize future land use incompatibility issues due to encroachment of sensitive land uses and industrial land uses using a buffering principle. Industrial facilities are classified by the scale of operations into one of three categories, defined in the Guideline, each with a recommended minimum separation distance and potential influence area. It should be noted that adequate buffering of incompatible land uses is intended to supplement, not replace, controls which are required by legislation for both point source and fugitive emissions at industrial facilities. It is often not possible to achieve the recommended minimum separation distances in areas where infilling, urban redevelopment and/or a transition to mixed use is taking place. In circumstances where the minimum separation distance is not met, a more detailed feasibility analysis, completed in accordance with MECP guidelines and regulations, is required.

Guideline D-6 defines three (3) classes of industrial facilities:

- Class I (small scale industrial);
- Class II (medium scale industrial); and
- Class III (large scale industrial)

Industrial facilities are classified into one of these three categories based upon an analysis of the character of the industrial use/process, its scale, probability for fugitive emissions, hours of operation, production volumes,

movement of goods and employees and outdoor activity. D-6 also defines the *Minimum Recommended Separation Distances* and *Potential Influence Areas* between industrial facilities and sensitive land uses for each industry class, which are presented in Table 3-2. Table 3-3 presents the *Industrial Categorization Criteria* that are used to define each class of industrial uses.

**Table 3-2: D-6 Recommended Minimum Separation Distances and Potential Influence Areas**

Industry Class	Recommended Minimum Separation Distance (m)	Potential Influence Area (m)
I	20	70
II	70	300
III	300	1000

NOTE: It may not be possible to achieve the recommended minimum separation distances set out in the Guideline in areas where infilling, urban redevelopment, and/or a transition to mixed use is taking place. Additional requirements may apply in this circumstance, including a more detailed feasibility analysis as outlined in Section 4.10 of the Guideline.

**Table 3-3: D-6-1 Industrial Categorization Criteria**

Description	D-6-1 Industrial Categorization Criteria		
	Class I Light	Class II Medium	Class III Heavy
Outputs	Noise: Sound not audible off property	Noise: Sound occasionally audible off property	Noise: sound frequently audible off property
	Dust and/or Odour: Infrequent and not intense	Dust and/or Odour: Frequent and occasionally intense	Dust and/or Odour: Persistent and/or intense
	Vibration: No ground borne vibration on plant property	Vibration: Possible groundborne vibration, but cannot be perceived off property	Vibration: Ground-borne vibration can frequently be perceived off property
Scale	No outside storage	Outside storage permitted	Outside storage of raw and finished products
	Small scale plant or scale is irrelevant in relation to all other criteria for this Class	Medium level of production allowed	Large production levels
Process	Self contained plant or building	Open process	Open process
	Produces/stores a packaged product	Periodic outputs of minor annoyance	Frequent outputs of major annoyances
	Low probability of fugitive emissions	Low probability of fugitive emissions	High probability of fugitive emissions

Description	D-6-1 Industrial Categorization Criteria		
	Class I Light	Class II Medium	Class III Heavy
Operation /Intensity	Daytime operations only	Shift operations permitted	Continuous movement of products and employees
	Infrequent movement of products and/or heavy trucks	Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours	Daily shift operations permitted

### 3.4 REGIONAL PLANNING REQUIREMENTS

The Town of Grimsby and the Regional Municipality of Niagara have outlined the need for a land use compatibility assessment of the Development Project lands in relation to potential odour emissions from the adjacent Baker Road Wastewater Treatment Plant (WWTP) [8], [9]. In particular, an odour impact assessment completed in accordance with the MECP D-series guidelines was required, with due consideration to any building design mitigation measures / devices and warning clauses that may be warranted for the development.

### 4.0 ODOUR ASSESSMENT

#### 4.1 IDENTIFICATION OF POTENTIAL ODOUR SOURCES

##### 4.1.1 Site Visit

A site visit was completed on November 15, 2022, to identify significant sources of odour emissions in the Project area (within 1 km of the Development Project) and identify other sensitive land uses in proximity to the Project site. The site visit identified three (3) facilities within the 1 km area of influence, which are:

- Baker Road Wastewater Treatment Plant, located 347-349 Baker Rd N., Grimsby
- Lizak Farms (a fruit and vegetable wholesaler), located at 247 Nelles Rd N, Grimsby
- Ed Sobkowich Greenhouses Ltd. (flower grower/wholesaler), located at 398 Maple Ave, Grimsby

Figure 4-1 shows the locations of the above facilities in relation to the Development Project.

There were no odours detected at the proposed Project Development site, around the perimeter of the Baker Road Wastewater Treatment Plant, or within the broader community at the time of the site visit (easterly winds, 14 km/hr). An analysis of each of the above facilities is provided in the proceeding sections.

##### 4.1.2 Baker Road Sewage Treatment Facility and Sewage Pumping Stations

The Baker Road wastewater treatment plant (BR-WWTP) wastewater treatment plant is located adjacent to the Development Project and is bounded by Lake St to the north, Baker Road to the west and Sumner Ave to the east. With the exception of the Forestview Community Church property, which is located north-east of the BR-WWTP, all remaining adjacent or abutting properties are residential.

Baker Road WWTP is a conventional activated sludge plant consisting of mechanical bar screens, automated grit removal, primary settling with scum removal, fine bubble aeration system, chemical phosphorus removal, final





- LEGEND:**
- ◆ Baker Road WWTP
  - ◆ Sewage Pumping Stations
  - ◆ Other Industrial/Commercial
  - ◻ Sophie's Landing Development

**NOTES:**

**REFERENCE:**  
UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment  
**Area Plan**

Drawn By: PLK	Approved By: KT	Figure No.: <b>4-1</b>
Date: May 2023	Project No.: SX22-0035	



settling, two contact tanks for seasonal disinfection and dichlorination prior to release to Lake Ontario. Sludge produced is anaerobically digested and hauled off site for further processing. The BR-WWTP receives wastewater flows from the Town of Grimsby, the Town of Lincoln, and the Township of West Lincoln [10] and discharges its treated effluent to Lake Ontario. In addition, the plant receives landfill leachate from the connected sewer and hauled waste from residential/commercial sewage haulers. The BR-WWTP is rated for a peak dry weather flow rate of 62,600 m<sup>3</sup>/day and a peak wet weather flow rate of 120,000 m<sup>3</sup>/day, however, the average day flow rate (ADF) is 31,280 m<sup>3</sup>/day.

Within the Grimsby area, the Region also operates seven (7) raw sewage pumping stations / storage facilities and three (3) odour control facilities. A summary of the wastewater treatment system components and the distance from the Development Project is provided in Table 4-1 below.

**Table 4-1: BR-WWTP Wastewater Treatment System**

Type	Description	Locations	Distance from Development	Within 1 km Area of Influence?
Wastewater Treatment Plant (WWTP)	Wastewater treatment plant	Baker Road	150m – 250m	Yes
Sewage Pumping Station / Storage	Bal Harbour SPS	Cheval Drive	1,891 m	No
	Biggar Lagoon SPS	Ontario St	4,961 m	No
	Lake Street SPS (including Grimsby works yard storage and station storage)	Robinson Road	1,260 m	No
	Lakewood Gardens SPS	Kerman Ave	2,957 m	No
	Old Orchard SPS (including station storage)	Old Orchard Avenue	1,463 m	No
	Roberts Road SPS (including station storage)	South Service Road	4,018 m	No
	Woodsvie SPS (including station storage)	Lakeside Drive	2,550 m	No
Odour Control Facility	Park Odour Control	Park Road	3,250 m	No
	Saan Odour Control	Saan road	6,706 m	No
	Thirty Road Odour Control	Thirty Road	3,540 m	No

Odorous compounds that are present in wastewater or formed during wastewater treatment can become an annoyance when they are released into the environment. Wastewater treatment plants can emit a large number of odorous compounds including hydrogen sulfide, organic sulfur compounds, aldehydes and ketones, ammonia and amines and chlorinated VOCs. The BR-WWTP itself has a number of potential odour sources, including hauled waste receiving and storage, raw sewage/activated sludge pumping stations, headworks, digesters, aerators, primary and secondary clarifiers.



### 4.1.3 Other Industrial / Commercial Sources

There are also two (2) commercial (agricultural) facilities within 1-kilometre of the Development Project, which includes Lizak Farms (a fruit and vegetable grower / shipper) and Ed Sobkowich Greenhouses Ltd. (a flower grower / wholesaler). Neither of these operations are expected to be significant sources of odour.

## 4.2 ENGAGEMENT AND RECORDS REVIEW

### 4.2.1 MECP Freedom of Information Request

A Freedom of Information (FOI) request was issued to the Ontario MECP with respect to the BR-WWTP and its ancillary components that included available records from 2011-2021. The following sections summarize the pertinent information that related to odour complaints, investigations, and related information.

#### 4.2.1.1 Odour Complaints

The FOI request was made specific to odour complaints and compliance concerns from the ongoing operation of the BR-WWTP and its ancillary components. For the treatment plant itself, the FOI request yielded the following pertinent information:

- No odour complaints were received in 2013, 2014 or 2015;
- Three (3) odour complaints were received in July 2016 (6 Jacobs Landing, 16 Rembrandt), which were attributed to cow manure odour (rather than WWTP odour) and a chemical/chlorine odour emanating from the chlorine contact chamber;
- One (1) odour complaint was received in September 2017 (22 Rembrandt Drive), which was related to high solids received from wine waste from offsite locations;
- One (1) odour complaint was received in December 2018 (1 Bayview Dr), which related to pumping water out of electrical manholes. Minimal odour was detected once the pumping was completed (approximately 1 hour).
- There were no records of odour complaints from 2019 to 2022.

Odour complaints were received in relation to other components of the wastewater treatment system that are downstream of the BR-WWTP, including sewage pumping stations and maintenance holes that are more than 1 km from the Development Project. A brief overview of the number of complaints received are provided in Table 4-2 below, while Appendix B provides a detailed summary of complaints and other records that were provided in the MECP FOI documentation [11]. Figure 4-2 shows the locations of complainants relative to the Development Property.

**Table 4-2: Odour Complaints Related to Sewage Pumping Stations and Maintenance Holes**

Year	Frequency/Location	Source of Complaint
2014	<ul style="list-style-type: none"> <li>▪ One (1) odour complaint in June (Park Rd South)</li> <li>▪ Four (4) odour complaints in September (2 - 15, 17 Park Road South, 1 - 4878 Ontario St N., and 1 - 40 Mile Creek Area (Lister))</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintenance holes</li> <li>▪ Sewage Pumping Stations (SPS)</li> </ul>
2015	<ul style="list-style-type: none"> <li>▪ One (1) odour complaint in June (425 Maple Ave)</li> <li>▪ Two (2) odour complaints in September (20 Park Rd, 356 Book Rd N)</li> <li>▪ Two (2) odour complaints in October (353 and 356 Book Rd N)</li> <li>▪ Two (2) odour complaint in December (15 and 17 Park Rd South)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintenance holes</li> <li>▪ SPS</li> </ul>

Year	Frequency/Location	Source of Complaint
2016	<ul style="list-style-type: none"> <li>▪ One (1) odour complaint in February (17 Park Rd. South)</li> <li>▪ One (1) odour complaint in March (7A Park Rd. South)</li> <li>▪ Two (2) odour complaints in April (17 Park Rd. South, 3 Park Rd.)</li> <li>▪ Four (4) odour complaints in June (353 Book Rd.)</li> <li>▪ Three (3) odour complaints in July (16 Rembrandt, Park Rd/Hwy 8, 353 Book Rd.)</li> <li>▪ One (1) odour complaint in August (641 Winston Rd.)</li> <li>▪ Four (4) odour complaints in September (10<sup>th</sup> &amp; Lake St., 641 Winston St., 353 Book Rd, 18 Park Rd. South)</li> <li>▪ Four (4) odour complaints in October (12 Park Rd. N, 7 Park Rd. N, 16 Park Rd. S)</li> <li>▪ Four (4) odour complaints in November (17 and 18 Park Rd. S)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintenance holes</li> <li>▪ SPS</li> </ul>
2017	<ul style="list-style-type: none"> <li>▪ Two (2) odour complaint in June (3 Park Rd South)</li> <li>▪ Two (2) odour complaint in July (3 Park Rd South)</li> <li>▪ One (1) odour complaint in August (3 Park Rd South)</li> <li>▪ Two (2) odour complaint in September (406 Ontario St., 4 Windward Dr.)</li> <li>▪ Eight (8) odour complaint in October (4 Windward Dr, 9 Linward Dr.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintenance holes</li> <li>▪ SPS</li> </ul>
2018	<ul style="list-style-type: none"> <li>▪ Two (2) odour complaints in June (4 Windward, 3 Park Rd)</li> <li>▪ Six (6) odour complaints in July (5 - 3 Park Rd, 1- 30 Park Rd)</li> <li>▪ Two (2) odour complaints in August (Lister Rd, 424 Elizabeth St),</li> <li>▪ Three (3) odour complaints in September (400 Ontario St., 3 park Rd., 353 Book Rd)</li> <li>▪ Four (4) odour complaints in October (23 Kelson Ave, 380 Lake St., 4 Windward Dr., 3450 South Service Rd.)</li> <li>▪ Four (4) odour complaints in November (4 Windward Dr., 406 Ontario St.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintenance holes</li> <li>▪ SPS</li> </ul>

#### 4.2.1.2 Environmental Compliance Approval

The BR-WWTP is subject to the approval requirements outlined under Section 9 of the Environmental Protection Act [6]. Under *O. Reg. 419/05* [5], which requires all facilities that discharge a contaminant, including odour, into the natural environment to obtain an environmental compliance approval (ECA). As part of this process, the BR-WWTP is required to comply with established air quality standards at their property boundary as well as any sensitive off-site locations within the community. *O. Reg 419/05* is supported by the *Air Contaminants Benchmarks (ACB) List: Standards, Guidelines And Screening Levels For Assessing Point Of Impingement Concentrations Of Air Contaminants*, which is a compilation of benchmarks established by the MECP to assess compliance of releases to air. For odour, current MECP policy requires that a proponent assesses compliance against various ACB-listed contaminants with odour-based thresholds, including hydrogen sulphide, ammonia and other volatile compounds that are common releases from wastewater treatment facilities.





4784000

4783000

4782000

617000

618000

619000

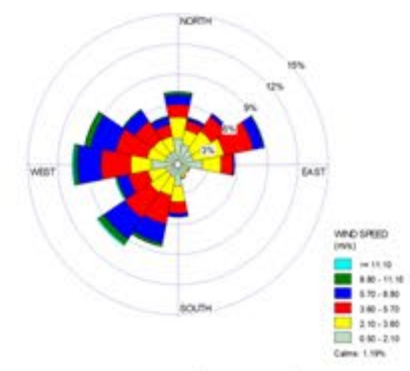
620000

621000

**LEGEND:**

- ◆ Baker Road WWTP
- ◆ Sewage Pumping Stations
- ◆ Other Industrial/Commercial
- ◇ Sophie's Landing Development
- Complainants (>1,000 m)
- Complainants (<1,000 m)

**NOTES:**



**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment

**Complaints Map**

Drawn By: PLK	Approved By: KT	Figure No.:
Date: May 2023	Project No.:	<b>4-2</b>
	SX22-0035	



The BR-WWTP operates under ECA No. 5755-AEFJVC, which was last amended on March 30, 2017. Of note, the ECA identifies a number of odour control systems and management measures that are employed at the facility, which include:

- an odour control facility that includes:
  - a centralized biofilter for collection and treatment of odorous off-gases from the raw sewage pumping station, the new headworks building, the primary clarifiers (scum troughs, effluent weirs, and effluent chamber); and
  - a biofilter to treat foul odours from septage receiving station and sludge holding tank;
- requirements to maintain an operations manual that includes:
  - operating procedures for routine operation of the Works especially the proper operation of the odour control facility;
  - inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
  - repair and maintenance programs, including the frequency of repair and maintenance for the Works;
  - procedures for the inspection and calibration of monitoring equipment;
  - a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills, and any other abnormal situations, including notification of the Water Supervisor; and
  - procedures for receiving, responding, and recording public complaints, (especially related to odour) including recording any follow-up actions taken.
- a requirement to submit annual performance reports to the MECP that contain the following information:
  - summary and interpretation of all monitoring data and a comparison to the compliance limits, including an overview of the success and adequacy of the Works;
  - description of any operating problems encountered, and corrective actions taken;
  - a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Works;
  - a summary of any effluent quality assurance or control measures undertaken in the reporting period;
  - a summary of the calibration and maintenance carried out on all effluent monitoring equipment;
  - a description of efforts made, and results achieved in meeting design objectives;
  - a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
  - a summary of any complaints received during the reporting period and any steps taken to address the complaints;
  - a summary of all By-pass, spill, or abnormal discharge events;
  - a copy of all Notice of Modifications submitted to the Water Supervisor with a status report on the implementation of each modification;
  - a report summarizing all modifications completed; and
  - any other information the Water Supervisor requires from time to time.

It is worth noting that the introduction of a new sensitive receptor location can often trigger the need to reassess compliance with MECP air quality limits/odour thresholds. However, in this case, the Development

Project is similar to the existing residences surrounding the treatment plant, in both form and setback distances, and would not be expected to significantly alter the conditions in the BR-WWTP ECA.

#### 4.2.2 Town of Grimsby and Niagara Region Reports

A review of the readily accessible on-line reports on the BR-WWTP from the Region and Town of Grimsby was completed, which included the following:

- 2019 Annual Water and Wastewater Quality Management System Update [12];
- 2021 Baker Road WWTP Pollution Prevention and Control Plan and Master Servicing Plan [10];
- 2020 Baker Road Wastewater Treatment Plant PPCP & MSP Update Technical Memorandum #1: Existing Document Review and Summary [13]; and
- 2022 Asset Management Plan For Core Infrastructure Town Of Grimsby [14].

There were no specific odour concerns or issues noted in the above reports that related to the ongoing operation of the BR-WWTP.

#### 4.3 ANALYSIS OF LOCAL METEOROLOGY

When odours are emitted, they move with the prevailing wind direction, and are diluted through dispersion. As the odour plume disperses, it spreads vertically and horizontally, sometimes with erratic and agitated motion, due to mechanical and thermal turbulence in the atmosphere. To characterise the dominant wind conditions (i.e., wind speed and direction) in the project area, hourly wind data was collected from the nearest climate station, which is the Environment and Climate Change Canada - Meteorological Service of Canada Vineland RCS station (ID 6139148). The Vineland RCS station is located approximately, 12 km east of the BR-WWTP and 200 m from Lake Ontario.

A 5-year data record from January 2018 to December 2022 [15] was used to develop annual and seasonal wind rose plots, which are shown in Figure 4-3 and Figure 4-4 respectively. As shown in Figure 4-3, the wind is predominantly blowing from the south-west (SW), approximately 12.3 % of the time for the 2018 to 2022 period. Calm winds (i.e., wind speed less than 0.5 m/s) are recorded 1% of the time, while the average annual wind speed is 3.64 m/s. The spring wind rose plot (Figure 4-4) indicates that the predominant wind direction is from the west (W) and occurs 10.5 % of the time, while the frequency of calms is 1.19 %. The average wind speed was 3.72 m/s. During the summer season, the wind mainly blows from the south-southwest (SSW) and from the southwest (SW), 14.5 % and 12.9 % of the time, respectively. Calms occur 1.38 % of the time, while the average wind speed is 2.92 m/s. In the fall, two prevailing wind directions are dominant, SW and SSW, with frequencies of 12.3 % and 11.7 % of the time. Wind from west-southwest (WSW) and S also occur frequently (10.6 % of the time each). The frequency of calm periods is 1% of the time, and average wind speed is 3.54 m/s. Finally, during the winter, the two most dominant directions are SW and WSW and occur almost equally in frequency, at 14.1 % of the time. Records with calm conditions are recorded 0.5% of the time, while the average wind speed is 4.42 m/s.

Of note, when historical complaints related to the BR-WWTP were received, the dominant wind directions were from the SSW, SW, and WSW. With respect to the Development Project, the directions that may lead to potential odour impacts would be blowing from the south (S), south-southeast (SSE) and southeast (SE). As shown in Figure 4-3, the frequencies for these directions are low, at 7.5%, 2.5% and 1.8% of the time, respectively. Further, calm periods where wind speeds are less than 0.5 m/s (and where significant odour dilution is not expected) are anticipated for only a very small proportion of the time.

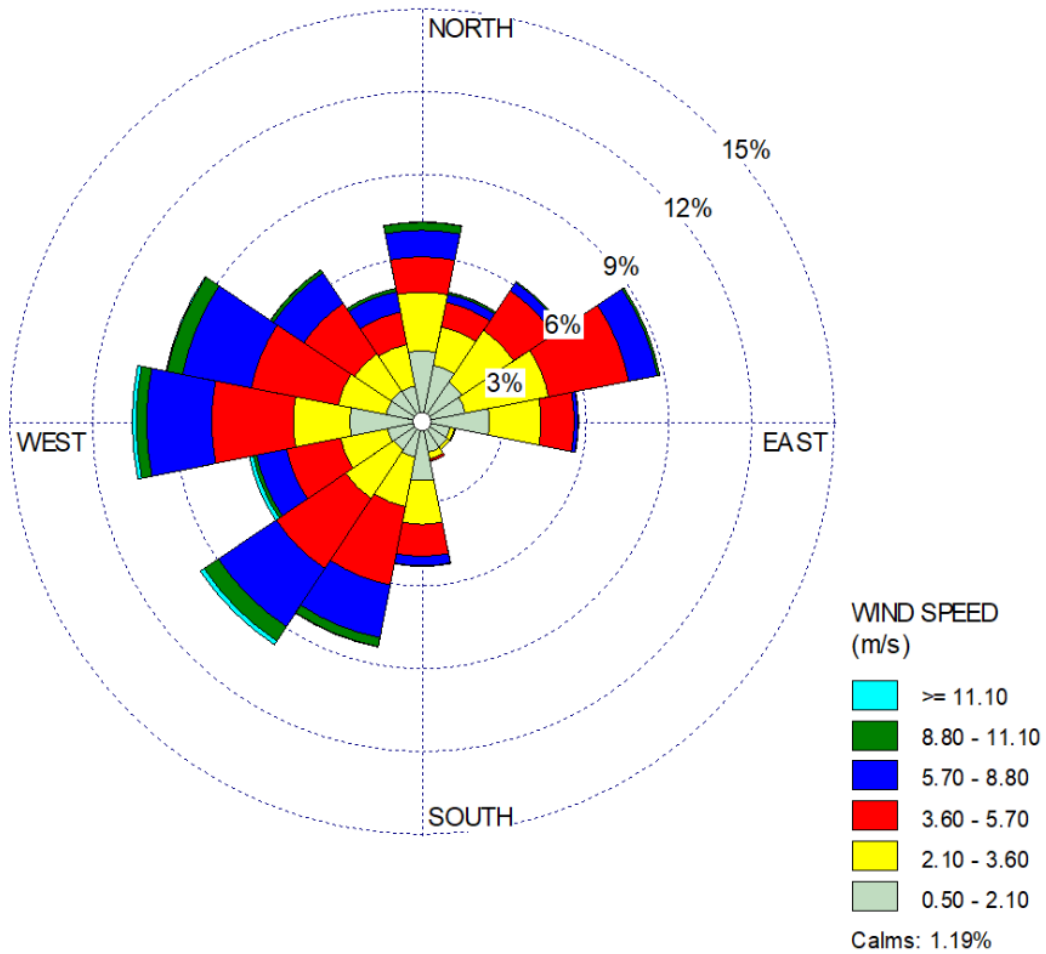
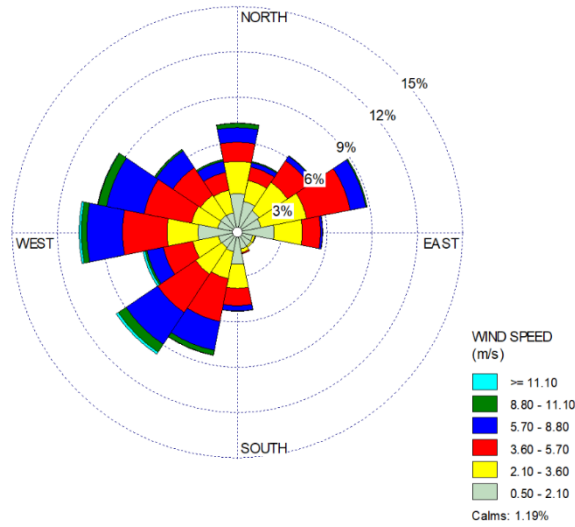
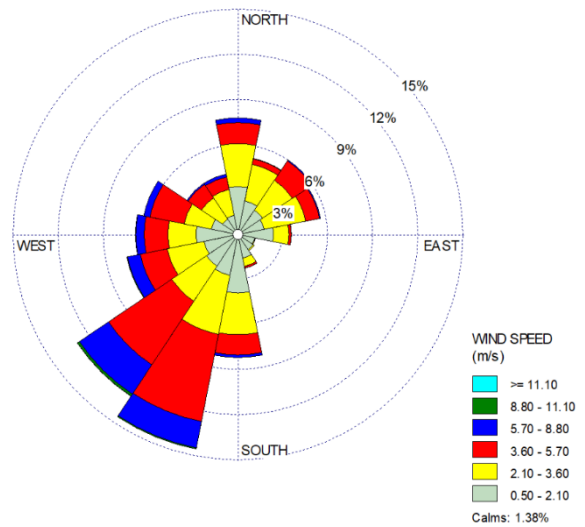


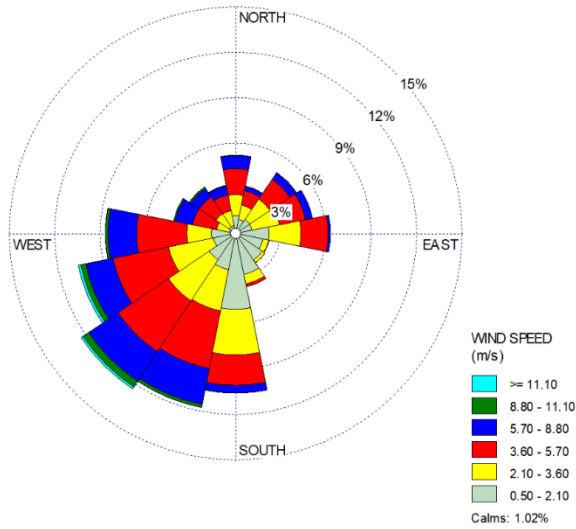
Figure 4-3: Annual Wind Rose



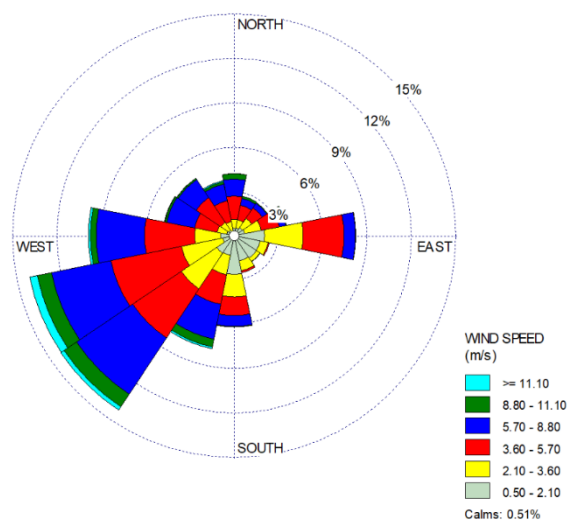
Spring Wind Rose



Summer Wind Rose



Fall Wind Rose



Winter Wind Rose

Figure 4-4: Seasonal Wind Rose Vineland RCS (2018-2022)

#### 4.4 ASSESSMENT OF CONFORMANCE TO D-SERIES GUIDELINES

##### 4.4.1 D-2 Guidelines

As outlined above, the D-2 Guideline recommends separation distances based on three (3) classes of treatment capacity as noted in Table 3-1. Based on the BR-WWTP ECA No. 5775-AEFJVC the rated capacity of the plant is 31,280 m<sup>3</sup>/day, which requires separation distances of greater than 150 meters. Table 4-3 and Figure 4-5 presents the separation distances from the potential odour sources located at the BR-WWTP and the Development Project. The closest potential odour source is the hauled waste receiving area, which is located 150 m from the extreme south portion of the Development Project lot line, which is equal to the minimum separation distance noted in the D-2 Guideline. However, the guideline acknowledges that separation distances greater than 150 m may be required to minimize potential land use conflicts associated with high capacity WWTP. Other potential odour sources, including the digesters, raw sewage pumping station, headworks, primary and secondary clarifiers, and return/waste activated sludge pumping stations, are within 200 to 250 meters of the Development Project lot line.

It is important to note that the existing setback distances from other sensitive receptors along Baker Road North and Sumner Crescent are within the recommended 150 m separation distance, with the closest sensitive receptors locations being within 60 m of the BR-WWTP digesters/chlorine contact facility and within 100 m of the secondary clarifiers. Likewise, existing residential dwellings along Lake Street are also located within 150-250 m of the various odour sources at the BR-WWTP, which is similar to the exposure that the Development Project would experience.

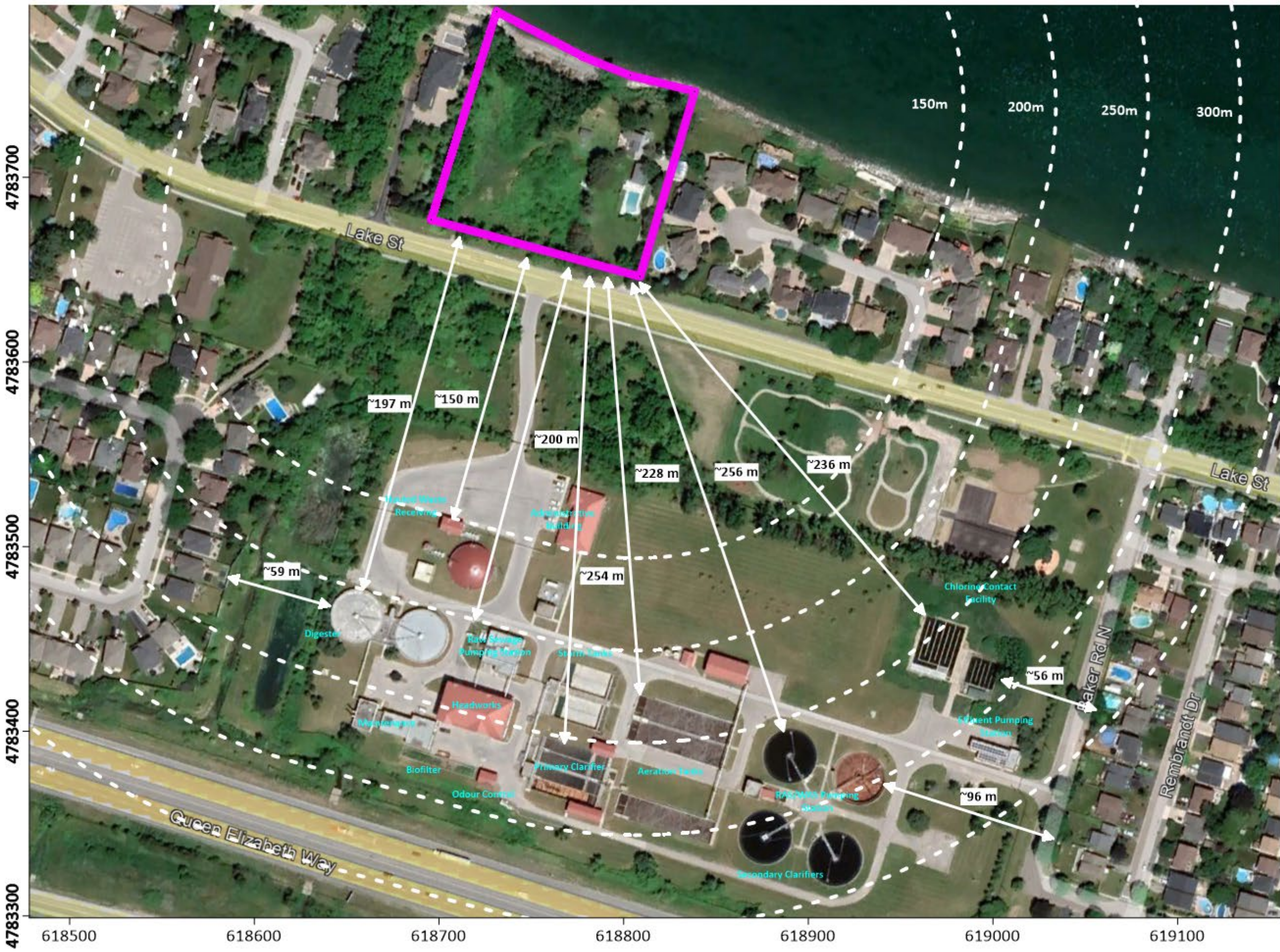


**Table 4-3: Summary of Separation Distances Between Development and BR-WWTP**

Potential WWTP Odour Source	Distance From WWTP Odour Source to Closest Point on Development Property (m)
Hauled Waste Receiving	150
Digesters	197
Raw Sewage Pumping Station	200
Headworks	236
Aerators	228
Primary Clarifiers	254
Secondary Clarifiers	256
Chlorine Content Facility	236

As noted in Section 4.2.1.1, the MECP FOI provided the available records of complaints related directly to the BR-WWTP operation, which included a total of four (4) complaints spanning from 2016 to 2018. These complaints were received from four (4) different receptors that were located west and north-west of the BR-WWTP and appeared to be associated with short-term or transient events. There were no records of complaints contained the MECP FOI records after 2018. There were several other complaints tied to other components of the wastewater system, including sewerage pumping stations and maintenance holes; however, these complaints were more than 1 km from the Development Project site.

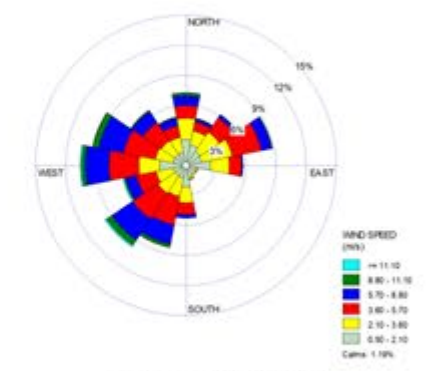




**LEGEND:**

◇ Development

**NOTES:**



Windrose (2018-2022)

**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment  
**Overview Plan**  
**D-2 Separation Distances**

Drawn By: PLK	Approved By: KT	Figure No.: <b>4-5</b>
Date: May 2023	Project No.: SK22-003B	



#### 4.4.2 D-6 Guidelines

As previously noted, there are two (2) commercial (agricultural) facilities within 1-kilometer of the Project, which includes Lizak Farms (fruit and vegetable growers / shippers) and Ed Sobkowich Greenhouses Ltd. (flower grower/wholesaler). These facilities exhibit characteristics that are defined by both Class I and II industry types (Table 4-4), which requires that a minimum separation distance of 70 m and 300 m is recommended (Table 4-5). As shown in Figure 4-6, Lizak Farms and Ed Sobkowich Greenhouses Ltd. are located 780 m and 540 m from the Development Project and are greater than minimum separation distances for Class I and II industry types. As a result, neither of these operations are expected to be significant sources of odour, and no further review/analysis is required.

**Table 4-4: Industrial Categorization Criteria Summary**

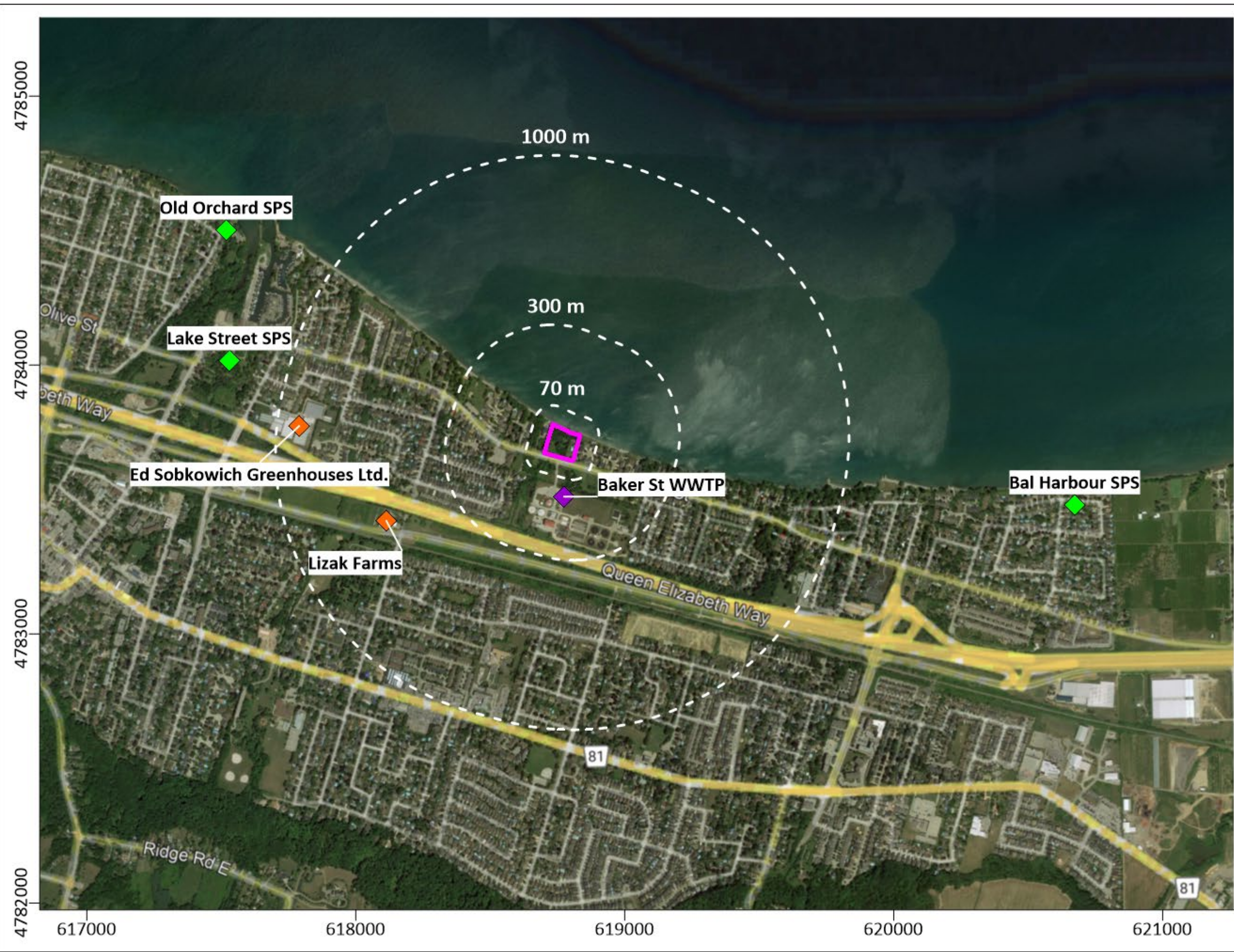
Description	D-6-1 Industrial Categorization Criteria			Lizak Farms			Ed Sobkowich Greenhouses Ltd.		
	Class I Light	Class II Medium	Class III Heavy	Class I	Class II	Class III	Class I	Class II	Class III
Outputs	Noise: Sound not audible off property	Noise: Sound occasionally audible off property	Noise: sound frequently audible off property	■	NA	NA	■	NA	NA
	Dust and/or Odour: Infrequent and not intense	Dust and/or Odour: Frequent and occasionally intense	Dust and/or Odour: Persistent and/or intense	■	NA	NA	■	NA	NA
	Vibration: No ground borne vibration on plant property	Vibration: Possible groundborne vibration, but cannot be perceived off property	Vibration: Ground-borne vibration can frequently be perceived off property	■	NA	NA	■	NA	NA
Scale	No outside storage	Outside storage permitted	Outside storage of raw and finished products	■	NA	NA	■	NA	NA
	Small scale plant or scale is irrelevant in relation to all other criteria for this Class	Medium level of production allowed	Large production levels	■	NA	NA	NA	■	NA
Process	Self contained plant or building	Open process	Open process	■	NA	NA	■	NA	NA
	Produces/stores a packaged product	Periodic outputs of minor annoyance	Frequent outputs of major annoyances	■	NA	NA	NA	■	NA
	Low probability of fugitive emissions	Low probability of fugitive emissions	High probability of fugitive emissions	■	NA	NA	■	NA	NA

Description	D-6-1 Industrial Categorization Criteria			Lizak Farms			Ed Sobkowich Greenhouses Ltd.		
	Class I Light	Class II Medium	Class III Heavy	Class I	Class II	Class III	Class I	Class II	Class III
Operation /Intensity	Daytime operations only	Shift operations permitted	Continuous movement of products and employees	■	NA	NA	NA	■	NA
	Infrequent movement of products and/or heavy trucks	Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours	Daily shift operations permitted	■	NA	NA	NA	■	NA
<b>Overall Class Determination:</b>				<b>Class I</b>			<b>Class II</b>		

Table 4-5: Industrial/Commercial Facilities Within 1000m

Facility (Type)	Description	Industry Class	Area of Influence (m)	Distance from Development (m)	Additional Review Required?
Lizak Farms (Commercial)	Fruit and vegetable growers / shippers	I	70	780	No
Ed Sobkowich Greenhouses Ltd. (Commercial)	Flower grower/ wholesaler	II	300	540	No





- LEGEND:**
- ◆ Grimsby WWTP
  - ◆ Sewage Pumping Stations
  - ◆ Other Industrial/Commercial
  - ◇ Sophie's Landing Development

**NOTES:**

**REFERENCE:**  
UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment  
**Overview Plan**  
**D-6 Area of Influence**

Drawn By: PLK	Approved By: KT	Figure No.: <b>4-6</b>
Date: May 2023	Project No.: SK22-0038	



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the analysis, the Development Project is expected to be compatible with the surrounding land uses from an odour perspective, given the limited number of historical complaints received from the community, the prevailing wind directions/conditions, the existing residential zoning and separation distances associated with BR-WWTP and the various regulatory obligations and control measures that are currently employed by the BR-WWTP to minimize odour impacts. In summary:

- With the exception of Forestview Community Church (Institutional Zoning) to the south-west of the Development Project, the remaining lands surrounding the Baker Road Wastewater Treatment Plant (Utility Zoning) are currently zoned for residential use. Since the Development Project site is already within an area that is already zoned for residential dwellings, it is not expected to further limit the ability of the BR-WWTP to maintain compliance with required MECP environmental compliance approval terms and conditions.
- The BR-WWTP environmental compliance approval (ECA No. 5755-AEFJVC) requires that air quality standards are met at the facility property boundary line as well as any off-site locations within the community. A number of odour control systems and management measures are employed at the facility, which include a series of biofilters that collect and treat odour from the facility (raw sewage pumping station, headworks building, primary clarifiers, septage receiving station and sludge holding tank) as well operating, inspection and maintenance programs, annual performance reporting (to the MECP) and a process for responding to and resolving complaints.
- No odours were detected during the site visit. There was a total of five (5) historical odour complaints between 2016 and 2018 that related to the operation of the BR-WWTP in the MECP FOI documentation. There were no records of odour complaints after 2018. Complaints were received from four (4) different receptors that were located west and north-west of the BR-WWTP and appeared to be associated with short-term or transient events. There were numerous other complaints tied to other components of the wastewater system, including sewage pumping stations and maintenance holes, but the complainants' locations were more than 1 km from the Development Project site.
- The dominant wind direction when the historical complaints related to the BR-WWTP were received, were blowing from the SSW, SW, and WSW. With respect to the Development Project, the wind directions that are most likely to promote odour related effects blow from the S, SSE, SE, which are infrequent (7.5%, 2.5% and 1.8% of the time, respectively). Further, historical wind data suggests that calm periods, where wind speeds are less than 0.5 m/s and odour dilution is minimized, will occur approximately 1% of the time.
- Based on the design capacity of the BR-WWTP (32,230 m<sup>3</sup>/day), Guideline D-2 recommends a separation distance of greater than 150 meters from potential odour sources located at the BR-WWTP and the Development Project. The closest potential odour source is the hauled waste receiving area, which is located 150 m from the extreme south portion of the Development Project lot line. Other potential odour sources, including the digesters, raw sewage pumping station, headworks, primary and secondary clarifiers, and return/waste activated sludge pumping stations, which are within 200 to 250 meters of the Development Property lot line. However, the guideline acknowledges that separation distances greater than 150 m may be required to minimize potential land use conflicts.
- The existing setbacks from sensitive receptors along Baker Road North and Sumner Crescent are well within the 150 m separation distance, with the closest sensitive receptors locations being within 60 m of the BR-WWTP. Existing residential dwellings along Lake Street are also located within 150-250 meters of the various odour generating sources at the BR-WWTP, which is equivalent to the exposure that the Development Project would experience.

- Two (2) industrial/commercial facilities (vegetable and flower growers/wholesalers) exhibited characteristics that were defined by both Class I and II industry types, but they were well outside of the recommended D-6 Guideline minimum separation distances and are not expected to be significant sources of odour.

Despite the above information, odour nuisance effects but may still occur sporadically and infrequently due to the proximity of the BR-WWTP to the Development Project. As such, the following recommendations can be provided:

- To the extent possible, maximize the separation distance between the odour sources located at the BR-WWTP and residential dwellings in accordance with Guideline D-2;
- Include a subdivision agreement that contains warnings in offers of purchase and sale, lease/rental agreements, and condominium declarations for potentially affected building lots. These warnings would advise prospective buyers/renters of the presence of a sewage treatment plant and supporting infrastructure in the area, and of the possible presence of related odours.

## 6.0 STATEMENT OF LIMITATIONS

This report was prepared by IEC for the sole and exclusive use of Sophies Landing Development Corporation. Any use of, or reliance or decision based on this report by any third party is the sole and exclusive responsibility of such third party. IEC accepts no responsibility for damages, if any, suffered by any third party as a result of the use of or reliance or decision based on this report. This report may not be reproduced in whole or in part without the prior and express written consent of IEC.

IEC has prepared this report using information understood to be factual, accurate and complete within the time constraints, budget, and terms of reference of the assignment. The material provided in the report reflects IEC's best judgement in light of the information available to IEC at the time of preparation of the document. Specifically, it is exclusively based on a visual inspection of the Development Property, and a desktop review of information obtained through the freedom of information process and other publicly accessible resources. IEC does not warranty the accuracy of information from third party sources.

IEC accepts no liability or responsibility for conditions arising from information or facts which were not fully disclosed to IEC by the representatives of the agencies contacted, or for conditions which can only be confirmed through more intrusive testing and analysis. Further, IEC accepts no responsibility for the impacts of any changes in environmental regulations, guidelines, standards, or practices that come into force after the issuance of this report.

## 7.0 REFERENCES

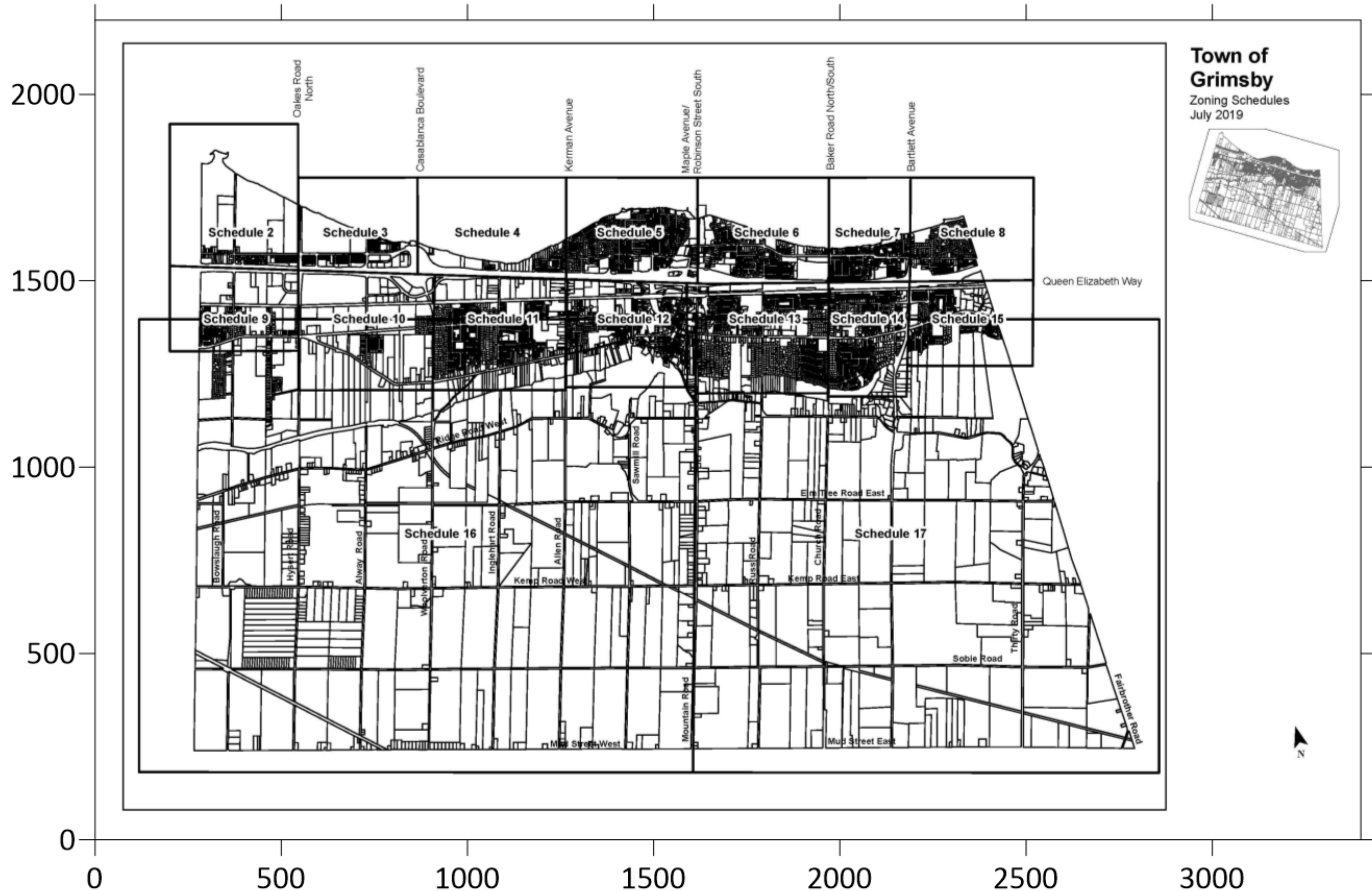
- [1] Government of Ontario, "Provincial Policy Statement," May 2020.
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<http://www.ontario.ca/page/d-6-compatibility-between-industrial-facilities> (accessed May 04, 2023).
- [5] Government of Ontario, *O. Reg. 419/05: Air Pollution - Local Air Quality*. 2005. Accessed: May 02, 2023. [Online]. Available: <https://www.ontario.ca/laws/view>
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- [7] MECP, "Methodology For Modelling Assessments Of Contaminants With 10-Minute Average Standards And Guidelines for Odour under O. Reg. 419/05," Sep. 2016.
- [8] The Corporation of the Town of Grimsby, "Town of Grimsby Zoning By-law," No. 14-45, 2019.
- [9] Niagara Region – Development Services Division, "Updated Pre-Consultation Notes," Mar. 2022.
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- [12] Niagara Region, "2019 Annual Water and Wastewater Quality Management System Update," Dec. 2019.
- [13] BluePlan Engineering, "Baker Road Wastewater Treatment Plant PPCP & MSP Update Technical Memorandum #1: Existing Document Review and Summary," GM BluePlan Project Number: 618060, Feb. 2020.
- [14] Town of Grimsby, "2022 Asset Management Plan For Core Infrastructure Town Of Grimsby," 2022.
- [15] Environment Canada, "Historical Weather and Climate Data," *Climate*, Mar. 29, 2023.  
[https://climate.weather.gc.ca/climate\\_data/hourly\\_data\\_e.html?hlyRange=2002-02-15%7C2023-04-26&dlyRange=2002-02-07%7C2023-04-25&mlyRange=2003-10-01%7C2006-12-01&StationID=31367&Prov=ON&urlExtension=\\_e.html&searchType=stnName&optLimit=yearRange&StartYear=1840&EndYear=2023&selRowPerPage=25&Line=6&searchMethod=contains&Month=4&Day=26&txtStationName=Vineland&timeframe=1&Year=2023](https://climate.weather.gc.ca/climate_data/hourly_data_e.html?hlyRange=2002-02-15%7C2023-04-26&dlyRange=2002-02-07%7C2023-04-25&mlyRange=2003-10-01%7C2006-12-01&StationID=31367&Prov=ON&urlExtension=_e.html&searchType=stnName&optLimit=yearRange&StartYear=1840&EndYear=2023&selRowPerPage=25&Line=6&searchMethod=contains&Month=4&Day=26&txtStationName=Vineland&timeframe=1&Year=2023) (accessed Apr. 27, 2023).



## **Appendix A:**

### **Zoning Maps**





**Town of Grimsby**  
 Zoning Schedules  
 July 2019

**LEGEND:**

**NOTES:**

Not to scale

**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
 Odour Assessment

**Zoning Map Overview**

Drawn By: PLK	Approved By: KT	Figure No.: <b>A-1</b>
Date: May 2023	Project No.: SX22-0035	

2000  
1500  
1000  
500  
0



**LEGEND:**

**NOTES:**

**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment  
**Zoning Map 5-A**

Drawn By: PLK	Approved By: NZS	Figure No.: <b>A-2</b>
Date: May 2023	Project No.: SX22-0055	

**LEGEND:**

**NOTES:**

**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment  
**Zoning Map 6-A**

Drawn By: PLK	Approved By: HZS	Figure No.:
Date: May 2023	Project No.:	<b>A-3</b>

**Town of Grimsby**  
Zoning Schedules  
July 2019

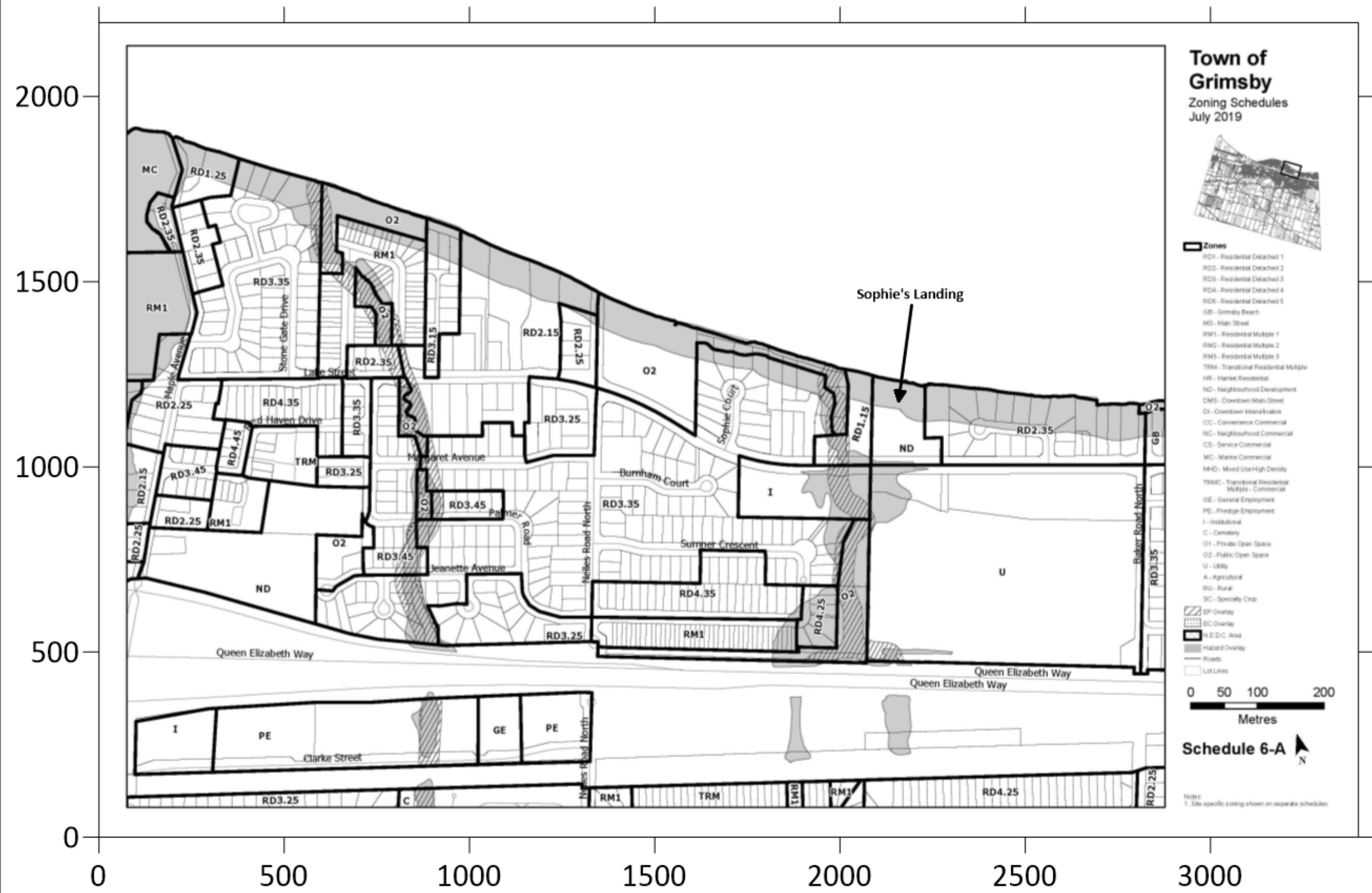


- Zones**
- RD1 - Residential Detached 1
  - RD2 - Residential Detached 2
  - RD3 - Residential Detached 3
  - RD4 - Residential Detached 4
  - RD5 - Residential Detached 5
  - GB - Grimsby Beach
  - MS - Main Street
  - RM1 - Residential Multiple 1
  - RM2 - Residential Multiple 2
  - RM3 - Residential Multiple 3
  - TRM - Transitional Residential Multiple
  - HR - Home Residential
  - ND - Neighbourhood Development
  - DMS - Downtown Main Street
  - DI - Downtown International
  - CC - Convenience Commercial
  - NC - Neighbourhood Commercial
  - CS - Service Commercial
  - MC - Marine Commercial
  - MHD - Mixed Use High Density
  - TRMC - Transitional Residential Multiple - Commercial
  - GE - General Employment
  - PE - Prestige Employment
  - I - Institutional
  - C - Cemetery
  - O1 - Private Open Space
  - O2 - Public Open Space
  - U - Utility
  - A - Agricultural
  - R1 - Rural
  - SC - Specialty Crop

0 50 100 200  
Metres

**Schedule 6-A**

Notes:  
1. Site specific zoning shown on separate schedules.





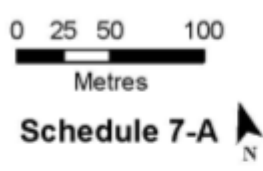
**LEGEND:**



**Town of Grimsby**  
Zoning Schedules  
July 2019



- Zones**
- RD1 - Residential Detached 1
  - RD2 - Residential Detached 2
  - RD3 - Residential Detached 3
  - RD4 - Residential Detached 4
  - RD5 - Residential Detached 5
  - GB - Grimsby Beach
  - MS - Main Street
  - RM1 - Residential Multiple 1
  - RM2 - Residential Multiple 2
  - RM3 - Residential Multiple 3
  - TRM - Transitional Residential Multiple
  - HR - Harvest Residential
  - ND - Neighbourhood Development
  - DMS - Downtown Main-Street
  - DI - Downtown Intensification
  - CC - Convenience Commercial
  - NC - Neighbourhood Commercial
  - CS - Service Commercial
  - MC - Main Commercial
  - MHD - Mixed Use High Density
  - TRMC - Transitional Residential Multiple - Commercial
  - GE - General Employment
  - PE - Prestige Employment
  - I - Institutional
  - C - Cemetery
  - O1 - Private Open Space
  - O2 - Public Open Space
  - U - Utility
  - A - Agricultural
  - RU - Rural
  - SC - Specialty Crop
- Overlays**
- EP Overlay
  - EC Overlay
  - N.E.D.C. Area
  - Hazard Overlay
  - Roads
  - Lot Lines



Notes:  
1. Site specific zoning shown on separate schedules.

**NOTES:**

**REFERENCE:**

UTM Zone 17, WGS84. Not to scale



Sophie's Landing  
Odour Assessment

**Zoning Map 7-A**

Drawn By: PLK	Approved By: NZS	Figure No.: <b>A-4</b>
Date: May 2023	Project No.: SX22-0035	

## **Appendix B:**

### **Excerpts Freedom of Information Documentation**



Content Copy Of Original



Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement  
climatique

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 5755-AEFJVC  
Issue Date: March 30, 2017

The Regional Municipality of Niagara  
Post Office Box, No. 1042  
Thorold, Ontario  
L2V 4T7

Site Location: Baker Road Wastewater Treatment Plant  
347 Baker Rd N  
Grimsby Town, Regional Municipality of Niagara  
L3M 5T3

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

municipal sewage works under Section 53 of OWRA for the collection, transmission, treatment of sanitary sewage and disposal of effluent to Lake Ontario via a Sewage Treatment Plant (Baker Road Wastewater Treatment Plant) as follows:

Rated Capacity of Sewage Treatment Plant: 31,280 m<sup>3</sup>/d

### Proposed Works

Modifications to the existing odour control system at the Baker Road Wastewater Treatment Plant for the collection, transmission, treatment of odorous emissions from Manhole 4 (located near the wastewater treatment plant, north of the Queen Elizabeth Way) within the existing Odour Control Facility at the plant comprising of the following:

- one (1) high pressure blower type booster fan, capable of drawing 1530 m<sup>3</sup>/h of air from Manhole 4 and conveying it to the existing odour control facility,

and all other controls, electrical equipment, instrumentation, valves and appurtenances essential for the proper control of the aforementioned works.

### Previous Works

The Baker Road Wastewater Treatment Plant for the collection, transmission, treatment and disposal of domestic sewage, located at the above site location, rated at the capacities mentioned below and consisting of the following Works:

<b>Baker Road Wastewater Treatment Plant</b>	
Average Daily Flow	31,280 m <sup>3</sup> /d
Peak Flow Rate (Dry Weather)	62,600 m <sup>3</sup> /d

Peak Flow Rate (Wet Weather)	120,000 m <sup>3</sup> /d
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## Inlet Works

- A raw sewage pumping station consisting of:
  - two inter-connected wet wells
  - six (6) raw sewage pumps (three pumps for each wet well) each having a capacity of approximately 348 L/s and each equipped with a variable frequency drive
- Screening facilities consisting of:
  - two (2) 8 mm bar screens each with a capacity of 120,000 m<sup>3</sup>/d, a by-pass channel, screenings conveyors, compactors and associated equipment
- Grit removal facilities consisting of:
  - one (1) vortex grit tank, with a capacity of 75,000 m<sup>3</sup>/d, with a grit classifier and associated equipment.
  - one (1) vortex grit tank, with a capacity of 63,000 m<sup>3</sup>/d, with a grit classifier and associated equipment, for flow going to the storm tanks.
- A hauled waste receiving station and associated equipment
- Primary Clarifiers consisting of the following:
  - four (4) primary clarifiers 6.9 m x 38.4 m x 3.0 m SWD and equipped with chain and flights, 4 raw sludge pumps and associated equipment.
  - two (2) storm tanks, each 13.7 m x 27.4 m x 3.0 m SWD and equipped with tipping buckets
  - automated scum collection and removal systems for primary clarifiers

## Aeration Tanks

- Aeration system as follows:
  - three (3) aeration tanks, each 24.4 m square x 3.7 m SWD, equipped with selectors and fine bubble aeration system
  - each selector has a volume of 220 m<sup>3</sup> and is equipped with mixers
  - four (4) blowers each with a capacity of approximately 8,350 m<sup>3</sup>/hr.

## Final Clarifiers

- Final clarifiers consisting of the following:
  - two (2) secondary clarifiers, each 27.4 m diameter x 3.7 m SWD, equipped with sludge and scum removal equipment
  - Two (2) secondary clarifiers, each 27.4 diameter x 3.0 m SWD, equipped with sludge and scum removal equipment

## Effluent Disinfection System

- Effluent disinfection facilities consisting of:



- Two contact tanks, sized for 120,000 m<sup>3</sup>/day for disinfection and dechlorination, whenever chlorine is used as the disinfectant
- two (2) disinfectant chemical storage tanks, each 16,000 L capacity, with six (6) chemical metering pumps
- one (1) dechlorination chemical storage tank, 5000 L capacity, with two (2) chemical metering pumps

#### Phosphorus Removal

- A chemical dosing system for phosphorus removal consisting of:
  - two (2) phosphorus removal chemical storage tanks, each with a capacity of 45,000 L
  - two (2) chemical metering pumps for injection of chemical into the effluent from each grit removal facility, as required
  - two (2) chemical metering pumps for injection of chemical into the headworks, primary clarifiers or aeration, as required.

#### Sludge Management System

- A sludge digestion system consisting of:
  - one (1) anaerobic fixed cover primary digester, 27.4 m in diameter x 6.1 m SWD having a capacity of 3,603 m<sup>3</sup>;
  - one (1) anaerobic floating cover secondary digester, 27.4 m in diameter x 6.1 m SWD having a capacity of 3,603 m<sup>3</sup>;
  - two (2) digested sludge re-circulation pumps, each rated at 22 L/s associated with the primary digester;
  - one (1) sludge heat exchanger with a heating capacity of 1,347,500 BTU/h;
  - digester mixing equipment consisting of a gas compressor rated at 180 L/s at 124 kPa, two sets of diffusers and associated accessories;
  - a digester gas system including two (2) digester gas boosters capable of handling a gas flowrate of 33 to 90 L/s; and
  - one (1) waste gas burner.
  - two (2) sludge unloading pumps each rated at 1090 m<sup>3</sup>/d, equipped with motors, associated with the secondary digester
  - three (3) return activated sludge pumps
  - two (2) waste activated sludge pumps.

#### Treated Effluent Outfall

- a 1,200 mm diameter (internal) pipe, approximately 460 m in length complete with access manholes to the edge of Lake Ontario and extending 54.3 m into Lake Ontario; and
- uncapped diffuser ports on outfall sewer.

#### Sludge and Hauled Waste Storage Facility

- Sludge storage and hauled waste facility consisting of:
  - one (1) 2500 m<sup>3</sup> digested sludge storage tank equipped with two (2) sludge pumps rated at 9.5 L/s
  - one (1) 70 m<sup>3</sup> hauled waste storage tank equipped with one (1) pump rated at approximately 5.22 L/s

#### Flow Measurement

▪ The following flow meters are included:

- one (1) 914 mm (36") Parshall flume for measuring final effluent flow.
- one (1) 610 mm (24") Parshall flume for measuring secondary by-pass flow
- one (1) 1220 mm (48") Parshall flume for measuring raw sewage flow; and
- one (1) weir and ultrasonic transducer for measuring plant bypass flow. Standby Power

▪ Standby power generation includes the following:

- a 1,000 kW standby engine generator set complete with two (2) 4,500 L diesel fuel storage double-walled tanks (total capacity of 9,000 L);

Miscellaneous

▪ miscellaneous items as follows:

- an effluent water distribution and pumping system
- an odour control systems consisting of:
  - a centralized biofilter for collection and treatment of odorous off-gases from the raw sewage pumping station, the new headworks building, the primary clarifiers (scum troughs, effluent weirs and effluent chamber)
  - including a biofilter to treat foul odours from septage receiving station, sludge holding tank
- two (2) hot water boilers each rated at 80 kW.

All associated appurtenances, piping, heating and ventilation, electrical, instrumentation, and control systems necessary to operate the above-mentioned Works,

all in accordance with the submitted supporting documents listed in Schedule A.

*For the purpose of this environmental compliance approval, the following definitions apply:*

"Annual Average Concentration" means the arithmetic mean of all Single Sample Concentrations of a contaminant in the Final Effluent sampled or measured, or both, during a calendar year;

"Annual Average Daily Flow" means the cumulative total sewage flow of Influent and Imported Sewage to the Sewage Treatment Plant during a calendar year divided by the number of days during which sewage was flowing to the Sewage Treatment Plant that year;

"Approval" means this entire document and any schedules attached to it, and the application;

"BOD5" (also known as TBOD5) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demand;

"Bypass" means diversion of sewage around one or more unit processes within the Sewage Treatment Plant with the diverted sewage flows being returned to the Sewage Treatment Plant treatment train upstream of the Final Effluent sampling point, and discharging to the environment through the Sewage Treatment Plant outfall;

"CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"Single Sample Concentration" means the concentration of a contaminant in the effluent discharged on any day, as measured by a composite or grab sample, whichever is required;

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes

of Part II.1 of the EPA;

"*E. coli*" refers to the thermally tolerant forms of Escherichia that can survive at 44.5 degrees Celsius;

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19, as amended;

"Equivalent Equipment" means a substituted equipment or like-for-like equipment that meets the required quality and performance standards of a named equipment;

"Event" means an action or occurrence, at a given location within the Works that causes a Bypass or Overflow. An Event ends when there is no recurrence of a Bypass or Overflow in the 12-hour period following the last Bypass or Overflow. Two Events are separated by at least 12 hours during which there has been no recurrence of a Bypass or Overflow. An Overflow Event and a Bypass Event are two separate reportable events even when they occur concurrently;

"Final Effluent" means effluent that are discharged to the environment through the approved Final Effluent Outfall, including all Bypasses, that are required to comply with the effluent limits stipulated in the Approval for the Sewage Treatment Plant, pertaining specifically to the Final Effluent sampling point;

"Geometric Mean Density" is the  $n$ th root of the product of multiplication of the results of  $n$  number of samples over the period specified;

"Imported Sewage" means sanitary sewage, leachate, septage, processed organics conveyed to the Sewage Treatment Plant via haul trucks and approved for co-treatment with the Influent;

"Influent" means flows to the Sewage Treatment Plant through the collection system, excluding all Imported Sewage and process return flows;

"Limited Operational Flexibility" (LOF) means the minor modifications that the Owner is pre-approved to make to the Works under this Approval;

"Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

"Monthly Average Concentration" means the arithmetic mean of all Single Sample Concentrations of a contaminant in the Final Effluent sampled or measured, or both, during a calendar month;

"Monthly Average Effluent Flow" means the cumulative total Final Effluent discharged during a calendar month divided by the number of days during which Final Effluent was discharged that month;

"Monthly Average Loading" means the value obtained by multiplying the Monthly Average Concentration of a contaminant by the Monthly Average Effluent Flow over the same calendar month;

"Overflow" means a discharge to the environment from the Works at a location other than the Sewage Treatment Plant outfall or into the outfall downstream of the Final Effluent sampling point;

"Owner" means The Regional Municipality of Niagara and its successors and assignees;

"OWRA" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;

"Peak Hourly Flow Rate" means the largest volume of flow to be received during a one-hour period for which the sewage treatment process unit or equipment is designed to handle. This flow is also referred to as maximum hourly flow or maximum hour flow;

"Previous Works" means those portions of the Works constructed under a previous approval or retroactively approved under this Approval;

"Proposed Works" means those portions of the Works to be constructed under this Approval;



"Rated Capacity" means the Annual Average Daily Flow for which the Sewage Treatment Plant is designed to handle;

"Sewage Treatment Plant" means the entire sewage treatment and effluent outfall facility;

"Substantial Completion" has the same meaning as "substantial performance" in the *Construction Lien Act*;

"Water Supervisor" means the Water Compliance Supervisor for the Safe Drinking Water Branch (SDWB) for the Niagara District Office of the Ministry; and

"Works" means the sewage works described in the Owner's application, and this Approval, and includes Proposed Works, Previous Works and modifications made under Limited Operational Flexibility.

*You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:*

## **TERMS AND CONDITIONS**

### **1. GENERAL PROVISIONS**

(1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these terms and conditions, the Owner shall design, construct, operate and maintain the Works in accordance with this Approval.

(3) Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence, and where there is a conflict between the documents in the Schedule A, the document bearing the most recent date shall prevail.

(4) The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

(5) This Approval is granted based upon a review of the Works in the context of its effect on the environment, its process performance and general principles of wastewater engineering. The review did not include a consideration of the architectural, mechanical, electrical or structural components and minor details of the Works except to the extent necessary to review the Works.

(6) This Approval only pertains to approval required under OWRA S.53 and does not include Air, Noise, Waste, Renewable Energy and other media approvals that may be required under other sections of the EPA or the Green Energy Act or other Federal or Provincial regulations for any portion of the Works.

### **2. CHANGE OF OWNER**

(1) The Owner shall notify the Water Supervisor and the Director, in writing, of any of the following changes within 30 days of the change occurring:

- (a) change of Owner;
- (b) change of address of the Owner;
- (c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act*, R.S.O. 1990, c.B17 shall be included in the notification to the Water Supervisor;
- (d) change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act*, R.S.O. 1990, c. C39 shall be included in the notification to the Water Supervisor;

(2) In the event of any change in ownership of the Works, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the Water Supervisor and the Director.

### **3. COMPLETION OF THE PROPOSED WORKS**

(1) All Proposed Works in this Approval shall be completed and commissioned within five (5) years of issuance of this Approval.

(2) One (1) week prior to the start up of the operation of the Proposed Works, the Owner shall notify the Water Supervisor (in writing) of the pending start up date.

(3) Upon the Substantial Completion of the Proposed Works, the Owner shall prepare a statement, certified by a Professional Engineer, that the Proposed Works are constructed in accordance with this Approval, and shall make the written statement to notify the Water Supervisor.

(4) Within one (1) year of the Substantial Completion of the Proposed Works, a set of as-built drawings showing the Works "as constructed" shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the Works for the operational life of the Works.

(5) In the event that completion and commissioning of any portion of the Proposed Works is anticipated to be delayed beyond five (5) years of issuance of this Approval, the Owner shall submit an application of extension to the specified period, at least twelve (12) months prior to the end of the period. The application for extension shall include the reason(s) for the delay, whether there is any design change(s) and a review whether the standards applicable at the time of Approval of the Works are still applicable at the time of request for extension, to ensure the ongoing protection of the environment.

### **4. BYPASSES**

(1) Any Bypass is prohibited, except:

- a. in an emergency situation when a structural, mechanical or electrical failure that causes a temporary reduction in capacity of the Sewage Treatment Plant or in unexpected and/or unavoidable circumstance that is likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset;
- b. where the Bypass is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the Water Supervisor at least fifteen (15) days prior to the occurrence of Bypass, including an assessment of the potential adverse effects on the environment and the anticipated duration of the Bypass and the

mitigation measures, and the Water Supervisor has given written consent of the Bypass;

(2) For any Bypass Event, the Owner shall forthwith notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information for each Event:

- a. the date and time of the Bypass;
- b. the treatment process(es) Bypassed and the status of the disinfection;
- c. the reason(s) for the Bypass.

(3) After each Bypass Event, the Owner shall collect and record the following information:

- a. the duration of the Bypass Event;
- b. the measured or the estimated volume of Bypass.

(4) For any Bypass Event, the Owner shall collect sample(s) of the Final Effluent, representative of the Event, at the Final Effluent Compliance sampling point, and analyze for all effluent parameters outlined in Compliance Limits condition. These samples shall be of the same type as the regular samples required in the Monitoring and Recording condition and shall follow the same protocols specified in the Monitoring and Recording condition. If the Bypass occurs within 48 hours prior to a scheduled regular sample, then the scheduled regular sample may be omitted for that one time only.

(5) The Owner shall submit a summary report of the Bypass Event(s) to the Water Supervisor on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary reports shall be in an electronic format, which shall contain, at a minimum, the types of information set out in Subsections (2), (3) and (4) for Bypass(es). The Water Supervisor may modify the reporting frequency at any time in writing.

## **5. OVERFLOWS**

(1) Any Overflow is prohibited, except:

- a. in an emergency situation when a structural, mechanical or electrical failure that causes a temporary reduction in the capacity of the Sewage Treatment Plant or in unexpected and/or unavoidable circumstance(s) that are likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset;
- b. where the Overflow is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the Water Supervisor at least fifteen (15) days prior to the occurrence of the Overflow, including an assessment of the potential adverse effects on the environment and the anticipated duration of the Overflow and the mitigation measures, and the Water Supervisor has given written consent of the Overflow.

(2) For any Overflow Event, the Owner shall forthwith notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information for each Event:

- a. the date and time of the Overflow;
- b. the location of the Overflow and the receiver;
- c. the reason(s) for the Overflow; and
- d. the level of treatment the Overflow has received and disinfection status of same.

(3) After any Overflow Event, the Owner shall collect and record the following information:

- a. the duration of the Overflow Event;

- b. the monitored or estimated volume of the Overflow; and
- c. the impact of Overflow on the receiver.

(4) For each Overflow Event, the Owner shall collect samples, representative of the Event, consisting of a minimum of two (2) grab samples of the Overflow, one at the beginning of the Event and one approximately near the end of the Event, and every 4 hours for the duration of the Event, and have them analyzed for effluent parameters outlined in Effluent Limits condition. For raw sewage and primary treatment system Overflow, BOD5 shall be monitored instead of CBOD5.

(5) The Owner shall submit a summary report of the Overflow Event(s) to the Water Supervisor on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary report shall be in an electronic format, which shall contain, at a minimum; the types of information set out in Subsections (2), (3) and (4) for Overflow(s). The Water Supervisor may modify the reporting frequency at any time in writing.

## 6. DESIGN OBJECTIVES

(1) The Owner shall use best efforts to design, construct and operate the Works with the objective that the concentrations and waste loadings of the materials named below as effluent parameters are not exceeded in the effluent from the Works.

a. Effluent parameters with concentration objectives:

<b>Concentration Objectives</b>		
<b>Effluent Parameter</b>	<b>Average Concentration</b> (milligrams per litre unless otherwise indicated)	<b>Averaging Period</b>
CBOD5	15.0	Monthly
Total Suspended Solids	15.0	Monthly
Total Phosphorus	0.75	Monthly
Total Ammonia Nitrogen	8	Monthly
Jan. - Apr.	5	
May - Jun.	3	
Jul. - Oct.	5	
Nov. - Dec.		
<i>E. coli</i>	100 organisms /100 mL (monthly <i>Geometric Mean Density</i> )	Monthly
Total Chlorine Residual	0.01 (non-detect) Note 1	Monthly

Note 1: Any positive detection of the dechlorinating agent in the effluent is indicative of non-detectable levels of chlorine.

b. pH within the range of 6.5 - 8.5, inclusive, at all times;

c. The Final Effluent is essentially free of floating and settable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

d. The effluent is continuously disinfected from April 1<sup>st</sup> to October 31<sup>st</sup> so that the monthly Geometric Mean Density of *E. coli* does not exceed 100 organisms per 100 millilitres of Final Effluent inclusive each year, except the days when sewage flow to the sewage treatment plant exceeds secondary treatment capacity of 62,600 m<sup>3</sup> / d.



(2) The Owner shall use best efforts to operate the Works within the Rated Capacity of the Sewage Treatment Plant.

(3) The Owner shall make an assessment of the issues and recommendation of pro-active actions if any is required under the following situations and include in the annual report to the Water Supervisor:

- a. when any of the design objectives is not achieved consistently;
- b. when the Annual Average Daily Flow reaches 80% of the Rated Capacity.

## 7. COMPLIANCE LIMITS

(1) The Owner shall operate and maintain the Works such that the compliance limits of the materials named below as effluent parameters are not exceeded in the Final Effluent from the Sewage Treatment Plant.

a. Effluent parameters with concentration and loading limits:

<b>Concentration Limits</b>		
<b>Effluent Parameter</b>	<b>Maximum Average Concentration</b> (milligrams per litre unless otherwise indicated)	<b>Averaging Period</b>
CBOD5	25.0	Monthly
Total Suspended Solids	25.0	Monthly
Total Phosphorus	0.5	Monthly
Total Ammonia Nitrogen	10	Monthly
Jan. - Apr.	7	
May - Jun.	4	
Jul. - Oct.	7	
Nov. - Dec.		
<i>E. coli</i>	200 organisms /100 mL (monthly Geometric Mean Density)	Monthly

<b>Loading Limits</b>		
<b>Effluent Parameter</b>	<b>Maximum Average Loading</b> (kilograms per day unless otherwise indicated)	<b>Averaging Period</b>
CBOD5	782	Annually
Total Suspended Solids	782	Annually
Total Phosphorus	15.6	Annually
Total Ammonia Nitrogen	312.8	Annually
Jan. - Apr.	219.0	
May - Jun.	125.2	
Jul. - Oct.	219.0	
Nov. - Dec.		

b. pH within the range of 6.5 - 8.5, inclusive, as measured in any Individual Sample;

c. The Final Effluent is essentially free of floating and settable solids and does not contain oil or

any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

d. The effluent is continuously disinfected from April 1<sup>st</sup> to October 31<sup>st</sup> so that the monthly Geometric Mean Density of *E. coli* does not exceed 200 organisms per 100 millilitres of Final Effluent inclusive each year, except the days when sewage flow to the sewage treatment plant exceeds secondary treatment capacity of 62,600 m<sup>3</sup> / d.

## **8. OPERATION AND MAINTENANCE**

(1) The Owner shall exercise due diligence in ensuring that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this Approval and the OWRA and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the Works.

(2) The Owner shall prepare the operations manual for the Works within six (6) months of Substantial Completion of the Proposed Works, that includes, but not necessarily limited to, the following information:

- a. operating procedures for routine operation of the Works especially the proper operation of the Odour Control Facility
- b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
- c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;
- d. procedures for the inspection and calibration of monitoring equipment;
- e. a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the Water Supervisor; and
- f. procedures for receiving, responding and recording public complaints, (especially related to odour) including recording any follow-up actions taken.

(3) The Owner shall maintain the operations manual current and retain a copy at the location of the Works for the operational life of the Works. Upon request, the Owner shall make the manual available to Ministry staff.

(4) The Owner shall provide for the overall operation of the Works with an operator who holds a licence that is applicable to that type of facility and that is of the same class as or higher than the class of the facility in accordance with Ontario Regulation 129/04.

## **9. MONITORING AND RECORDING**

The Owner shall, upon commencement of operation of the Works, carry out the following monitoring program:

(1) All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

(2) For the purposes of this condition, the following definitions apply:

- a. Weekly means once each week;
- b. Monthly means once every month;

(3) Samples shall be collected at the following sampling points, at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

<b>Influent Sampling Point</b>		
<b>Parameters</b>	<b>Sample Type*</b>	<b>Frequency</b>
BOD5	24 hour Composite	Monthly
Total Suspended Solids	24 hour Composite	Monthly
Total Phosphorus	24 hour Composite	Monthly
Total Kjeldahl Nitrogen	24 hour Composite	Monthly

<b>Final Effluent Sampling Point</b>		
<b>Parameters</b>	<b>Sample Type*</b>	<b>Frequency</b>
CBOD5	24 hour Composite	Weekly
Total Suspended Solids	24 hour Composite	Weekly
Total Phosphorus	24 hour Composite	Weekly
Total Ammonia Nitrogen	24 hour Composite	Weekly
Nitrate Nitrogen	24 hour Composite	Weekly
<i>E. coli</i>	Grab	Weekly
pH	Grab	Weekly
Temperature	Grab	Weekly
Total Residual Chlorine	Grab	Weekly (when chlorination in use)

\*Definitions and preparation requirements for each sample type are included in document (4)(b) referenced below.

(4) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

- a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;
- b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02 Ontario.ca/Environment, as amended from time to time by more recently published editions;
- c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended from time to time by more recently published editions;

(5) The monitoring frequencies specified in subsection (3) in respect to any parameter are minimum requirements which may be modified by the Water Supervisor in writing from time to time under the following situations:

- a. after two (2) years of monitoring in accordance with this Condition and all results achieve the Design Objectives;

(6) The Owner shall install and maintain flow monitoring equipment, with an accuracy to within plus or minus 15 per cent ( + /- 15%) of the actual flowrate for the entire design range of the flow measuring device, and to totalize and record the quantity of the flow at hourly/daily intervals, for the following sewage streams;

- a. Influent flow to the Sewage Treatment Plant by continuous flow measuring devices and instrumentations;
- b. Final Effluent discharged from the Sewage Treatment Plant by continuous flow measuring

devices and instrumentations, or in lieu of an actual installation of equipment, adopt the flow measurements of the Influent for the purpose of estimating Final Effluent flows if the Influent and Final Effluent streams are considered not significantly different in flow rates and quantities;

(7) The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

(8) The temperature and pH of the effluent from the Works shall be determined in the field at the time of sampling for Total Ammonia Nitrogen. The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended, for ammonia (un-ionized).

(9) If the Owner monitors a dechlorinating agent as a surrogate to Total Residual Chlorine, then any positive detection of the dechlorinating agent in the effluent is indicative of non-detectable levels of chlorine.

#### **10. LIMITED OPERATIONAL FLEXIBILITY (MINOR MODIFICATIONS TO THE WORKS)**

(1) The Owner may make modifications to the Works in accordance with the Terms and Conditions of this Approval and subject to the Ministry's "Limited Operational Flexibility Criteria for Modifications to Sewage Works", included under Schedule B of this Approval, as amended.

(2) Sewage works proposed under Limited Operational Flexibility shall adhere to the design guidelines contained within the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended.

(3) The Owner shall ensure at all times, that the Works, related equipment and appurtenances which are installed or used to achieve compliance are operated in accordance with all Terms and Conditions of this Approval.

(4) For greater certainty, the following are not permitted as part of Limited Operational Flexibility:

- a. Modifications to the Works that result in an increase of the Rated Capacity of the Works;
- b. Modifications to the Works that may adversely affect the approved effluent quality criteria or the location of the discharge/outfall;
- c. Modifications to the treatment process technology of the Works, or modifications that involve construction of new reactors (tanks) or alter the treatment train process design;
- d. Modifications to the Works approved under s.9 of the EPA, and
- e. Modifications to the Works pursuant to an order issued by the Ministry.

(5) Implementation of Limited Operational Flexibility is not intended to be used for piecemeal measures that result in major alterations or expansions.

(6) If the implementation of Limited Operational Flexibility requires changes to be made to the Emergency Response, Spill Reporting and Contingency Plan, the Owner shall, as deemed necessary in consultation with the Water Supervisor, provide a revised copy of this plan for approval to the local fire services authority prior to implementing Limited Operational Flexibility.

(7) For greater certainty, any modification made under the Limited Operational Flexibility may only be carried out after other legal obligations have been complied with, including those arising from the *Environmental Protection Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act*, *Lake Simcoe Protection Act* and *Greenbelt Act*.

(8) Prior to implementing Limited Operational Flexibility, the Owner shall complete a Notice of Modifications describing any proposed modifications to the Works and submit it to the Water Supervisor.



## 11. REPORTING

(1) The Owner shall report to the Water Supervisor orally as soon as possible any non-compliance with the effluent criteria, and in writing within seven (7) days of non-compliance.

(2) In addition to the obligations under Part X of the *Environmental Protection Act*, the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the Water Supervisor describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

(3) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

(4) The Owner shall prepare performance reports on an annual basis and submit to the Water Supervisor by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information:

- a. a summary and interpretation of all monitoring data and a comparison to the Final Effluent limits outlined in Compliance Limits condition, including an overview of the success and adequacy of the Works;
- b. a description of any operating problems encountered and corrective actions taken;
- c. a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;
- d. a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- e. a summary of the calibration and maintenance carried out on all effluent monitoring equipment;
- f. a description of efforts made and results achieved in meeting the Design Objectives;
- g. a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
- h. a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- i. a summary of all By-pass, spill or abnormal discharge events;
- j. a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;
- k. a report summarizing all modifications completed as a result of Schedule B, Section 3; and
- l. any other information the Water Supervisor requires from time to time.

(5) The Owner shall, within thirty (30) calendar days of issuance of this Approval, submit a Municipal and Local Services Board Wastewater System Profile Information Form, and shall resubmit the updated document every time a notification is provided to the Water Supervisor in compliance with requirements of change of ownership under this Approval. A copy of the latest version of the form shall be obtained from the Water Supervisor.

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition 1 is imposed to ensure that the Works are constructed and operated in the manner in

which they were described and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.

3. Condition 3 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction, to ensure the ongoing protection of the environment. It also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.

4. Condition 4 is included to indicate that Bypass is prohibited, except in circumstances where the failure to Bypass could result in greater injury to the public interest than the Bypass itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Bypass Events.

5. Condition 5 is included to indicate that Overflow of untreated or partially treated sewage to the receiver is prohibited, except in circumstances where the failure to Overflow could result in greater injury to the public interest than the Overflow itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Overflow Events.

6. Condition 6 is imposed to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliance limits of Condition 7 are exceeded.

7. Condition 7 is imposed to ensure that the effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body.

8. Condition 8 is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.

9. Condition 9 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and effluent limits specified in the Approval and that the Works does not cause any impairment to the receiving watercourse.

10. Condition 10 is included to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These Conditions are also included to ensure that a Professional Engineer has reviewed the proposed modifications and attests that the modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed modifications comply with the Ministry's requirements stipulated in the Terms and Conditions of this Approval, Ministry policies, guidelines, and industry engineering standards and best management practices.

11. Condition 11 is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

### **Schedule A**

1. All previous applications for approval of above-noted sewage works, including design calculations, engineering drawings, and reports prepared in support of the previous Certificate(s) of Approval including the documentation listed below.

2. Application for Approval of Municipal and Private Sewage Works submitted by the Regional Municipality of Niagara dated July 31, 2008 under a cover letter of Genivar, Consulting Engineers dated July 31, 2008.

3. Design report entitled "Baker Road Wastewater Treatment Plant, Phase 3 Upgrade and Expansion" dated August 2008 prepared by Genivar, Consulting Engineers.

4. A set of final plans entitled "The Regional Municipality of Niagara, Public Works Department, Baker Road Wastewater Treatment Plant, Phase 3 Upgrade and Expansion, Town of Grimsby" dated July 2008 prepared by Genivar, Consulting Engineers.

5. Staging report entitled "Stage 1 Design Brief Baker Road Wastewater Treatment Plant Phase 3 Upgrade and Expansion" dated January 2009 prepared by Genivar, Consulting Engineers.

6. Environmental Compliance Approval Application dated April 17, 2015 and all supporting documentation, including final plans prepared by AECOM, Consulting Engineers and submitted by The Regional Municipality of Niagara under covering letter dated April 17, 2015 and electronic correspondence and other supporting documentation including draft report entitled "The Regional Municipality of Niagara, Smithville PS Odour Control Upgrades, Design Submission Report" dated May 2105 prepared by AECOM, Consulting Engineers.

### **Schedule B**

#### **Limited Operational Flexibility Criteria for Modifications to Municipal Sewage Works**

1. The modifications to sewage works approved under an Environmental Compliance Approval (Approval) that are permitted under the Limited Operational Flexibility (LOF), are outlined below and are subject to the LOF conditions in the Approval, and require the submission of the Notice of Modifications. If there is a conflict between the sewage works listed below and the Terms and Conditions in the Approval, the Terms and Conditions in the Approval shall take precedence.

#### **1.1 Sewage Pumping Stations**

a. Alter pumping capacity by adding or replacing equipment where new equipment is located within an existing sewage treatment plant site or an existing sewage pumping station site, provided that the modifications do not result in an increase of the sewage treatment plant Rated Capacity and the existing flow process and/or treatment train are maintained, as applicable.

b. Forcemain relining and replacement with similar pipe size where the nominal diameter is not greater than 1,200 mm.

## 1.2 Sewage Treatment Process

- a. Installing additional chemical dosage equipment including replacing with alternative chemicals for pH adjustment or coagulants (non-toxic polymers) provided that there are no modifications of treatment processes or other modifications that may alter the intent of operations and may have negative impacts on the effluent quantity and quality.
- b. Expanding the buffer zone between a sanitary sewage lagoon facility or land treatment area and adjacent uses provided that the buffer zone is entirely on the proponent's land.
- c. Optimizing existing sanitary sewage lagoons with the purpose to increase efficiency of treatment operations provided that existing sewage treatment plant rated capacity is not exceeded and where no land acquisition is required.
- d. Optimizing existing sewage treatment plant equipment with the purpose to increase the efficiency of the existing treatment operations, provided that there are no modifications to the works that result in an increase of the approved Rated Capacity, and may have adverse effects to the effluent quality or location of the discharge.
- e. Replacement, refurbishment of previously approved equipment in whole or in part with Equivalent Equipment, like-for-like of different make and model, provided that the firm capacity, reliability, performance standard, level of quality and redundancy of the group of equipment is kept the same or exceeded. For clarity purposes, the following equipment can be considered under this provision: pumps, screens, grit separators, blowers, aeration equipment, sludge thickeners, dewatering equipment, UV systems, chlorine contact equipment, bio-disks, and sludge digester systems.

## 1.3 Sewage Treatment Plant Outfall

- a. Replacement of discharge pipe with similar pipe size or diffusers provided that the outfall location is not changed.

## 1.4 Sanitary Sewers

- a. Pipe relining and replacement with similar pipe size within the Sewage Treatment Plant site, where the nominal diameter is not greater than 1,200 mm.

## 1.5 Pilot Systems

- a. Installation of pilot systems for new or existing technologies provided that:
  - i. any effluent from the pilot system is discharged to the inlet of the sewage treatment plant or hauled off-site for proper disposal,
  - ii. any effluent from the pilot system discharged to the inlet of the sewage treatment plant or sewage conveyance system does not significantly alter the composition/concentration of the influent sewage to be treated in the downstream process; and that it does not add any inhibiting substances to the downstream process, and



iii. the pilot system's duration does not exceed a maximum of two years; and a report with results is submitted to the Director and Water Supervisor three months after completion of the pilot project.

2. Sewage works that are exempt from section 53 of the OWRA by O. Reg. 525/98 continue to be exempt and are not required to follow the notification process under this Limited Operational Flexibility.

3. Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved.

4. The modifications noted in section (3) above are not required to follow the notification protocols under Limited Operational Flexibility, provided that the number of pieces and description of the equipment as described in the Approval does not change.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 0643-8BBLDJ issued on January 26, 2011.**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

3. The name of the appellant;

4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Director appointed for the purposes  
of Part II.1 of the Environmental  
Protection Act  
Ministry of the Environment and Climate  
Change  
135 St. Clair Avenue West, 1st Floor  
Toronto, Ontario  
M4V 1P5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 30th day of March, 2017

Fariha Pannu, P.Eng.  
Director  
appointed for the purposes of Part II.1 of  
the *Environmental Protection Act*

HV/  
c: DWMD Supervisor, MOECC Niagara District Office  
T. Alex Carciumaru, P.Eng., AECOM Canada Ltd.

**Table Seven:** Summary of plant and collection system bypass event and volume totals

Location		Number of Events	Total Volume Bypassed (ML)
Plant	Primary Bypass	0	0.000
	Secondary Bypass	3	6.238
Collection System		16	25.769
<b>Total:</b>		<b>19</b>	<b>32.007</b>

Attached in appendix C is a more detailed summary of bypass events for this reporting year.

Spills or Abnormal Discharge:

Were there any spills or abnormal discharges during the reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

There were no abnormal discharges or spills during the reporting period.

**8. Smithville CSO and Pumping Station**

Smithville CSO and pumping station are owned and operated by the Regional Municipality of Niagara and operate under the following Environmental Compliance Approvals:

- I. ECA # 2520-9BWMLW issued on September 30<sup>th</sup>, 2013
- II. ECA #2582-94EHR9 (odour control pilot) issued on January 30<sup>th</sup>, 2013
- III. ECA #3-1296-91-006 issued on August 22<sup>nd</sup>, 1991

There is a standard operating procedure in place between the Regional Municipality of Niagara and the Township of West Lincoln. The agreement consists of the Township pumping, recording pump hours and volumes and notifying SAC. The collection of samples is also done by the Township and given to the Niagara Region for analysis.

I. Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

No major maintenance was completed at the station in 2014. Upcoming capital works are planned for station and forcemain upgrades starting in 2015.

II. Summary of complaints:

All plant and system complaints were addressed above in section 6.

III. Summary of bypasses, spills or abnormal discharges:

There were 5 bypass events from the CSO facility in 2014. These events are summarized in appendix C.

Were there any spills or abnormal discharges during the reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

There were no abnormal discharges or spills in 2014.

## 9. Ontario Street Sewage Pumping Station

Ontario St. SPS operates under the following Environmental Compliance Approvals:

- a. ECA # 8713-9BFL4S issued on October 31<sup>st</sup>, 2013
- b. ECA #2582-94EHR9 (odour control pilot) issued on January 30<sup>th</sup>, 2013

### I. Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

No major maintenance was completed at the station in 2014. Capital upgrades are underway at the station.

### II. Summary of complaints:

All plant and system complaints were addressed above in section 6.

### III. Summary of bypasses, spills or abnormal discharges:

There were 2 bypass events at the Ontario Street SPS in 2014. Details regarding the events are included in appendix C.

Were there any spills or abnormal discharges during the reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

There were no abnormal discharges or spills in 2014.

## 10. Smithville Lagoon

Smithville Lagoon operates under ECA #3-1192-79-006.

### I. Effluent Flow Summary:

There were no seasonal effluent discharges to the Twenty-Mile Creek this reporting year. Since 2006, all sewage from the community of Smithville is collected at the Smithville SPS and conveyed to the Baker Rd. WWTP for full wastewater treatment.



II. Bypass Occurrences:

There were no bypass occurrences at the lagoon this reporting year.

III. Operations and Maintenance Activities:

The lagoon is monitored on a regular basis by staff from the Baker Rd. WWTP. There were no major maintenance activities at the lagoon.

IV. Process Upsets and Equipment Failure:

There were no upsets or abnormal conditions at the lagoon. All upsets or abnormal conditions would be documented and reported to the MOECC.

**11. Upcoming Capital Works:**

Many capital upgrades are planned or underway in the Baker Road collection system including:

- Jordan Valley SPS and forcemain upgrades
- Smithville SPS, forcemain and odour control upgrades
- Upgrades to the Victoria Avenue SPS
- Upgrades to the Ontario Street SPS

**12. Conclusion and Outlook:**

Baker Road WWTP continues to effectively treat wastewater by meeting and exceeding ECA objectives and limits with the exception of total phosphorus for the reporting year 2014. Continued enforcement of the industrial users and the sewershed will be continued in 2015 to prevent excess loadings to the plant.

John MacPherson  
Wastewater Operations Manager

Operational Issues:

Were any operational issues experienced during this reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

Total Phosphorus Exceedances June to September 2014

From the months of June through to September, Baker Road WWTP experienced excessive total phosphorus loadings coming in from the collection system. It was observed that the influent total phosphorus concentration was reaching levels nearly as high as 50 mg/L. Operations responded with increased coagulant levels and increased monitoring of the influent TP concentrations at the plant.

The Environmental Enforcement group was called in to investigate the sewershed and find the source of total phosphorus reaching the plant. Samples were collected and analyzed from different sewersheds to narrow down the search area. Once this was determined, more focused sampling was set up at different industrial areas. This investigation proved difficult as the release of phosphorus was not consistent. Several 24 hour discrete sampling events were set up and the release was found to be coming from an industrial user.

A non-compliance notice was sent as well as a meeting arranged between Enforcement and the industry. These actions resulted in a return to regular total phosphorus concentrations reaching the Baker Road WWTP.

Continued monitoring of the industry is conducted on a regular basis by the Enforcement group.

**2. Maintenance**

Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

Regular, routine and preventative maintenance was conducted at Baker Road WWTP in 2014. No major maintenance was completed at the plant during this time.

In the Baker Road collection system, major maintenance was conducted in 2014 and included:

- Upgrade of chemical dosing system at Park Road odour control facility
- Completion of capital upgrades at the Roberts Road SPS

**3. Effluent Quality Assurance Measures**

The following measures were taken to ensure the quality of the effluent produced at the Works:

- Sampling SOP and Compliance Sampling Schedule developed to meet ECA requirements as a minimum and are tested for the following analytes:

Sample Location	Analytes
-----------------	----------

continued at the Smithville SPS and at the Park Rd. Odour Control Facility. Odour control chemicals used consisted of both Bioxide and Hydrogen Peroxide.

**Flow Monitoring**

Flow monitoring equipment consists of an ultrasonic level recorder over a Parshall flume for effluent flows and also a Parshall flume and level recorder for plant secondary bypass flows.

<b>Flow Monitoring and Equipment Calibration</b>			
<b>Service Provider</b>	<b>Date Calibrated</b>	<b>Results of Calibration</b>	<b>Comments</b>
Monitario Technical Services Inc.	Oct. 22, 2013	Acceptable performance	Within $\pm$ standards

During rainfall/snow melt events the hydraulic capacity of the plant may be exceeded, resulting in Combined Sewer Overflow (CSO) events. CSO events are monitored, sampled and reported to the Spills Action Centre (SAC). There were no plant bypasses. There were **5** plant secondary bypass events for a total of **32.340** ML bypassing the secondary treatment process and receiving only primary treatment as well as disinfection during the season.

<b>Month</b>	<b>Total Plant Flow ML</b>	<b>Secondary Bypass ML</b>	<b># of Events</b>
January	790.816	7.396	1
February	749.527	2.154	1
March	752.727	0.000	0
April	763.144	6.269	1
May	556.308	0.000	0
June	715.209	0.000	0
July	615.202	2.031	1
August	473.262	0.000	0
September	486.769	0.000	0
October	568.660	0.000	0
November	573.824	0.000	0
December	718.452	14.490	1

**Smithville CSO and Pumping Station**

Smithville CSO and Pumping Station are owned and operated by The Regional Municipality of Niagara and were governed in 2013 by MOE Environmental Compliance of Approval Numbers **2582-94EHR9**, **8525-8QSL39** and Certificate of Approval number **2936-5YNR4Y** respectively. The Township of West Lincoln discharges from the CSO Tank to relieve the system when necessary to prevent residential flooding.

There is a Standard Operating Procedure for wet weather flow operations in place between The Regional Municipality of Niagara and the Township of West Lincoln. In summary the agreement consists of the Township pumping, recording pump h000099 :

volumes and notifying SAC. The collection of samples is also done by the Township and is given to the Niagara Region for analysis. All of the data that the region receives is recorded in our database.

### **By-Pass Occurrences**

For the 2013 there were four occurrences from the Smithville CSO.

### **Maintenance**

There were no maintenance activities performed on the CSO for 2013. Capital works projects are under way for the upgrade of Smithville SPS and the forcemain to further reduce odours and to increase reliability.

## **Smithville Lagoon Annual Report- ECA 3-1192-79-006**

### **Effluent Flow Summary**

There were no seasonal effluent discharges to Twenty-Mile Creek in 2013. Since 2006, all sewage from the community of Smithville is collected at the Region's Smithville sewage pumping station and sent to the Grimsby Wastewater Treatment plant for full treatment.

### **By-Pass Occurrences**

There were no by-pass occurrences at the lagoon in 2013. Since 2006, all sewage from the community of Smithville is collected at the Region's Smithville sewage pumping station (SPS) and sent to the Grimsby Wastewater Treatment plant for treatment. A CSO tank is located at the Smithville SPS. Any bypasses are reported to the MOE spills action centre as detailed in this report.

### **Operations and Maintenance Activities**

The lagoon is monitored on a regular basis by staff from the Grimsby WWTP. There were no major maintenance activities at the lagoon.

### **Process Upsets and Equipment Failure**

There were no upsets or abnormal conditions at the Lagoon. If any occurred, they would be documented and reported to the MOE.

### **Maintenance**

All maintenance records and work orders are catalogued through the use of a Computerized Maintenance Management System (CMMS).

A list of completed all completed work orders is attached. Included is all maintenance carried out on any major structure, equipment, apparatus and /or mechanism.

### **Conclusion and Outlook**



## Sampling

The plant sampling program consists of a series of 24-hour composite auto samplers located at the plant influent, primary treatment, and at the final effluent. Additional samples of Primary Raw sludge and Secondary Clarifier sludge are analyzed daily for percent solids and volatile solids whenever possible. Compliance testing is done by the Niagara Region Environmental Laboratory. A more detailed monthly plant performance report is submitted on a quarterly basis. A detailed annual summary is attached.

## Biosolids Management

A total of **34.638** ML of digested sludge was removed from the plant during the year. Digested sludge is trucked to the Garner Road Biosolids Storage and Dewatering Facility. Hauled sludge is trucked by Terratec Environmental Ltd. The sludge is further processed and may be applied to agricultural land, as outlined in the Ontario Guideline for Sewage Sludge Utilization on Agricultural Lands. Grab samples of hauled sludge are collected and analyzed by plant staff for solids, volatile solids and pH. Samples are also sent to the Region's Lab for heavy metals and ammonia/nitrogen analysis.

Total, ML Annual	% TS	% VS
34.638	3.20	59.75

As required, under the Nutrient Management Act 2002, a nutrient management strategy was submitted to the Ministry of Agriculture and Food. Nutrient management is a component of the province's Clean Water Strategy. The records of all sludge hauled from Baker Road WWTP are kept on site. It is anticipated that a similar quantity will be processed next year.

SLUDGE HAULED (ML)			
JANUARY	3.309	JULY	2.440
FEBRUARY	2.688	AUGUST	2.895
MARCH	3.433	SEPTEMBER	1.861
APRIL	2.812	OCTOBER	3.143
MAY	2.730	NOVEMBER	2.710
JUNE	2.812	DECEMBER	3.805

## Odour Complaints

There were **three (3)** odour complaints during the year which is down from the number in 2012. The Regional Municipality of Niagara was proactive in dealing with these odours. An odour complaint handling procedure is in place. Complaints are documented and investigated and corrective measures are taken if required. Odour control trials <sup>000098</sup> are

# Work Order Summary for Grimsby System

## All "PLANT" Work Orders Completed between Jan 1, 2013 to Dec 31, 2013

WO#	WO Description	Type	Priority	Object	Object Description	Date Completed
381364	(ROUTED) Quarterly Sludge Pump Inspection and Service - Baker Rd WW	Multiple Equipment Child	HIGH	000033592	Motor - Secondary Digester Sludge Pump 1	1/22/13
381365	(ROUTED) Quarterly Sludge Pump Inspection and Service - Baker Rd WW	Multiple Equipment Child	HIGH	000033593	Gearbox - Secondary Digester Sludge Pump 1	1/22/13
380341	(ROUTED) Quarterly Sludge Pump Inspection and Service - Baker Rd WW	Preventive Maintenance	HIGH	000033594	Secondary Digester Sludge Pump 2	1/22/13
381366	(ROUTED) Quarterly Sludge Pump Inspection and Service - Baker Rd WW	Multiple Equipment Child	HIGH	000033594	Secondary Digester Sludge Pump 2	1/22/13
381367	(ROUTED) Quarterly Sludge Pump Inspection and Service - Baker Rd WW	Multiple Equipment Child	HIGH	000033595	Motor - Secondary Digester Sludge Pump 2	1/22/13
381368	(ROUTED) Quarterly Sludge Pump Inspection and Service - Baker Rd WW	Multiple Equipment Child	HIGH	000033596	Gearbox - Secondary Digester Sludge Pump 2	1/22/13
384284	baker rd. lowlift bldg. repair water line	Repair / Corrective Maintenance	LOW	BJ-IZ-DW	Dry Well	1/22/13
381446	(ROUTED) Monthly First Aid Kit Inspection - WWA3 OPS	Preventive Maintenance	MED	BJ	Baker Road WWTP	1/28/13
381447	(ROUTED) Monthly First Aid Kit Inspection - WWA3 OPS	Multiple Equipment Child	MED	000019178	First Aid Station	1/28/13
381171	Monthly Flushing of Digester Transfer Lines - WWA3 OPS	Preventive Maintenance	HIGH	000018478	Primary Digester	1/29/13
381172	Monthly Testing of Digester System Floats - WWA3 OPS	Preventive Maintenance	HIGH	000018478	Primary Digester	1/29/13
381173	Monthly Flushing of Digester Transfer Lines - WWA3 OPS	Preventive Maintenance	HIGH	000018479	Digester - Secondary Digester	1/29/13
381232	Monthly Pump Stations Auxiliary Power Run Test - WW OPS	Preventive Maintenance	HIGH	000030149	Portable Genset Package	1/29/13
383783	intake for Huber system plugged	Repair / Corrective Maintenance	HIGH	BJ-SP	Septic Station	1/29/13
386420	repair pressure washer	Repair / Corrective Maintenance	MED	BJ	Baker Road WWTP	2/4/13
386421	Rebuild 6" valmatic plug valve.	Repair / Corrective Maintenance	MED	BJ	Baker Road WWTP	2/4/13
384145	Fire Alarm sensor reading smoke.	Repair / Corrective Maintenance	HIGH	BJ-B6	Hauled Waste Building	2/4/13
386423	Drain water from gas booster and methane lines	Repair / Corrective Maintenance	HIGH	000004923	Gas Booster 1	2/4/13
383011	Hauled Waste Receiving Bldg. Bio-Cube potable water supply line leaking.	Repair / Corrective Maintenance	HIGH	BJ-B6-R3	Odour Control	2/4/13
373911	Baker Rd Station Generators Auto status	Modification /	MED	000030081	Scada Server Cabine*	2/5/13

**000106**

# Work Order Summary for Grimsby System

## All "PLANT" Work Orders Completed between Jan 1, 2013 to Dec 31, 2013

WO#	WO Description	Type	Priority	Object	Object Description	Date Completed
398604	Hauled Waste Receiving Bldg. Atmospheric Monitor Alarm Beacons no longer flash.	Repair / Corrective Maintenance	HIGH	BJ-B6-R2	Pump Room	6/18/13
376928	Hauled Waste Receiving Bldg. gas alarm beacon buzzers noise complaint.	Modification / Improvement	MED	BJ-B6-R3	Odour Control	6/18/13
358492	No flashing light and buzzer combination alarm, no relay definitions	Follow Up Work from PM or PDM	MED	000035812	Control Panel - Atmospheric Gas Detection System	6/18/13
358482	System buzzers are not activating, relay definitions and tie off required	Follow Up Work from PM or PDM	MED	000035810	Control Panel - Atmospheric Gas Detection System	6/18/13
397243	Make required repairs; see comments	Follow Up Work from PM or PDM	MED	000035811	Control Panel - Atmospheric Gas Detection System	6/18/13
361795	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000033076	Backflow Preventer	6/18/13
361438	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000008245	Backflow Preventer	6/18/13
373584	O2 sensor in Dry well needs to be replaces as it has expired.	Follow Up Work from PM or PDM	MED	000034130	Oxygen Sensor & Digital Transmitter	6/18/13
358448	No alarm indications at wet well , Tie off point required at Wet well Ch4	Follow Up Work from PM or PDM	MED	000018426	Control Panel - Atmospheric Gas Detection System	6/18/13
402554	Change Air handling unit filers and drain compressors.	Follow Up Work from PM or PDM	HIGH	BJ	Baker Road WWTP	6/18/13
402555	North Scum bldg	Follow Up Work from PM or PDM	HIGH	BJ	Baker Road WWTP	6/18/13
402557	South scum building	Follow Up Work from PM or PDM	HIGH	BJ	Baker Road WWTP	6/18/13
402558	Sludge haulers building	Follow Up Work from PM or PDM	HIGH	BJ	Baker Road WWTP	6/18/13
361275	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000018384	Backflow Preventer	6/19/13
397649	Baker rd. Sodium-Bisulphite diffuser adjustment	Modification / Improvement	LOW	BJ-CZ	Chlorine Contact Area	6/19/13
360999	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000032429	Portable Backflow Preventer for Fire Hydrants	6/20/13
361435	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000018755	Backflow Preventer	6/20/13
405314	Baker Rd Load shedding programming and testing	Modification / Improvement	MED	000032237	SCADA Server 1 - in cabinet	6/20/13
361232	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000018591	Backflow Preventer	6/24/13
361233	Annual Backflow Preventer Inspections - WW North	Preventive Maintenance	MED	000033031	Backflow Preventer - Effluent Bldg Basement	6/24/13
361274	Annual Backflow Preventer Inspections - WW	Preventive	MED	000033030	Backflow Preventer - Screw Building	6/24/13

000127

## Work Order Summary for Grimsby System

**All "REMOTE" Work Orders Completed between Jan 1, 2013 to Dec 31, 2013**

Location	WO#	WO Description	Type	Priority	Object	Object Description	Date Completed
.ALL System Subsurface Asset Work		Inspection - WW North	Equipment Child			Valve	
	410278	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Multiple Equipment Child	MED	16200	Wastewater Control Valve	9/18/13
	410279	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Multiple Equipment Child	MED	16231	Wastewater Control Valve	9/18/13
	408965	Forcemain break South Service Rd west of Maple Grove	Breakdown	HIGH	11610	Wastewater Force Main	9/27/13
	370094	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Preventive Maintenance	MED	16275	Wastewater Control Valve	10/15/13
	410322	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Multiple Equipment Child	MED	16275	Wastewater Control Valve	10/15/13
	410323	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Multiple Equipment Child	MED	16276	Wastewater Control Valve	10/15/13
	410324	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Multiple Equipment Child	MED	16255	Wastewater Control Valve	10/15/13
	410325	(ROUTED) Annual WW Air Release Valve Inspection - WW North	Multiple Equipment Child	MED	16221	Wastewater Control Valve	10/15/13
	415989	Seal Manholes along Park Road South to prevent odour from escaping.	Modification / Improvement	MED	10837	Wastewater Access Chamber	11/14/13
	415991	Seal manholes along Park Road North to prevent odours	Modification / Improvement	MED	10838	Wastewater Access Chamber	11/14/13
	415993	Seal Manholes along Park Road North to prevent odours	Modification / Improvement	MED	10839	Wastewater Access Chamber	11/14/13
	415994	Seal Manholes along Park Road North to prevent odours	Modification / Improvement	MED	10841	Wastewater Access Chamber	11/14/13
	415995	Seal Manholes along Park Road North to prevent odours	Modification / Improvement	MED	10842	Wastewater Access Chamber	11/14/13
Bal Harbour PS	366458	Grimsby System Wet Well Cleaning	Preventive Maintenance	LOW	000031037	Wet Well	1/11/13
	381445	Monthly Remote Safety Check - WW North	Preventive Maintenance	HIGH	BH	Bal Harbour PS	1/25/13
	384661	Monthly Remote Safety Check - WW North	Preventive Maintenance	HIGH	BH	Bal Harbour PS	2/20/13
	387603	Monthly Remote Safety Check - WW North	Preventive Maintenance	HIGH	BH	Bal Harbour PS	3/27/13
	392110	Monthly Remote Safety Check - WW North	Preventive Maintenance	HIGH	BH	Bal Harbour PS	4/30/13
	383750	Grimsby System Wet Well Cleaning	Preventive Maintenance	LOW	000031037	Wet Well	5/1/13
	395123	Monthly Remote Safety Check - WW North	Preventive Maintenance	HIGH	BH	Bal Harbour PS	5/9/13
	396886	Maintain Electrical Equipment-Electrical Pit ESA	Follow Up Work from	MED	BH-DW-C1	Control Chamber	5/10/13

000152



<b>Baker Road - 2014</b>	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>	<b>JUL</b>	<b>AUG</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>	<b>TOTAL / AVERAGE</b>	<b>SAMPLES</b>
SS Average (Raw)	148	165	114	141	145	183	154	140	313	266	188	193	179	
# of Samples	9	8	9	9	8	8	10	8	9	9	8	9		104
TBOD <sub>5</sub> Average (Raw)	131	165	101	88	119	158	134	149	234	370	267	184	175	
# of Samples	9	8	9	9	8	8	10	8	9	9	8	9		104
Total P Average (Raw)	3.4	3.8	3.0	2.8	2.9	4.5	8.5	4.6	11.6	5.2	5.0	4.5	5.0	
# of Samples	9	8	9	9	8	8	10	8	9	9	8	9		104
TKN Average (Raw)	32.8	32.5	23.4	20.5	21.4	36.9	35.5	38.0	45.1	46.7	46.7	38.7	34.8	
# of Samples	9	8	9	9	8	8	10	8	9	9	8	9		104
Total Plant Flows	746.809	590.544	736.404	903.332	931.332	579.943	579.521	470.041	474.623	490.956	469.698	502.857	7476.060	
Daily Average	24.091	21.091	23.755	30.111	30.043	19.331	18.694	15.163	15.821	15.837	15.657	16.221	20.482	
Previous Year's Plant Flow Increase (-) or Decrease (+)													7763.9	
													-3.71%	
Maximum Flow	52.337	48.994	36.834	56.536	58.059	27.920	37.968	17.726	24.572	28.365	24.506	26.144		MAX 58.059
Maximum Flow Date	12-Jan	22-Feb	16-Mar	15-Apr	01-May	12-Jun	28-Jul	06-Aug	06-Sep	08-Oct	25-Nov	28-Dec		
Minimum Flow	17.149	6.638	15.614	19.462	19.568	15.066	14.105	13.265	11.802	10.183	12.080	7.137		MIN 6.638
Minimum Flow Date	31-Jan	10-Feb	10-Mar	20-Apr	31-May	02-Jun	06-Jul	30-Aug	24-Sep	18-Oct	19-Nov	29-Dec		
SS Average (Effluent)	6.8	6.8	10.0	6.8	4.6	5.4	4.7	5.0	4.0	6.8	11.5	6.4	6.6	
SS Load	163	142	238	204	139	104	88	76	63	107	180	105	134	
# of Samples	9	8	9	9	8	8	10	8	11	9	8	9		106
CBOD <sub>5</sub> Average (Effluent)	3.0	3.3	4.1	3.4	2.4	2.4	2.2	2.4	2.3	2.4	3.8	2.1	2.8	
CBOD <sub>5</sub> Load	72	69	98	104	71	46	41	36	36	39	59	34	57	
# of Samples	9	8	9	9	8	8	10	8	11	9	8	9		106
Total P Average (Effluent)	0.20	0.18	0.27	0.27	0.24	0.45	1.07	0.80	0.55	0.24	0.34	0.29	0.41	
Total P Load	4.8	3.9	6.3	8.2	7.2	8.7	19.9	12.1	8.7	3.9	5.2	4.7	8.4	
# of Samples	9	8	9	9	8	8	10	8	11	9	8	9		106
TKN (Effluent)	7.29	2.99	2.39	1.88	1.56	1.86	1.25	1.69	1.47	1.86	2.44	1.65	2.36	
# of Samples	9	8	9	9	8	8	10	8	11	9	8	9		106
NH <sub>3</sub> Average (Effluent)	5.68	1.33	0.75	0.30	0.30	0.18	0.11	0.13	0.17	0.25	0.24	0.09	0.79	
NH <sub>3</sub> Load	136.9	28.0	17.8	8.9	9.1	3.5	2.0	1.9	2.7	3.9	3.7	1.5	16.2	
# of Samples	9	8	9	9	8	8	10	8	11	9	8	9		106
Nitrate Average (Effluent)	13.35	13.99	14.57	12.92	14.39	15.99	14.63	18.28	14.95	5.23	11.88	13.49	13.64	
# of Samples	9	8	9	9	8	8	10	8	11	9	8	9		106
E-Coli Geo-means (Effluent)				5	3	3	3	3	10	3			4	
# of Samples				9	8	8	10	8	8	9				60
Chlorine Residuals (Effluent)				0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
# of Samples				30	31	30	0	31	30	31				183
Temperature Average (Effluent)	9.70	9.19	8.90	10.69	12.92	17.46	19.69	20.12	20.22	18.83	15.49	13.14	14.70	
# of Samples	31	27	29	29	30	29	31	30	29	31	28	31		355
pH Average (Effluent)	7.29	7.25	7.20	7.20	7.28	7.17	7.13	7.09	7.04	7.38	7.42	7.29	7.23	
# of Samples	31	28	31	30	30	29	31	30	29	31	27	31		358
BioSolids (Sludge) Hauled	3.433	2.771	3.888	3.516	4.343	4.125	5.238	4.099	4.349	4.846	4.546	4.291	49.444	
Previous Year's BioSolids Hauled Increase (-) or Decrease (+)													34.638	
													42.75%	
Hauled Septic Waste	0.626	0.898	1.612	1.369	0.505	0.569	0.527	0.466	0.843	1.943	0.971	0.320	10.649	
Supernatant from Garner Rd	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Odour Complaints	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bypasses (Number of)	0	1	0	2	0	0	0	0	0	0	0	0	3	
Bypass Flows	0.000	4.345	0.000	1.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.238	
% of Total Flow	0.00	0.74	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Flow Monitoring Calibration Dates Done by				23-Apr						15-Oct				000059
				Monitario						Monitario				

## Appendix B: Summary of Complaints Received in the Baker Road Collection System 2014

INCIDENT DATE	INCIDENT TYPE	TITLE	ADDRESS	DESCRIPTION OF ACTIONS
2014-06-05 22:10	ODOUR	Odour Complaint Park Rd South	Park Rd South	Verified bioxide is running but noticed tank level low (9%). Peroxide not yet in service. Emailed Ops Manager and Supervisor, Maintenance Manager and Manager Q&C-WW Further Action: Operations put peroxide system into service (300 mL/min). Bioxide to be delivered Monday morning.
2014-09-03 8:00	ODOUR	Odour Complaint Park Rd South	15 Park Rd South	At 9:05, the Baker Rd WWTP received a call from [redacted] / complaining of foul odours at the bottom of the hill. He said that he noticed it at around 8:00 when he [redacted] to the bus stop. At 9:10 Vic Dopke was notified about the complaint and asked to review the odour logs. At 9:15, Brad Stewart was told about the complaint. Upon investigation by Ken Semenach at 9:30, readings were found to be 22 ppm at the manhole across the road from 18 Park Rd. South. The manhole was definitely not sealed as you could feel the air exiting the holes in the cover. In speaking with the resident from 17 Park Rd. South that happened to be outside, operations was told that camera inspection had been performed at various manholes most recently. WO was created to have the manhole properly sealed.
2014-09-22 10:30	ODOUR	Odour Complaint (Beamsville) Ontario St. N	4878 Ontario St. N	Informed Plant
2014-09-23 11:15	ODOUR	Grimsby 40 Mile Creek Area	None given	Called plant to notify of complaint. On September 25 at 9:30, the plant received a call from John Macpherson requesting a follow-up to the complainant. At 9:40, Brian Hodgkins called the complainant Richard at 905-546-2424 ext. 1277 and left a voicemail requesting a call back to the plant to see if he had been contacted. At 16:45 Richard called back and informed the plant that he did indeed receive a call back on September 24, was told that someone would investigate the foul odour, but he could not remember the name of the caller. The odour was confirmed to be in the area of Elizabeth and Olive streets. On September 26 at 13:30, Ken Semenach went to that area of concern and detected no foul odours whatsoever.
2014-09-24 10:00	ODOUR	Odour Complaint	17 Park rd. South	Increased hydrogen peroxide pump speed at park rd from 28 to 30L/min and reset SLP3 at Smithville PS as it had faulted out. Scott McIntyre confirmed that there definitely was a foul odour while on his way to Smithville PS. On September 25 at 7:00, Regional employee Tim Wall informed the plant that he detected foul odours in the area of concern while on his way to the Baker Rd. WWTP. OIC Ken Semenach then increased the dosage from 30 to 33L/min. No additional complaints were received that day. On September 26 at 13:45, Ken Semenach went to the area of concern and detected no foul odours whatsoever. Unfortunately, Smithville Pump #3 will be out of service until sometime next week.

# Table Three: Baker Road WWTP Annual Summary 2015

## Baker Road WWTP

2015

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL / AVERAGE	SAMPLES
SS Average (Raw)	161	177	156	149	144	135	210	224	288	267	428	204	212	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
TBOD <sub>5</sub> Average (Raw)	158	171	153	109	160	118	177	181	258	342	240	207	190	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
Total P Average (Raw)	4.2	5.8	3.5	2.7	4.2	2.9	4.5	4.6	5.5	6.3	5.7	4.9	4.6	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
TKN Average (Raw)	37.7	45.2	30.4	26.1	40.0	29.5	38.8	40.6	44.4	55.4	48.8	45.0	40	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
Total Plant Flows	519.317	359.778	678.502	775.079	529.561	699.252	517.345	475.807	474.353	466.887	444.973	465.611	6406.465	
Daily Average	16.752	12.849	21.887	25.836	17.083	23.308	16.689	15.349	15.812	15.061	14.832	15.020	17.552	
Previous Year's Plant Flow													7476.06	
Increase (-) or Decrease (+)													14%	
Maximum Flow	48.721	13.963	36.095	49.013	38.286	52.341	22.489	21.985	30.383	38.455	21.940	31.850	MAX	52.341
Minimum Flow	12.868	12.250	12.435	18.640	13.084	15.798	14.215	13.497	13.019	11.839	11.264	11.020	MIN	11.020
SS Average (Effluent)	6.9	11.0	5.0	6.7	5.6	4.0	6.4	5.6	5.8	7.5	9.1	8.5	6.8	
SS Load	116	141	109	173	96	93	107	86	92	113	135	128	120	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
CBOD <sub>5</sub> Average (Effluent)	2.3	3.5	3.3	2.1	1.9	4.0	1.5	2.0	2.0	4.4	2.7	2.6	2.7	
CBOD <sub>5</sub> Load	39	45	72	54	32	93	25	31	32	66	40	39	47	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
Total P Average (Effluent)	0.23	0.30	0.20	0.23	0.32	0.30	0.33	0.29	0.38	0.27	0.29	0.34	0.29	
Total P Load	3.85	3.85	4.38	5.94	5.47	6.99	5.51	4.45	6.01	4.07	4.30	5.11	5.09	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
TKN (Effluent)	1.56	2.81	2.23	3.20	1.59	3.03	1.31	1.40	1.45	2.16	2.04	3.01	2.15	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
NH <sub>3</sub> Average (Effluent)	0.17	0.26	0.59	0.86	0.10	1.25	0.08	0.09	0.11	0.37	0.33	0.83	0.42	
NH <sub>3</sub> Load	2.85	3.34	12.91	22.22	1.71	29.14	1.34	1.38	1.74	5.57	4.89	12.47	7.37	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
Nitrate Average (Effluent)	14.51	17.68	11.45	15.08	18.09	11.74	15.68	17.84	10.87	6.32	12.08	13.45	13.73	
# of Samples	8	8	9	9	8	9	9	9	9	8	8	10		104
E-Coli Geo-means (Effluent)				6	3	3	3	3	2	6			4	
# of Samples				9	8	9	9	9	9	8				61
Chlorine Residuals (Effluent)				0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
# of Samples				30	31	30	31	31	30	30				213
Temperature Average (Effluent)	10.51	8.84	9.47	11.04	14.38	16.96	19.62	20.24	20.21	19.47	17.24	14.16	15.18	
# of Samples	8	8	9	9	8	9	9	9	9	7	8	10		103
pH Average (Effluent)	7.51	7.08	7.36	7.30	7.18	7.07	7.12	6.83	7.10	7.25	7.43	6.97	7.18	
# of Samples	8	8	8	9	8	9	9	9	9	8	8	10		103
BioSolids (Sludge) Hauled	4.277	3.839	3.802	3.337	3.772	4.549	4.107	3.936	4.111	4.345	4.373	4.371	48.820	
Previous Year's BioSolids Hauled													49.444	
Increase (+) or Decrease (-)													-1.26%	
Hauled Septic Waste	0.177	0.029	0.360	0.492	0.499	0.420	0.636	0.491	0.775	1.736	0.833	0.396	6.843	
Odour Complaints	0	0	0	0	0	0	0	0	0	0	0	0	0	
Secondary Bypasses (Number of)	0	0	0	0	0	1	0	0	0	1	0	0	2	
Secondary Bypass Flows	0.000	0.000	0.000	0.000	0.000	0.055	0.000	0.000	0.000	0.377	0.000	0.000	0.432	
% of Total Flow	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.08%	0.00%	0.00%		
Flow Monitoring Calibration Dates				13-Apr					15-Oct					
Done by				Monitario					Monitario					

**Appendix B: Baker Rd WWTP Complaint Summary and Corrective Actions**  
Reporting Year 2015

INCIDENT DATE	INCIDENT TYPE	Title	ADDRESS	DESCRIPTION OF ACTIONS
2015-06-11 15:00	UNUSUAL CONDITIONS	Litter Complaint	425 Maple Avenue	Called complainant and left a message. Called and confirmed that students had been to the site this week and have removed debris and brought to the dump on June 8th. A site visit and follow up with the resident again tomorrow is planned (June 12th) Completed by Brad Stewart. In regards to the standing water, contacted Mathew Main from the engineering dept. at the town of Grimsby who will follow up and have the creek/ditch cleared to improve the drainage.
2015-09-17 20:50	ODOUR	Odour Complaint	20 Park Road South	Checked chemical pump at Park Rd Odour Control station and increased pump rate from 17L/h to 19L/h
2015-09-25 11:00	ODOUR	Odor Complaint	356 Book Rd - Grimsby	Increased peroxide dosage at Thirty Rd OCF. Will return to check for odors again in a couple of hours. Received a call from same resident again checked manhole at intersection H25 was 16 on gas meter increased Peroxide again and Thirty and Sann Rd OCF. Sept 26th still complaining of odour, gas meter measured 12ppm coming out of manhole. Increased peroxide pump stroke to 120 at 11am and increased to 160 at 1500. Spoke to Rick Niesink and he said he does not know the area but it sounds like there is nothing else that can be done. 350L of peroxide has been used at Thirty Rd in the last 9 hours.
2015-10-05 13:15	ODOUR	Ongoing Intermittent Sewer Odours in Home	353 Book Rd. N, Grimsby	Operator rec'd telephone call at Plant wishing to speak to both Relief Operators by name and told both off returning to work days and nights Thursday. When asked if I could help, caller identified herself, concern and complaint. She said has lived 20+ years in her home and have recently renovated. Odours have been noticed from time to time this summer in her home and wished to lodge complaint joining others from her neighbours. Town of Grimsby staff have been in her home to sample air and been told to run water/bleach mix down drains. Still the odours come and go. I told her I'd file paper and pass along her complaint.  No other action taken at this time
2015-10-15 16:30	ODOUR	Odor Complaint	356 Book Grimsby	went to Book and Lake checked manhole with gas detector no H2S found went to transition manhole on service rd no H2S present checked Thirty Rd OCF pump is running. Wind today is North East should be blowing any odor away from home on the SE corner. No one was present at the home when i checked.
2015-12-02 17:00	ODOUR	Odour Complaint	17 Park Rd. S. Grimsby 905-945-2225	17:00 hrs: Complaint received by telephone voicemail. Incident Report completed. This Operator observed same stench earlier this day when passing by. This Operator believes may be related to Smithville PS/Forcemain and Trunk ongoing repairs would ask this complaint be passed along to Project Manager/Contractors to seal leaking manhole/manholes in that area. 18:00 hrs: Advised On-call Supervisor B. Stewart whom requested acknowledgement call be made to complainant. 18:15 hrs: Call to complainant to acknowledge her call. On-Call supervisor notified and made aware and will take action. She further advises letter rec'd pre-construction advising be patient...but neighbours are starting to talk
2015-12-03 13:45	ODOUR	Odour Complaint	15 Park Road South	SCADA shows chemical pump at Park Rd ourdour control station running at 20.1 L/h Emailed manager Operator going out to investigate Slight odour detected, checked chemical pump at Park Rd station and increased chemical pump speed to 33L/h from 29.1L/h



## Schedule A

1. All previous applications for approval of above-noted sewage works, including design calculations, engineering drawings, and reports prepared in support of the previous Certificate(s) of Approval including the documentation listed below.
2. Application for Approval of Municipal and Private Sewage Works submitted by the Regional Municipality of Niagara dated July 31, 2008 under a cover letter of Genivar, Consulting Engineers dated July 31, 2008.
3. Design report entitled "Baker Road Wastewater Treatment Plant, Phase 3 Upgrade and Expansion" dated August 2008 prepared by Genivar, Consulting Engineers.
4. A set of final plans entitled "The Regional Municipality of Niagara, Public Works Department, Baker Road Wastewater Treatment Plant, Phase 3 Upgrade and Expansion, Town of Grimsby" dated July 2008 prepared by Genivar, Consulting Engineers.
5. Staging report entitled "Stage 1 Design Brief Baker Road Wastewater Treatment Plant Phase 3 Upgrade and Expansion" dated January 2009 prepared by Genivar, Consulting Engineers.
6. Environmental Compliance Approval Application dated April 17, 2015 and all supporting documentation, including final plans prepared by AECOM, Consulting Engineers and submitted by The Regional Municipality of Niagara under covering letter dated April 17, 2015 and electronic correspondence and other supporting documentation including draft report entitled "The Regional Municipality of Niagara, Smithville PS Odour Control Upgrades, Design Submission Report" dated May 2105 prepared by AECOM, Consulting Engineers.

Total Ammonia Nitrogen						
January-April	8 mg/L	10 mg/L	312.8 kg/d	0	0	8.2
May-June	5 mg/L	7 mg/L	219.0 kg/d	0	0	13.8
July-October	3 mg/L	4 mg/L	125.2 kg/d	0	0	2.9
November-December	5 mg/L	7 mg/L	219.0 kg/d	0	0	7.4
Total Residual Chlorine <sup>2</sup>	0.01 mg/L	-	-	0	-	-
<i>E-Coli</i> <sup>2</sup> (Geomean)	100 org/100 mL	200 org/100 mL	-	0	0	-

1- pH must meet objectives/limits at all times (inclusive)

2-During Disinfection period, which is April 01-Oct 31

Attached in table 3 is a detailed summary of monthly averages and loadings observed during this reporting period for influent and final effluent parameters monitored under section 9 of the current Environmental Compliance Approval.

#### Operational Issues:

Were any operational issues experienced during this reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

No operational issues were experienced during the 2017 reporting year.

## 2. Maintenance

Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

Collection System:

- Old Orchard SPS and forcemain capital upgrades complete
- Victoria forcemain replacement
- Biggar Lagoon SPS Odour control system installation
- Storm system improvements by the Town of Lincoln reducing wet weather impacts to Laurie Avenue SPS

## 3. Effluent Quality Assurance Measures

The following measures were taken to ensure the quality of the effluent produced at the Works:

- Sampling SOP and Compliance Sampling Schedule developed to meet ECA requirements as a minimum
- Compliance sample analysis performed by CALA accredited laboratory
- Implementation of Wastewater Quality Management System

Table 3: Annual Summary

Baker Road WWTP 2017														TOTAL /	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	SAMPLES	
SS Average (Raw)	275	160	170	173	227	314	272	234	257	337	174	228	235		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
TBOD <sub>5</sub> Average (Raw)	208	152	152	128	188	214	196	178	308	393	239	187	212		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
Total P Average (Raw)	4.6	3.5	3.1	2.3	3.9	5.0	4.1	4.7	5.7	5.3	3.7	4.3	4.2		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
TKN Average (Raw)	37.22	32.95	27.67	22.84	30.32	39.70	35.86	38.88	48.54	49.08	36.82	45.88	37.15		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
Total Plant Flows	621.435	543.995	728.271	1050.092	990.342	596.834	595.537	539.342	412.154	518.536	562.570	468.230	7627.338		
Daily Average	20.046	19.428	23.493	35.003	31.947	19.894	19.211	17.398	13.738	16.727	18.752	15.104	20.897		
Previous Year's Plant Flow													6237.516		
Increase (-) or Decrease (+)													-22%		
Maximum Flow	28.813	34.216	50.596	63.567	63.535	33.921	31.327	29.094	18.084	48.120	36.182	20.287	MAX	63.567	
Minimum Flow	14.918	13.875	14.174	20.332	17.026	15.673	15.745	13.410	12.156	12.490	13.658	13.203	MIN	12.156	
SS Average (Effluent)	6.6	6.6	3.9	3.4	4.6	4.7	5.2	5.7	4.1	7.2	12.9	8.5	6.1		
SS Load	132	128	92	119	147	94	100	99	56	120	242	128	128		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
CBOD <sub>5</sub> Average (Effluent)	2.8	3.3	2.2	2.1	2.2	2.3	2.1	2.4	2.2	3.6	4.9	3.8	2.8		
CBOD <sub>5</sub> Load	56	64	52	74	70	46	40	42	30	60	92	57	59		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
Total P Average (Effluent)	0.25	0.20	0.15	0.14	0.17	0.26	0.22	0.39	0.34	0.27	0.33	0.25	0.25		
Total P Load	5.01	3.89	3.52	4.90	5.43	5.17	4.23	6.79	4.67	4.52	6.19	3.78	5.17		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
TKN (Effluent)	1.87	2.06	1.21	1.88	2.06	1.76	1.47	1.56	1.41	2.11	3.43	2.20	1.92		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
NH <sub>3</sub> Average (Effluent)	0.20	0.45	0.09	0.51	0.67	0.31	0.15	0.16	0.29	0.12	0.73	0.08	0.31		
NH <sub>3</sub> Load	4.01	8.74	2.11	17.85	21.40	6.17	2.88	2.78	3.98	2.01	13.69	1.21	6.55		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
Nitrate Average (Effluent)	17.21	17.59	17.16	14.43	13.66	13.68	15.26	15.31	13.60	5.32	8.00	17.75	14.08		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
E-Coli Geo-means (Effluent)				13	5	4	9	3	4	17			8		
# of Samples				8	9	9	9	10	8	9				62	
Chlorine Residuals (Effluent)				0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		
# of Samples				30	31	30	31	31	30	31				214	
Temperature Average (Effluent)	11.33	10.90	11.14	12.13	14.99	17.86	20.02	20.85	21.40	19.83	14.94	12.73	15.68		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
pH Average (Effluent)	7.04	6.98	6.88	7.20	7.17	6.97	7.06	6.93	6.93	6.94	6.89	6.73	6.98		
# of Samples	9	8	9	8	9	9	9	10	8	9	9	8		105	
BioSolids (Sludge) Hauled	3.383	3.252	2.688	3.165	3.201	3.534	3.165	2.948	3.122	3.686	4.336	2.688	39.169		
Previous Year's BioSolids Hauled													45.089		
Increase (-) or Decrease (+)													-13.13%		
Hauled Septic Waste	0.267	0.238	0.343	0.477	0.470	0.630	0.702	0.845	1.040	2.047	1.412	0.521	8.993		
Plant Odour Complaints	0	0	0	0	0	0	0	0	0	1	0	0	1		
Secondary Bypasses (Number of)	0	0	0	3	3	0	0	0	0	1	0	0	7		
Secondary Bypass Flows	0.000	0.000	0.000	33.865	41.149	0.000	0.000	0.000	0.000	2.802	0.000	0.000	77.816		
% of Total Flow	0.00%	0.00%	0.00%	3.12%	3.99%	0.00%	0.00%	0.00%	0.00%	0.54%	0.00%	0.00%			
Flow Monitoring Calibration Dates				25-Apr						18-Oct					
Done by				Monitario						Monitario					

Table 5: Sludge volume summary for the current and previous reporting year

Month	2017 Volume Sludge Hauled (ML)	Prior Year Volume Sludge Hauled (ML)	
January	3.383	3.663	
February	3.252	3.599	
March	2.688	4.014	
April	3.165	4.183	
May	3.201	4.076	
June	3.534	4.119	
July	3.165	3.197	
August	2.948	3.295	
September	3.122	3.256	
October	3.686	3.498	
November	4.336	4.501	
December	2.688	3.686	<b>% Increase/Decrease</b>
<b>TOTAL</b>	<b>39.169</b>	<b>45.089</b>	<b>-13%</b>

Comments regarding sludge haulage:

Baker Road WWTP will be receiving WTP residual solids from Grimsby WTP in 2018. The volume of sludge removed from Baker Road WWTP will likely increase in 2018.

## 6. Annual Summary of Received Complaints

Table 6: Summary of plant and collection system complaints

	Number of Complaints Received
<b>Plant</b>	1
<b>Collection System</b>	19
<b>Total:</b>	20

Attached in appendix B is a detailed copy of complaints received and actions taken to address the concerns.

Many of the collection system complaints received were from a single source near the transition manhole from the Biggar Lagoon SPS forcemain. A chemical odour control system was installed and hydrogen sulphide levels are being monitored for system performance. Complaints have stopped since the implementation of the odour control system.



environment for 18 minutes, with an estimated discharge of 78.184 m<sup>3</sup>. After the event, the supplier disabled the program and all other pumps on site were checked. The incident was referred to the Associate Director of Engineering for discussion with Project Managers at Engineering team meeting to prevent reoccurrence.

VII. Notice of Modifications, Schedule B, Section 1

Were any Notice of Modifications submitted under section 1 of Schedule B Yes  No

If yes, please provide an update as to the status of the implementation of each modification

No notice of modifications were submitted under section 1 of schedule B.

VIII. Notice of Modifications, Schedule B, Section 3

Were any modifications completed under section 3 of Schedule B? Yes  No

If yes, please report below any modifications made under Schedule B, section 3.

No modifications were completed under section 3 of schedule B.

### 13. Biggar Lagoon SPS

Biggar Lagoon SPS operates under ECA # 1213-ASWT98 issued on November 15<sup>th</sup>, 2017.

I. Summary and Interpretation of all Monitoring Data, Including an overview of the success and adequacy of the Works:

Analysis of 2016 flow data shows the station is running well below capacity during peak dry weather flow. The station was also reviewed as part of the Master Servicing Plan and was flagged for a capacity upgrade to address anticipated growth in the area.

II. Description of Any Operating Problems Encountered and Corrective Actions Taken:

Were there any operating problems encountered during the reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

Due to a number of odour complaints originating from the Biggar Lagoon SPS and forcemain, an odour control system was set up to address the odours. Originally a chemical system utilizing a magnesium oxide slurry to aid in increasing the pH and keeping hydrogen sulphide in solution was installed. Although noticeable improvements in the level of H<sub>2</sub>S as logged by the Odalogger devices in the sewershed was observed, due to operational difficulties with the slurry the system, the system was changed over to use Bioxide to reduce odours. Bioxide is a calcium nitrate product which supplies a preferred alternate source of oxygen in anaerobic environments such as forcemains. Odalog monitoring was used to confirm H<sub>2</sub>S levels. Monitoring of H<sub>2</sub>S levels is still ongoing in the sewer shed with no odour complaints received since November 21, 2017.

III. Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

Installation of odour control system.

IV. Summary of Calibration or Maintenance carried out on all Monitoring Equipment:

The station overflow meter is calibrated annually. The certificate is included in appendix A.

V. Summary of complaints:

All plant and system complaints were addressed above in section 6.

VI. Summary of bypasses, spills or abnormal discharges:

There were 4 overflows from the Biggar Lagoon SPS and CSO. The event details are available in appendix C.

Were there any spills or abnormal discharges during the reporting period? Yes  No

*If yes, describe the spill or abnormal discharge and corrective actions taken:*

No spills or abnormal discharges were noted during the reporting year.

VII. Notice of Modifications, Schedule B, Section 1

Were any Notice of Modifications submitted under section 1 of Schedule B Yes  No

If yes, please provide an update as to the status of the implementation of each modification

No notices of modification were submitted under section 1 of schedule B.

VIII. Notice of Modifications, Schedule B, Section 3

Were any modifications completed under section 3 of Schedule B? Yes  No

If yes, please report below any modifications made under Schedule B, section 3.

No modifications were completed under section 3 of schedule B.

No notice of modifications were submitted under section 1 of schedule B.

VIII. Notice of Modifications, Schedule B, Section 3

Were any modifications completed under section 3 of Schedule B? Yes  No

If yes, please report below any modifications made under Schedule B, section 3.

No modifications were completed under section 3 of schedule B.

**15. Smithville Lagoon**

Smithville Lagoon operates under ECA #3-1192-79-006.

I. Effluent Flow Summary:

There were no seasonal effluent discharges to the Twenty-Mile Creek this reporting year. Since 2006, all sewage from the community of Smithville is collected at the Smithville SPS and conveyed to the Baker Rd. WWTP for full wastewater treatment.

II. Bypass Occurrences:

There were no bypass occurrences at the lagoon this reporting year.

III. Operations and Maintenance Activities:

The lagoon is monitored on a regular basis by staff from the Baker Rd. WWTP. There were no major maintenance activities at the lagoon. Studies are being undertaken to develop a decommissioning plan for the Smithville Lagoon.

IV. Process Upsets and Equipment Failure:

There were no upsets or abnormal conditions at the lagoon. All upsets or abnormal conditions would be documented and reported to the MOECC.

**16. Upcoming Capital Works:**

The following capital work is planned for 2018:

- Risk Assessment study for Smithville Lagoon
- Baker Road WWTP Grit System Upgrades
- Odour control strategy for Smithville SPS Forcemain

## 8. Smithville CSO and Pumping Station

Smithville CSO and pumping station are owned and operated by the Regional Municipality of Niagara and operate under the following Environmental Compliance Approvals:

- a. ECA # 2520-9BWMLW issued on September 30<sup>th</sup>, 2013
- b. ECA #3-1296-91-006 issued on August 22<sup>nd</sup>, 1991

There is a standard operating procedure in place between the Regional Municipality of Niagara and the Township of West Lincoln. The agreement consists of the Township pumping, recording pump hours and volumes and notifying SAC. The collection of samples is also done by the Township and given to the Niagara Region for analysis.

I. Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

The Smithville SPS underwent an upgrade in 2016 that included the replacement of all lift pumps and Motor Control Center, the odour control system.

II. Summary of complaints:

All plant and system complaints were addressed above in section 6.

III. Summary of bypasses, spills or abnormal discharges:

There were four bypasses recorded from the Smithville CSO during the reporting year.

Were there any spills or abnormal discharges during the reporting period? Yes  No

*If yes, describe operational issues and corrective actions taken:*

No spill/discharge.

## 9. Ontario Street Sewage Pumping Station

Ontario St. SPS operates under ECA # 8713-9BFL4S issued on October 31<sup>st</sup>, 2013.

I. Summary of maintenance carried out on major structures, equipment, apparatus, mechanism or thing forming part of the Works:

No major maintenance activity during the reporting period.

II. Summary of complaints:

All plant and system complaints were addressed above in section 6.

III. Summary of bypasses, spills or abnormal discharges:



If yes, please report below any modifications made under Schedule A, section 3.

No notice of modifications submitted under Section 1 of Schedule 3

## 12. Smithville Lagoon

Smithville Lagoon operates under ECA #3-1192-79-006.

### I. Effluent Flow Summary:

There were no seasonal effluent discharges to the Twenty-Mile Creek this reporting year. Since 2006, all sewage from the community of Smithville is collected at the Smithville SPS and conveyed to the Baker Rd. WWTP for full wastewater treatment.

### II. Bypass Occurrences:

There were no bypass occurrences at the lagoon this reporting year.

### III. Operations and Maintenance Activities:

There were no operational or maintenance activities at the lagoon for the reporting year.

### IV. Process Upsets and Equipment Failure:

In September of the reporting year, dead fish were observed in all lagoons by an Operator conducting a routine site inspection. The incident was reported to the Drinking Water Inspector. As the lagoons have not been connected to the collection system for many years, it is believed the die-off event was due to natural causes within each lagoon, caused by warm water temperatures, oxygen depletion and low water levels. Fish were not expected to be present in the sewage lagoon. Staff from the Baker Road WWTP monitored the site for odour. There were no complaints received from the surrounding residents related to this event. The issue resolved itself through natural processes.

## 13. Upcoming Capital Works:

Planned upgrades to the facility include:

- Grit/Vortex system and Classifier replacement

Planned upgrades to the collection system include:

- Upgrades to the Woodsvew/Old Orchard SPS's
- Park Rd. Odour Control project

## 14. Conclusion and Outlook:

The Baker Rd. WWTP continued to meet and/or exceed all performance criteria for the reporting period.

John MacPherson  
Wastewater Operations Manager

Table Three: Summary of Influent and Final Effluent Monitoring Results

Baker Road WWTP														TOTAL /	
2016	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	SAMPLES	
SS Average (Raw)	274	166	146	152	251	283	252	282	227	314	347	309	250		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
TBOD <sub>5</sub> Average (Raw)	212	149	105	106	247	248	242	248	301	464	389	263	248		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
Total P Average (Raw)	5.1	3.8	2.6	3.3	5.8	6.4	6.8	5.8	5.7	6.4	7.5	5.5	5.4		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
TKN Average (Raw)	45.1	35.0	26.1	29.5	48.6	59.8	53.4	52.6	54.8	55.5	58.1	49.7	47		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
Total Plant Flows	513 645	595 458	837 438	774 448	491 888	404 124	404 121	441 734	408 928	451 199	419 218	495 315	6237 516		
Daily Average	16 569	20 533	27 014	25 815	15 867	13 471	13 036	14 249	13 631	14 555	13 974	15 978	17 042		
Previous Year's Plant Flow													6406 465		
Increase (-) or Decrease (+)													3%		
Maximum Flow	28 872	47 921	55 310	54 605	21 231	15 556	18 193	18 073	17 559	23 258	31 594	30 193	MAX	55 310	
Minimum Flow	13 901	13 768	18 390	16 479	13 889	12 266	11 824	12 437	11 916	12 345	11 669	12 919	MIN	11 669	
SS Average (Effluent)	7.6	9.2	10.2	6.8	5.0	4.0	4.3	3.1	3.1	5.6	9.9	6.0	6.2		
SS Load	126	189	276	176	79	54	56	44	42	82	138	96	106		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
CBOD <sub>5</sub> Average (Effluent)	2.4	3.1	3.9	2.4	2.2	2.3	2.4	2.2	2.3	2.5	4.5	3.1	2.8		
CBOD <sub>5</sub> Load	40	64	105	62	35	31	31	31	31	36	63	50	47		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
Total P Average (Effluent)	0.25	0.32	0.29	0.24	0.25	0.33	0.40	0.34	0.28	0.24	0.30	0.24	0.29		
Total P Load	4.14	6.57	7.83	6.20	3.97	4.45	5.21	4.84	3.82	3.49	4.19	3.83	4.94		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
TKN (Effluent)	1.46	2.02	4.33	2.61	2.94	1.92	2.17	1.34	1.34	1.80	2.46	1.86	2.19		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
NH <sub>3</sub> Average (Effluent)	0.07	0.79	1.80	0.69	0.93	0.17	0.28	0.12	0.06	0.13	0.12	0.09	0.44		
NH <sub>3</sub> Load	1.16	16.22	48.63	17.81	14.76	2.29	3.65	1.71	0.82	1.89	1.68	1.44	7.46		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
Nitrate Average (Effluent)	20.75	17.33	11.10	14.14	19.54	18.09	15.45	20.25	12.49	9.23	13.55	18.77	15.89		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
E-Coli Geo-means (Effluent)				7	2	3	4	4	11	12			6		
# of Samples				8	9	9	8	10	8	8				60	
Chlorine Residuals (Effluent)				0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		
# of Samples				30	31	30	31	31	30	31				214	
Temperature Average (Effluent)	10.29	10.00	11.62	12.08	15.42	18.43	21.49	22.37	22.38	20.36	15.49	12.24	16.01		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
pH Average (Effluent)	7.01	7.16	7.28	6.95	7.21	6.90	6.91	6.81	7.06	7.13	7.23	7.16	7.07		
# of Samples	8	9	9	8	9	9	8	10	8	8	9	9		104	
BioSolids (Sludge) Hauled	3.663	3.599	4.014	4.183	4.076	4.119	3.197	3.295	3.256	3.498	4.501	3.686	45 089		
Previous Year's BioSolids Hauled													48 820		
Increase (-) or Decrease (+)													-7.64%		
Hauled Septic Waste	0.246	0.145	0.392	0.497	0.492	0.519	0.475	0.551	1.358	2.003	0.878	0.285	7.840		
Odour Complaints	0	0	0	0	0	0	2	0	1	0	0	0	3		
Secondary Bypasses (Number of)	0	1	1	0	0	0	0	0	0	0	0	0	2		
Secondary Bypass Flows	0.000	3.934	1.419	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.353		
% of Total Flow	0.00%	0.66%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
Flow Monitoring Calibration Dates						14-Jun							13-Dec		
Done by						Monitario							Monitario		

## Appendix B: Summary of Complaints for the Baker Road WWTP and Collection System for Reporting Year 2016

INCIDENT DATE	INCIDENT TYPE	Title	ADDRESS	DESCRIPTION OF ACTIONS
2016-02-18 16:00	ODOUR	Odour Complaint	17 Park Rd South	Checked status of Peroxide pumps at Park Rd OCF and Bioxide pump at Smithville PS - both functioning normally. Increased dosage of Peroxide at Park Rd to 22 L/hr from 17.
2016-03-21 14:00	ODOUR	Odour Complaint	7A Park Rd. S	Mr. Voorberg indicated he never had an issue before construction, but now odours are constantly leaking from manhole cover in front of his driveway. Inspected few manhole covers in area and found them venting? Now 4hole type meant to be fastened by bolts to ring with gasket (covers appear to be swapped out from along CNR/not sure about rings) but not "sealed". Perhaps Project Manager can address or Maintenance install "rain helmets". No odours detected at 15:05 hrs by this Operator.
2016-04-18 19:45	ODOUR	Odour Complaint - 17 Park rd South	17 Park Rd South, Grimsby	Park Rd Peroxide - verified in service Smithville Bioxide - not in service due to station construction Manhole covers - not yet sealed by contractor Increased Park Rd Peroxide to 28 L/hr from 22. John M.: Contractor to seal lids and place bioxide supply back in service this week.
2016-04-21 15:00	ODOUR	Odour Complaint	3 Park Rd	Investigated manhole and increased peroxide dose at Park Rd Odour Control station
2016-06-13 15:00	ODOUR	Odour Complaint	353 Book Rd	Suggested she check to make sure there was water in all of water traps in drains and told her to contact Town of Grimsby. Connie spoke to Jim on the weekend and he suggested the same actions
2016-06-17 17:45	ODOUR	Odour Complaint	353 Book Rd.	This was the second or third complaint by the Materno's in as many days regarding this issue. Mr. Materno was upset and frustrated at the lack of resolution to this. I emphasized to him we would do what we could but he must contact the Town as they are the first point of contact. He responded that he had and they had been out, checked the gas at the manhole and referred him to us. I again asked him to contact the Town, and ask for a report so that we could follow up with the town. I did receive an email from Mike Otaszewcz on the 20 of June and will be speaking with him to resolve. Spoke with Town; they responded to address on June 17. I requested they check for gas levels in MH if called again to site. I suggested if installation of flex-valve was possible in this circumstance and to investigate; will send email to B. Leroux.
2016-06-28 10:00	ODOUR	Odor complaint 353	353 Book Rd. Grimsby	Thirty rd odor control put in service today
2016-06-29 10:15	ODOUR	Odour Complaint	353 Book Rd	Was informed by the resident that for the last 25 years she has had sewer odours in her homes basement. Recommended she check her floor drains and sump pit that is the traps are dry it may let sewer odour into home. J.M.>Investigation into this by RMON and Town of Grimsby ongoing from previous complaints.

2016-07-02 21:00	ODOUR	Chemical smell reported from Residential area East of Plant	16 Renbrandt Drive	Investigated East end of facility. The only odour present was a moderate Chlorine smell coming from Chlorine contact chamber. Residual was 0.89 mg/L which is normal range. Slight wind to the East was also present. Complaintant called back, was not satisfied with explanation. Would like follow up next week. 905-945-7993 July 6 17:30 - Complained again of chemical / pesticide odour in back yard. Walked Baker Rd and Birchpark Dr but could not smell anything. She is going to call Brad Stewart and set up a plant tour to better understand what is going on in the plant and try to locate the odour (KS)
2016-07-09 14:00	ODOUR	Odour complaint , resident east of final contact chamber	16 Rembrant, Grimsby	Inspected plant and neighbourhood of 16 Rembrant after talking to resident via land line . Met Bruce Russel at back gate with two sample bottles .1 from final effl. 1 from flowering thistles from CL2 contact tank area . Mr Russel identified the Final effl tanks as the area of the odour they are experiencing. After sniffing the sample bottle , Quote " "with out a doubt ,that is what we smell"
2016-07-21 11:00	ODOUR	Odour complaint	Park rd and hwy 8 area	Park rd chemical dosage increased, Operations investigating complaint area
2016-07-21 15:00	ODOUR	Odour complaint	6 Jacobs Landing	Inspected area of complaint , Found a slight plant odour( normal musty smell) mixed with a strong cow manure odour . Inspected area from Park rd ,passed hospital to lake st . Strong manure odour coming from hospital area,possibly blowing from escarpment . Wind direction is from SSW
2016-07-22 21:10	ODOUR	Odour Complaint	353 Book Rd. N. Grimsby	Ms. Materno identified herself advising has made many calls to Plant and Town of Grimsby recently and upset as strong sewer odours continue to plague her and have been present in her home all day. Has spoken to 2 Aldermen today. Wishes to have another Report filed. Told her unable to offer little help at this time other than remind her to keep running clean water down sinks and floordrains as likely instructed previously. I told her I'd inform Town of Grimsby Water/Sewer Dept on-call person should they have any suggestions. She will be calling as well should odours worsen. Spoke to Town of Grimsby's "Bill" at 9:25 pm and alerted him. Unable to provide any other suggestions. Told him to expect a call should conditions worsen as she has the telephone # handy. J.M.: Peroxide at Thirty Rd. in operation since June 28.
2016-08-23 7:00	ODOUR	Biggar PS Odour complaint	641 Winston Rd Grimsby	Inspected Biggar station and surrounding area ,wet well vents sniff tested .No odour detected at time of inspection.
2016-09-11 21:30	ODOUR	Odour Complaint-Lake St SPS	10 Lake Street, Grimsby	Contact Mr. Cino at 905-517-6121. J.M.: Spoke with Mr. Cino (Sept 12); commented he has noticed odour previously but very strong on night of 11th. Usually early in the morning but was very pungent that evening. Had to close windows. Will investigate ways to mitigate. Mr. Cino would like someone to get back to him at a later date to review progress. JM: Sept 13, Went to site, will issue WOR to have Carbon cap installed on WW vent.
2016-09-20 20:45	ODOUR	Odour complaint	641 Winston rd , Grimsby	Checked Biggar Ps and area ,found a slight occasional odour Charcoal canister still active on SPS Wetwell vent
2016-09-21 12:00	ODOUR	Odour complaint Book Rd Grimsby	353 Book Rd north	Issue was investigated by Town of Grimsby; plumbing deficiencies noted in Residence - now repaired.



2016-09-26 13:10	ODOUR	Odour Complaint Bendamere Drive in Grimsby	7 Bendamere Drive, Grimsby	Plant is producing stronger odours then normal, possibly caused by increasing amounts of wine waste being dumped. Thirty Rd Peroxide tank filled today and back in service as of 13:00 today.
2016-09-28 11:30	ODOUR	Odour Complaint	18 Park Rd. South	Operator dispatched to site at 15:00; could not detect odour by smell or gas meter from upstream or downstream of site. Requested Mr. Strkalj call me when next detected - we can dispatch someone to investigate ASAP. Mr. Strkalj returned call at 15:50 with same complaint; have dispatched operator to site.
2016-10-17 12:00	ODOUR	Odour complaint	12 Park Rd North	Town of Grimsby recieved a call from resident of sewer odours after contractor (Bob Robinson) 2 weeks ago did some sewer flushing in the area. She has not had this issue before and thinks its from the flushing of the sewer. I will go to area to check for odours. Operator investigated and spoke with resident; no abnormal conditions to note. Maintenance requested to ensure integrity of system (MH covers & Charcoal filters). EO attended site on Oct 21; no abnormal conditions to note. Also spoke with Robinson; no flushing - TV inspection only on Oct 3rd.
2016-10-19 16:00	ODOUR	Odour Complaint	#7 Park Rd North	Sent email to JOhn Macpherson about getting maintenance to check manhole Operator sent to investigate. Maintenance asked to ensure integrity of system. EO attended site on Oct 21; nothing abnormal to note.
2016-10-31 14:15	ODOUR	Odour at 16 Park Rd South	16 Park Rd South	Unable to check area for odour, no truck available. Park Rd ran out of peroxide on the weekend but recieved a load this morning. Peroxide is running again at Park Rd station
2016-10-31 17:00	ODOUR	Odour complaint-Bill Sumner 7 Park Rd N Grimsby	7 Park Rd. N	Inspected manhole cover and appeared sealed. Mr. Sumner came down to visit on street and showed me thew manhole he's reporting. Confirmed on Smithville Trunk and leaking odours but looks sealed from above. In front of 12 Park Rd. N at intersection of Steven Dr. Checked Park Rd. OCF. #1 Pump pumping at 28 L/sec on Cent Man. Work Request #523180 generated to have manhole cover inspected/sealed.
2016-11-02 12:00	ODOUR	Odour Complaint	17 Park Rd South	Brian Hodgkins went to talk to resident. manholes do have odour and are not properly sealed. You can hear flow and smell odours when pumps are running. Work order made out
2016-11-08 13:00	ODOUR	Odour Complaint	17 Park Rd South	Emailed manager
2016-11-08 13:30	ODOUR	Odour Complaint	18 Park Rd South	Turned up peroxide at Park Rd station. Provided phone number to Pt. Dalhousie so he could speak to Brad Stewart.
2016-11-17 8:30	ODOUR	Odour Complaint 17	17 Park Rd. S, Grimsby	Report filed.

Appendix B: Summary of Complaints Received and Actions Taken

INCIDENT DATE	INCIDENT TYPE	TITLE	NEAREST REGIONAL ASSET	ADDRESS	DESCRIPTION OF ACTIONS
2017-06-02 17:00	ODOUR	Odour Complaint	MANHOLE	3 Park Rd	Turned up peroxide pump at Park Rd station to 21L/hr from 16L/hr
2017-06-08 9:30	ODOUR	Odour Complaint 3 Park Rd South in Grimsby	MANHOLE	3 Park Rd South, Grimsby	Park Rd Peroxide pump speed increased to 26 L/hr from 22.
2017-06-08 10:00	OTHER	Excessive Grass and Weeds present in Reservoir area	OTHER	27 Oakdale Blvd, Smithville	Checked on Google maps, property is not near pump station or old Lagoon site. Called dispatch back.
2017-07-05 13:30	ODOUR	Odour Complaint	MANHOLE	3 Park Rd South	Checked manhole in front of house but meter did not pick up any H2S. There was definitely an odour but it may have been coming from the intersection, wind was blowing from the North. Increased chemical pump speed to 24 L/hr from 22 L/hr at Park Rd Odour control station Checked Park Rd OCF, peroxide pumping normally. Checked Park Rd South and North manholes with gas meter, no H2S detected. An intermittent odour was detected in front of #3 Park Rd South. More noticeable with reduced wind. Odour was more of a rotting smell rather than sewer, possibly coming from ditch across from complainants house. Closest non sealed Region manhole is at corner of Park Road South and Hwy 8. No gas or smell from that manhole. No further actions taken
2017-07-18 13:00	ODOUR	Odour Complaint #3 Park rd South	MANHOLE	3 Park Rd, South	Increased Chemical pump speed to 27 L/hr from 24L/hr at Park Rd Increased Hydrogen Peroxide dosage at Park rd to 30 L/hr from 27. Creating work request to have Maintenance check/reseal Forcemain manhole in front of Complainants residence.
2017-08-14 11:00	ODOUR	Odour Complaint 3 Park Rd S	MANHOLE	3 Park Rd South	
2017-09-13 16:30	ODOUR	Odour Complaint #3 Park rd South	MANHOLE	3 Park rd South	
2017-09-22 18:30	ODOUR	Odour complaint 406 Ontario street Grimsby, property backs onto Lake Street PS area	SPS	406 Ontario Street, Grimsby	Drove to Lake street pumping station, observed strong sewer odour right from Lake street all the way to station. Opened station wet well, resulting odour was not any worse than normal. This area does not have any odour control facilities available. No further actions taken.
2017-10-19 16:10	ODOUR	Odour Complaint-Casablanca Winery Inn	SPS	4 Windward Dr. Grimsby	16:25-Town of Grimsby on call person (Mike) returned answering service call. Relayed message from complainant as per previous practice/instruction. He said he will contact his supervisor for instruction. Waiting for further info/rec'd none as of 18:20 hrs. Incident Report completed/filled
2017-10-20 11:00	ODOUR	Odour Complaint-Casablanca Winery Inn	SPS	4 Windward Dr. Grimsby	Asked what resulted from yesterday's complaint and I responded a report was created, Town of Grimsby notified and unaware of anything further. Report created today. 10:40 Return call from Town of Grimsby (Mike O.) and notified him of today's call from Casablanca Winery Inn. Another call from Town of Grimsby's (Mike O.) advising a similar complaint was received this morning by Town of Grimsby staff in the Olive and Elizabeth St. area of Grimsby from a resident.
2017-10-24 9:45	ODOUR	Odour Complaint	MANHOLE	Casablanca Inn	Filled out incident report and spoke to John MacPherson
2017-10-24 10:00	ODOUR	Odour Complaint	MANHOLE	Quality Homes 9 Linward Dr	Filled out report and spoke to John MacPherson
2017-10-25 9:50	ODOUR	Odour complaint	MANHOLE	#4 Winward drive Grimsby	Maint dept working on installing odour control system at time of complaint Casablanca Inn
2017-10-26 14:00	ODOUR	Odour complaint Casablanca Hotel	MANHOLE	4 Winward Dr. Grimsby	On going problem Odour control unit being installed at Biggar PS
2017-10-26 16:30	ODOUR	Odour complaint from Plant resident	PLANT	22 Rembrant - Grimsby	Plant has a strong odour due to high solids from receiving wine waste. No action can be under taken to rectify this problem till season is over.
2017-10-31 12:30	ODOUR	Odour Complaint	MANHOLE	4 Windward Dr. Grimsby	Emailed Jason Oatly
2017-11-08 14:00	ODOUR	Odour complaint	MANHOLE	4 Windward Dr. Grimsby	Had just returned from filling chemical at Biggar PS. Did not detect odours. Drove by Casablanca on the way there and back
2017-11-16 14:00	ODOUR	Odour Complaint Casablanca Inn	MANHOLE	4 Windward Dr.	Chemical pump at Biggar PS has stopped working. Maintenance at station trying to get it pumping again
2017-11-18 15:00	ODOUR	Odour complaint 406 Ontario street Grimsby	SPS	406 Ontario street, Grimsby	This is the 2nd complaint from this resident. Last one was in September. No odour control measures available for this part of the system. Have sent WDR to install Carbon trap on gooseneck.
2017-11-21 16:15	ODOUR	Odour Complaint	MANHOLE	Casablanca Winery Inn	No action taken - Day shift reported that chemical pump lines were plugged again this morning