



Report:

The Town of Blue Mountains
Land Use Compatibility – D-2 Assessment
Mixed Use Development, 171 King St. East, Thornbury



Date: September 14, 2020



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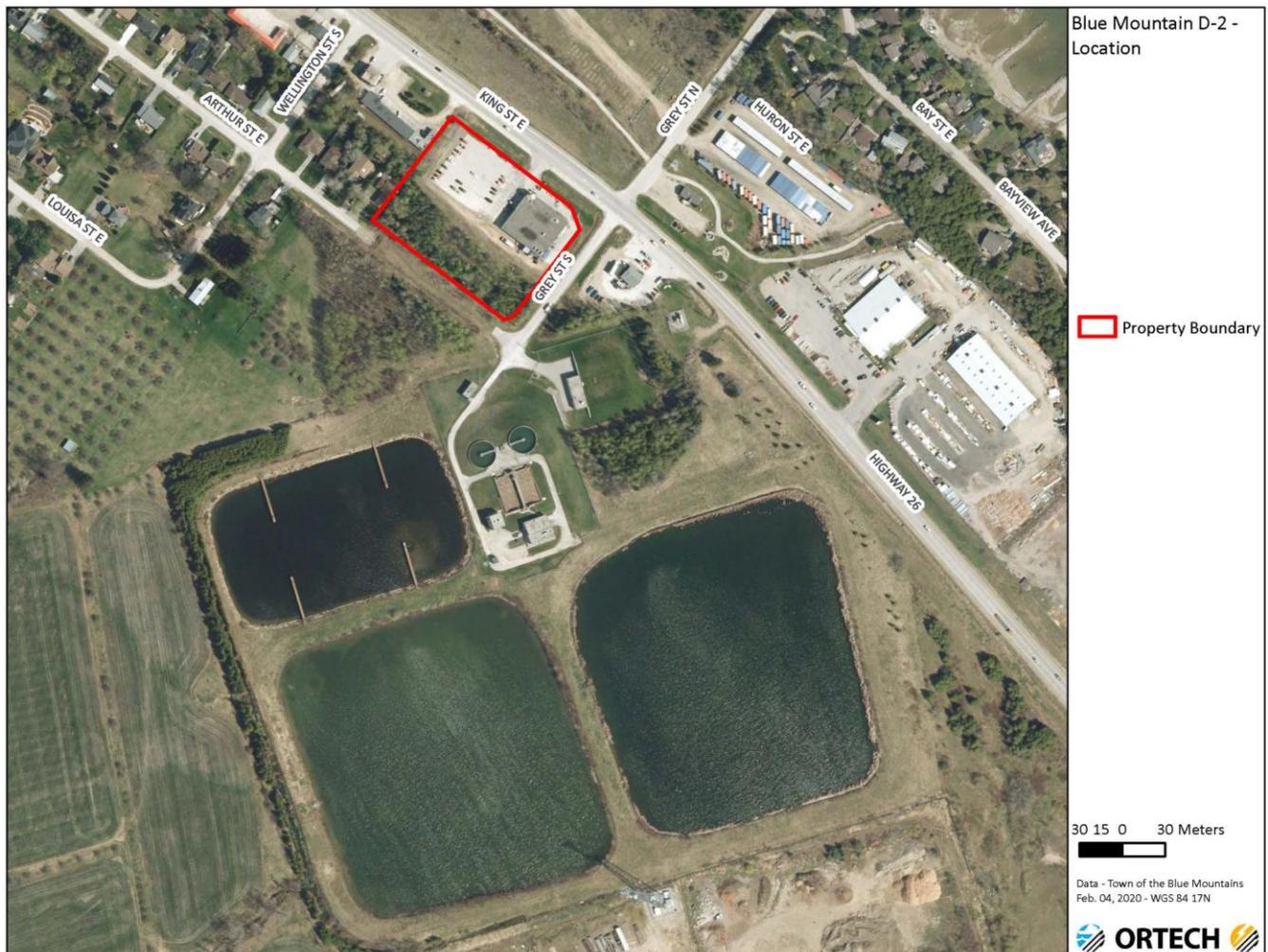
Table of Contents

| | Page |
|---|------|
| 1. INTRODUCTION | 4 |
| 2. THORNBURY WASTE WATER TREATMENT PLANT SITE | 8 |
| 2.1 Thornbury WWTP | 8 |
| 2.2 Thornbury Water Reservoir and Building | 8 |
| 3. ASSESSMENT OF THE THORNBURY WWTP AIR QUALITY IMPACTS..... | 10 |
| 3.1 Thornbury WWTP Impacts..... | 10 |
| 4. SUMMARY OF POTENTIAL AIR QUALITY IMPACTS | 12 |
| Figure 1 Proposed Development Site and the Thornbury WWTP | 4 |
| Figure 2 Existing Land Use Map | 7 |
| Figure 3 Thornbury WWTP Site Operations | 9 |
| Figure 4 Thornbury WWTP 100 metre Buffer Distances | 11 |
| Table 1 Facility Capacity, Minimum Separation Distances and Recommended Separation Distances for Sewage Treatment Plants | 5 |
| Appendix A Noise Feasibility Study | |

1. INTRODUCTION

ORTECH Consulting Inc. (“ORTECH”) was retained by Blue Mountain Attainable Housing Corporation (BMAHC) to provide a land use compatibility study for a proposed mixed-use commercial and residential development at 171 King St. East, Thornbury. The property boundary of proposed development is indicated in Figure 1.

Figure 1: Proposed Development Site and the Thornbury WWTP



The objective of the study was to undertake land use compatibility of the Thornbury Waste Water Treatment Plant (WWTP) and the air quality impact on the proposed development site. The study was conducted based on the Ontario Ministry of the Environment, Conservation and Parks (MECP) Guideline D-2 Compatibility between Sewage Treatment and Sensitive Land Use, which is also required in Section 8.9.1(16) of the Grey County Official Plan.

This report describes the operations and equipment at the Thornbury WWTP with regards to assessing the sources of odours and other potential contaminants. The assessment was based on readily available information, such as The Town of Blue Mountains information, satellite imagery, Access Environment website (MECP’s map-based tool) etc. and direct observations and discussions with WWTP staff during a site visit.

Guideline D-2 recommends that, where practical, sensitive land uses should not be placed adjacent to treatment facilities and conservative separation distances are recommended, Table 1. These conservative separation distances were established to address all sewage treatment plants, including those which can result in local community odours. This air quality assessment will examine the extent and nature of the plant’s fugitive air emissions such as odour and other airborne contaminants for potential impacts identified and addresses any necessary remedial measures.

Table 1: Facility Capacity, Minimum Separation Distances and Recommended Separation Distances for Sewage Treatment Plants

| Capacity (m ³ /day) | Minimum Separation Distance (m) | Recommended Separation Distance (m) |
|--------------------------------|-----------------------------------|-------------------------------------|
| ≤500 | * | 100 |
| >500 to <25,000 | 100 | 150 |
| >25,000 | Dealt with on an Individual Basis | |

* Separation distance of < 100 m may be permitted.

Section 8.9.1(16) of the Grey County Official Plan indicates:

Local municipalities must comply with recommended buffer separation guidelines as presented in the Ministry of the Environment, Conservation and Parks D-2 Guideline or its successor document, for compatibility between wastewater treatment facilities/sewage treatment works as shown on Appendix A and those outside of but within 400 metres of the Grey County boundaries, and sensitive land uses. Municipalities are encouraged to identify in their official plans and/or zoning by-laws the locations of municipal and communal sewage treatment works as shown as wastewater treatment facilities on Appendix A and those outside of but within 400 metres of the Grey County boundaries.

The Town Official Plan Section C11 states the following:

Land uses and development which may be sensitive to the effects of odour, noise and other contaminants including residences, day care centres, or commercial, industrial and health facilities shall generally not be permitted within 100 metres of a municipal sewage treatment plant property line. The buffer area for the Thornbury and Craigleith sewage treatment plant is shown on the Constraints Mapping. All land uses and development within the buffer setback shall be subject to a relevant study submitted for review by the County of Grey and Town of Blue Mountains to address the current and future impacts, and to assess appropriate design, buffering and separation distances

in conformity with Ministry of Environment and Climate Change guidelines and information requirements. Implementation of the study's recommendations may be required under an agreement between the proponent and the municipality.

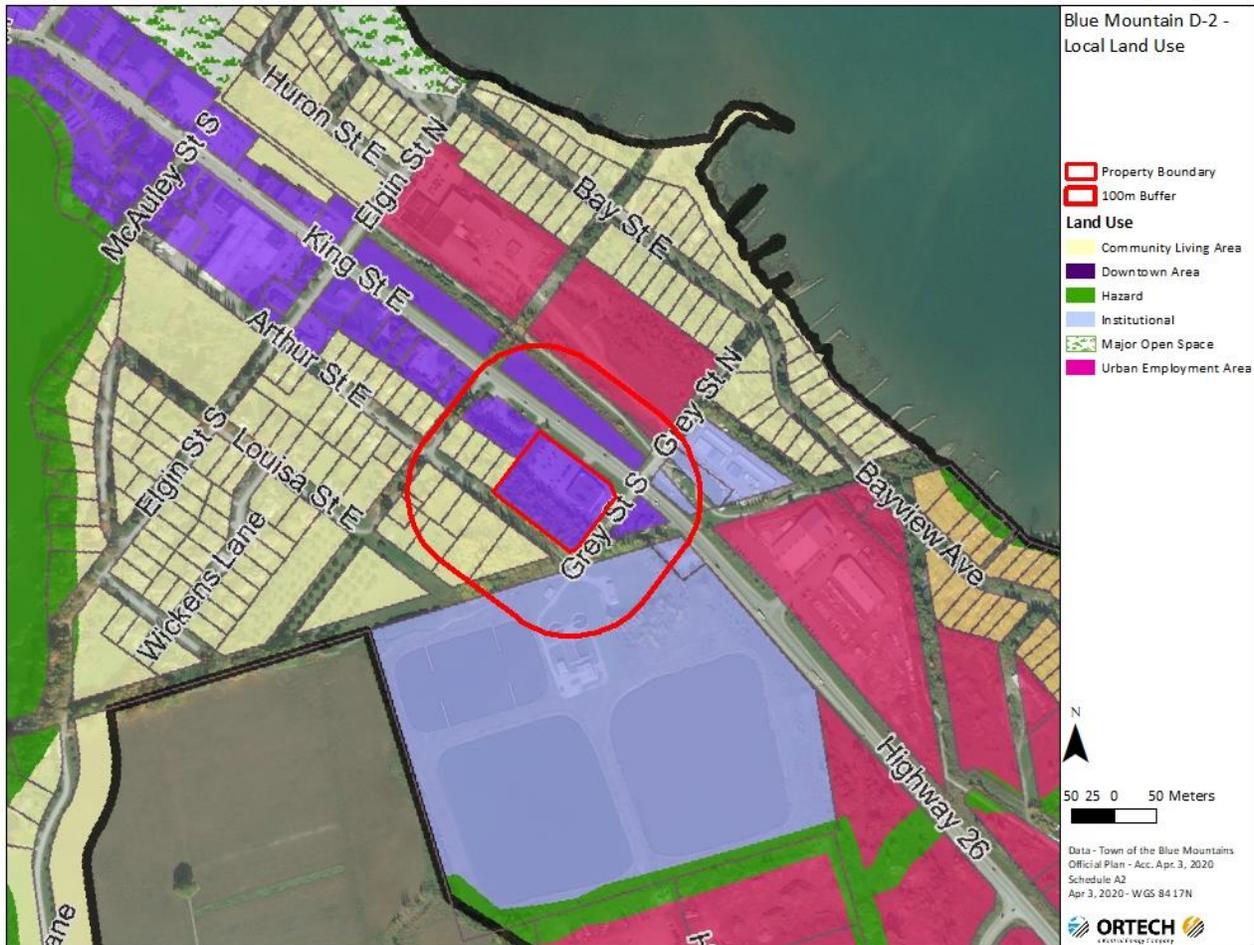
In addition, the Section 10.2.5 of the Town Zoning Bylaw regulates the following:

The Holding (h5) provision applies to land uses and development which may be sensitive to the odours, noise and other contaminants within 100 metres of a municipal wastewater facility (sewage treatment plant). The Holding Provision (h5) may be lifted once it is determined through relevant study to address the current and future impacts and to assess appropriate design, buffering and separation distances in conformity with the Ministry of Environment and Climate Change guidelines to the satisfaction of the County of Grey and Town of The Blue Mountains.

The Blue Mountains Official Plan Schedule 'A-2' Thornbury and Clarksburgland use map is provided in Figure 2, which also illustrates the existing 100 metre buffer from the property line.

As noted above, the D-2 guidelines are based on the potential for noise, dust and odours. This study addresses dust, odour sources and other contaminants in the main report. The noise feasibility study is provided in Appendix A.

Figure 2: The Blue Mountains Official Plan Schedule 'A-2' Thornbury and Clarksburg Land Use Map



2. THORBURY WASTE WATER TREATMENT PLANT SITE

2.1 Thornbury WWTP

The Thornbury WWTP, located at Grey Street South, Thornbury, is a tertiary sewage treatment plant with a rated capacity of 3,580 m³/d (cubic metres per day) prior to completion of all works with a planned increase to 7,080 m³/day. Operations, structures and equipment include:

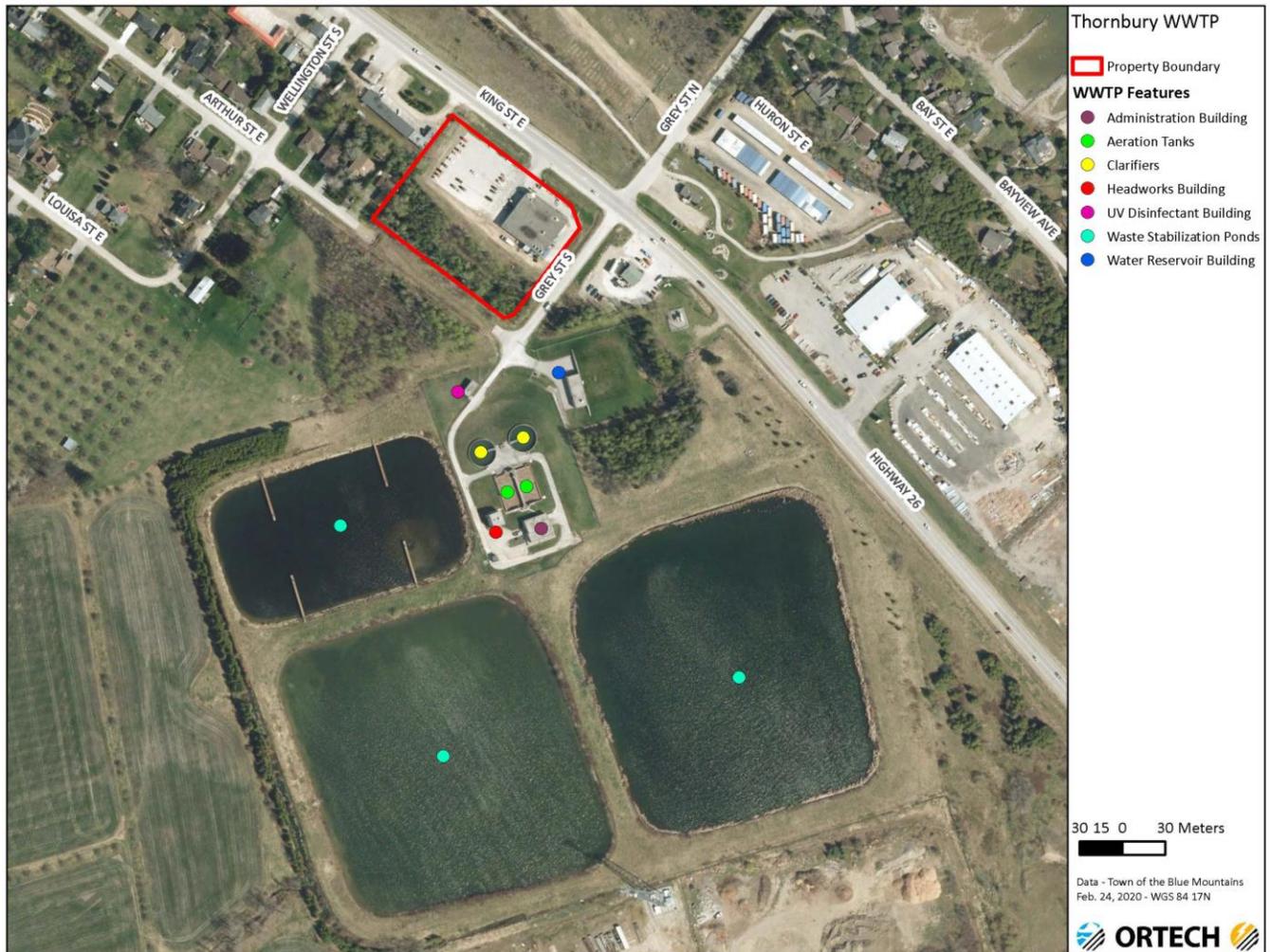
- Headworks Building with screening and grit removal
- Biological Treatment with two (2) aeration basins
- Secondary Sedimentation with two (2) clarifiers
- Supplementary treatment for phosphorus removal
- Disinfectant System with UV disinfection
- Three (3) Waste Stabilization Ponds
- Administration Building

2.2 Thornbury Water Reservoir and Building

The Thornbury Water Reservoir and associated building is also located at the Grey Street South site. This facility includes the water reservoir and the associated building which contains the water distribution pumps, a 500 kW emergency diesel generator and offices.

Figure 3 illustrates the WWTP site operations.

Figure 3: Thornbury WWTP Site Operations



3. ASSESSMENT OF THE THORNBURY WWTP AIR QUALITY IMPACTS

3.1 Thornbury WWTP Impacts

Information regarding the Thornbury WWTP was obtained from documents provided by the Town of Blue Mountains and from answers to questions on the WWTP during the site visit on February 13, 2020.

The Thornbury Wastewater Treatment Plant is currently rated at 3,580 m³/day operating under Amended Environmental Compliance Approval # 0082-B44Q7K with a planned increase to 7,080 m³/day. The Headworks building encloses the initial receipt of the waste water, and the screening and grit removal processes. Waste water is received from influent forcemains only. Sewage is not received by tanker trucks. The Headworks building has a general exhaust which discharges above the roof. The aeration basins and clarifiers are open and are surrounded by perimeter walls. The waste stabilization ponds are open, however, the waste sludge is covered by water.

During the plant tour on February 13, 2020 odours were observed in the Headworks Building and at the perimeter walls of the aeration basins and the clarifiers. The odours were slight to moderate with a typical sewage character. The odours could not be considered strong or extreme at the sources and did not exhibit a rotten organic matter or strong sulphur character. Odours were not observed at distances of greater than 3 metres from the headworks building, the aeration basins and the clarifiers. The water of the waste stabilization ponds was frozen, therefore, no odours were observed in the vicinity of these ponds. There were no odours observed in, or outside, the disinfectant building, as this building provides extra UV disinfection to the final treated effluent.

The operations at the Thornbury Water Reservoir and associated building do not involve waste water treatment processes and there are no sources of odours. The building contains an emergency diesel generator which is operated monthly for maintenance tests of periods of less than an hour. This emergency generator is not a source of odours or contaminants which would adversely impact the development site.

It is important to note that these on-site odour observations were undertaken during winter weather conditions of low temperature (-9°C), high winds (15-20 km/h) and snow. These weather conditions are not suitable for accurate odour observations.

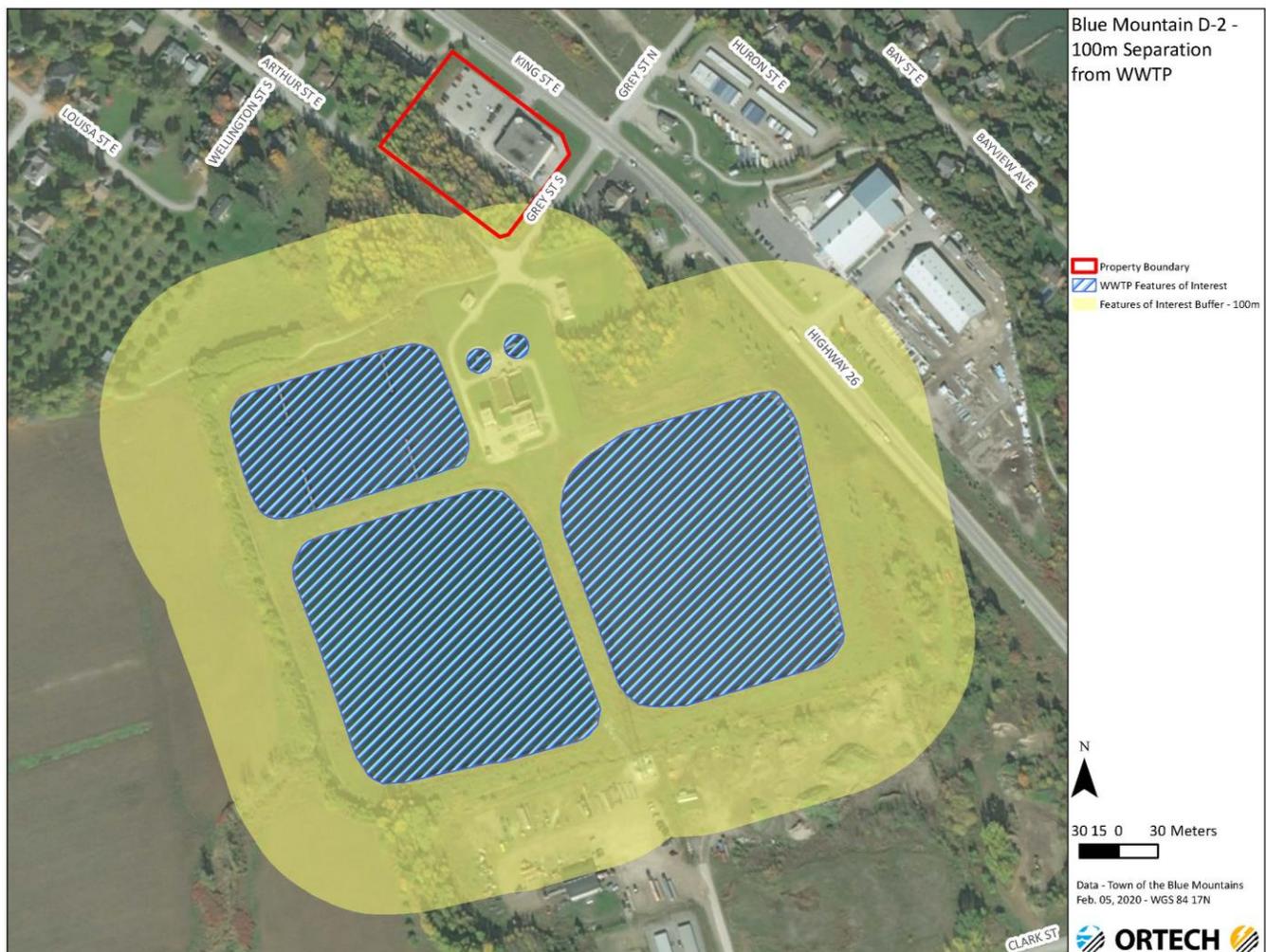
The WWTP plant staff stated that they have received only one odour complaint, and upon investigation, it was determined that the odour source was a restaurant liquid waste sump and not the WWTP. This restaurant was located at the south east corner of Grey Street and Highway 26, approximately 120 metres north-east of the WWTP.

The complaint history and these odour observations indicate that the odours from the Thornbury WWTP are such that the appropriate Guideline D-2 separation distances of “100 m Minimum and 150 m Recommended” from the source of odours for all sewage treatment plants, including odorous plants,

are conservative and may not be appropriate for Thornbury waste water treatment plant. The 100 metre separation distance from the source of odours (not the WWTP property line) is shown in Figure 4.

The Thornbury WWTP operating staff explained that minimization of odours is practiced at the plant. If upsets occur which may cause odours, the sources of odours are addressed and odours releases minimized. Although the Headworks building has a direct exhaust to the atmosphere, if this source is a persistent source of odour complaints, odour control will be installed on the exhaust. The plant operations manual includes a generic public complaint form, however, it does not specifically refer to odour complaints.

Figure 4: Thornbury WWTP 100 metre Buffer Distances



4. SUMMARY OF POTENTIAL AIR QUALITY IMPACTS

The Town of Blue Mountains has been operating this WWTP for over 10 years and plant operations have successfully controlled odour emissions to the point that there have been no community odour complaints attributed to the plant during the last 10 year period.

ORTECH is of the opinion that the Guideline D-2 Minimum separation distance of 100 metres from the odour sources as shown in Figure 4, may be more conservative and may not cause a significant impact to the developable area of the site.

The odour assessment was completed in less than optimal conditions for the highest potential odours generated by the WWTP. If the town requests to reduce the D-2 Minimum separation distance, a more detailed odour field program and impact assessment is recommended in late spring or early summer during the weather conditions conducive to higher odour releases. In addition, when the WWTP increases to the planned 7,080 m³/day, higher concentration of odour releases are possible and the results of the odour field program at 3,580 m³/day may not apply. It is recommended that follow-up odour assessment should be replicated in appropriate weather conditions in Spring 2021 following completion of the Thornbury Wastewater Treatment Plant Headworks construction project.

Odour control at source is the preferred method of reducing odour emissions and minimizing impacts. A well operated and maintained WWTP plant and the implementation of odour source controls, both engineering controls and administrative control, is more effective in minimizing the potential for odour complaints than defining separation distances for new developments. It is recommended that the Thornbury WWTP document an odour control program for the plant, which would include an environment complaint procedure to address odour complaints.