

AIR & NOISE STUDY
FOR
138 ROBERT STREET EAST, PENETANGUISHENE

SUBMITTED TO:

Innovative Planning Solutions Inc.
647 Welham Road, Unit 9A
Barrie, Ontario, L4N 0B7

SUBMITTED BY:

Natalie Mayer
Project Technologist
nmayer@SONAIRenviro.com

Thomas Li, MEPP, P.Eng
Principal
tli@SONAIRenviro.com

SE #: 1148.001

September 20, 2022

This document may contain privileged and/or confidential information, and is for the sole use of the party to whom it is addressed. It may not be reproduced, published, or distributed in whole or in part without express written permission.



(Page left black intentionally)

TABLE OF CONTENTS

1.0	Introduction.....	5
1.1	Subject Site.....	6
2.0	Air Quality Assessment	7
2.1	Air Quality Regulations	7
2.1.1	<i>Air Quality Contaminants</i>	7
2.1.2	<i>Odour Contaminants</i>	7
2.2	Significant Sources of Air Quality Concern	7
2.2.1	<i>Charles Morden Construction Ltd. (Fuller Pit)</i>	8
3.0	Dispersion Modelling.....	9
3.1	Source Parameters and Emissions Estimates	9
3.2	Model Input Information.....	9
3.3	Compliance Assessment of Modelling Results.....	9
4.0	Background Ambient Air Quality.....	9
4.1	Ambient Air Quality Criteria	9
5.0	Noise Assessment	11
6.0	Transportation Noise Impact Assessment.....	11
6.1	Location of Assessed Noise Impact	11
6.2	Road Noise Criteria.....	12
6.3	Road Traffic Volumes.....	13
6.4	Road Traffic Noise	14
7.0	Minimum Requirements	15
7.1	Plane of Window (POW)	15
7.1.1	LOT 283 (North & East Façade) – R1 & R2	15
7.1.2	Block 305 (East Façade) – R3	15
7.1.3	LOT 59 (North Façade) – R4.....	15
8.0	Warning Clauses	15
9.0	Building façade/Glazing Construction.....	16
10.0	Stationary Noise Impact Assesment	16
10.1	Stationary Noise	16
10.1.1	WINMAR – Georgian Bay Muskoka	17

10.2	Points of Reception.....	18
10.3	Rationale for Selecting Applicable Noise Guideline Limits for Stationary Sources .	18
10.4	Predictable Worse Case Impact Operating Scenario for Stationary Sources	19
11.0	Conclusions and Recommendations	19

TABLES

Table 1	Summary of Surrounding Land Use
Table 2	Provincial and Federal Ambient Air Quality Criteria/Standard
Table 3	Surrounding Background Concentrations
Table 4	Road Noise Sound Level Limits
Table 5	Required Noise Clauses or Actions
Table 6	Indoor Sound Pressure Level Limits
Table 7	24 Hour Road Traffic Volumes
Table 8	Forecasted Road Traffic Volumes
Table 9	Traffic Noise Model Details
Table 10	Glazing STC Requirements
Table 11	NPC-300 Limits for Class 2 Areas
Table 12	NPC-300 Limits for Class 4 Areas

APPENDICIES

Appendix A	Site Plan & Drawings
Appendix B	STAMSON Sample Calculation
Appendix C	Traffic Volume
Appendix D	Stationary Source Assessment Summary Table
Appendix E	SoundPlan Sample Calculation
Appendix F	STC Glazing Requirement Calculation

1.0 INTRODUCTION

138 Robert Street LP (Client) retained SONAIR Environmental Inc. (SONAIR) to prepare an Air and Noise Study (ANS) in support of a proposed development located at 138 Robert Street East in Penetanguishene. The proposal would introduce a sensitive land use to an existing residential, commercial, and industrial area. The proposed development is mixed-use consisting of two (2) residential blocks, which include low and medium density housing. At the request of the Town of Penetanguishene, an Air and Noise Study is required.

The purpose of the air portion of this study is to evaluate the potential air quality impact of neighbouring land uses on the proposed development and vice-versa.

As potential facilities within the proposed employment lands are currently unknown, sources of air quality concern from the proposed development itself will not be assessed. It is not anticipated that air quality concerns will be presented if the employment areas are used for future office spaces, restaurants, retail etc. Concerns may exist if the employment areas are used for activities and operations that may have potential air emissions. Facilities that have the potential to emit contaminants into the air are subject to an Environmental Compliance Approval (ECA) or an Environmental Activity and Sector Registry (EASR) in order to meet the MECP air and noise standards in accordance with O. Reg 419/05, O. Reg 1/17, and/or NPC-300.

MECP Guideline D-6: Compatibility Between Facilities and Sensitive Land Uses suggests that no sensitive land uses be located within the recommended minimum separation distances, and that proposed development located within the potential influence area should be further investigated by means of studies to determine and assess any potential air quality impact.

Based on the Land Use Compatibility Study prepared by SONAIR, dated September 20, 2022, one (1) industrial facility, specifically Charles Morden Construction Ltd. (Fuller Pit) located at 905 Fuller Avenue is situated within the area of influence of the proposed development.

Therefore, the air portion of this report discusses the potential air quality impact the facility may have towards the proposed development.

The purpose of the noise portion of this study is to determine the noise impact from vehicular traffic along Robert Steet East, Thompsons Road, and Centennial Drive as well as any environmental noise impact from existing land uses surrounding the proposed development.

No sources of vibration concern were identified in the study area, as no associated industry (stamping presses or forging hammers) or rail lines exist within 300m in proximity to the proposed sensitive development; therefore, vibration will not be further discussed. The proposed development is also not within any areas identified with any Transport Canada Noise Exposure Forecast (NEF) rating of 25 or above.

This study was conducted in accordance with applicable environmental guidelines from the Town of Penetanguishene, and with the Ministry of the Environment, Conservation and Parks (MECP) Guidelines:

- NPC-300: Environmental Noise Guideline: *Stationary and Transportation Sources*
- LU-131: Noise Assessment Criteria in Land Use Planning
- Guideline D6: Compatibility between Industrial Facilities and Sensitive Land Uses

1.1 Subject Site

The Client is proposing to construct a mixed-use development located at 138 Robert Street East in Penetanguishene, Ontario. The proposed development abuts Robert Street East and Thompsons Road. The proposed development is mixed-use consisting of two (2) residential blocks. The Northwest and South side of the development include low and medium density housing. The remaining Northeast side of the development is designated as employment area.

Currently, the property is zoned as Deferred Development and Rural.

The surrounding land can be characterized as:

Table 1 – Summary of Surrounding Land Use

Direction	Land Use
North	Residential, Industrial
East	Forest
South	Agricultural, Forest
West	Residential

A Zoning map for the Town of Penetanguishene is shown in Appendix A.

2.0 AIR QUALITY ASSESSMENT

2.1 Air Quality Regulations

2.1.1 Air Quality Contaminants

The provincial Schedules of Ontario Regulation 419/05 is a series of air quality standards for which several contaminants are regulated. All contaminants released from a facility must comply with Section 9 of Ontario's Environmental Protection Act (EPA), requiring facilities to meet the specified thresholds at the property line of the proposed development and beyond, regardless of current or future land uses. When a mid- or high-rise residential property is introduced to the surrounding area of a facility, they may be required to re-assess compliance at the newly introduced sensitive receptors. However, with the introduction of low-rise residential developments, the building does not introduce any new sensitive receptors and therefore the facility will likely meet regulated limits as they are already required to be in compliance at grade level at their property line.

2.1.2 Odour Contaminants

Although only few odorous contaminants are provincially regulated, there is no regulation surrounding the release of mixed odours. The MECP has generally accepted that odour-based standards may be applied to sensitive land uses such as residences and public meeting spaces. The MECP Technical Bulletin used is entitled, *Methodology for Modelling Assessment of Contaminants with 10-Minute Average Standards and Guidelines Under O.Reg. 419/05 (2008)*. Therefore, when a new sensitive land use is introduced, potential odour impacts from surrounding facilities can occur.

2.2 Significant Sources of Air Quality Concern

Numerous commercial and industrial facilities exist within the surrounding area of the proposed development. A Land Use Compatibility assessment has assessed the existing commercial and industrial facilities within a 1000-meter radius of the proposed development. However, one (1) industrial facility is located within the potential influence area of the proposed development. SONAIR has evaluated the air quality impact of equipment and operations from this industrial site as discussed below.

2.2.1 *Charles Morden Construction Ltd. (Fuller Pit)*

Charles Morden Construction Ltd. operates a licensed Class A pit located at 905 Fuller Avenue in Penetanguishene, Northeast of the proposed development. The Fuller pit produces a variety of sand and gravel products as well as limestone and granite and operates from 8:00 AM to 5:00 PM. Due to the Class A license and maximum tonnage of 300,000 per year, the 18.23-hectare pit was classified as a Class III facility.

Odour emissions are not anticipated to be a concern as the processes are not expected to be significant sources of odour based on the nature of its operations.

Fugitive dust emissions are expected given the nature of its operations. The main sources of dust emissions associated with the facility are anticipated to be the unpaved roadways, processing area, extraction and loading/shipping areas. Based on aerial imagery, the location of these sources is shown in the drawing found in Appendix A.

The primary contaminant of concern associated with the types of operations from this industry is suspended particulate matter.

A search in the Ministry of the Environment, Conservation and Parks approval database returned no results for this facility. In most cases, pits are governed by the Aggregate Resources Act and are exempt from Section 9 of the Environmental Protection Act if the facility's mobile equipment for the crushing and screening of aggregate is located below grade in a pit and is operated under a valid licence or permit. To our knowledge, the activities and operations performed on this site is above grade.

In the absence of an ECA, a relative air dispersion modelling was conducted using information provided from the aerial imagery. Results indicated that the maximum POI concentration is located towards the South side of the facility's property line. Given that the facility is required to comply with the regulatory limits at the property line and beyond, the model indicates that provided the facility is in compliance with the standards and limits at the property line, the facility will also comply at the proposed development.

An existing residential area and a hospice are located approximately 418m South and 145m West of the pit, respectively, which are much closer in proximity compared to the proposed

development. Therefore, the concentration levels at the proposed development will be less than the sensitive receptors in closer proximity to the pit.

3.0 DISPERSION MODELLING

3.1 Source Parameters and Emissions Estimates

Eleven (11) sources of potential air quality concern from the pit were modelled and analyzed. Sources include the processing area and extraction/shipping areas. Fugitive emissions associated with unpaved roadways/vehicle movements and stockpiles were not included as part of the assessment as emissions are generally mitigated through a Best Management Practices Plan (BMPP) for control of fugitive emissions.

3.2 Model Input Information

The dispersion modelling was conducted in accordance with MECP publication *Air Dispersion Modelling Guideline for Ontario, Version 2, 2009*. AERMOD version (v.19191) has been used to predict maximum POI concentrations resulting from facility emissions, using the averaging periods specified in O. Reg 419/05. A five (5) year data set (1996-2000) of hourly meteorological readings for the Southwest Region was used in the AERMOD model, and as the land around the facility is mostly agricultural, the CROPS land-use was selected.

3.3 Compliance Assessment of Modelling Results

Modelling was conducted using a relative modelling approach to determine the location of the maximum POI concentration at the property line and beyond.

Dispersion modelling results for Charles Morden Construction Ltd, indicated that the maximum POI occurs at their South property line. Therefore, provided the pit is compliant at their property line, they will be compliant at the proposed development.

4.0 BACKGROUND AMBIENT AIR QUALITY

4.1 Ambient Air Quality Criteria

The Ontario Ministry of the Environment, Conservation and Parks as well as the Canadian government has established Ambient Air Quality Criteria and Standards that can be used to protect the public health and/or the environment against adverse effects from air pollutants. The following table summarizes the pollutant criteria and standards established by the provincial and federal government:

Table 2 – Provincial and Federal Ambient Air Quality Criteria/Standard

Pollutant	Averaging Period	Ontario AAQC	Canada AAQS
Total Suspended Particulate (TSP)	24-hr	60	-
	Annual	120	-
PM _{2.5}	24-hr	-	27
	Annual	-	8.8
PM ₁₀	24-hr	50	-
Nitrogen Dioxide (NO ₂)	1-hr	400	-
	24-hr	200	-

4.2 Monitoring Data

Environment Canada’s National Air Pollution Surveillance (NAPS) and the Ministry of the Environment, Conservation and Parks air quality monitoring stations in close proximity to the subject site were used to gather background concentration levels for the various pollutants. The closest air quality monitoring station was identified as the Barrie Station, located at 83 Perry Street in Barrie, approximately 46 km Southeast of the proposed development. For the purpose of this assessment, background concentration information was gathered using the NAPS program (Station ID 65001) for the three most recent years (2018-2020) with available data.

Background concentrations identified in Table 3 below are based on a 90th percentile of the monitoring information available for the 1 hour and 24-hour averaging periods. Annual background concentrations are based on the average of the air quality data available.

The monitoring station only contained data for PM_{2.5} and NO₂, but not TSP and PM₁₀. TSP, PM₁₀ and PM_{2.5} are in many ways similar where PM_{2.5} is a subset of PM₁₀, and PM₁₀ is a subset of TSP. As a result, the concentration for TSP is generally greater than PM₁₀, and consequently, PM₁₀ is greater than PM_{2.5}. According to an ambient air quality report (prepared by the Canadian Environmental Protection Act/FPAC) PM₁₀ accounts for roughly 50% of TSP, while PM_{2.5} accounts for approximately 25% of TSP. Therefore, this ratio was used to estimate the background concentrations for both TSP and PM₁₀ using information available for PM_{2.5}.

Table 3 – Surrounding Background Concentrations

Pollutant	Averaging Period	Background Concentration (µg/m³)	Criteria (µg/m³)	% of Criteria
NO ₂	1-hr	14.0	400	3.5%
	24-hr	11.6	200	5.8%
TSP	24-hr	54.0	60	90%
	Annual	29.2	120	24.3%
PM _{2.5}	24-hr	13.5	27	50%
	Annual	7.3	8.8	82.9%
PM ₁₀	24-hr	27.0	50	54%

As seen in the table above, the background nitrogen oxide concentration, as well as PM_{2.5}, PM₁₀, and TSP concentration values are below the ambient air quality criteria established by the provincial and federal programs.

5.0 NOISE ASSESSMENT

The noise assessment was based on publicly available information, and traffic data obtained from the Town of Penetanguishene’s Public Works Department. The subject site is shown in Appendix A.

The subject site is located at 138 Robert Street East which abuts Robert Street East and Thompsons Road. Robert Street East is a 2-lane road that runs West/East. Thompsons Road is a 2-lane road that begins running North/South from Robert Street East and curves to the West as it approaches Main Street. Centennial Drive is also a 2-lane road that runs North/South. The posted speed limit on Robert Street East, Thompsons Road, and Centennial Drive is 50 km/hr.

6.0 TRANSPORTATION NOISE IMPACT ASSESSMENT

6.1 Location of Assessed Noise Impact

The locations of the Outdoor Living Areas (OLA) and Plane of Windows (POW) were determined in accordance with NPC-300. These locations can be evaluated in Appendix A. The assessed locations are deemed to be the most impacted units based on distance to the roadway, location of existing barriers, and line of sight to the roadway.

6.2 Road Noise Criteria

Road noise limits for new developments have been established by the Ministry of Environment, Conservation and Parks (MECP) in NPC-300. The values for daytime, and evening hours are provided in Table 4 below:

Table 4 – Road Noise Sound Level Limits

Time Period	L_{eq} (dBA)
07:00 to 23:00	55 (Measured at OLA)
07:00 to 23:00	55 (Measured at POW)
23:00 to 07:00	50 (Measured at POW)

If predicted noise levels at the OLA and/or the POW are equal or less than the values in Table 4, no noise control measures are required. If predicted noise levels exceed Table 4 values, then the following clauses or actions are required:

Table 5 – Required Noise Clauses or Actions

Time Period	Location	Sound Pressure Level (dBA)	Requirements
07:00 to 23:00 (Daytime)	OLA	≤ 55	No Requirements
		$55 < L_{eq} \leq 60$	Barrier or Warning Clause Type “A”
		> 60	Barrier & Warning Clause Type “B”
07:00 to 23:00 (Daytime)	POW	≤ 55	No Requirements
		$55 < L_{eq} \leq 65$	Provision for A/C & Warning Clause Type “C”
		> 65	Central A/C, Building Component Specifications Requirements & Warning Clause Type “D”
23:00 to 07:00 (Nighttime)	POW	≤ 50	No Requirements
		$50 < L_{eq} \leq 60$	Provision for A/C & Warning Clause Type “C”

		> 60	Central A/C, Building Component Specifications Requirements & Warning Clause Type “D”
--	--	------	---------------------------------------------------------------------------------------------

Where daytime (07:00 to 23:00) sound pressure levels exceed 65 dBA, and/or nighttime (23:00 to 07:00) sound pressure levels exceed 60 dBA, the residential dwellings must be designed such that the indoor sound as measured at the bedroom or living/dining room meets the following criteria:

Table 6 – Indoor Sound Pressure Level Limits

Indoor Location & Time Period	Sound Pressure Level, L_{eq} (dBA)
Living/Dining	45
Bedroom (07:00 to 23:00)	45
Bedroom (23:00 to 07:00)	40

6.3 Road Traffic Volumes

Road traffic data was obtained from the Town of Penetanguishene Public Works Department for Robert Street East, Thompsons Road, and Centennial Drive. The most recent and applicable data set available along the roads was Annual Average Daily Traffic (AADT) data recorded in 2012 for Robert Street and Thompsons Road, and 2013 for Centennial Drive. A conservative 5% annual growth rate was used to obtain 2032 traffic volumes for all roads. A truck breakdown for Thompsons Road was acquired from Turning Movement Count (TMC) for Thompsons Road and Wright Court. Based on ratios from the TMC data obtained, 96% cars, 4% medium trucks, and 2% heavy trucks have been assumed for vehicles along Thompsons Road. The vehicle distribution has been conservatively assumed to be 85% cars, 10% medium trucks, and 5% heavy trucks for vehicles along Robert Street East, while 70% cars, 20% medium trucks, and 10% heavy trucks have been assumed for vehicles along Centennial Drive. A daytime/nighttime split of all traffic was estimated as 90%/10%, as recommended in the ORNAMENT manual for regional roads.

Table 7 –24 Hour Road Traffic Volumes

Year	Roads	Total
2012	Robert Street East	4700
2012	Thompsons Road	1500
2013	Centennial Drive	1350

Table 8 –Forecasted Road Traffic Volumes

Roads	Time Period	Total	Cars (Light)	Trucks (Medium)	Trucks (Heavy)
Robert Street East	Daytime	12,173	9,540	1122	561
	Nighttime	1,247	1,060	125	62
Thompsons Road	Daytime	3,582	3,367	143	72
	Nighttime	398	374	16	8
Centennial Drive	Daytime	3,070	2,149	614	307
	Nighttime	341	239	68	34

6.4 Road Traffic Noise

Predicted sound power levels for the most impacted dwelling in the development are:

Table 9 – Traffic Noise Model Details

Receiver	OLA/ POW	Barrier	Receptor Elevation (m)	Noise at Receiver Day (dBA)	Noise at Receiver Night (dBA)
R1	POW	-	7.5	65.8	59.3
R2	POW	-	7.5	59.3	52.8
R3	POW	-	7.5	57.2	50.6
R4	POW	-	7.5	43.7	37.1

7.0 MINIMUM REQUIREMENTS

7.1 Plane of Window (POW)

7.1.1 LOT 283 (North & East Façade) – R1 & R2

The predicted daytime noise levels at the POW are in excess of 65 dBA, and in excess of 50 dBA during nighttime. It is recommended and required that Central Air Conditioning be made available such that windows can remain closed, Warning Clause Type “D” be registered on title, and window glazing in accordance with Table 10, such that indoor limits found in Table 6 are met.

7.1.2 Block 305 (East Façade) – R3

The predicted daytime noise levels at the POW are in excess of 55 dBA, and below 50 dBA during nighttime. It is recommended and required that this unit be designed with a provision for central air conditioning such that the windows can remain closed, and that Warning Clause Type “C” be registered on title.

7.1.3 LOT 59 (North Façade) – R4

The predicted daytime noise levels in the POW are below 55 dBA, and below 50 dBA during nighttime. No further noise attenuation or warning clauses is required.

8.0 WARNING CLAUSES

Warning Clause Type “C”:

This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipal and the Ministry of the Environment, Conservation and Parks.

Warning Clause Type “D”:

The dwelling unit has been supplied with a central air conditioning system which allows windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within noise criteria of the Municipal and the Ministry of the Environment, Conservation and Parks.

9.0 BUILDING FAÇADE/GLAZING CONSTRUCTION

Predicted noise levels for all lots fronting Robert Street East on the North façade (LOT 280-283) at the POW are in excess of 65 dBA during the daytime, and require building component specification using the Sound Transmission Class (STC) rating. The required STC is determined using methodology from the National Research Council Canada publication *Controlling Sound Transmission into Buildings BPN 56*. The outdoor L_{eq} is determined using STAMSON modelling, while the indoor L_{eq} is stipulated by regulation, found in Table 6 of this report. A 45% and 70% was assumed for the façade-to-floor area ratio and glazing-to-façade area ratio, respectively, for non-sleeping quarters, while a 90% and 50% was assumed for the façade-to-floor area ratio and glazing-to-façade area ratio, respectively, for sleeping quarters. An STC brick veneer wall rating of 54 was assumed for non-window area of the subject facades.

Table 10 – Glazing STC Requirements

Lots	Façade	Minimum Window Glazing STC Requirement
280 to 283	North Façade	OBC*

**Based on brick veneer wall rating of STC-54*

Areas and Facades not identified in the table above is expected to meet acoustical requirement with typical Ontario Building Code (OBC) glazing. Glazing requirements should be reviewed once detailed floor plans and drawings become available during the final design stages of the site plan approval process.

10.0 STATIONARY NOISE IMPACT ASSESMENT

10.1 Stationary Noise

Numerous businesses were identified as have stationary sources that may potentially impact the proposed development. A total of one (1) building was identified as having sources that may be considered significant and have been included as part of this stationary noise impact assessment. Location of this commercial business relative to the proposed development can be found in Appendix A.

Aerial images were used to identify the stationary sources of this commercial facility. Rooftop units are anticipated to be the primary sources of noise. Noise levels of the equipment were

obtained from SONAIR's database based on equipment of similar type and size. The types of sources and the modelling scenarios are discussed below.

10.1.1 WINMAR – Georgian Bay Muskoka

WINMAR – Georgian Bay Muskoka (WINMAR) provides emergency and non-emergency property restoration services, and occupies a facility located at 2 Centennial Drive, Penetanguishene, Northeast of the proposed development. Based on an online search, restoration services are assumed to be performed at off-site locations due to the nature of work. It is anticipated that the facility located at 2 Centennial Drive is primarily used for equipment storage and office space. As WINMAR responds to emergency restoration needs, the operating hours are 24 hours per day, 7 days per week

Primary sources of noise from this facility are anticipated to be the rooftop units.

The location of these sources is shown in the drawing found in Appendix A.

The following parameters have been used to model the noise impact for the various time segments of the day:

- Daytime/Evening:
 - Rooftop units operating 60min/hr.
- Nighttime:
 - Rooftop units operating 30min/hr.

The proposed development is not expected to pose stationary noise impact on itself, or the surrounding noise sensitive uses as no major noise sources are anticipated from the proposed development. Proposed employment areas with significant sources of noise in support of its future operations are required to obtain applicable approvals before commencing their operations. Future noise levels will be required to meet the NPC-300 guideline and implement any mitigations, if necessary.

An acoustical model of the building was prepared using SoundPlan (V8.2). SoundPlan calculates the sound levels surrounding the building according to the ISO standard 9613. The ISO calculation methodology, considered a conservative approach, accounts for reduction in sound levels with distance due to geometrical spreading, air adsorption, ground attenuation, digital

ground elevation, and acoustical shielding. The parameters used were in accordance with the ISO standard:

- Ground absorption was set to 0 (hard ground)
- Only 1st order reflections were considered

The digital ground level was exported from Google Earth

10.2 Points of Reception

Two (2) Points of Reception were considered for this stationary source assessment. R1 represents the lots abutting Roberts Street East to the West of the facility, while R2 represents the sensitive land uses to the South of the facility. Each of these receptors were modelled at a height of 7.5m above grade. The location of the Points of Reception is shown in Appendix A.

10.3 Rationale for Selecting Applicable Noise Guideline Limits for Stationary Sources

The applicable guides used for this assessment are the MECP NPC-300 *Environmental Noise Guideline* for Class 2 Areas. These guidelines state that the one-hour sound exposure (L_{eq}) from stationary sources in Class 2 Areas shall not exceed that of the background, where background is considered in the following table:

Table 11 – NPC-300 Limits for Class 2 Areas

Time	One Hour L_{eq} (dBA) Plane of Window	One Hour L_{eq} (dBA) Outdoor Point of Reception
07:00 to 19:00	50 dBA (or background, if higher)	50 dBA (or background, if higher)
19:00 to 23:00	50 dBA (or background, if higher)	50 dBA (or background, if higher)
23:00 to 07:00	45 dBA (or background, if higher)	-

For the purpose of this assessment, the guideline values from NPC-300 Class 2 areas were used.

In certain instances, a site can be classified as a Class 4 area if the site is being developed into a new noise sensitive land use that has yet to be built and that it would otherwise be identified as Class 1 or 2. Under NPC-300, in order to define the proposed development as Class 4 the land use planning authority must formally classify the area as Class 4 during the land use planning process.

Similar to Class 2 noise limits, noise levels from stationary sources in Class 4 Areas shall not exceed that of the background as follows:

Table 12 – NPC-300 Limits for Class 4 Areas.

Time	One Hour L_{eq} (dBA) Plane of Window	One Hour L_{eq} (dBA) Outdoor Point of Reception
07:00 to 19:00	60 dBA (or background, if higher)	55 dBA (or background, if higher)
19:00 to 23:00	60 dBA (or background, if higher)	55 dBA (or background, if higher)
23:00 to 07:00	55 dBA (or background, if higher)	-

If the site has been classified as a Class 4 Area, the noise limit for a Class 4 is 10 dBA less stringent at the Plane of Window and 5 dBA less stringent at the Outdoor Point of Reception compared to Class 2 Areas.

10.4 Predictable Worse Case Impact Operating Scenario for Stationary Sources

The predictable worse-case impact is assessed by comparison of predictable worst-case operating noise with the applicable guideline limits. Appendix D, summarizes and compares the stationary source impacts with the applicable NPC-300 guideline minima for Class 2 Areas. Results indicate that noise impacts from the assessed commercial facility does not exceed the applicable MECP guideline limits at all receptors for all periods of the day.

11.0 CONCLUSIONS AND RECOMMENDATIONS

SONAIR was retained by IPS to conduct an Air and Noise Study to assess potential air quality and noise impacts from stationary and transportation sources towards the proposed development located at 138 Robert Street East in Penetanguishene.

Based on the assessment of the various land uses in the vicinity of the proposed development using MECP’s D-Series Guidelines, Ambient Air Quality review, as well as dispersion modelling, sources of air quality concern from surrounding land uses are not expected to adversely impact the proposed development.

Noise levels from roadways are predicted to exceed applicable NPC-300 guideline limits during the daytime at numerous identified POWs. It is required that applicable warning clauses,

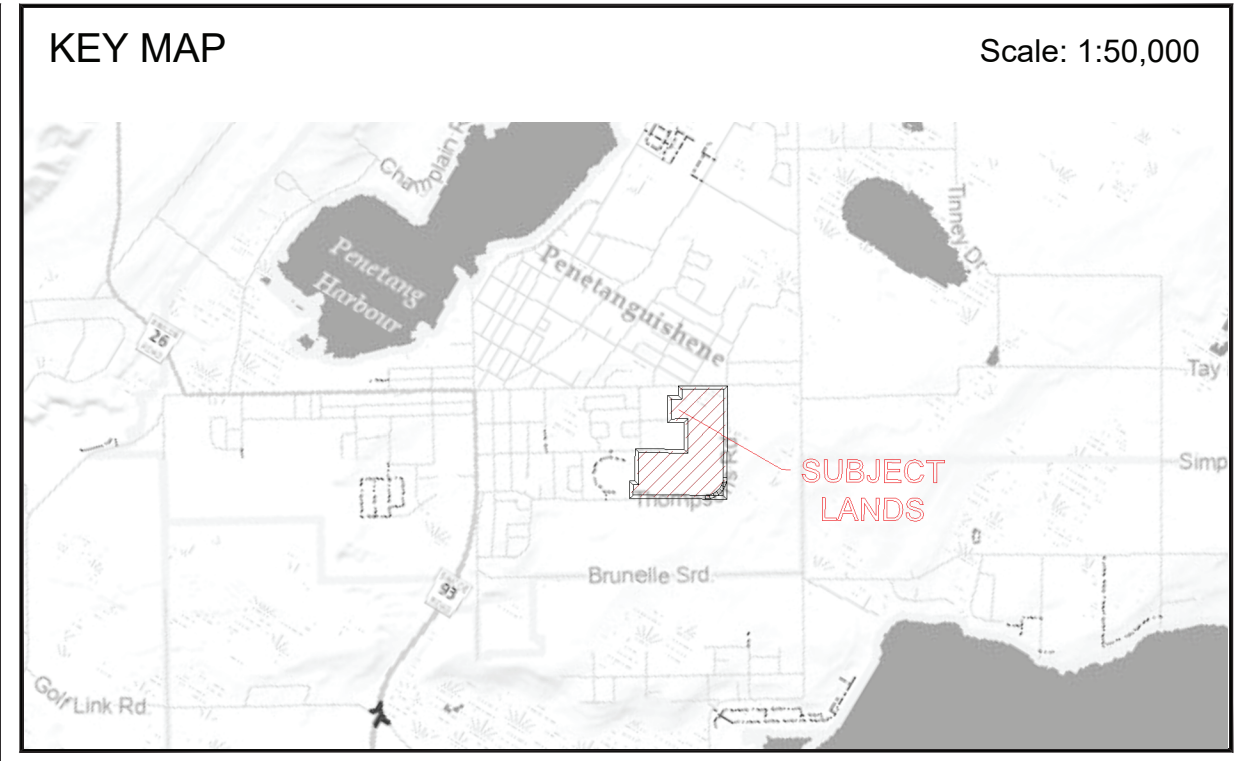
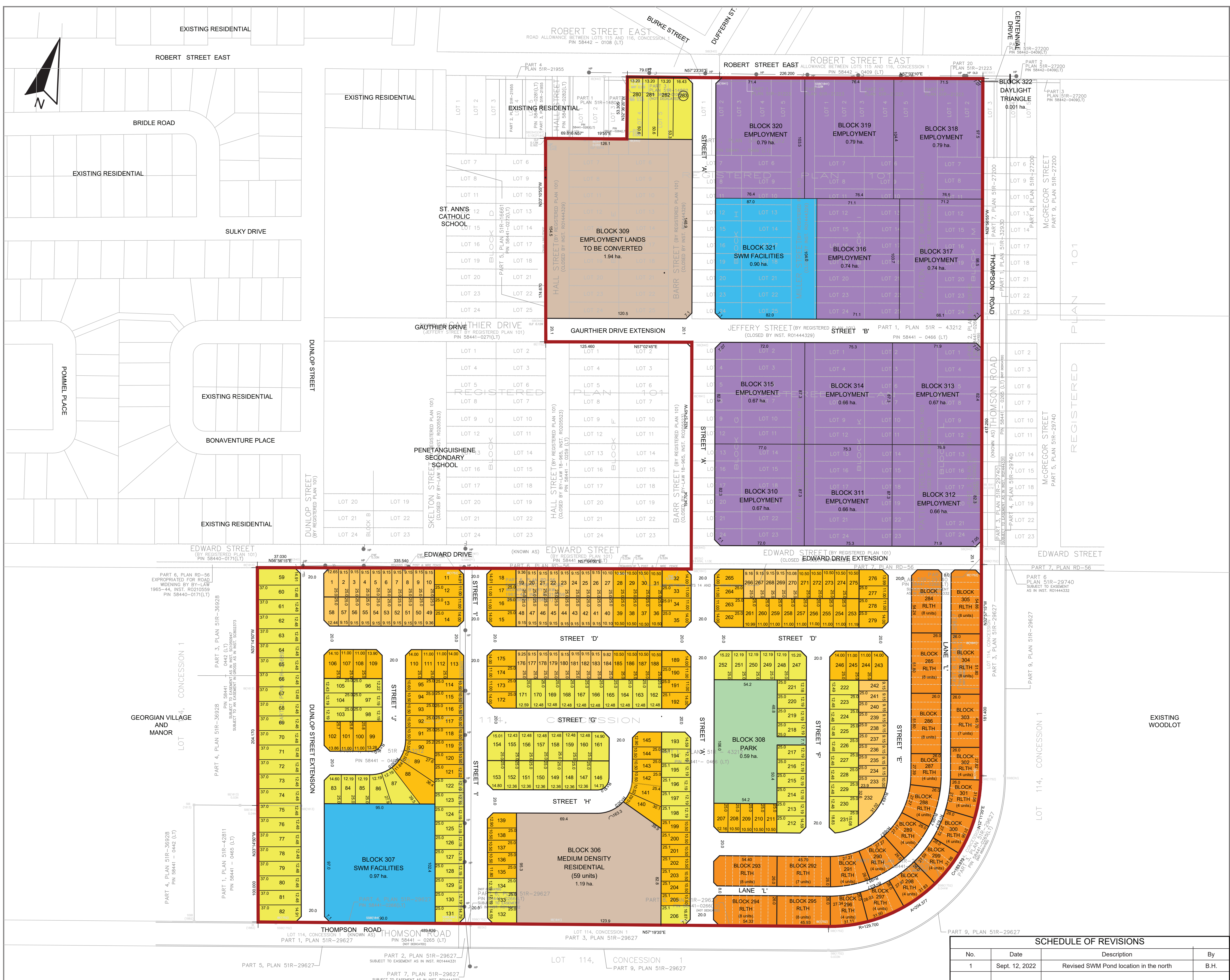
provision for A/C requirements, and building component specifications be implemented as per Sections 7-9.

Noise levels from stationary sources are predicted to meet the Class 2 limits at all building façades; therefore, the proposed development is expected to meet the requirements of guideline NPC-300 for stationary sources.



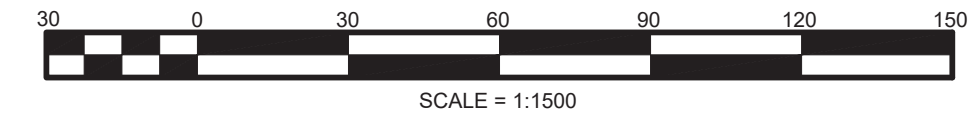
APPENDIX A

SITE PLAN & DRAWINGS



DRAFT PLAN OF SUBDIVISION

PART OF LOTS 1, 2, 3 AND ALL OF LOTS 4 TO 25 INCLUSIVE BLOCK E AND ALL OF LOTS 1 TO 24 INCLUSIVE BLOCK G AND ALL OF LOTS 1 TO 25 INCLUSIVE BLOCK H AND ALL OF LOTS 1 TO 25 INCLUSIVE BLOCK I AND ALL OF LOTS 1 TO 24 INCLUSIVE BLOCK K AND PART OF LOTS 1, 4, 5, 8, 9, 12, 13, 16, 17, 20, 21 AND 24 BLOCK L AND ALL OF LOTS 1 AND 2, PART OF LOTS 3, 7, 8, 11, 12, 15, 16, 19, 20, 23 AND 24 BLOCK M AND PART OF JEFFERY STREET, EDWARD STREET, HALL STREET AND BARR STREET (CLOSED BY R01444329) AND ALL OF MILLER STREET AND PATTON STREET (CLOSED BY R01444329) REGISTERED PLAN 101 AND PART OF LOT 114, CONCESSION 1 (GEOGRAPHIC TOWNSHIP OF TAY) TOWN OF PENETANGUISHENE COUNTY OF SIMCOE



LEGEND
 SUBJECT LANDS - 31.62 ha

LAND USE SCHEDULE

Land Use	Lot / Block No.	Units	Area (ha)	Area (ac.)	%
RESIDENTIAL SINGLE LOT (8.15m / 30')	Lots 1-10, 19-27, 40-58, 176-184, 232-242, 266-270	63	1,495	3.69	4.7
RESIDENTIAL SINGLE LOT (10.50m / 34')	Lots 11-18, 25-35, 88-95, 99-102, 105-121, 135-145, 172-175, 185-192, 199-205, 207-211, 243-246, 253-265, 271-279	109	3,185	7.87	10.1
RESIDENTIAL SINGLE LOT (12.19m / 40')	Lots 59-87, 96-98, 103-105, 122-134, 146-171, 193-198, 206, 212-231, 247-252, 260-263	111	4,083	10.09	12.9
RESIDENTIAL REAR LANE TOWNHOUSES (8.1m / 20')	Blocks 284-305	126	2,244	5.54	7.1
RESIDENTIAL MEDIUM DENSITY (50 upha.)	Blocks 306, 309	155	3,127	7.73	9.9
STORMWATER MANAGEMENT FACILITIES	Blocks 307, 321	1	1,870	4.62	5.9
PARK	Block 308	0	0.593	1.46	1.9
EMPLOYMENT LANDS	Blocks 310 - 320	7	7,839	19.37	24.8
DAYLIGHT TRIANGLES	Block 321	0	0.001	0.01	0.0
STREETS	Street A - K (20.0m ROW) Lane 'L' (8.0m ROW)	0	7.185	17.76	22.7
TOTAL		564	31,622	78.14	100.0

OWNER'S CERTIFICATE
 I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE TOWN OF PENETANGUISHENE FOR APPROVAL.

DATE _____ SIGNING OFFICER _____
 NAME OF FIRM _____

SURVEYOR'S CERTIFICATE
 I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE _____ TOM KRCMAR, OLS
 KRCMAR SURVEYORS LTD.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON PLAN	b) SHOWN ON PLAN	c) SHOWN ON PLAN	d) RESIDENTIAL, OPEN SPACE, EMPLOYMENT
e) SHOWN ON PLAN	f) SHOWN ON PLAN	f1) NONE	
g) SHOWN ON PLAN	h) MUNICIPAL WATER	i) SANDY	
j) SHOWN ON PLAN	k) MUNICIPAL SEPTIC SERVICES	l) NONE	

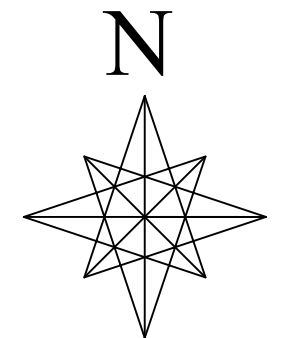
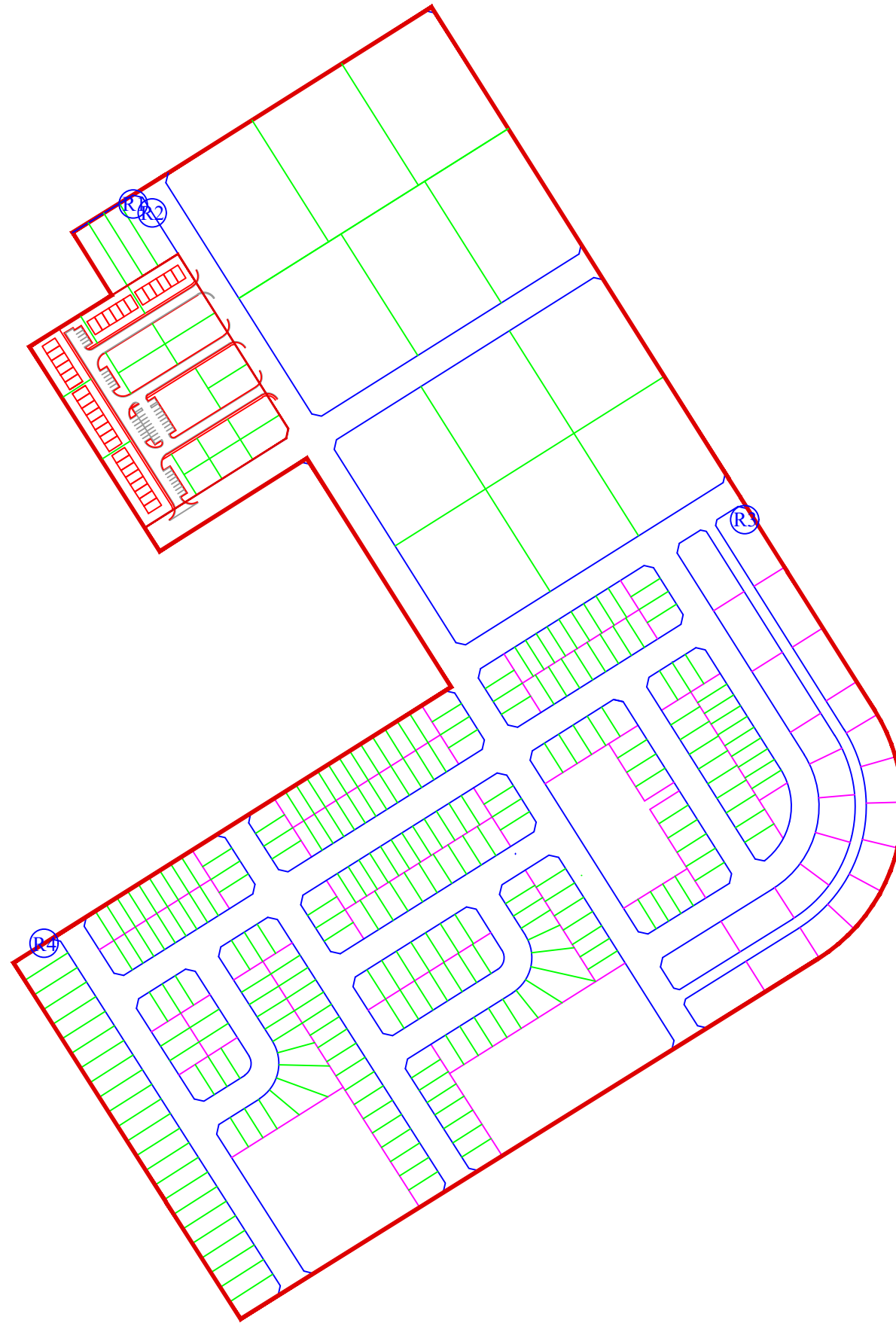
SCHEDULE OF REVISIONS

No.	Date	Description	By
1	Sept. 12, 2022	Revised SWM Pond location in the north	B.H.

METRIC NOTE:
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

IPS INNOVATIVE PLANNING SOLUTIONS
 PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
 647 WELHAM RD., UNIT 9, BARRIE, ONTARIO, L4N 0B7
 TEL: 705 • 812 • 3281 FAX: 705 • 812 • 3438 E: info@ipsconsultinginc.com www.ipsconsultinginc.com

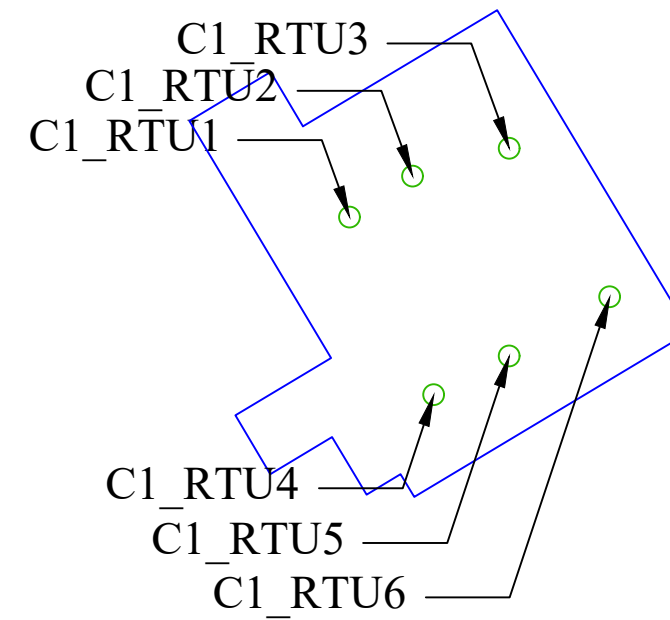
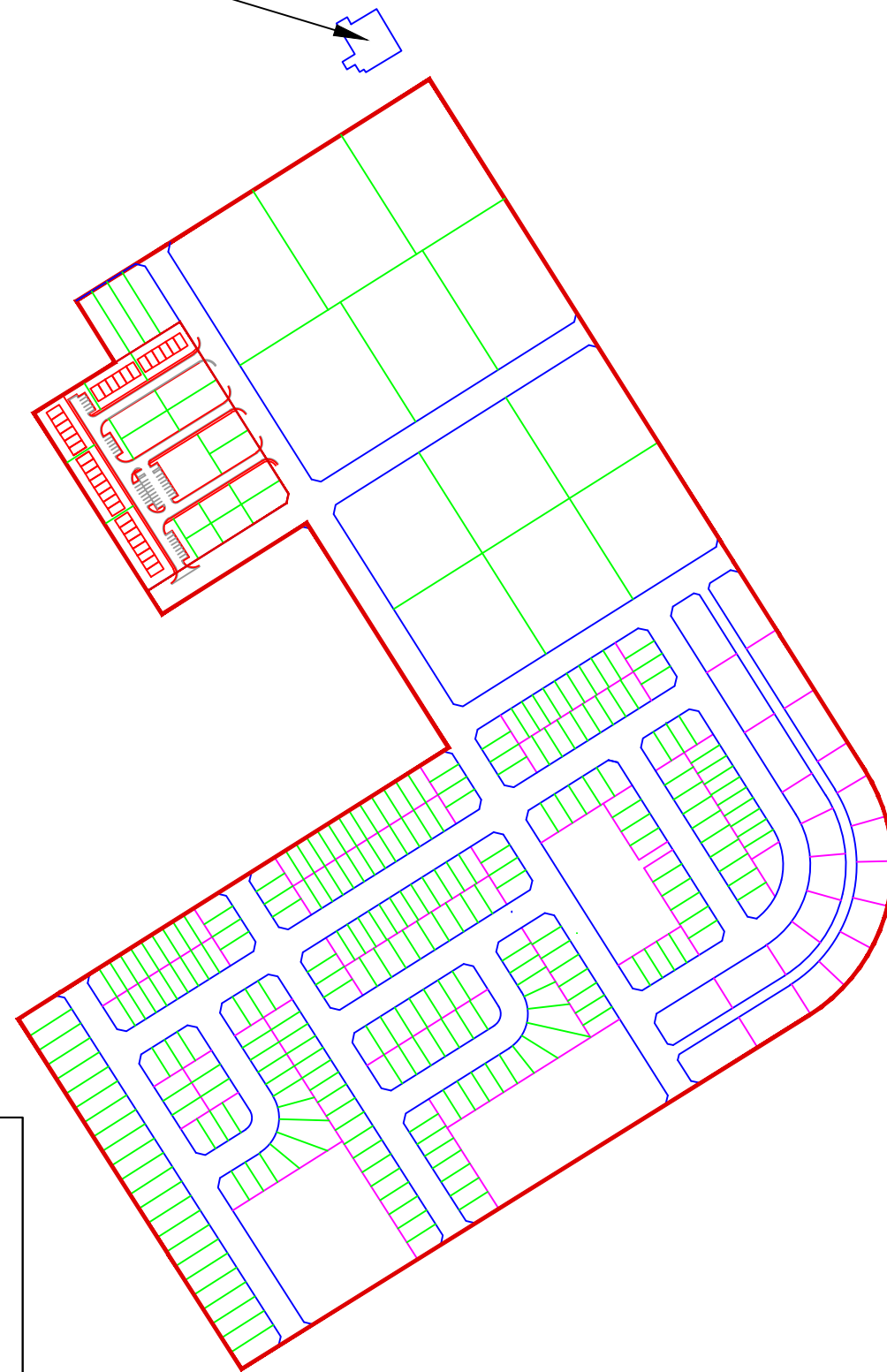
Date: August 4, 2022 Drawn By: BH
 File: Checked: CS



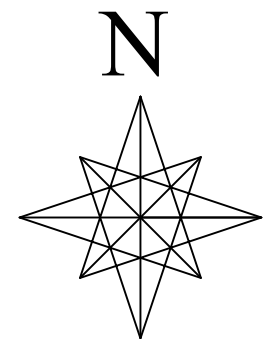
ADDRESS: PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DRAWN BY: NM	CHECKED BY: TL	CLIENT'S NAME: 138 Robert Street LP	CLIENT'S ADDRESS: 138 Robert Street East, Penetanguishene	SCALE: As shown
SE#: 1148.001	DATE: 2022-07-26	DRAWING NAME: STAMSON Receptor Locations	REVISION #: 0	NOTES: Site at 138 Robert Street East, Penetanguishene	

Commercial 1

Commercial 1



U:\Logo\image001.png



ADDRESS: PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DRAWN BY: TL	CHECKED BY: -	CLIENT'S NAME: 138 Robert Street LP	CLIENT'S ADDRESS: 59 Morland Crescent Ajax, ON L1T 1P5	SCALE: N/A
SE#: 1148.001	DATE: 2022-07-15	DRAWING NAME: Stationary Source Identification	REVISION #: 0	NOTES: Site at 138 Robert Street East, Penetanguishene	



Customer: 138 Robert Street LP
 Noise Impact Study
 Project: Stationary Source Assessment
 Project-No. 1148.001

Map
1

Grid Map
 Calculation in 1.5 m above ground

Levels Leq,d
 in dB(A)

	>= 85
	80 - 85
	75 - 80
	70 - 75
	65 - 70
	60 - 65
	55 - 60
	50 - 55
	45 - 50
	40 - 45
	35 - 40
	30 - 35
	25 - 30
	20 - 25
	15 - 20

- Main building
- Point receiver
- Noise calculation area
- * Point source
- Ground absorption

Length scale 1:2923

SONAIR Environmental Inc.
 PO Box 56702 Pine Valley PO
 Vaughan, ON L4L 8V3

Engineer: TL

Description:
 Daytime Grid Noise Map
 Noise Impact due to Commercial 1



APPENDIX B

STAMSON SAMPLE CALCULATION

Filename: 1p.te Time Period: Day/Night 16/8 hours
Description: Predicted Noise Impact at R1 at POW

Road data, segment # 1: Robert St (day/night)

Car traffic volume : 9540/1060 veh/TimePeriod *
Medium truck volume : 1122/125 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 4700
Percentage of Annual Growth : 5.00
Number of Years of Growth : 20.00
Medium Truck % of Total Volume : 10.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Robert St (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.45 / 17.45 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Thomp_N/S (day/night)

Car traffic volume : 3367/374 veh/TimePeriod *
Medium truck volume : 143/16 veh/TimePeriod *
Heavy truck volume : 72/8 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 1500
Percentage of Annual Growth : 5.00

Number of Years of Growth : 20.00
Medium Truck % of Total Volume : 4.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Thomp_N/S (day/night)

Angle1 Angle2 : -4.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 271.18 / 271.18 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Cent_angle (day/night)

Car traffic volume : 2149/239 veh/TimePeriod *
Medium truck volume : 614/68 veh/TimePeriod *
Heavy truck volume : 307/34 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 1350
Percentage of Annual Growth : 5.00
Number of Years of Growth : 19.00
Medium Truck % of Total Volume : 20.00
Heavy Truck % of Total Volume : 10.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 3: Cent_angle (day/night)

Angle1 Angle2 : -76.00 deg -58.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 170.20 / 170.20 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: Cent_prl (day/night)

Car traffic volume : 2149/239 veh/TimePeriod *

Medium truck volume : 614/68 veh/TimePeriod *
 Heavy truck volume : 307/34 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 1350
 Percentage of Annual Growth : 5.00
 Number of Years of Growth : 19.00
 Medium Truck % of Total Volume : 20.00
 Heavy Truck % of Total Volume : 10.00
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 4: Cent_prl (day/night)

 Angle1 Angle2 : -33.00 deg -4.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 271.18 / 271.18 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: Robert St (day)

 Source height = 1.50 m

ROAD (0.00 + 65.81 + 0.00) = 65.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	67.92	0.00	-0.97	-1.14	0.00	0.00	0.00	65.81

 Segment Leq : 65.81 dBA

Results segment # 2: Thomp_N/S (day)

 Source height = 1.19 m

ROAD (0.00 + 24.79 + 0.00) = 24.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-4	0	0.49	60.05	0.00	-18.72	-16.53	0.00	0.00	0.00	24.79

Segment Leq : 24.79 dBA

Results segment # 3: Cent_angle (day)

Source height = 1.78 m

ROAD (0.00 + 37.40 + 0.00) = 37.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	-58	0.47	64.88	0.00	-15.52	-11.96	0.00	0.00	0.00	37.40

Segment Leq : 37.40 dBA

Results segment # 4: Cent_pr1 (day)

Source height = 1.78 m

ROAD (0.00 + 38.32 + 0.00) = 38.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	-4	0.47	64.88	0.00	-18.50	-8.06	0.00	0.00	0.00	38.32

Segment Leq : 38.32 dBA

Total Leq All Segments: 65.82 dBA

Results segment # 1: Robert St (night)

Source height = 1.49 m

ROAD (0.00 + 59.27 + 0.00) = 59.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	61.38	0.00	-0.97	-1.14	0.00	0.00	0.00	59.27

Segment Leq : 59.27 dBA

Results segment # 2: Thomp_N/S (night)

Source height = 1.19 m

ROAD (0.00 + 18.27 + 0.00) = 18.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-4	0	0.49	53.52	0.00	-18.72	-16.53	0.00	0.00	0.00	18.27

Segment Leq : 18.27 dBA

Results segment # 3: Cent_angle (night)

Source height = 1.78 m

ROAD (0.00 + 30.86 + 0.00) = 30.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	-58	0.47	58.34	0.00	-15.52	-11.96	0.00	0.00	0.00	30.86

Segment Leq : 30.86 dBA

Results segment # 4: Cent_prl (night)

Source height = 1.78 m

ROAD (0.00 + 31.78 + 0.00) = 31.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	-4	0.47	58.34	0.00	-18.50	-8.06	0.00	0.00	0.00	31.78

Segment Leq : 31.78 dBA

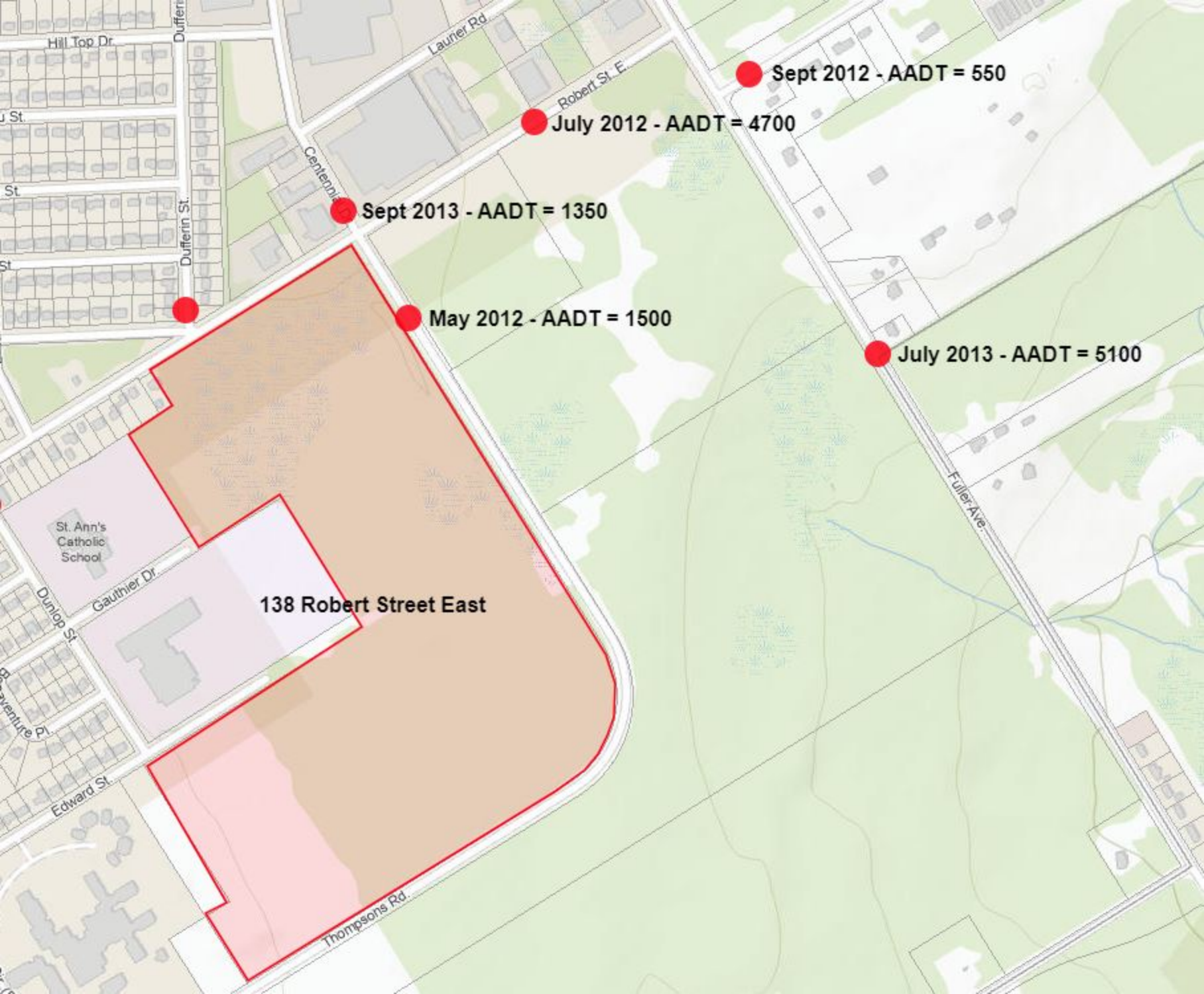
Total Leq All Segments: 59.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.82
(NIGHT): 59.28



APPENDIX C

TRAFFIC VOLUME



Sept 2012 - AADT = 550

July 2012 - AADT = 4700

Sept 2013 - AADT = 1350

May 2012 - AADT = 1500

July 2013 - AADT = 5100

138 Robert Street East

St. Ann's
Catholic
School



Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-084 - WMI Engineering

Intersection Count Report

Intersection: Thompsons Rd & Wright Ct
Municipality: Penetanguishene
Count Date: May 21, 2020
Site Code: 2008400001
Count Categories: Cars, Trucks, Pedestrians
Count Period: 06:00-08:00, 16:00-18:00
Weather: Clear



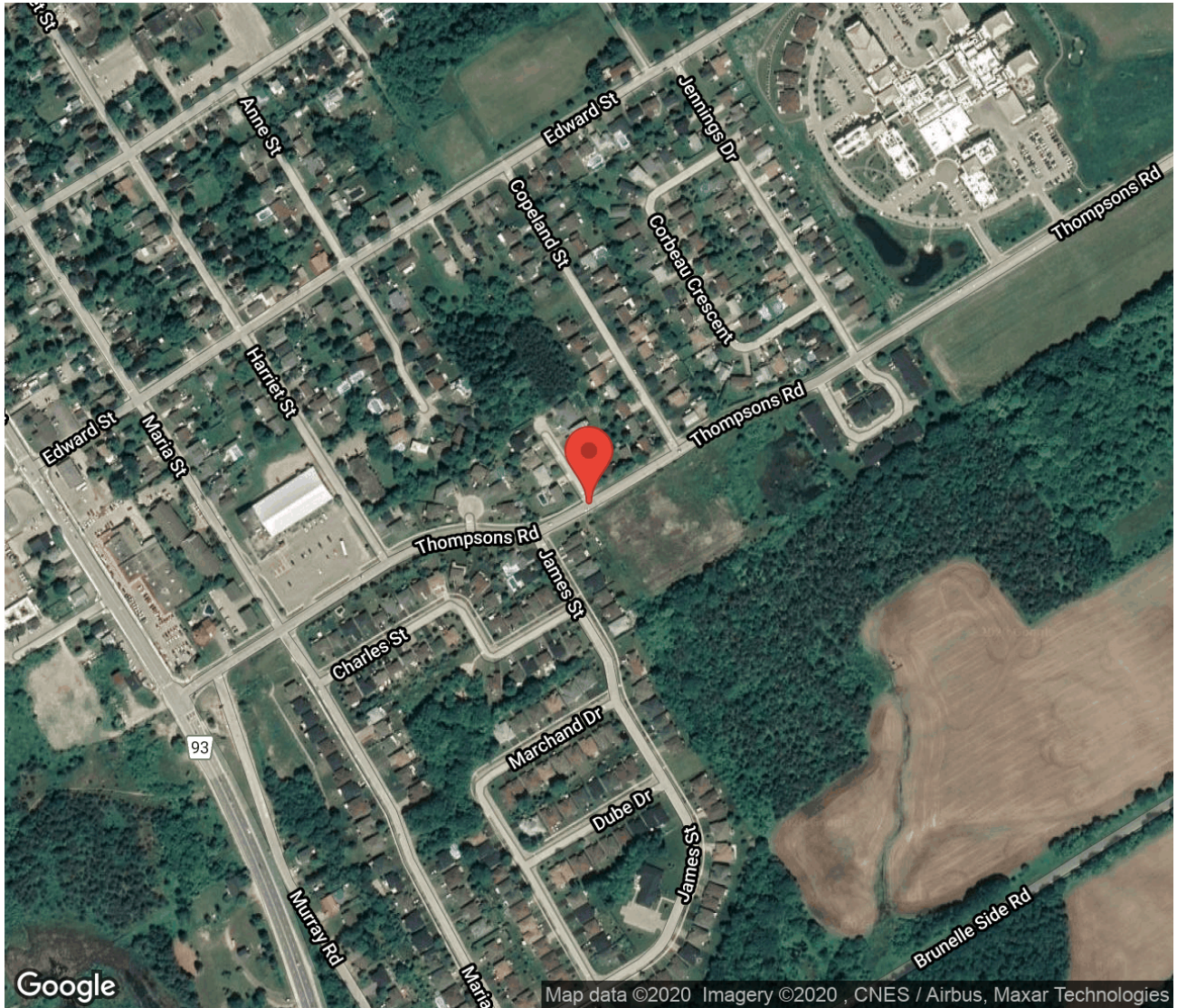
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

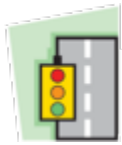
Traffic Count Map

Intersection: Thompsons Rd & Wright Ct

Municipality: Penetanguishene

Count Date: May 21, 2020





Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Thompsons Rd & Wright Ct
Municipality: Penetanguishene
Count Date: May 21, 2020

Thompsons Rd - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks						Includes Cars, Trucks					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
06:00 - 07:00	0	48	0	0	48	0	0	97	0	0	97	0
07:00 - 08:00	0	90	0	0	90	0	0	93	0	0	93	0
BREAK												
16:00 - 17:00	0	116	1	0	117	0	6	99	0	0	105	0
17:00 - 18:00	0	59	0	0	59	0	4	88	0	0	92	0
GRAND TOTAL	0	313	1	0	314	0	10	377	0	0	387	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Thompsons Rd & Wright Ct
Municipality: Penetanguishene
Count Date: May 21, 2020

North Approach - Wright Ct

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
06:00	0	0	1	0	1	0	0	0	0	0	2
06:15	0	0	1	0	1	0	0	0	0	0	1
06:30	0	0	2	0	2	0	0	0	0	0	2
06:45	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	1	0	1	0	0	0	0	0	1
07:30	0	0	0	0	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	0	0	5	0	5	0	0	0	0	0	8



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

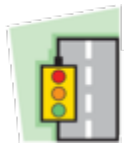
Intersection: Thompsons Rd & Wright Ct

Municipality: Penetanguishene

Count Date: May 21, 2020

North Approach - Wright Ct

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	0	1	0	1	0	0	0	0	0	2
16:15	0	0	1	0	1	0	0	0	0	0	2
16:30	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0
17:00	1	0	0	0	1	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	1	0	1	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	1	0	3	0	4	0	0	0	0	0	4
GRAND TOTAL	1	0	8	0	9	0	0	0	0	0	12



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Thompsons Rd & Wright Ct

Municipality: Penetanguishene

Count Date: May 21, 2020

East Approach - Thompsons Rd

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
06:00	0	9	0	0	9	0	2	0	0	2	0
06:15	0	11	0	0	11	0	1	0	0	1	0
06:30	0	5	0	0	5	0	3	0	0	3	0
06:45	0	17	0	0	17	0	0	0	0	0	0
07:00	0	24	0	0	24	0	0	0	0	0	0
07:15	0	16	0	0	16	0	3	0	0	3	0
07:30	0	10	0	0	10	0	3	0	0	3	0
07:45	0	32	0	0	32	0	2	0	0	2	0
SUBTOTAL	0	124	0	0	124	0	14	0	0	14	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Thompsons Rd & Wright Ct
Municipality: Penetanguishene
Count Date: May 21, 2020

East Approach - Thompsons Rd

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	30	0	0	30	0	1	0	0	1	0
16:15	0	28	1	0	29	0	0	0	0	0	0
16:30	0	35	0	0	35	0	0	0	0	0	0
16:45	0	22	0	0	22	0	0	0	0	0	0
17:00	0	14	0	0	14	0	1	0	0	1	0
17:15	0	15	0	0	15	0	0	0	0	0	0
17:30	0	17	0	0	17	0	0	0	0	0	0
17:45	0	12	0	0	12	0	0	0	0	0	0
SUBTOTAL	0	173	1	0	174	0	2	0	0	2	0
GRAND TOTAL	0	297	1	0	298	0	16	0	0	16	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Thompsons Rd & Wright Ct

Municipality: Penetanguishene

Count Date: May 21, 2020

West Approach - Thompsons Rd

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
06:00	0	8	0	0	8	0	0	0	0	0	0
06:15	0	24	0	0	24	0	1	0	0	1	0
06:30	0	30	0	0	30	0	0	0	0	0	0
06:45	0	33	0	0	33	0	1	0	0	1	0
07:00	0	15	0	0	15	0	4	0	0	4	0
07:15	0	16	0	0	16	0	2	0	0	2	0
07:30	0	22	0	0	22	0	7	0	0	7	0
07:45	0	26	0	0	26	0	1	0	0	1	0
SUBTOTAL	0	174	0	0	174	0	16	0	0	16	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Thompsons Rd & Wright Ct
Municipality: Penetanguishene
Count Date: May 21, 2020

West Approach - Thompsons Rd

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	2	19	0	0	21	0	0	0	0	0	0
16:15	3	23	0	0	26	0	2	0	0	2	0
16:30	1	24	0	0	25	0	2	0	0	2	0
16:45	0	29	0	0	29	0	0	0	0	0	0
17:00	1	19	0	0	20	0	2	0	0	2	0
17:15	1	17	0	0	18	0	1	0	0	1	0
17:30	1	25	0	0	26	0	1	0	0	1	0
17:45	1	23	0	0	24	0	0	0	0	0	0
SUBTOTAL	10	179	0	0	189	0	8	0	0	8	0
GRAND TOTAL	10	353	0	0	363	0	24	0	0	24	0



Peak Hour Diagram

Specified Period

From: 06:00:00
To: 08:00:00

One Hour Peak

From: 07:00:00
To: 08:00:00

Intersection: Thompsons Rd & Wright Ct
Site ID: 2008400001
Count Date: May 21, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Thompsons Rd runs E/W

North Approach

	Out	In	Total
	1	0	1
	0	0	0
Totals	1	0	1

Wright Ct

	0	0	0
	1	0	0
Totals	1	0	0

East Approach

	Out	In	Total
	82	79	161
	8	14	22
Totals	90	93	183

Thompsons Rd

	Totals	
	0	
	0	
14	79	
Totals	93	

Peds: 3



Peds: 0

Peds: 0

Peds: 0

Thompsons Rd

Totals		
0	0	0
0	0	0
90	82	8

West Approach

	Out	In	Total
	79	83	162
	14	8	22
Totals	93	91	184

- Cars

- Trucks

Comments



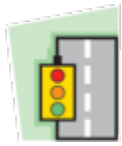
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Thompsons Rd & Wright Ct
Count Date: May 21, 2020
Period: 06:00 - 08:00

Peak Hour Data (07:00 - 08:00)

Start Time	North Approach Wright Ct						South Approach						East Approach Thompsons Rd						West Approach Thompsons Rd						Total Vehi cles	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
07:00	0		0	0	0	0					0				24	0	0	0	24	0	19		0	0	19	43
07:15	0		1	0	1	1					0				19	0	0	0	19	0	18		0	0	18	38
07:30	0		0	0	1	0					0				13	0	0	0	13	0	29		0	0	29	42
07:45	0		0	0	1	0					0				34	0	0	0	34	0	27		0	0	27	61
Grand Total	0		1	0	3	1					0	0			90	0	0	0	90	0	93		0	0	93	184
Approach %	0		100	0	-	-					-	-			100	0	0	-	-	0	100		0	-	-	
Totals %	0		0.5	0	0.5	-					0	-			48.9	0	0	48.9	-	0	50.5		0	50.5	-	
PHF	0		0.25	0	0.25	-					0	-			0.66	0	0	0.66	-	0	0.8		0	0.8	0.75	
Cars	0		1	0	1	-					0	-			82	0	0	82	-	0	79		0	79	162	
% Cars	0		100	0	100	-					0	-			91.1	0	0	91.1	-	0	84.9		0	84.9	88	
Trucks	0		0	0	0	-					0	-			8	0	0	8	-	0	14		0	14	22	
% Trucks	0		0	0	0	-					0	-			8.9	0	0	8.9	-	0	15.1		0	15.1	12	
Peds					3	-					0	-						0	-					0	-	3
% Peds					100	-					0	-						0	-					0	-	



Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: Thompsons Rd & Wright Ct
Site ID: 2008400001
Count Date: May 21, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Thompsons Rd runs E/W

North Approach

	Out	In	Total
	2	7	9
	0	0	0
Totals	2	7	9

Wright Ct

	0	0	0
	2	0	0
Totals	2	0	0

East Approach

	Out	In	Total
	116	95	211
	1	4	5
Totals	117	99	216

Thompsons Rd

	Totals	
	0	
	0	
Totals	0	
	0	
	6	
Totals	6	
	4	
	95	
Totals	99	

Peds: 4



Peds: 0

Peds: 0

Peds: 0

Thompsons Rd

Totals		
0	0	0
1	1	0
116	115	1

West Approach

	Out	In	Total
	101	117	218
	4	1	5
Totals	105	118	223

- Cars

- Trucks

Comments





Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Thompsons Rd & Wright Ct
Count Date: May 21, 2020
Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Wright Ct						South Approach						East Approach Thompsons Rd						West Approach Thompsons Rd						Total Vehi cles	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
16:00	0		1	0	2	1					0				31	0	0	0	31	2	19		0	0	21	53
16:15	0		1	0	2	1					0				28	1	0	0	29	3	25		0	0	28	58
16:30	0		0	0	0	0					0				35	0	0	0	35	1	26		0	0	27	62
16:45	0		0	0	0	0					0				22	0	0	0	22	0	29		0	0	29	51
Grand Total	0		2	0	4	2					0	0			116	1	0	0	117	6	99		0	0	105	224
Approach %	0		100	0	-	-					-	-			99.1	0.9	0	-	-	5.7	94.3		0	-	-	
Totals %	0		0.9	0	0.9	-					0	-			51.8	0.4	0	-	52.2	2.7	44.2		0	-	46.9	
PHF	0		0.5	0	0.5	-					0	-			0.83	0.25	0	-	0.84	0.5	0.85		0	-	0.91	0.9
Cars	0		2	0	2	-					0	-			115	1	0	-	116	6	95		0	-	101	219
% Cars	0		100	0	100	-					0	-			99.1	100	0	-	99.1	100	96		0	-	96.2	97.8
Trucks	0		0	0	0	-					0	-			1	0	0	-	1	0	4		0	-	4	5
% Trucks	0		0	0	0	-					0	-			0.9	0	0	-	0.9	0	4		0	-	3.8	2.2
Peds					4	-					0	-							0	-			0	-	4	
% Peds					100	-					0	-							0	-			0	-		



APPENDIX D

STATIONARY SOURCE ASSESSMENT SUMMARY TABLE

Source Summary Table

Source ID	Source Description	Sound Power Level (dBA)	Height Above Roof (m)	Height Above Ground (m)	Source Co-ordinate (m)				Operating Time (min/hr)	
					X	Y	Z	rel. Z	Daytime / Evening (07:00 - 23:00)	Nighttime (23:00 - 07:00)
<i>Commercial 1</i>										
C1_RTU1	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	585721.10	4958747.80	247.6	6.6	60	30
C1_RTU2	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	585727.08	4958751.72	247.6	6.6	60	30
C1_RTU3	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	585736.18	4958754.42	247.6	6.6	60	30
C1_RTU4	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	585729.00	4958731.06	247.6	6.6	60	30
C1_RTU5	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	585736.24	4958734.67	247.6	6.6	60	30
C1_RTU6	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	585745.72	4958740.39	247.6	6.6	60	30

Noise Impact due to Commercial 1 against Class 2 Limits

Daytime/Evening	Receptors	
Level	R1	R2
POW	23.9	16.8

Nighttime	Receptors	
Floor	R1	R2
POW	20.9	13.8
POW	-	-



APPENDIX E

SOUNDPLAN SAMPLE CALCULATION

Stationary Source Assessment Mean propagation Leq - Single Points

10

Source	Source type	Time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	l or A m,m ²	Kl dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)
Receiver R1			FIG	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 28.2 dB(A)	Leq,d 23.9 dB(A)	Leq,e 23.9 dB(A)	Leq,n 20.9 dB(A)													
C1_RTU1	Point	Ldn			75.6	75.6		0.0	0.0	3	230.12	-58.2	-3.6	0.0	-0.4		0.0	0.0	16.3	-0.8	0.0	5.1	20.6
C1_RTU1	Point	Leq,d			75.6	75.6		0.0	0.0	3	230.12	-58.2	-3.6	0.0	-0.4		0.0	0.0	16.3	0.0	0.0	0.0	16.3
C1_RTU1	Point	Leq,e			75.6	75.6		0.0	0.0	3	230.12	-58.2	-3.6	0.0	-0.4		0.0	0.0	16.3	0.0	0.0	0.0	16.3
C1_RTU1	Point	Leq,n			75.6	75.6		0.0	0.0	3	230.12	-58.2	-3.6	0.0	-0.4		0.0	0.0	16.3	-3.0	0.0	0.0	13.3
C1_RTU2	Point	Ldn			75.6	75.6		0.0	0.0	3	237.04	-58.5	-3.7	0.0	-0.5		0.0	0.0	16.0	-0.8	0.0	5.1	20.3
C1_RTU2	Point	Leq,d			75.6	75.6		0.0	0.0	3	237.04	-58.5	-3.7	0.0	-0.5		0.0	0.0	16.0	0.0	0.0	0.0	16.0
C1_RTU2	Point	Leq,e			75.6	75.6		0.0	0.0	3	237.04	-58.5	-3.7	0.0	-0.5		0.0	0.0	16.0	0.0	0.0	0.0	16.0
C1_RTU2	Point	Leq,n			75.6	75.6		0.0	0.0	3	237.04	-58.5	-3.7	0.0	-0.5		0.0	0.0	16.0	-3.0	0.0	0.0	13.0
C1_RTU3	Point	Ldn			75.6	75.6		0.0	0.0	3	245.21	-58.8	-3.7	0.0	-0.5		0.0	0.0	15.6	-0.8	0.0	5.1	20.0
C1_RTU3	Point	Leq,d			75.6	75.6		0.0	0.0	3	245.21	-58.8	-3.7	0.0	-0.5		0.0	0.0	15.6	0.0	0.0	0.0	15.6
C1_RTU3	Point	Leq,e			75.6	75.6		0.0	0.0	3	245.21	-58.8	-3.7	0.0	-0.5		0.0	0.0	15.6	0.0	0.0	0.0	15.6
C1_RTU3	Point	Leq,n			75.6	75.6		0.0	0.0	3	245.21	-58.8	-3.7	0.0	-0.5		0.0	0.0	15.6	-3.0	0.0	0.0	12.6
C1_RTU4	Point	Ldn			75.6	75.6		0.0	0.0	3	223.59	-58.0	-3.6	0.0	-0.4		0.0	0.0	16.6	-0.8	0.0	5.1	20.9
C1_RTU4	Point	Leq,d			75.6	75.6		0.0	0.0	3	223.59	-58.0	-3.6	0.0	-0.4		0.0	0.0	16.6	0.0	0.0	0.0	16.6
C1_RTU4	Point	Leq,e			75.6	75.6		0.0	0.0	3	223.59	-58.0	-3.6	0.0	-0.4		0.0	0.0	16.6	0.0	0.0	0.0	16.6
C1_RTU4	Point	Leq,n			75.6	75.6		0.0	0.0	3	223.59	-58.0	-3.6	0.0	-0.4		0.0	0.0	16.6	-3.0	0.0	0.0	13.6
C1_RTU5	Point	Ldn			75.6	75.6		0.0	0.0	3	231.32	-58.3	-3.6	0.0	-0.4		0.0	0.0	16.2	-0.8	0.0	5.1	20.6
C1_RTU5	Point	Leq,d			75.6	75.6		0.0	0.0	3	231.32	-58.3	-3.6	0.0	-0.4		0.0	0.0	16.2	0.0	0.0	0.0	16.2
C1_RTU5	Point	Leq,e			75.6	75.6		0.0	0.0	3	231.32	-58.3	-3.6	0.0	-0.4		0.0	0.0	16.2	0.0	0.0	0.0	16.2
C1_RTU5	Point	Leq,n			75.6	75.6		0.0	0.0	3	231.32	-58.3	-3.6	0.0	-0.4		0.0	0.0	16.2	-3.0	0.0	0.0	13.2
C1_RTU6	Point	Ldn			75.6	75.6		0.0	0.0	3	242.16	-58.7	-3.7	0.0	-0.5		0.0	0.0	15.8	-0.8	0.0	5.1	20.1
C1_RTU6	Point	Leq,d			75.6	75.6		0.0	0.0	3	242.16	-58.7	-3.7	0.0	-0.5		0.0	0.0	15.8	0.0	0.0	0.0	15.8
C1_RTU6	Point	Leq,e			75.6	75.6		0.0	0.0	3	242.16	-58.7	-3.7	0.0	-0.5		0.0	0.0	15.8	0.0	0.0	0.0	15.8
C1_RTU6	Point	Leq,n			75.6	75.6		0.0	0.0	3	242.16	-58.7	-3.7	0.0	-0.5		0.0	0.0	15.8	-3.0	0.0	0.0	12.8
Receiver R2			FIG	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 21.1 dB(A)	Leq,d 16.8 dB(A)	Leq,e 16.8 dB(A)	Leq,n 13.8 dB(A)													
C1_RTU1	Point	Ldn			75.6	75.6		0.0	0.0	3	477.83	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.9	-0.8	0.0	5.1	13.2
C1_RTU1	Point	Leq,d			75.6	75.6		0.0	0.0	3	477.83	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.9	0.0	0.0	0.0	8.9
C1_RTU1	Point	Leq,e			75.6	75.6		0.0	0.0	3	477.83	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.9	0.0	0.0	0.0	8.9
C1_RTU1	Point	Leq,n			75.6	75.6		0.0	0.0	3	477.83	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.9	-3.0	0.0	0.0	5.8
C1_RTU2	Point	Ldn			75.6	75.6		0.0	0.0	3	479.26	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	-0.8	0.0	5.1	13.1
C1_RTU2	Point	Leq,d			75.6	75.6		0.0	0.0	3	479.26	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	0.0	0.0	0.0	8.8

Stationary Source Assessment Mean propagation Leq - Single Points

10

Source	Source type	Time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	I or A m,m ²	KI dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)
C1_RTU2	Point	Leq,e			75.6	75.6		0.0	0.0	3	479.26	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	0.0	0.0	0.0	8.8
C1_RTU2	Point	Leq,n			75.6	75.6		0.0	0.0	3	479.26	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	-3.0	0.0	0.0	5.8
C1_RTU3	Point	Ldn			75.6	75.6		0.0	0.0	3	478.56	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	-0.8	0.0	5.1	13.2
C1_RTU3	Point	Leq,d			75.6	75.6		0.0	0.0	3	478.56	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	0.0	0.0	0.0	8.8
C1_RTU3	Point	Leq,e			75.6	75.6		0.0	0.0	3	478.56	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	0.0	0.0	0.0	8.8
C1_RTU3	Point	Leq,n			75.6	75.6		0.0	0.0	3	478.56	-64.6	-4.3	0.0	-0.9		0.0	0.0	8.8	-3.0	0.0	0.0	5.8
C1_RTU4	Point	Ldn			75.6	75.6		0.0	0.0	3	459.36	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.3	-0.8	0.0	5.1	13.6
C1_RTU4	Point	Leq,d			75.6	75.6		0.0	0.0	3	459.36	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.3	0.0	0.0	0.0	9.3
C1_RTU4	Point	Leq,e			75.6	75.6		0.0	0.0	3	459.36	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.3	0.0	0.0	0.0	9.3
C1_RTU4	Point	Leq,n			75.6	75.6		0.0	0.0	3	459.36	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.3	-3.0	0.0	0.0	6.2
C1_RTU5	Point	Ldn			75.6	75.6		0.0	0.0	3	460.04	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.2	-0.8	0.0	5.1	13.6
C1_RTU5	Point	Leq,d			75.6	75.6		0.0	0.0	3	460.04	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.2	0.0	0.0	0.0	9.2
C1_RTU5	Point	Leq,e			75.6	75.6		0.0	0.0	3	460.04	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.2	0.0	0.0	0.0	9.2
C1_RTU5	Point	Leq,n			75.6	75.6		0.0	0.0	3	460.04	-64.2	-4.2	0.0	-0.9		0.0	0.0	9.2	-3.0	0.0	0.0	6.2
C1_RTU6	Point	Ldn			75.6	75.6		0.0	0.0	3	462.11	-64.3	-4.2	0.0	-0.9		0.0	0.0	9.2	-0.8	0.0	5.1	13.5
C1_RTU6	Point	Leq,d			75.6	75.6		0.0	0.0	3	462.11	-64.3	-4.2	0.0	-0.9		0.0	0.0	9.2	0.0	0.0	0.0	9.2
C1_RTU6	Point	Leq,e			75.6	75.6		0.0	0.0	3	462.11	-64.3	-4.2	0.0	-0.9		0.0	0.0	9.2	0.0	0.0	0.0	9.2
C1_RTU6	Point	Leq,n			75.6	75.6		0.0	0.0	3	462.11	-64.3	-4.2	0.0	-0.9		0.0	0.0	9.2	-3.0	0.0	0.0	6.2

Stationary Source Assessment

Assessed level of source groups

Single Points

1
2

Source group	Leq,d dB(A)	Leq,e dB(A)	Leq,n dB(A)	
Receiver R1	FIG	dB(A)	Lr,lim	dB(A)
Commercial 1	23.9	23.9	20.9	
Receiver R2	FIG	dB(A)	Lr,lim	dB(A)
Commercial 1	16.8	16.8	13.8	

Source group	Leq,d dB(A)	Leq,e dB(A)	Leq,n dB(A)	
Receiver R1	FIG	dB(A)	Lr,lim	dB(A)
Commercial 1	23.9	23.9	20.9	
Receiver R2	FIG	dB(A)	Lr,lim	dB(A)
Commercial 1	16.8	16.8	13.8	

	SONAIR Environmental Inc. PO Box 56702 Pine Valley Vaughan ON L4L 8V3 Canada	1
--	---------------------------------------------------------------------------------	---



APPENDIX F

STC GLAZING REQUIREMENT CALCULATION

Required Glazing STC Calculation

Receptor	Time Period	Location	Sound Levels		Room / Façade Parameters					Source Parameters		Component 1 - Non-Glazing			Component 2 - Glazing		
			Façade Sound Level	Indoor Limit (dBA)	Glazing % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption	Incident Sound Angle (deg)	Spectrum Type	Assumed STC	Component Category	% Total Transmitted Energy	Component Category	% Total Transmitted Energy	Required Glazing STC
Lots 280-283 (North Façade)	D	Non-sleeping Quarters	65.8	45	70%	2.7	3	6	Intermediate	0 to 90	D - Mixed road traffic, distant aircraft	54	D - Sealed thick window, or exterior wall, or roof/ceiling	0	C - Sealed thin window, or openable thick window	100	24
Lots 280-283 (North Façade)	N	Non-sleeping Quarters	59.3	45	70%	2.7	3	6	Intermediate	0 to 90	D - Mixed road traffic, distant aircraft	54	D - Sealed thick window, or exterior wall, or roof/ceiling	0	C - Sealed thin window, or openable thick window	100	18
Lots 280-283 (North Façade)	D	Sleeping Quarters	65.8	45	50%	2.7	3	3	Intermediate	0 to 90	D - Mixed road traffic, distant aircraft	54	D - Sealed thick window, or exterior wall, or roof/ceiling	0	C - Sealed thin window, or openable thick window	100	26
Lots 280-283 (North Façade)	N	Sleeping Quarters	59.3	40	50%	2.7	3	3	Intermediate	0 to 90	D - Mixed road traffic, distant aircraft	54	D - Sealed thick window, or exterior wall, or roof/ceiling	0	C - Sealed thin window, or openable thick window	100	25