SONAIR
ENVIRONMENTAL

LAND USE COMPATIBILITY STUDY (AIR AND NOISE)

FOR

111 VICTORIA STREET, WELLAND

SUBMITTED TO:

111 Victoria Street Inc.
18 Leawood Court
St. Catharines, ON L2T 3R6

SUBMITTED BY:

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SE #: 1346.001

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1.0 INTRODUCTION

111 Victoria Street Inc. (Applicant) retained SONAIR Environmental Inc. (SONAIR) to prepare a Land Use Compatibility Study (Air and Noise) in support of a Zoning By-law Amendment (ZBA) and Official Plan Amendment (OPA) for a proposed residential development to be located at 111 Victoria Street in Welland. The proposal would introduce permission for a sensitive land use to a residential, commercial, and industrial area. At the request of the City of Welland, a Land Use Compatibility Study with respect to air, and noise/vibration is required.

No rail lines exist within 75m of the proposed development. The rail corridor to the East of the proposed development is located approximately 80m away; therefore, vibration resulting from the railway is not considered to be a concern and will not be further discussed.

The purpose of this assessment is to determine if emissions from surrounding sources might adversely impact proposed sensitive land uses within the development. This study was conducted in accordance with the Ministry of the Environment, Conservation, and Parks (MECP) Guidelines:

- Guideline D-1: Land Use Compatibility
- Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses
- NPC-300: Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning

1.1 Subject Site

The Applicant is proposing to re-develop the property located at 111 Victoria Street in Welland. The proposed development is a 4-storey apartment building consisting of 35 residential units.

The proposed development is surrounded by existing residential, commercial, and industrial areas. The nearest existing residential area is located to the immediate West and South of the subject site. The subject site is shown in Appendix A.

The surrounding land use can be characterized as shown in Table 1.

Table 1 – Summary of Surrounding Land Use

Direction	Land Use
North	Residential, Light Industrial
East	Light Industrial, General Industrial, Commercial
South	Residential, General Industrial, Commercial
West	Residential, Light Industrial

2.0 LAND USE COMPATIBILITY GUIDANCE

2.1 Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses

Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses, sets out three (3) distinct classes of facilities. The criterion is provided in Table 2 below.

Table 2 – Guideline D-6 Industrial Categorization Criteria

Category	Outputs	Scale	Process	Operation & Intensity
CLASS I	*NOISE:* Sound not audible off property. *DUST and/or ODOUR:* Infrequent and not intense. *VIBRATION:* No ground- borne vibration on plant property.	- No outside storage - Small scale plant or scale is irrelevant in relation to all other criteria for this Class	- Self-contained plant or building which produces/ stores a packaged product. Low probability of fugitive emissions	- Daytime operations only - Infrequent movement of products and/or heavy trucks
CLASS II	*NOISE:* Sound occasionally audible off property. *DUST and/or ODOUR:* Frequent and occasionally intense. *VIBRATION:* Possible ground-borne vibration, but cannot be perceived off property.	- Outside storage permitted - Medium level of production allowed	- Open process - Periodic outputs of minor annoyance - Low probability of fugitive emissions	- Shift operations permitted - Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours
CLASS III	*NOISE:* Sound frequently audible off property. *DUST and/or ODOUR*: Persistent and/or intense. *VIBRATION:* Ground-borne vibration can frequently be perceived off property.	- Outside storage of raw and finished products -Large production levels	- Open process - Frequent outputs of major annoyances - High probability of fugitive emissions	- Continuous movement of products and employees - Daily shift operations permitted

The study area for Land Use Compatibility Assessments is established in the D-Series Guidelines. Depending on the Facility Class categorization around the facility the potential influence area will be as set out in Table 3 below. SONAIR has conservatively taken the position to review the impact from 1,000 meters around the subject site. The recommended setback distances as a function of Facility Class are also provided in Table 3.

Table 3 – Guideline D-6 Minimum Separation Distances and Potential Influence Areas

Class	Recommended Separation Distance	Potential Influence Area
I	20	70
II	70	300
III	300	1000

Further to Table 3, the D-6 guideline also suggests that while separation distances are typically measured between property lines, there is an alternative which allows for measuring from a specific source to the sensitive receptor. Additionally, guideline D-6 provides allowances for reducing the minimum separation distance required based on mitigation at industrial sites and provides for exceptions to the Minimum Separation Distances for some development sites.

3.0 IDENTIFIED FACILITIES WITHIN STUDY AREA

The 1,000 meter study area surrounding the proposed development is developed with predominantly residential, commercial, and industrial land uses. Table 4 below provides a summary of the surrounding land uses, the nature of their operations, and if any potential conflict exists.

Table 4 – Study Area Classification

Facility	Address	Distance (m)	Operations	ECA/EASR (Year)	MECP Industrial Class	Comments
Next Generation Volkswagen Dismantlers / Horsepower Alley Motorcycle Garage	236 Burgar St	20	Auto Parts Dismantler / Motorcycle Repair	-	I	Within Potential Influence Area
11 Motors	212 Burgar St	65	Dealership / Vehicle Storage	-	I	Within Potential Influence Area
Welland Metal Supplies	208 Burgar Street	119	Sheet Metal Contractor	-	I	Acceptable Range
Digital Detail	23 Hagar St	156	Car Detailing Service	-	I	Acceptable Range
JR S Service Centre	25 Hagar St	156	Auto Repair Shop	-	I	Acceptable Range
Whiting Equipment Canada Inc	350 Alexander St	427	Industrial Equipment Supplier	-	II	Acceptable Range
Anderson Custom Auto Body & Paint / A-1 Auto Detailing Oil Change	285 Division St	701	Auto Repair Shop	-	I	Acceptable Range
NAPA Auto Parts - Sewell's Automotive Supply	300 E Main St	846	Auto Repair Shop / Parts Store	-	I	Acceptable Range
MOBIL / U-Haul Neighborhood Dealer	446 E Main St	915	Gas Station / Truck Rental Agency	-	I	Acceptable Range
7-Eleven	477 E Main St	902	Convenience Store / Gas Station	-	I	Acceptable Range
Canada Forgings Inc.	17 Welland Street	229	Forging		II	Within Potential Influence Area
Gil's Auto	162 Empire St	283	Auto Repair Shop	-	I	Acceptable Range
Canada Forgings Inc.	130 Hagar St	298	Head Office	-	0	No Adverse Impact

Facility	Address	Distance (m)	Operations	ECA/EASR (Year)	MECP Industrial Class	Comments
Small Storage Incorporated	137 Duncan St	314	Self Storage	-	I	Acceptable Range
Business Complex	129 Hagar St	109	Auto Repair Shop / Office / Marketing / Gym / Equipment Mfg.	3476-9ZGJXZ (2015) - N/A (Registered under Hartbridge Environmental Inc) 4786-5BRVB9 (2002) - N/A (Registered under DomSource Inc)	I	Acceptable Range
Plaza	300 Lincoln St	109	Restaurant / Bank / Pharmacy / Grocery Store / Gym / Cannabis Store	8425-5ANTRT (2002) - N/A (Registered under Convergys Customer Management Canada Inc)	II	Within Potential Influence Area
NAPA AUTOPRO - Welland Auto Pro	1 Southworth St N	551	Auto Repair Shop	-	I	Acceptable Range
Niagara CounterTops Ltd.	268 Plymouth Rd	976	Cabinets & Countertop Manufacturer	7686-67RM4R (2004)	I	Acceptable Range
Petro-Pass Truck Stop	286 Lincoln St	104	Gas Station	-	I	Acceptable Range
Ward Industrial Equipment Inc	123 Victoria St	6	Vehicle / Machine Manufacturer	4552-57JSJ2 (2002)	II	Recommended Min Not Met
Silver Creek Cabinetry	249 Burgar St	56	Cabinet Manufacturer	0398-7UFQ34 (2009)	I	Within Potential Influence Area
JK Motors	230 King St	635	Auto Repair Shop	-	I	Acceptable Range
Urge to Purge Inc.	46 Young St	669	Janitorial Service	-	I	Acceptable Range

**Class 0 (SONAIR classification) is neither Class I, II, or III and is not anticipated to adversely impact the proposed development.*

4.0 IDENTIFIED FACILITIES WITH POTENTIAL IMPACT

Numerous facilities were identified as having potential for an adverse impact as a result of this proposed sensitive land use.

4.1 Next Generation Volkswagen Dismantlers / Horsepower Alley Motorcycle Garage

Next Generation Volkswagen Dismantlers (Next Generation) is a vehicle components dismantler, while Horsepower Alley Motocycle Garage (Horsepower) is motorcycle repair shop, both of which are located within the same building. Although no hours of operation can be identified for Next Generation, it is anticipated that the facility only operates during the daytime hours, while Horsepower operates Monday to Fridays from 9:30am to 3pm. Anticipated operations for Next Generation include dismantling parts from vehicles for resale, whereas Horsepower repairs motorcycles. The facility is located approximately 20m from the proposed site and is classified as a Class I facility. The facility is located within the potential influence area, but beyond the minimum separation distance.

A search in the MECP approval database returned no results for this site. Based on the site visit conducted by staff at SONAIR on November 26, 2024, no dust, odour, and/or noise/vibration concerns were identified.

Odour and noise are not expected to be a concern given that the operations are not considered significant sources of odour, and the dismantling/repair operations are conducted within an enclosed building where noise is not typically audible off-property based on the scale of its operations.

Dust emissions may be generated from the unpaved roadway; however, not expected to be a major concern based on the nature of its operations where movement of vehicles is not a frequent occurrence.

A wind rose has been developed from available meteorological conditions, attached in Appendix B, indicating that prevailing winds are generally blowing from the West to the East, where dust emissions, if any, are typically directed away from the proposed development. Existing residential dwellings are also located to the immediate North, West and South of the facility. Impact on the proposed development would be similar in nature compared to existing residences.

Given the above rationale, it is not anticipated that this facility would adversely impact the proposed development from an air quality and noise perspective.

4.2 **11 Motors**

11 Motors is a car dealership that operates Monday Thursday from 12pm to 8pm, and Friday and Saturdays from 10am to 6pm. Anticipated operations include vehicle sale and resale. The facility are located approximately 65m from the proposed site and is classified as a Class I facility. The facility is located within the potential influence area, but beyond the minimum separation distance.

A search in the MECP approval database returned no results for this site. Based on the site visit conducted by staff at SONAIR on November 26, 2024, no dust, odour, and/or noise/vibration concerns were identified.

Odour and noise are not expected to be a concern given that the operations are not considered significant sources of odour and noise based on the nature of its operations.

Dust emissions may be generated from the unpaved storage yard; however, not expected to be a major concern based on the nature of its operations where movement of vehicles is not a frequent occurrence. The lot will primarily be used for vehicle parking and display as part of the dealership operation.

The developed wind rose, found in Appendix B, indicates that prevailing winds are generally blowing from the West to the East, where dust emissions, if any, are typically directed away from the proposed development. Existing residential dwellings are also located to the immediate West and South of the facility. Impact on the proposed development would be similar in nature compared to existing residences.

Given the above rationale, it is not anticipated that this facility would adversely impact the proposed development from an air quality and noise perspective.

4.3 **Canada Forgings Inc.**

Forging Canada Inc is a forging facility that may operate during the daytime, evening, and nighttime. Anticipated operations include rolled rings, open die, and closed die forging, as well as heat treatment and rough machining for forgings. This facility is located approximately 229m

from the proposed site and is classified as a Class II facility. The facility is located within the potential influence area, but beyond the minimum separation distance.

A site visit was conducted by staff at SONAIR on November 26, 2024, where no dust, odour, and/or noise/vibration concerns were identified.

A search in the MECP approval database shows that the facility has been issued an Air Certificate of Approval (CofA), #4509-8ACPAL on October 18, 2010, as shown in Appendix C.

Details of the CofA in accordance with their application for approval (air and noise) indicate that the facility consists of the following processes and support units:

- One (1) natural gas fired HVAC unit, having a maximum thermal input of 211,011 kilojoules per hour; and
- One (1) natural gas fired furnace, for the softening of metals, having a maximum thermal input of 9,495,503 kilojoules per hour.

Given that the necessary air and noise assessments were completed in support of the approval, it is anticipated that the facility would be in compliance with the applicable air quality and noise standards and limits at the property line and beyond.

Vibration resulting from forging hammers is also not expected to be a concern given the separation distance between the proposed development and the facility.

Existing residential dwellings are also located to the immediate North and East, as well as residential dwellings to the West and Southwest of the facility that are in closer proximity compared to the proposed development. Impact on the proposed development is expected to be significantly less compared to the existing residences in closer proximity to the facility.

Based on the above and given that the facility already has an obligation to meet regulatory requirements pertaining to air and noise emissions at the property line and beyond, no adverse impact is expected from this facility on the proposed development from an air quality and noise perspective.

4.4 **Plaza**

The commercial plaza located at 300 Lincoln Street consists of various establishments, such as restaurants, banks, pharmacy, grocery store, fitness center, cannabis store etc. Hours of

operations depend on the store, but is generally from Monday to Sunday between the hours of 8am and 11pm, with the exception of the fitness center which operates from as early as 5am. The facility is located approximately 109m from the proposed site and is classified as a Class II facility solely based on the number of rooftop equipment. The facility is located within the potential influence area, but beyond the minimum separation distance.

A search in the MECP approval database returned no results for this site. Based on the site visit conducted by staff at SONAIR on November 26, 2024, no dust, odour, and/or noise/vibration concerns were identified. All on-site roadways are paved, and the activities are not expected to create significant dust and odour impact off property based on the nature of its operations.

Based on aerial imagery, numerous rooftop HVAC and condenser units were identified where noise emissions can be generated. The noise impact will be further investigated as part of the stationary noise assessment.

Given the above rationale, it is not anticipated that this facility would adversely impact the proposed development from an air quality perspective. Noise impact will be further investigated as part of the noise assessment.

4.5 **Ward Industrial Equipment Inc.**

Ward Industrial Equipment Inc. is a custom bulk material handling equipment manufacturer that operates Monday to Friday from 7am to 3:30pm. Anticipated operations include metal fabrication, welding, spray painting, assembly etc. This facility is located approximately 6m from the proposed site and is classified as a Class II facility. The facility is located within the potential influence area, and minimum separation distance.

A site visit was conducted by staff at SONAIR on November 26, 2024, where no dust, odour, and/or noise/vibration concerns were identified.

A search in the MECP approval database shows that the facility has been issued an Air Certificate of Approval (CofA), #4552-57JSJ2 on February 25, 2002, as shown in Appendix C.

Details of the CofA in accordance with their application for approval (air) indicate that the facility consists of the following processes and support units:

- One (1) spray booth for the application of solvent based coatings at a maximum rate of 1.01 litres per hour, equipped with 7.2 square metres of dry type paint arrestor filters, exhausting into the atmosphere at a volumetric flow rate of 5.3 actual cubic metres per second, through a stack, having an exist diameter of 0.70 metre, and extending 3.8 metres above the local roof.

Given that the necessary air assessments were completed in support of the approval, it is anticipated that the facility would be in compliance with the applicable air quality standards and limits at the property line and beyond.

The developed wind rose, found in Appendix B, indicates that prevailing winds are generally blowing from the West to the East, where emissions, if any, are typically directed away from the proposed development. Existing residential dwellings are also located to the immediate West of the facility that are in similar proximity compared to the proposed development. Impact on the proposed development is expected to be similar compared to the existing residences in close proximity to the facility.

Based on the above and given that the facility already has an obligation to meet regulatory requirements pertaining to air emissions at the property line and beyond, no adverse impact is expected from this facility on the proposed development from an air quality perspective. Noise impact will be further investigated as part of the noise assessment.

4.6 **Silver Creek Cabinetry**

Silver Creek Cabinetry is a custom cabinetry maker and installer that operates Monday to Friday from 9am to 5pm. Anticipated operations include cutting, sanding, spray painting and assembly. The facility is located approximately 56m from the proposed site and is classified as a Class I facility. The facility is located within the potential influence area, but beyond the minimum separation distance.

A site visit was conducted by staff at SONAIR on November 26, 2024, where no dust, odour, and/or noise/vibration concerns were identified.

A search in the MECP approval database shows that the facility has been issued an Air Certificate of Approval (CofA), #0398-7UFQ34 on August 4, 2009, as shown in Appendix C.

Details of the CofA in accordance with their application for approval (air and noise) indicate that the facility consists of the following processes and support units:

- One (1) cross draft paint spray booth for the application of solvent based coatings at a maximum rate of 8.0 litres per hour, equipped with one (1) spray gun and 5.6 square metres of dry type paint arrestor filters, exhausting into the atmosphere at a volumetric flow rate of 4.6 cubic metres per second, through a stack, having an exit diameter of 0.61 metre, extending 4.3 metres above the roof and 8.3 metres above grade.

Given that the necessary air and noise assessments were completed in support of the approval, it is anticipated that the facility would be in compliance with the applicable air and noise quality standards and limits at the property line and beyond.

Existing residential dwellings are also located to the immediate North, East, and South of the facility that are in closer proximity compared to the proposed development. Impact on the proposed development is expected to be less compared to the existing residences in close proximity to the facility.

Based on the above and given that the facility already has an obligation to meet regulatory requirements pertaining to air and noise emissions at the property line and beyond, no adverse impact is expected from this facility on the proposed development from an air quality and noise perspective.

5.0 TRANSPORTATION NOISE IMPACT ASSESSMENT

5.1 Location of Assessed Noise Impact

The locations of the 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.

Balconies are the only Outdoor Living Areas (OLA) considered for the proposed development; however, the depth of the balconies are less than 4m; therefore, the balconies have not been assessed as OLA, in accordance with NPC-300.

5.2 Road & Rail Noise Criteria

Road and rail 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 5 below:

Table 5 – Road and Rail 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 at the POW are equal or less than the values in the above table, no noise control measures are required. If predicted noise levels exceed the limits, then the following clauses or actions are required:

Table 6 – 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 7 – Indoor Sound Pressure Level Limits

Indoor Location & Time Period	**Sound Pressure Level, L_{eq} (dBA)**	
	Road	**Rail**
Living/Dining	45	40
Bedroom (07:00 to 23:00)	45	40
Bedroom (23:00 to 07:00)	40	35

5.3 Road & Rail Traffic Volumes

Road traffic data was obtained from the Welland Planning and Development Services department. The City provided 2013 AADT traffic data for Lincoln Street and Burgar Street. A 2% compounding annual growth rate was used to obtain traffic volumes for the year of 2034. The vehicle distribution for both roadways was assumed to be 90% cars, 5% trucks, 5% heavy vehicles. The posted speed limit for both roadways is 50 km/hr.

Table 8 – AADT Road Traffic Volumes

Year	**Roads**	**Total**
2023	Lincoln Street	13,149
2023	Burgar Street	2,762

Table 9 – Forecasted Road Traffic Volumes

Roads	**Time Period**	**Total**	**Cars (Light)**	**Trucks (Medium)**	**Trucks (Heavy)**
Lincoln Street	Daytime	14,714	13,243	736	736
	Nighttime	1,635	1,471	82	82
Burgar Street	Daytime	3,091	2,782	155	155
	Nighttime	343	309	17	17

Rail traffic data for the railway to the East of the proposed development was obtained from GIO Railways, and is summarized in Table 10 below. The railway corridor is known as the Canal Spur and is operated by GIO Railways for freight trains. The rail data was forecasted to 2034 using a 2.5% compounding annual growth rate.

Table 10 – Rail Traffic Volumes

Rail	Type	Volume (Day/Night)	Projected (Day/Night)	Cars per Train	Locomotive per Train	Max Speed (kph)
GIO	Freight	2/0	2.6/0	30	1	16

5.4 Road & Rail Traffic Noise

Predicted sound levels for the most impacted facades in the development are:

Table 11 – Traffic Noise Model Details

Receiver	OLA/ POW	Barrier / Parapet	Receptor Elevation (m)	Noise at Receiver Day (dBA)	Noise at Receiver Night (dBA)
R1	POW	-	10.8 (4th Floor)	53.2	45.8
R2	POW	-	10.8 (4th Floor)	55.8	48.2
R3	POW	-	10.8 (4th Floor)	59.1	52.3
R4	POW	-	10.8 (4th Floor)	58.1	51.6

5.5 Minimum Requirements

5.5.1 Plane of Window (POW) – North Facade

The predicted daytime noise levels at the POW for units on the North façade are below 55 dBA, and below 50 dBA during nighttime. Therefore, no further noise attenuation or warning clauses are required for units on the North facade.

5.5.2 Plane of Window (POW) – East, South, and West Facades

The predicted daytime noise levels at the POW for some units on the East, South, and West facades are in excess of 55 dBA, and in excess of 50 dBA during nighttime. It is required that

these units 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 leases and purchase and sale agreements.

5.5.3 Proximity to Facilities and Railway

Given the proximity of the proposed development to surrounding facilities and the railway to the East, it is required that Warning Clause Type "E" be registered on title, leases, and purchase and sale agreements for all proposed residential units.

5.6 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 "E":

Facility Warning Clause

Purchasers/tenants are advised that due to the proximity of the adjacent facilities, noise from the facility may at times be audible.

Railway Warning Clause

Purchasers/tenants are advised that GIO Railways, CN, or their successors, have an operating right-of-way within 300 metres from the land subject hereof and there may be alterations to the right-of-way including the possibility that the railway may expand its operations, which expansion may affect the living environment of the residents notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the subdivision and individual units, and that the Railway will not be responsible for complaints or claims arising from use of its facilities and/or operations.

6.0 IMPACT OF THE DEVELOPMENT ON ITSELF

Mechanical units proposed as part of the development may transmit noise to adjacent spaces within the building. The Ontario Building Code specifies that a minimum STC rating of 50 is required for walls between units in a multi-tenant building in order to maintain adequate acoustical privacy. If applicable, a minimum STC rating of 55 is required for units adjacent to elevator shaft and refuse chute. Further, it is recommended that units adjacent to noise generating spaces, such as indoor amenity and commercial spaces also meet a minimum STC rating of 55.

7.0 IMPACT OF THE DEVELOPMENT ON THE ENVIRONMENT

Mechanical units as part of the proposed development have yet to be proposed, designed and finalized at this time. It is expected that proposed mechanical units will be able to meet the NPC-300 daytime, evening, and nighttime exclusionary sound level limits at the surrounding sensitive receptors with the appropriate equipment selection, and potential controls in place. Compliance can be achieved by strategically placing these units such that it disrupts the direct line of sight and introducing adequate setback from the sensitive receptors. Adequate controls, such as screens, acoustic barriers and/or parapets, and silencers can also be installed to mitigate potential impact on the surrounding noise sensitive receptors.

It is recommended that the noise impact be reassessed by a qualified acoustical consultant once detailed drawings become available at the site plan approval stage of the review process to determine if any mitigations will be required.

8.0 STATIONARY NOISE IMPACT ASSESSMENT

Based on the land use compatibility assessment, two (2) facilities were identified as having sources that may be considered significant and have been included as part of this stationary noise impact assessment. Location of the facility relative to the proposed development can be found in Appendix A.

Aerial images were used to identify the stationary sources of concern for the facility. Noise levels of these equipment were obtained from measurements from other completed projects and/or SONAIR Database based on equipment of similar type and size. The types of sources and the modelling scenarios are discussed below.

8.1 **Plaza**

The commercial plaza consists of various establishments, such as restaurants, banks, pharmacy, grocery store, fitness center, cannabis store etc, located at 300 Lincoln Street, approximately 109m East of the proposed development. Hours of operations depend on the store, but is generally from Monday to Sunday between the hours of 8am and 11pm, with the exception of the fitness center which operates from as early as 5am.

The primary source of noise associated with this facility is anticipated to be the rooftop HVAC and condenser units, as well as truck movements. The location of these sources is shown 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 HVAC and condenser units operating 60min/hr
  - 2 heavy truck movements per hour at a speed of 20 km/hr
- Nighttime:
  - Rooftop HVAC units operating 30min/hr
  - Rooftop condenser units operating 60min/hr
  - 1 heavy truck movement per hour at a speed of 20 km/hr

8.2 **Ward Industrial Equipment Inc.**

Ward Industrial Equipment Inc. is a custom bulk material handling equipment manufacturer located approximately 6m East of the proposed development that operates Monday to Fridays from 7am to 3:30pm. Although hours of operation only indicate daytime operations, limited operations has been assumed to also occur during the evening and nighttime periods for conservatism.

The primary source of noise associated with this facility is anticipated to be the spray paint booth, as well as truck movements. The location of these sources is shown in Appendix A.

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

- Daytime/Evening:
    - Spray paint booth operating 60min/hr
    - 2 heavy truck movements per hour at a speed of 20 km/hr
- Nighttime:
    - Spray paint booth operating 60min/hr

8.3 Noise Modelling

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

- Ground absorption was set to 0 for hard grounds
- Only 1st order reflections were considered

The digital ground level model was exported from Google Earth.

8.4 Point of Reception

Two (2) points of reception (R1 and R2) representing the POW on the East façade was considered for this stationary source assessment. The receptor was assessed at a height of 10.8m representing the 4th floor units. The location of the Point of Reception is shown in Appendix A.

8.5 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 1 Areas. These guidelines state that the one-hour sound exposure (L_{eq}) from stationary sources in Class 1 Areas shall not exceed the limits from the following table:

Table 12 – NPC-300 Limits for Class 1 Areas

Time	Plane of Window	Outdoor Point of Reception
07:00 to 19:00	50	50
19:00 to 23:00	50	50
23:00 to 07:00	45	-

8.6 Predictable Worst-Case Impact Operating Scenario for Stationary Sources

The predictable worst-case impact is assessed by comparison of predictable worst-case operating noise with the applicable guideline limits. Appendix G, summarizes and compares the stationary source impacts with the applicable NPC-300 guideline minima for Class 1 noise level.

The facilities are expected to meet the MECP prescribed limits under NPC-300 during the daytime, evening, and nighttime.

9.0 CONCLUSION

SONAIR Environmental Inc. was retained by 111 Victoria Street Inc. to prepare a Land Use Compatibility Study (Air and Noise) in support of a Zoning By-law Amendment (ZBA) and Official Plan Amendment (OPA) application for a residential development to be located at 111 Victoria Street in Welland.

Based on the assessment of the industrial and commercial land uses in the vicinity of the subject property, and the MECP's D-6 Guidelines, there are no facilities that are expected to adversely impact the proposed development from an air quality and noise perspective.

Noise levels from roadways/railways are predicted to exceed applicable NPC-300 guideline limits during the daytime and nighttime at numerous POW receptors. Therefore, it is required that the applicable warning clauses, and provision for A/C requirements be implemented as per Sections 5.5 and 5.6.

Noise levels from stationary sources are predicted to be below the Class 1 limits on the proposed development; however, a Warning Clause Type "E", per Section 5.6, due to proximity to surrounding facilities, is required to be registered on title leases and purchase and sale agreements.

With the inclusion of the Warning Clauses, it is not anticipated that the proposed development will result in new operational constraints or limit the ability of major facilities to apply or uphold applicable MECP approvals.

REFERENCES

Ministry of the Environment, Conservation and Parks, "*D-1 Land Use and Compatibility"*, July 1995

Ministry of the Environment, Conservation and Parks, "*D-6 Compatibility between Industrial Facilities"*, July 1995

The Federation of Canadian Municipalities and the Railway Association of Canada, *"Guidelines for New Development in Proximity to Railway Operations"*, May 2013

Ministry of the Environment, Conservation and Parks, "*Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300)"*, August 2013

APPENDIX A

SITE PLAN & DRAWINGS

111 VICTORIA ST.

MARSHALL VAUGHAN FLATS

30 ATTAINABLE RENTAL UNITS

VICTORIA ST.

HESTER LANE

IRON FENCE

CONDO SIGN

RAMP UP

HISTORIC PLAQUE

PROPOSED 3.5 STOREY 30 UNIT APARTMENT

IRON FENCE

IRON FENCE

BIKE RACK

RAMP DOWN

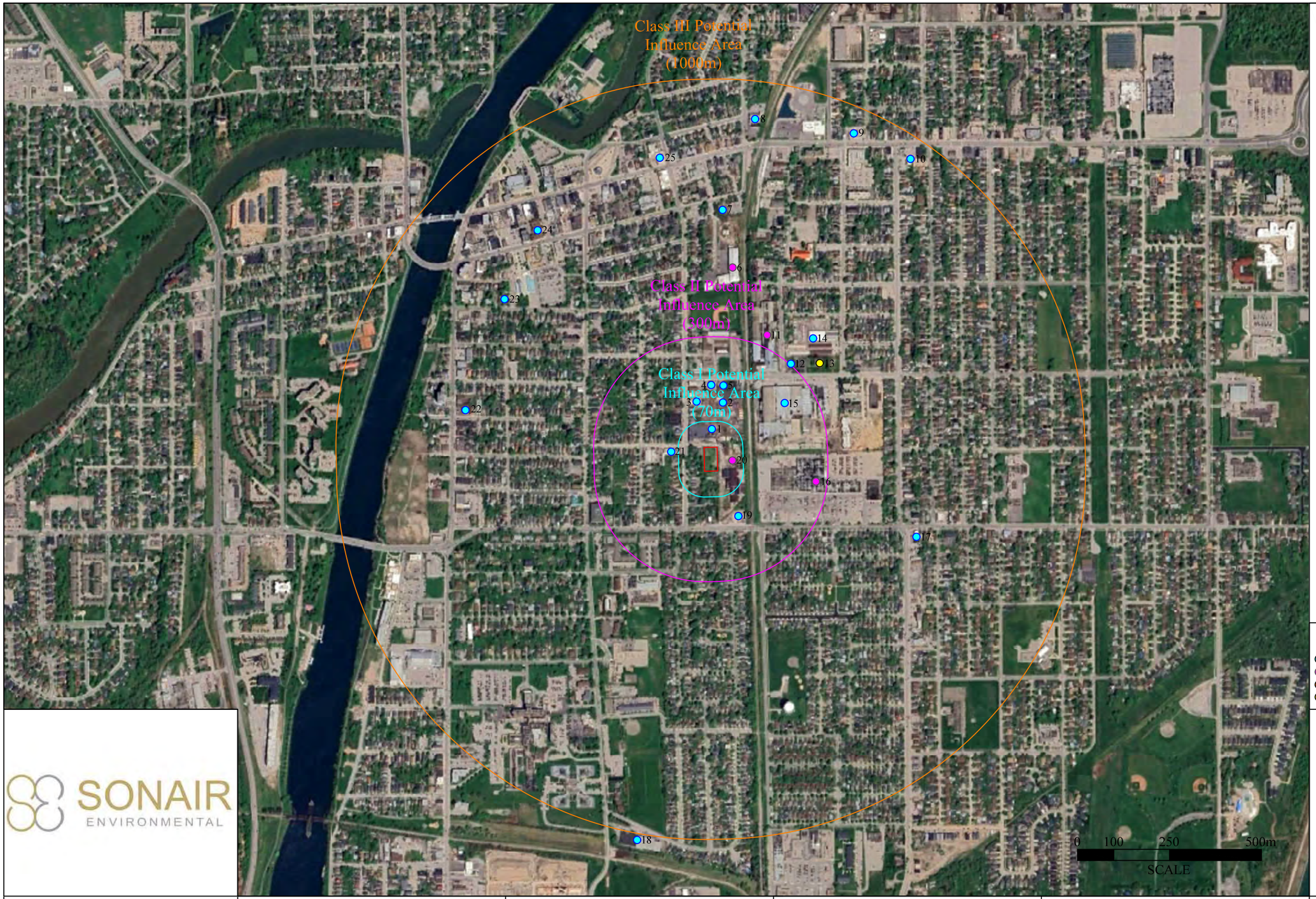
14

2

7

MOLOK GARBAGE DISPOSAL

TURN AROUND/ GARBAGE PICKUP



FACILITY NAMES

1. Next Generation Volkswagen Dismantlers / Horsepower Alley
2. 11 Motors
3. Welland Metal Supplies
4. Digital Detail
5. JR S Service Centre
6. Whiting Equipment Canada Inc
7. Anderson Custom Auto Body & Paint / A-1 Auto Detailing Oil Change
8. NAPA Auto Parts - Sewell's Automotive
9. MOBIL / U-Haul Neighborhood Dealer
10. 7-Eleven
11. Canada Forgins Inc. (Facility)
12. Gil's Auto
13. Canada Forgings Inc. (Head Office)
14. Small Storage Incorporated
15. Cotton Mill Complex
16. Plaza
17. NAPA AUTOPRO - Welland Auto Pro
18. Niagara CounterTops Ltd.
19. Petro-Pass Truck Stop
20. Ward Industrial Equipment Inc
21. Silver Creek Cabinetry
22. JK Motors
23. Urge to Purge Inc.
24. Bell
25. Northern Corvette

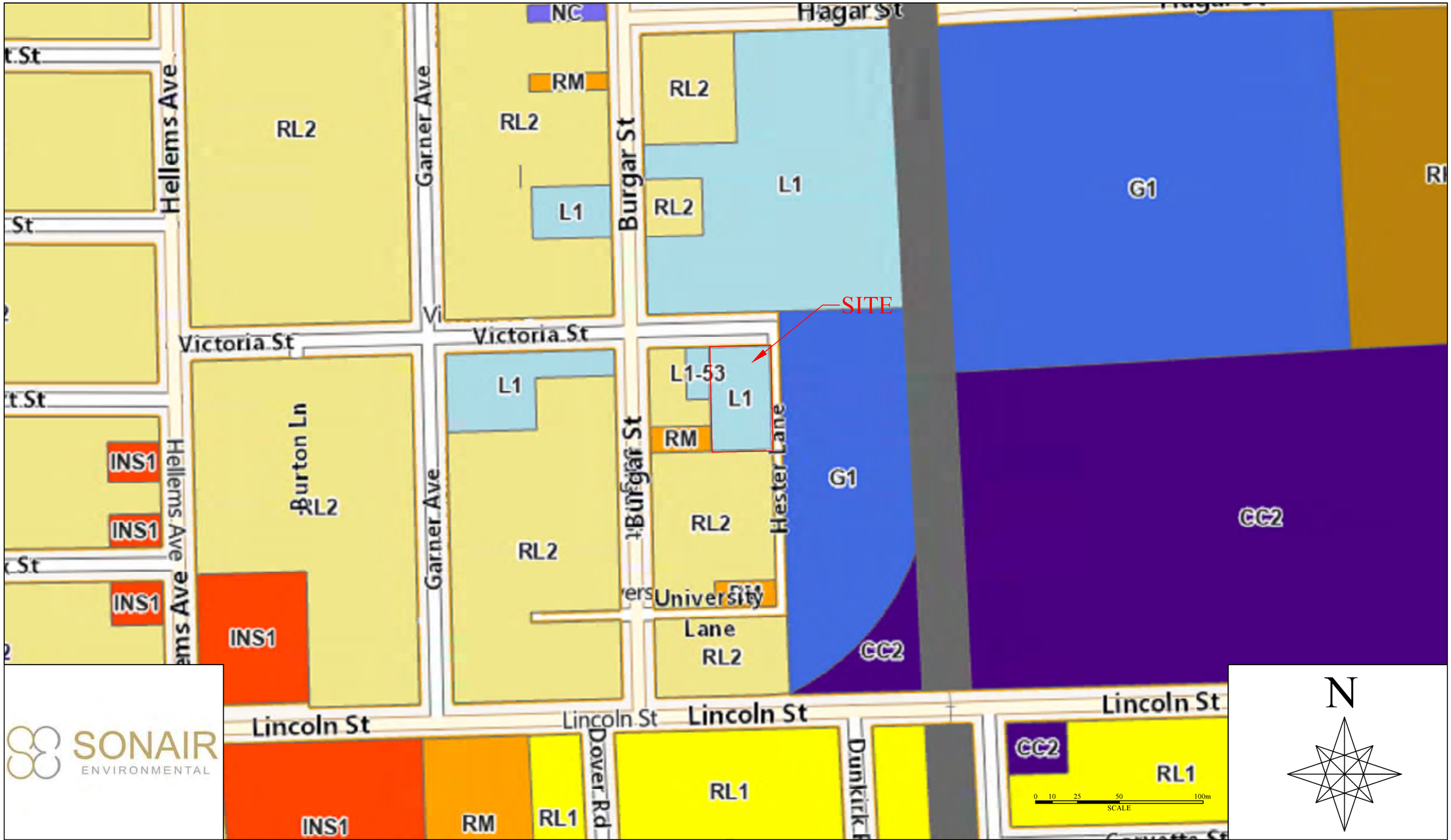
LEGEND

- Class I Facility
- Class II Facility
- Class III Facility
- Class 0 Facility

N

SONAIR ENVIRONMENTAL

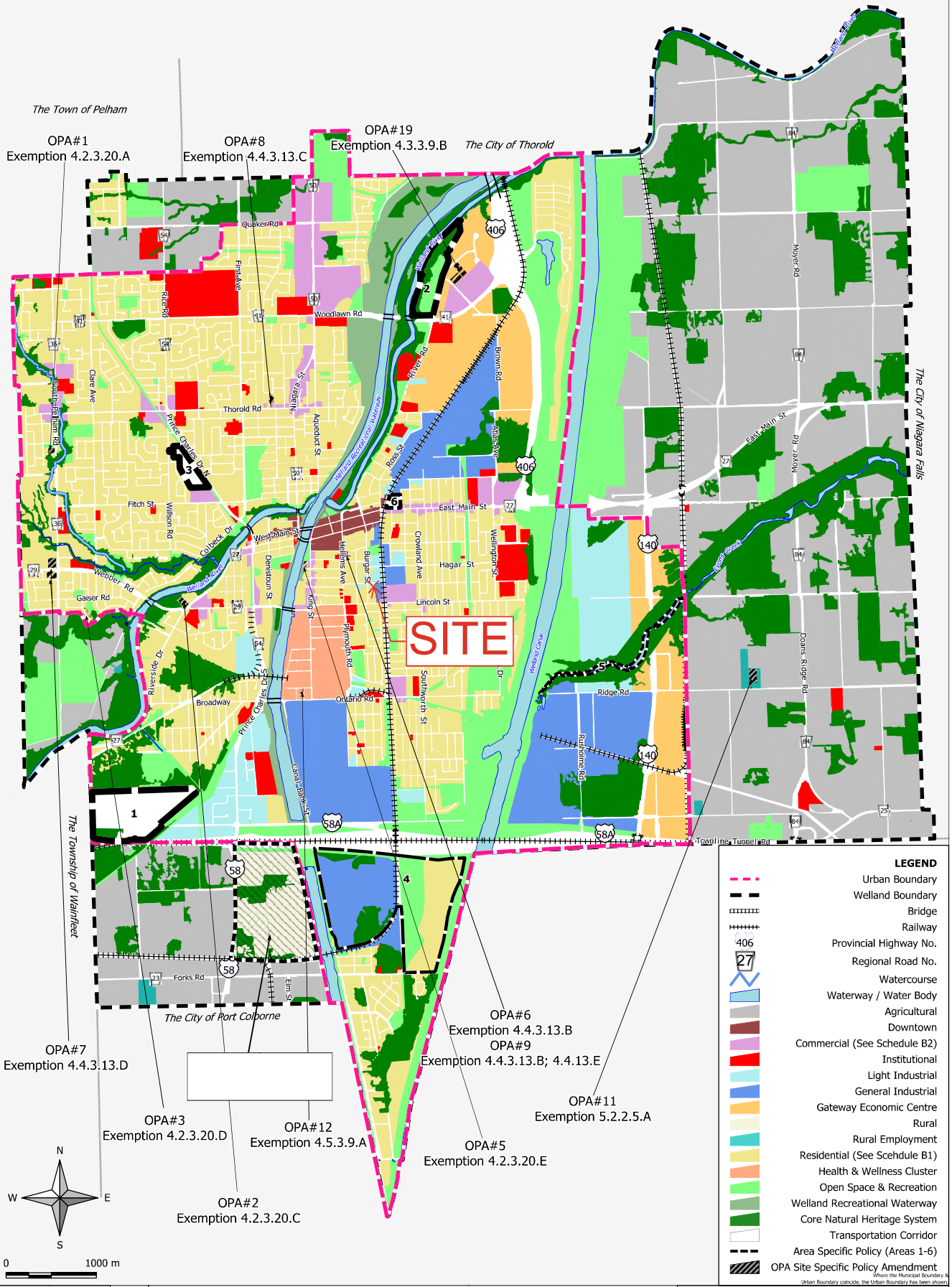
ADDRESS:	DRAWN BY:	CHECKED BY:	CLIENT'S NAME:	CLIENT'S ADDRESS:	SCALE:
PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DG	TL	111 Victoria Street Inc.	331 Major Street Welland, ON L3B 3T6	As shown
SE#:	**DATE:**	**DRAWING NAME:**	**REVISION #:**	**NOTES:**	
1346.001	2024-07-08	1000 Study Area	0	Site at 111 Victoria Street, Welland	



SONAIR ENVIRONMENTAL

ADDRESS:	DRAWN BY:	CHECKED BY:	CLIENT'S NAME:	CLIENT'S ADDRESS:	SCALE:
PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DG	TL	111 Victoria Street Inc.	331 Major Street Welland, ON L3B 3T6	As shown
SE#:	**DATE:**	**DRAWING NAME:**	**REVISION #:**	**NOTES:**	
1346.001	2024-07-08	1000 Study Area	0	Site at 111 Victoria Street, Welland	

City of Welland
Official Plan



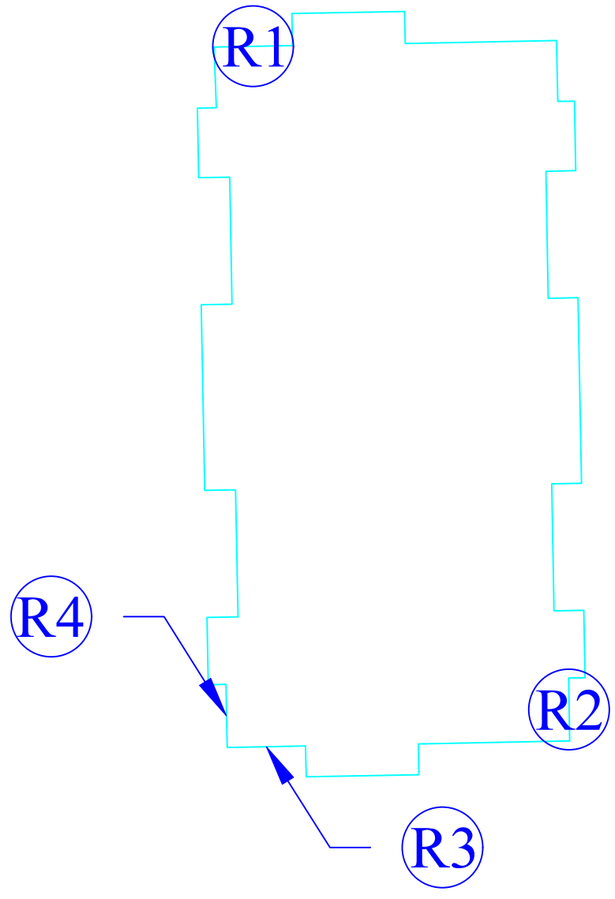
Schedule B

City of Welland Official Plan

Schedule B: Land Use Map

Infrastructure and Development Services
Planning Division

FILE: Z:\MAPPING\GIS\Official Plan\Final_OP.map
May 4, 2010
Revised: July 15, 2020



SONAIR ENVIRONMENTAL

0 5 15 30

SCALE

N

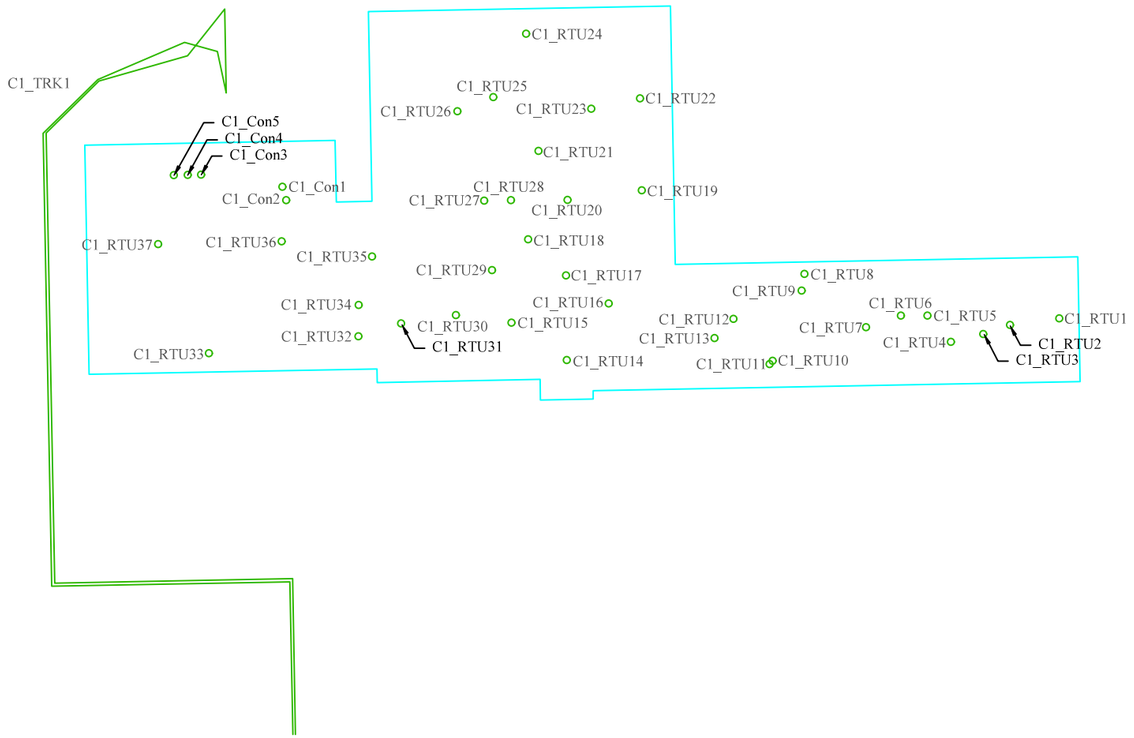
ADDRESS:	DRAWN BY:	CHECKED BY:	CLIENT'S NAME:	CLIENT'S ADDRESS:	SCALE:
PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DG	TL	111 Victoria Street Inc.	331 Major Street Welland, ON L3B 3T6	As shown
SE#:	**DATE:**	**DRAWING NAME:**	**REVISION #:**	**NOTES:**	
1346.001	2024-09-11	STAMSON Receptor Locations	0	Site at 111 Victoria Street, Welland	

SONAIR ENVIRONMENTAL

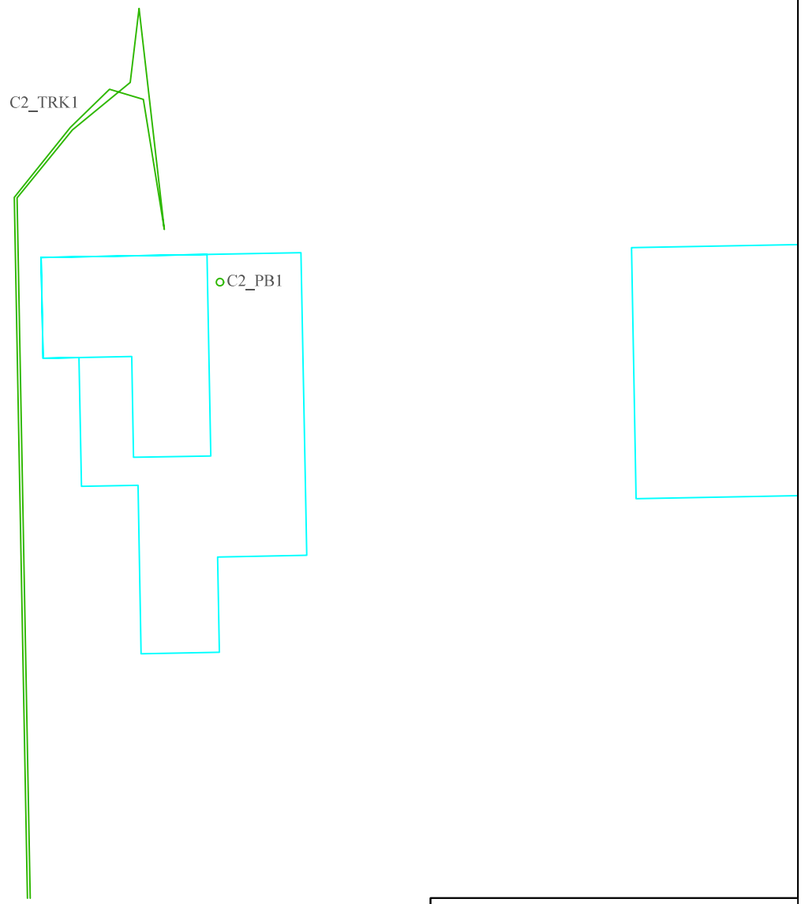
N

ADDRESS:	DRAWN BY:	CHECKED BY:	CLIENT'S NAME:	CLIENT'S ADDRESS:	SCALE:
PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DG	TL	111 Victoria Street Inc.	331 Major Street Welland, ON L3B 3T6	N/A
SE#:	**DATE:**	**DRAWING NAME:**	**REVISION #:**	**NOTES:**	
1346.001	2024-09-11	Facility Identification	0	Site at 111 Victoria Street, Welland	

Commercial 1



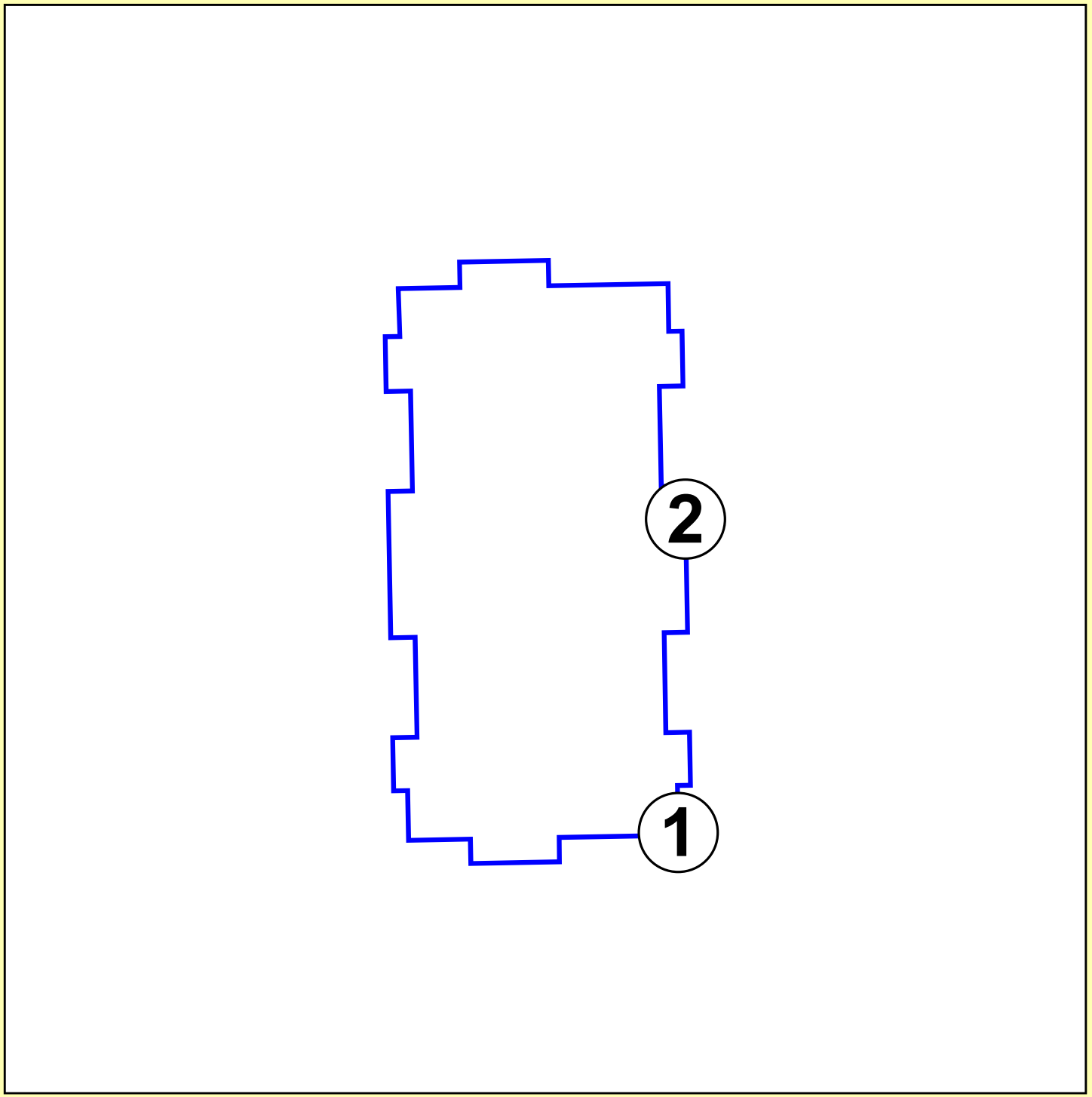
Commercial 2



SONAIR ENVIRONMENTAL

N

ADDRESS: PO BOX 56702 PINE VALLEY PO VAUGHAN, ON L4L 8V3	DRAWN BY: DG	CHECKED BY: TL	CLIENT'S NAME: 111 Victoria Street Inc.	CLIENT'S ADDRESS: 331 Major Street Welland, ON L3B 3T6	SCALE: N/A
SE#: 1346.001	DATE: 2024-09-11	DRAWING NAME: Stationary Source Identification	REVISION #: 0	NOTES: Site at 111 Victoria Street, Welland	



Customer: 111 Victoria Street Inc.
Stationary Noise Assessment
Project: Noise Impact Study
Project-No. 1346.001

SONAIR ENVIRONMENTAL

Map

RL

N

Levels
in

	>= 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

① Receptor

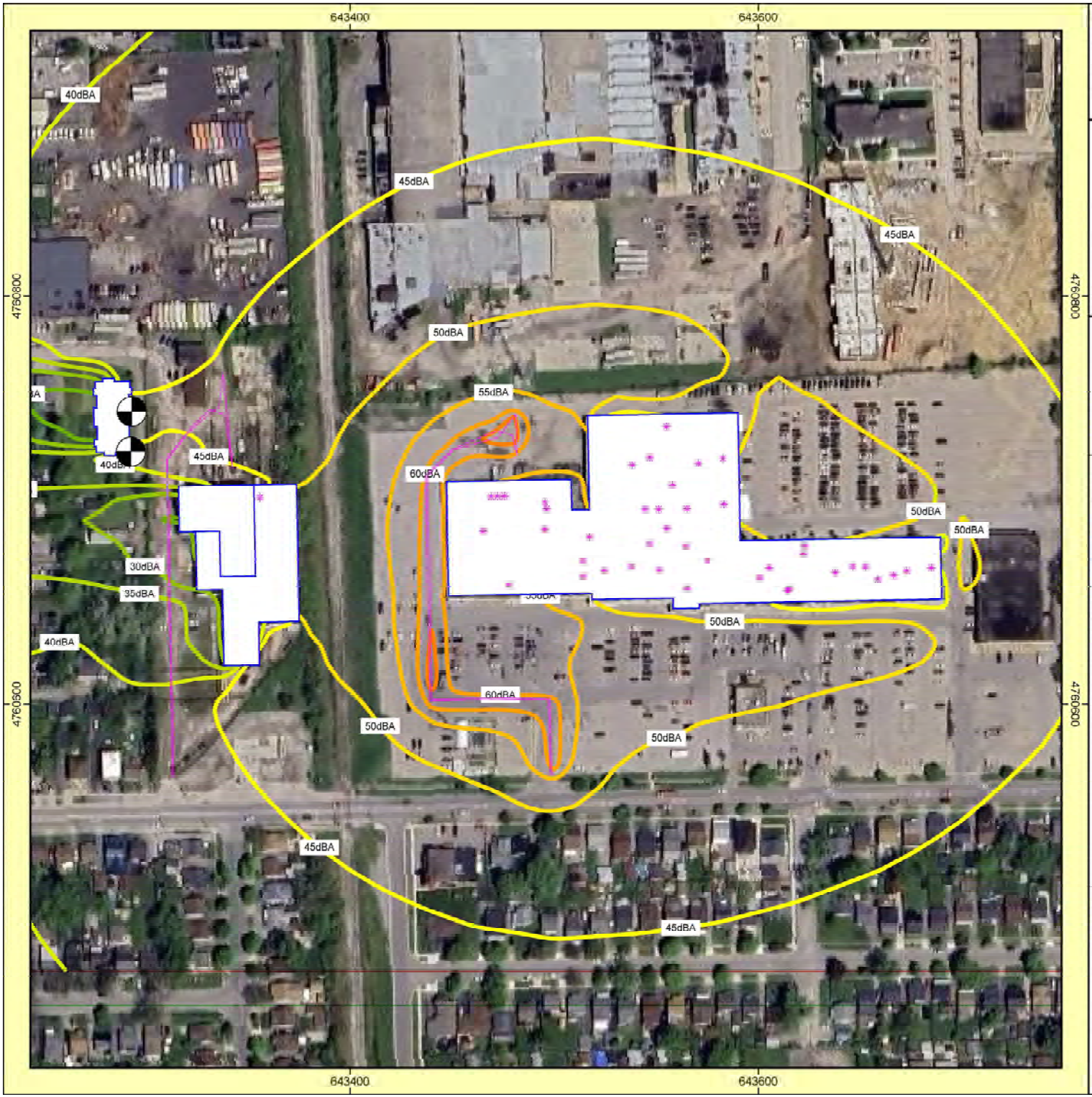
Length scale 1:358

0 1.5 3 6 9 12 m

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

Engineer: TL

Description:
Receptor Location



Customer: 111 Victoria Street Inc.
Stationary Noise Assessment
Project: Noise Impact Study
Project-No. 1346.001

SONAIR ENVIRONMENTAL

Map 1

N

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	

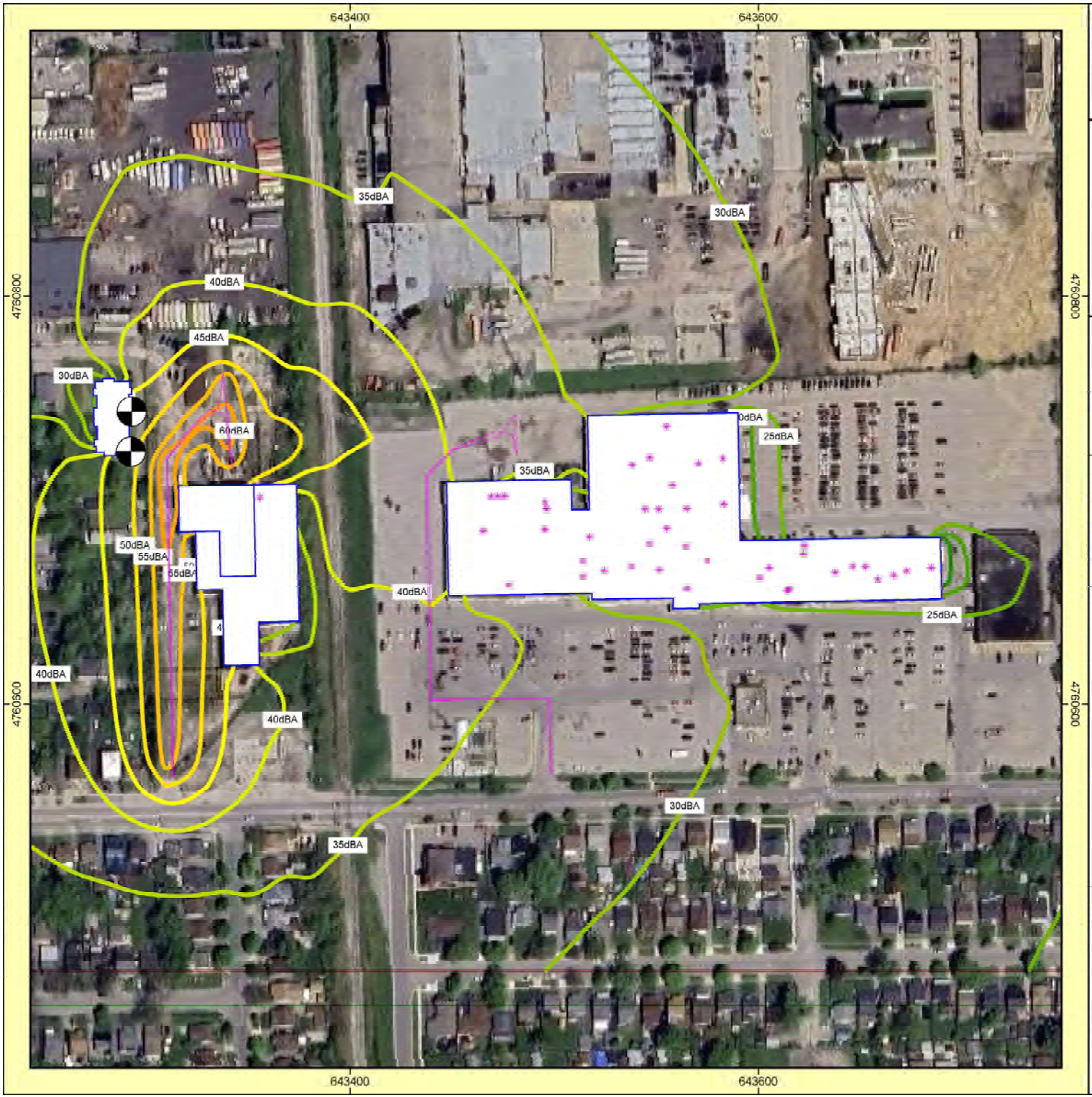
Buildings
Receptors
Point source
Line source

Length scale 1:2661
0 10 20 40 60 80 m

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

Engineer: TL

Description:
Predicted Daytime Noise Impact Due to Commercial 1



Customer: 111 Victoria Street Inc.
Stationary Noise Assessment
Project: Noise Impact Study
Project-No. 1346.001

SONAIR ENVIRONMENTAL

Map 2

N

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

Buildings
Receptors
Point source
Line source

Length scale 1:2661
0 10 20 40 60 80 m

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

Engineer: TL

Description:
Predicted Daytime Noise Impact Due to Commercial 2

APPENDIX B

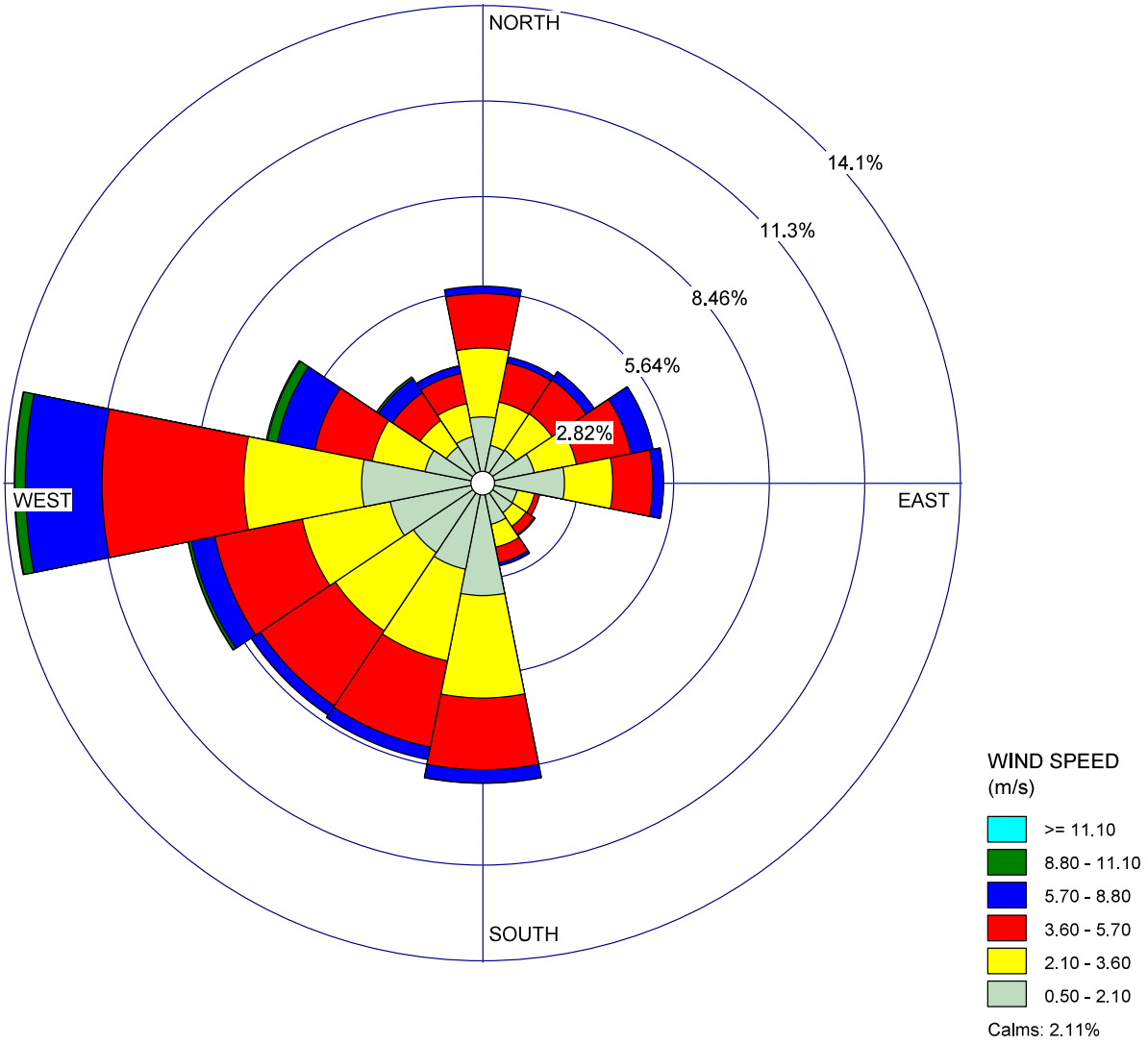
WIND ROSE

WIND ROSE PLOT:

Wind Rose Plot (2019-2023), Welland, ON

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS: Climate ID: 6139449 Data retained from Environment Canada Hourly Data for Welland-Pelham from 2019-2023.	DATA PERIOD: **Start Date: 2019-01-01 - 00:00** **End Date: 2023-12-31 - 23:00**	COMPANY NAME: **SONAIR Environmental Inc.**	
		MODELER: **DG**	
	CALM WINDS: **2.11%**	TOTAL COUNT: **40880 hrs.**	
	AVG. WIND SPEED: **3.06 m/s**	DATE: **2024-07-08**	PROJECT NO.: **1346.001**

APPENDIX C

ECA / EASR APPROVALS

Ontario

Ministry of the Environment
Ministère de l'Environnement

CERTIFICATE OF APPROVAL
AIR
NUMBER 0398-7UFQ34
Issue Date: August 4, 2009

Raymond Shawn Vezeau
249 Burgar St, No. Unit 4
Welland, Ontario
L3B 2T5

Site Location: 249 Burgar Street
City of Welland, Regional Municipality of Niagara, Ontario
L3B 2T5

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) cross draft paint spray booth for the application of solvent based coatings at a maximum rate of 8.0 litres per hour, equipped with one (1) paint spray gun and 5.6 square metres of dry type paint arrestor filters, exhausting into the atmosphere at a volumetric flow rate of 4.6 cubic metres per second, through a stack, having an exit diameter of 0.61 metre, extending 4.3 metres above the roof and 8.3 metres above grade;

all in accordance with the Application for Approval (Air & Noise) dated September 18, 2008 and received on November 28, 2008 and signed by Raymond Shawn Vezeau, (Owner), Raymond Shawn Vezeau, and all supporting information associated with the application including additional information provided by CR Consulting, dated September 18, 2008, and signed by Stephen Arkell.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the *Environmental Protection Act;*

(2) "Certificate" means this Certificate of Approval issued in accordance with the Act;

(3) "District Manager" means the District Manager, Niagara District Office, West Central Region of the Ministry;

(4) "Equipment" means the paint spray booth described in the Owner's application, this Certificate and in the supporting documentation referred to herein, to the extent approved by this Certificate;

(5) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;

(6) "Ministry" means the Ontario Ministry of the Environment;

(7) "Owner" means Raymond Shawn Vezeau, and includes its successors and assignees;

(8) "Point of Reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received.

For the purpose of verifying compliance with Section 9 of the Act, the Point of Reception may be located on any of the following existing or zoned for future use premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

For equipment/facilities proposed on premises such as nursing/retirement homes, rental residences, hospitals, and schools,

the Point of Reception may be located on the same premises; and

(9) “Publication NPC-205” means Ministry Publication NPC-205 "Sound level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", October 1995.

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

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.

2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

OPERATING AND MAINTENANCE

3. The Owner shall ensure that the Equipment is properly operated and maintained at all times. The Owner shall:

(1) prepare, **not later than three (3) months after the date of this Certificate**, and update as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) the frequency of inspection and replacement of the filter material in the Equipment;

(e) procedures for recording and responding to environmental complaints; and

(f) appropriate measures to minimize odorous emissions from all potential sources.

(2) implement the recommendations of the operating and maintenance Manual.

RECORD RETENTION

4. The Owner shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the operation and maintenance activities required by this Certificate. These records as well as the Manual shall be made available to staff of the Ministry upon request. The Owner shall retain:

(1) all records on the maintenance, repair and inspection of the Equipment; and

(2) all records on the environmental complaints, including:

(a) a description, time and date of each incident;

(b) operating conditions (e.g. the product name(s) being sprayed, any upset conditions, etc.) at the time of the incident; and

(c) a description of the measures taken to address the cause of the incident and to prevent a similar

occurrence in the future.

NOTIFICATION OF COMPLAINTS

5. The Owner shall notify the District Manager, in writing, of each environmental complaint and the measures taken to address the cause of the complaint within five (5) business days of the complaint.

PERFORMANCE

6. The Owner shall ensure that the noise emissions from the Equipment comply with the limits set in Publication NPC-205.

7. The Owner shall restrict the use of the paint spray booth's intake and exhausts fans to the daytime period between 7:00 AM and 7:00 PM.

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

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition No. 3 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate.

3. Condition No. 4 is included to require the Owner to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

4. Condition No. 5 is included to require the Owner to notify staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

5. Condition No. 6 is included to provide minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility/Equipment.

6. Condition No. 7 is included to ensure that the proposed paint spray booth's intake and exhausts fans, are not extended beyond the stated hours. Operation outside these hours, when ambient sound levels are significantly lower, may result in non-compliance with the established sound level limits.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;

8. The municipality within which the works are located;

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, 15th Floor Toronto, Ontario M5G 1E5	AND	The Environmental Commissioner 1075 Bay Street, 6th Floor Suite 605 Toronto, Ontario M5S 2B1	AND	The Director Section 9, *Environmental Protection Act* Ministry ofthe Environment 2 St. Clair Avenue West, Floor 12A Toronto, Ontario M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 4th day of August, 2009

Zafar Bhatti, P.Eng.
Director

AA/
c: District Manager, MOE Niagara District Office
Stephen Arkell, CR Consulting

Ontario

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

ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 3476-9ZGJXZ
Issue Date: August 18, 2015

Hartbridge Environmental Inc.
10 Buchanan Crescent
Thorold, Ontario
L2V 4M5

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:

a waste management system servicing the Province of Ontario

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

a. "Approval" means the entire Environmental Compliance Approval including its schedules, if any, issued under Section 20.3 of II.1 of the Environmental Protection Act;

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

c. "Company" means only Hartbridge Environmental Inc.;

d. "Director" means any Ministry employee appointed by the Minister pursuant to Part II.1 of the Environmental Protection Act;

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

f. "Minister" means the minister responsible for the Ministry;

g. "District Manager" means the District Manager of the Ministry of the Environment for the geographic area in which the waste described in condition 2 is located; and

h. "Subject waste" means subject waste as defined in Section 1 of the Ontario Regulation 347 and includes liquid industrial and hazardous waste pursuant to this Environmental Compliance Approval.

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. Except as otherwise provided by the conditions of this Environmental Compliance Approval, the waste management system shall be operated in accordance with the conditions contained within this Environmental Compliance Approval and the supporting information submitted with the application for this Environmental Compliance Approval dated April 2, 2015 and the additional information subsequently submitted to the Ministry of the Environment listed below:

(A) E-mails received on July 7, 14, 16, and 29, 2015 from Brad Groombridge, Hartbridge Environmental Inc., providing updated vehicle ownerships, updated proof of legal name documents, updated application form, updated certificate of insurance and written consent for the truck storage yard location.

2. The operation of this waste management system is limited to the collection, handling and transportation of hazardous and liquid industrial waste class nos. 252 as described in the "Ministry of the Environment Waste Classes", as amended, January, 1986.

3. The Company shall promptly take whatever steps are necessary to contain and clean up any spills of waste which have resulted from the operation of this waste management system.

4. Waste shall only be delivered to a waste disposal site or facility which has an Environmental Compliance Approval, and only where the waste being delivered complies with the Environmental Compliance Approval of the receiving waste disposal site or facility, and at no time shall waste be stored or transferred to your truck storage yard located at 129 Hagar Street, Unit 21, Welland, Ontario.

5. All waste shall only be transported in a covered vehicle.

6. Any addition, deletion or other change to the fleet of vehicles, trailers and equipment (i.e., year, make, model, serial number, licence number and ownership of each vehicle, trailer or piece of equipment) in particular those which are leased or rented, shall be reported to the Director within fourteen (14) days of any such change.

7. Except for the vehicle(s) that is/are owned and operated by or operated exclusively for a municipality or the Crown, every vehicle used for the collection and transportation of waste pursuant to this Environmental Compliance Approval shall be clearly marked with the company name and the number which appears on the face of the Environmental Compliance Approval that authorizes the collection and transportation of waste.

8. Every vehicle utilized to collect and transport subject waste pursuant to this Environmental Compliance Approval shall be insured under a vehicle liability policy for a minimum of one million dollars ($1,000,000.00) until such time as this Environmental Compliance Approval is revoked.

9. The following documents shall be with each vehicle operated pursuant to this Environmental Compliance Approval at all times that the vehicle is being operated or contains any wastes:

(a) A copy of this Environmental Compliance Approval;
(b) A certificate verifying the driver's successful completion of a training and safety program, if required by Regulation 347; and
(c) A certificate of vehicle liability insurance specifying that it provides coverage of a minimum of one million dollars ($1,000,000.00).

10. (a) The Company shall notify the Director in writing of any of the following changes within thirty

(30) days of the changes occurring:

(i) change of Company name, owner or operating authority;
(ii) change of Company address or address of new owner or operating authority; and
(iii) change of Company truck storage yard address/location.

(b) In the event of any change in ownership of the waste management system the company shall notify the succeeding (new owner) company of the existence of this Approval, and a copy of such notice shall be forwarded to the Director.

(c) The Company shall ensure that all communications made pursuant to this condition will refer to this Approval number.

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

1. The reason for condition 1 is to set out clearly that this waste management system shall be operated in accordance with the conditions set out in this Environmental Compliance Approval and the supporting information submitted with the application for this Environmental Compliance Approval.

2. The reason for condition 2 is to ensure that this waste management system is only used to collect, handle and transport waste which it is able to in a suitable manner as the transportation of waste which this waste management system is not able to collect, handle and transport may create a nuisance or result in a hazard to the health and safety of any person or the natural environment.

3. The reason for condition 3 is to ensure that any waste spilled onto the vehicle is promptly contained and cleaned up to minimize the risk of further spillage or the discharge of waste from the vehicle to the environment and to ensure that the proper officials of the Ministry of the Environment are notified and able to give direction to the Company to ensure the complete decontamination of the vehicle and clean up of the spilled material.

4. The reason for condition 4 is to ensure that this waste management system is used to transport waste only to waste disposal sites or facilities that have been approved by the Ministry of the Environment to receive the waste which this waste management system is delivering under this Environmental Compliance Approval, and that by accepting the waste being delivered by the waste management system, the waste disposal site and facilities will not be out of compliance with its Environmental Compliance Approval.

5. The reason for condition 5 is to ensure that waste particulates are not emitted to the environment as any such emission may result in a hazard to the health and safety of any person or the natural environment.

6. The reason for condition 6 is to ensure that all vehicles, trailers and equipment including those leased or rented for operation under this Environmental Compliance Approval have been approved as part of a suitable waste transportation system to collect and transport waste as an unsuitable waste transportation system could result in a hazard to the health and safety of any person or the natural

environment.

7. The reason for condition 7 is to ensure that the collection, handling and transportation of waste is conducted in a safe and environmentally acceptable manner, as outlined in Regulation 347.

8. The reason for condition 8 is to ensure that every vehicle operated under this Environmental Compliance Approval is adequately insured under a vehicle liability policy. The transportation of subject waste in a vehicle that has not been adequately insured under a vehicle liability policy would not be in the public interest.

9. The reason for condition 9 is to ensure that all waste carriers have met and are operating in compliance with the standards for waste management systems outlined in Regulation 347.

10. The reason for condition 10 is to ensure that the waste management system is operated under the corporate, limited or the applicant's own name which appears on the application and supporting information submitted for this Environmental Compliance Approval and not under any name which the Director has not been asked to consider.

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.

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**

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

DATED AT TORONTO this 18th day of August, 2015

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

SS/
c: District Manager, MOECC Niagara

Ontario

Ministry of the Environment
Ministère de l'Environnement

CERTIFICATE OF APPROVAL
AIR
NUMBER 4509-8ACPAL
Issue Date: October 18, 2010

Canada Forgings Inc.
17 Welland St
Welland, Ontario
L3B 5P8

Site Location: 17 Welland Street
Welland City, Regional Municipality of Niagara, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) natural gas fired HVAC unit, having a maximum thermal input of 211,011 kilojoules per hour; and

- one (1) natural gas fired furnace, for the softening of metals, having a maximum thermal input of 9,495,503 kilojoules per hour;

all in accordance with the Application for Approval (Air & Noise) dated March 26, 2009 and signed by Scott Naar, (Vice President), Canada Forgings Inc., and all supporting information associated with the application including the Emission Summary and Dispersion Modelling Report prepared by Trow Associates Inc., dated March 30, 2009 and signed by Bob Jowett and additional information provided by Bob Jowett, dated September 13, 2010 and October 12, 2010.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the *Environmental Protection Act;*

(2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;

(3) "Equipment" means the natural gas HVAC unit and furnace described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;

(4) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;

(5) "Ministry" means the Ontario Ministry of the Environment; and

(6) "Owner" means Canada Forgings Inc., and includes its successors and assignees.

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

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.

2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the

Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

OPERATION AND MAINTENANCE

3. The Owner shall ensure that the Equipment is properly operated and maintained at all times. The Owner shall:

(1) prepare, not later than three (3) months after the date of this Certificate, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, and make these records available for review by staff of the Ministry upon request.

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

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition No. 3 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, 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 approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 9, *Environmental Protection Act*
Ministry ofthe Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 18th day of October, 2010

Sherif Hegazy, P.Eng.
Director
Section 9, *Environmental Protection Act*

TT/
c: District Manager, MOE Niagara District Office
Bob Jowett, B.Sc., Trow Associates Inc.

Ontario

Ministry of the Environment **Ministère de l'Environnement**

CERTIFICATE OF APPROVAL
AIR
NUMBER 4552-57JSJ2

Ward Industrial Equipment Ltd.
123 Victoria Street
Welland, Ontario
L3B 5R3

Site Location: 123 Victoria Street
Welland, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) spray booth for the application of solvent based coatings at a maximum rate of 1.01 litres per hour, equipped with 7.2 square metres of dry type paint arrestor filters, exhausting into the atmosphere at a volumetric flow rate of 5.3 actual cubic metres per second, through a stack, having an exit diameter of 0.70 metre, and extending 3.8 metres above the local roof;

all in accordance with the Application for a Certificate of Approval (Air) dated November 26, 2001 and signed by Miki J. Szabo, Shop Superintendent, Ward Industrial Equipment Ltd., and all supporting information associated with the application including additional information dated December 10, 2001, provided by Miki J. Szabo and January 14, 2002, provided by Robert J. Beck, Manager of Operations, Ward Industrial Equipment Ltd.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(i) "Act" means the *Environmental Protection Act;*

(ii) "Certificate" means this Certificate of Approval issued in accordance with the Act;

(iii) "Company" means Ward Industrial Equipment Ltd.;

(iv) "Equipment" means the spray booth described in the Company's application, this Certificate and in the supporting documentation referred to herein, to the extent approved by this Certificate;

(v) "Manual" means a document or a set of documents that provide written instructions to staff of the Company; and

(vi) "Ministry" means the Ontario Ministry of the Environment.

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

TERMS AND CONDITIONS

1. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Certificate, and update as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment; and

(d) all appropriate measures to minimize odorous emissions from all potential sources; and

(2) implement the recommendations of the operating and maintenance Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, and make these records available for review by staff of the Ministry upon request.

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

1. Condition No. 1 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate.

In addition the Company is required to keep records and to provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry ofthe Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 26th day of February, 2002

Yvonne Hall, P.Eng.
Director
Section 9, *Environmental Protection Act*

SM/
c: District Manager, MOE Niagara District Office

Ontario

Ministry of Environment and Energy

Ministère de l'Environnement et de l'Énergie

CERTIFICATE OF APPROVAL
AIR
NUMBER 4786-5BRVB9

DomSource Inc.
129 Hagar Street, Area 5
Welland, Ontario
L3B 5V9

Site Location: 129 Hagar Street
Welland City, Regional Municipality of Niagara

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) natural gas fired heating oven with a maximum heat input of 1,265,100 kilojoules per hour and one (1) natural gas fired post-bake oven with a maximum heat input of 843,360 kilojoules per hour, serving a powder coating line, exhausting into the atmosphere at a volumetric flow rate of 0.71 actual cubic metres per second at an approximate temperature of 280 degrees Celsius, through a common stack, having an exit dimensions of 0.25 metre by 0.25 metre, extending 1.9 metres above roof and 7.0 metres above grade; and

- two (2) natural gas fired furnaces, each with a maximum heat input of 316,260 kilojoules per hour;

all in accordance with the Application for a Certificate of Approval (Air) dated March 22, 2002, signed by Robert McBride, and all supporting information associated with the application.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, 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 approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 9, *Environmental Protection Act*
Ministry ofEnvironment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 8th day of July, 2002

Aziz Ahmed, P.Eng.
Director
Section 9, *Environmental Protection Act*

RM/
c: District Manager, MOEE Niagara
Rick Rathfelder, RJ Engineering Solutions

Ontario

Ministry of the Environment

Ministère de l'Environnement

CERTIFICATE OF APPROVAL
AIR
NUMBER 7686-67RM4R

Niagara Countertops Ltd.
268 Plymouth Road
Welland, Ontario
L3B 6C6

Site Location: Welland Plant
268 Plymouth Road
Welland City, Regional Municipality of Niagara, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) paint spray booth for the application of solvent based adhesives, equipped with 6.7 square metres of dry type paint arrestor filters, exhausting into the atmosphere at a volumetric flow rate of 5.62 actual cubic metres per second, through a stack, having an exit diameter of 0.76 metre, extending 2.6 metres above the roof and 9.6 metres above grade;

- one (1) paint spray booth for the application of solvent based adhesives, equipped with 3.35 square metres of dry type paint arrestor filters, exhausting into the atmosphere at a volumetric flow rate of 3.65 actual cubic metres per second, through a stack, having an exit diameter of 0.61 metre, extending 2.1 metres above the roof and 9.1 metres above grade; and

- one (1) wind tunnel, exhausting into the atmosphere at a volumetric flow rate of 1.61 cubic metres per second through a stack having an exit diameter of 0.45 metre, extending 2.1 metres above roof and 9.1 metres above grade;

all in accordance with the Application for a Certificate of Approval (Air) dated June 10, 2004 and signed by Lucien Beauparlant, Owner/President of Niagara Countertops Ltd., and all supporting information associated with the application including additional information provided by Peter Piersol, Senior Project Manager of Canadian ORTECH Environmental Inc., dated September 16, 2004 and October 18, 2004.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the *Environmental Protection Act;*

(2) "Certificate" means this Certificate of Approval issued in accordance with the Act;

(3) "District Manager" means the District Manager, Niagara District Office, West Central Region of the Ministry;

(4) "Equipment" means the spray booths described in the Owner's application, this Certificate and in the supporting documentation referred to herein, to the extent approved by this Certificate;

(5) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;

(6) "Ministry" means the Ontario Ministry of Environment; and

(7) "Owner" means Niagara Countertops Ltd., and includes its successors and assignees;

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

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.

2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

OPERATING AND MAINTENANCE

3. The Owner shall ensure that the combined application rate of both paint spray booths does not exceed 52 litres per hour at any one time.

4. The Owner shall ensure that the Equipment is properly operated and maintained at all times. The Owner shall:

(1) prepare, not later than three (3) months after the date of this Certificate, and update as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) the frequency of inspection and replacement of the filter material in the Equipment;

(e) procedures for recording and responding to environmental complaints; and

(f) appropriate measures to minimize odorous emissions from all potential sources.

(2) implement the recommendations of the operating and maintenance Manual.

RECORD RETENTION

5. The Owner shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the operation and maintenance activities required by this Certificate. These records as well as the Manual shall be made available to staff of the Ministry upon request. The Owner shall retain:

(1) all records on the maintenance, repair and inspection of the Equipment; and

(2) all records on the environmental complaints, including:

(a) a description, time and date of each incident;

(b) operating conditions (e.g. the product name(s) being sprayed, any upset conditions, etc.) at the time of the incident; and

(c) a description of the measures taken to address the cause of the incident and to prevent a similar occurrence in the future.

NOTIFICATION OF COMPLAINTS

6. The Owner shall notify the District Manager, in writing, of each environmental complaint and the measures taken to address the cause of the complaint within five (5) business days of the complaint.

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

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition Nos. 3 and 4 are included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate.

3. Condition No. 5 is included to require the Owner to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

4. Condition No. 6 is included to require the Owner to notify staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry ofEnvironment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can

determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 17th day of December, 2004

Aziz Ahmed, P.Eng.
Director
Section 9, *Environmental Protection Act*

TT/
c: District Manager, MOE Niagara District Office
Peter Piersol, Canadian ORTECH Environmental

Ontario

Ministry of Environment and Energy | **Ministère de l'Environnement et de l'Énergie**

CERTIFICATE OF APPROVAL
AIR
NUMBER 8425-5ANTRT

Convergys Customer Management Canada Inc.
in care of Honeycutt Engineering Inc.
478 Craighead Street, Suite 201
Nashville, Tennessee
U.S.A.
37204-2334

Site Location: 300 Lincoln Street
Welland, Regional Municipality of Niagara, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) standby diesel generator set, having a rating of 500 kilowatts, to provide power during emergency situations, exhausting to the atmosphere at a maximum volumetric flow of 2.15 actual cubic metre per second at an approximate temperature of 642 degrees Celsius, through a stack having an exit diameter of 0.178 metre, extending 3.8 metres above grade;

all in accordance with the Application for a Certificate of Approval (Air) dated March 12, 2002, and signed by Sam Wilburn Honeycutt, Jr., President, Honeycutt Engineering Inc. on behalf of Convergys Customer Management Canada Inc., and all supporting information associated with the application including additional information dated July 20, 2002 and July 31, 2002 and signed by S. Wilburn Honeycutt Jr., P.E. Honeycutt Engineering Inc., on behalf of Convergys Customer Management Canada Inc., and additional information dated July 22, 2002 and signed by James Griffin, Convergys Customer Management Canada Inc.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, 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 approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 9, *Environmental Protection Act*
Ministry ofEnvironment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 7th day of August, 2002

Aziz Ahmed, P.Eng.
Director
Section 9, *Environmental Protection Act*

SM/
c: District Manager, MOEE Niagara District Office
Ted Portmann, J.L. Richards & Associates Limited

Ontario

Ministry of the Environment

Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
AIR
NUMBER 9570-5M3N9M

Bell Canada
300 The East Mall, No. 600
Toronto, Ontario
M9B 6B7

Site Location: Bell Welland
90 Division Street
Welland City, Regional Municipality of Niagara, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- two (2) standby diesel generator sets, having a rating of 115 kilowatts and 250 kilowatts respectively, to provide power during emergency situations, exhausting to the atmosphere at a maximum volumetric flow of 0.713 (115kW genset) and 1.475 (250kW genset) actual cubic metre per second at an approximate temperature of 516 and 407 degrees Celsius respectively, through stacks having exit diameters of 0.15 metre and 0.20 metre respectively, extending 3 metres above the roof and 10 metres above grade;

NOISE CONTROL MEASURES
The following Noise Control Measure amendments have been included:

- acoustical louvers installed for the exterior openings of the air intake and cooling air discharge/room cooling. They satisfy the minimum noise insertion loss performance:

- existing exhaust silencer replaced with mufflers to satisfy the noise insertion loss performance:

- roof mounted remote radiator replaced with a quiet unit positioned at the same location.

all in accordance with the Application for a Certificate of Approval (Air) dated January 29, 2003 and signed by Steven Dean, Senior Project Manager, and all supporting information associated with the application including the issuance of Certificate of Approval Number 8-2215-98-006 dated November 24, 1998 and signed by P. DeAngelis, P.Eng., Director, Section 9, EPA.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the *Environmental Protection Act;*

(2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;

(3) "Equipment" means the diesel generator sets described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;

(4) "Manual" means a document or a set of documents that provide written instructions to staff of the Company;

(5) "Ministry" means the Ontario Ministry of the Environment;

(6) "Owner" means Bell Canada, and includes its successors and assignees; and

(7) “Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995.

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

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.

2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

PERFORMANCE

3. The Company shall ensure that the noise emissions from the Equipment comply with the limits set out in Publication NPC-205.

OPERATION AND MAINTENANCE

4. The Company shall restrict the periodic testing of the Equipment to the daytime hours from 7:00 am to 7:00 pm.

5. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Certificate, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, and make these records available for review by staff of the Ministry upon request.

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

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Equipment.

3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Equipment.

4. Condition No. 5 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Company is required to keep

records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 8-2215-98-006 issued on November 24, 1998

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, 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 approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 9, *Environmental Protection Act*
Ministry ofEnvironment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 9th day of May, 2003

Aziz Ahmed, P.Eng.
Director
Section 9, *Environmental Protection Act*

RS/
c: District Manager, MOE Niagara District Office
Rob Rimrott, P.Eng., Aercoustics Engineering Limited

APPENDIX D

TRAFFIC VOLUME

Thomas Li

From: Aaron White <aaron.white@giorail.com>
Sent: July 3, 2024 9:22 AM
To: Thomas Li
Cc: Derek Gillett
Subject: RE: Rail Traffic Data Request

Good Morning Thomas,

This segment of track, known as the Canal Spur, is operated by GIO Railways.

Our current service schedule past this location is driven by customer demand. So at most on any given day there would be 2 movements past your location, one northward and one southward, and these would always occur between 0700 and 1900. We operate 7 days a week. Maximum speed on our whole railway is 10 MPH, including past this point. The maximum number of locomotives per train is currently one (2000HP maximum). The maximum length of train would be less than 30 cars. We are required to blow the horn for all crossings through Welland.
This is jointed rail territory.

If you need anything else, please let me know.

Thanks,

AARON WHITE
GENERAL MANAGER OF RAILWAY ADMINISTRATION | GIO RMS
C. 289-968-9357 • P. 905-735-5529 • F. 905-735-7559
www.giorail.com

From: Thomas Li <tli@sonairenviro.com>
Sent: Friday, June 28, 2024 5:49 PM
To: Aaron White <aaron.white@giorail.com>
Cc: Derek Gillett <dgillett@sonairenviro.com>
Subject: Rail Traffic Data Request

Hi Aaron,

Hope this email finds you well. We are currently conducting a noise impact study for a proposed development at 111 Victoria Street in Welland. As part of the study, we are looking to acquire rail traffic data for the railroad in the vicinity. My understanding is that this railway may be operated by GIO rail, and if so, would you be able to assist us with the data request.

The following are some of the information we are seeking:
- Number of trains from 07:00 to 23:00 and 23:00 to 07:00
- Maximum number of cars per train
- Maximum number of Locomotives per train
- Maximum permissible speed
- Requirement for whistle through this study area
- Types of track (welded/bolted)

- Track/line type/classification

Please let me know if you have any questions or require any clarification.

Regards,

Thomas Li, MEPP, P.Eng
SONAIR Environmental Inc.
P: 905.920.3060
E: tli@SONAIRenviro.com
www.SONAIRenviro.com

Thomas Li

From: Mark Slade <mark.slade@welland.ca>
Sent: December 4, 2024 10:17 AM
To: Thomas Li
Cc: Derek Gillett
Subject: RE: Traffic Data - 111 Victoria Street, Welland

Hi Thomas, the data collected was from 2023. Lincoln Street is included.

From: Thomas Li <tli@sonairenviro.com>
Sent: December 4, 2024 10:14 AM
To: Mark Slade <mark.slade@welland.ca>
Cc: Derek Gillett <dgillett@sonairenviro.com>
Subject: RE: Traffic Data - 111 Victoria Street, Welland

Hi Mark,

Thank you, what year is the image data from, and do you have any AADT data for Lincoln Street as well?

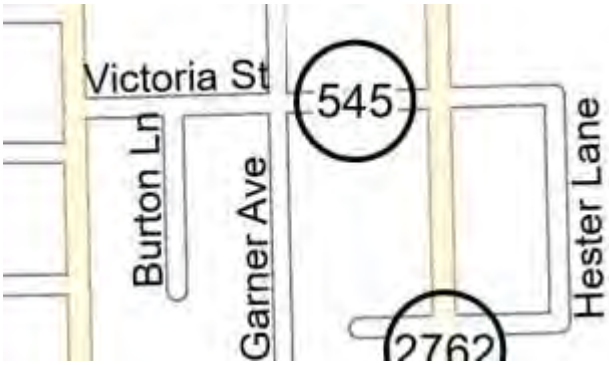
Thank you for looking into this.

Regards,

Thomas Li, MEPP, P.Eng
SONAIR Environmental Inc.
P: 905.920.3060
E: tli@SONAIRenviro.com
www.SONAIRenviro.com

From: Mark Slade <mark.slade@welland.ca>
Sent: December 4, 2024 10:09 AM
To: Thomas Li <tli@sonairenviro.com>
Cc: Derek Gillett <dgillett@sonairenviro.com>
Subject: RE: Traffic Data - 111 Victoria Street, Welland

Hi Thomas, I found more recent data for you. Our percentage growth we use is 2%.



Mark Slade
Traffic and Parking Technician
Planning and Development Services
60 East Main Street, Welland, Ontario

Phone: (905) 735-1700 x2212
welland.ca
engagewelland.ca

From: Thomas Li <tli@sonairenviro.com>
Sent: December 4, 2024 9:56 AM
To: Mark Slade <mark.slade@welland.ca>


ate St
327
Kent St
bert St
Park St
Victoria St
545
Burton Ln
Garner Ave
Hester Lane
2762
13149
13049
Lincoln S
Corvette

APPENDIX E

STAMSON SAMPLE CALCULATION

STAMSON 5.0 NORMAL REPORT Date: 31-12-2024 15:41:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 1p.te Time Period: Day/Night 16/8 hours
Description: Predicted Noise Impact at R1_POW

Rail data, segment # 1: GIO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1.	2.6/0.0	16.0	1.0	30.0	Diesel	No

* The identified number of trains have been adjusted for
future growth using the following parameters:

No	Train type: Name	Unadj. Trains	Annual % Increase	Years of Growth
1.		2.0/0.0	2.50	10.00

Data for Segment # 1: GIO (day/night)

Angle1	Angle2	: -90.00 deg 0.00 deg
Wood depth		: 0 (No woods.)
No of house rows		: 0 / 0
Surface		: 2 (Reflective ground surface)
Receiver source distance		: 112.29 / 112.29 m
Receiver height		: 10.80 / 10.80 m
Topography		: 1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle		: 0.00

↟
Results segment # 1: GIO (day)

LOCOMOTIVE (0.00 + 45.52 + 0.00) = 45.52 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	57.27	-8.74	-3.01	0.00	0.00	0.00	45.52

WHEEL (0.00 + 34.08 + 0.00) = 34.08 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	45.83	-8.74	-3.01	0.00	0.00	0.00	34.08

Segment Leq : 45.82 dBA

Total Leq All Segments: 45.82 dBA

↟
Results segment # 1: GIO (night)

LOCOMOTIVE (0.00 + -11.75 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	0.00	-8.74	-3.01	0.00	0.00	0.00	-11.75

WHEEL (0.00 + -11.75 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	0.00	-8.74	-3.01	0.00	0.00	0.00	-11.75

Segment Leq : 0.00 dBA

Total Leq All Segments: 0.00 dBA

↟
Road data, segment # 1: Burgar (day/night)

Car traffic volume : 2782/309 veh/TimePeriod *
Medium truck volume : 155/17 veh/TimePeriod *
Heavy truck volume : 155/17 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): 2762
Percentage of Annual Growth : 2.00
Number of Years of Growth : 11.00
Medium Truck % of Total Volume : 5.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Burgar (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 64.64 / 64.64 m

```
Receiver height           :  10.80 / 10.80  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Burgar (day)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.40 + 0.00) = 52.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  61.75   0.00  -6.34  -3.01   0.00   0.00   0.00  52.40
-------------------------------------------------------------------------------

Segment Leq : 52.40 dBA

Total Leq All Segments: 52.40 dBA

↟
Results segment # 1: Burgar (night)
-----------------------------------

Source height = 1.49 m

ROAD (0.00 + 45.82 + 0.00) = 45.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  55.17   0.00  -6.34  -3.01   0.00   0.00   0.00  45.82
-------------------------------------------------------------------------------

Segment Leq : 45.82 dBA

Total Leq All Segments: 45.82 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 53.26
                           (NIGHT): 45.82
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 31-12-2024 15:42:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2p.te Time Period: Day/Night 16/8 hours
Description: Predicted Noise Impact at R2_POW

Rail data, segment # 1: GIO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1.	2.6/0.0	16.0	1.0	30.0	Diesel	No

* The identified number of trains have been adjusted for
future growth using the following parameters:

Train type: No	Name	Unadj. Trains	Annual % Increase	Years of Growth
1.		2.0/0.0	2.50	10.00

Data for Segment # 1: GIO (day/night)

Angle1	Angle2	: -90.00 deg 90.00 deg
Wood depth		: 0 (No woods.)
No of house rows		: 0 / 0
Surface		: 2 (Reflective ground surface)
Receiver source distance		: 98.10 / 98.10 m
Receiver height		: 10.80 / 10.80 m
Topography		: 1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle		: 0.00

↟
Results segment # 1: GIO (day)

LOCOMOTIVE (0.00 + 49.11 + 0.00) = 49.11 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.27	-8.16	0.00	0.00	0.00	0.00	49.11

WHEEL (0.00 + 37.67 + 0.00) = 37.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	45.83	-8.16	0.00	0.00	0.00	0.00	37.67

Segment Leq : 49.41 dBA

Total Leq All Segments: 49.41 dBA

↟
Results segment # 1: GIO (night)

LOCOMOTIVE (0.00 + -8.16 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	0.00	-8.16	0.00	0.00	0.00	0.00	-8.16

WHEEL (0.00 + -8.16 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	0.00	-8.16	0.00	0.00	0.00	0.00	-8.16

Segment Leq : 0.00 dBA

Total Leq All Segments: 0.00 dBA

↟
Road data, segment # 1: Lincoln (day/night)

Car traffic volume : 13243/1471 veh/TimePeriod *
Medium truck volume :   736/82   veh/TimePeriod *
Heavy truck volume :   736/82   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): 13149
    Percentage of Annual Growth   :   2.00
    Number of Years of Growth   : 11.00
    Medium Truck % of Total Volume   :   5.00
    Heavy Truck % of Total Volume   :   5.00
    Day (16 hrs) % of Total Volume   : 90.00

Data for Segment # 1: Lincoln (day/night)

Angle1   Angle2   : -90.00 deg   0.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   0 / 0
Surface   :   2   (Reflective ground surface)
Receiver source distance : 177.86 / 177.86 m

```
Receiver height           :  10.80 / 10.80  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Lincoln (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.77 + 0.00) = 54.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  68.52   0.00 -10.74  -3.01   0.00   0.00   0.00  54.77
-------------------------------------------------------------------------------

Segment Leq : 54.77 dBA

Total Leq All Segments: 54.77 dBA

↟
Results segment # 1: Lincoln (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.24 + 0.00) = 48.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  61.99   0.00 -10.74  -3.01   0.00   0.00   0.00  48.24
-------------------------------------------------------------------------------

Segment Leq : 48.24 dBA

Total Leq All Segments: 48.24 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 55.88
                           (NIGHT): 48.24
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 31-12-2024 15:43:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 3p.te Time Period: Day/Night 16/8 hours
Description: Predicted Noise Impact at R3_POW

Rail data, segment # 1: GIO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1.	2.6/0.0	16.0	1.0	30.0	Diesel	No

* The identified number of trains have been adjusted for
future growth using the following parameters:

Train type: No	Name	Unadj. Trains	Annual % Increase	Years of Growth
1.		2.0/0.0	2.50	10.00

Data for Segment # 1: GIO (day/night)

Angle1	Angle2	: 0.00 deg 90.00 deg
Wood depth		: 0 (No woods.)
No of house rows		: 0 / 0
Surface		: 2 (Reflective ground surface)
Receiver source distance		: 113.16 / 113.16 m
Receiver height		: 10.80 / 10.80 m
Topography		: 1 (Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↑
Results segment # 1: GIO (day)

LOCOMOTIVE (0.00 + 45.48 + 0.00) = 45.48 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	57.27	-8.78	-3.01	0.00	0.00	0.00	45.48

WHEEL (0.00 + 34.04 + 0.00) = 34.04 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	45.83	-8.78	-3.01	0.00	0.00	0.00	34.04

Segment Leq : 45.78 dBA

Total Leq All Segments: 45.78 dBA

↟
Results segment # 1: GIO (night)

LOCOMOTIVE (0.00 + -11.79 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	0.00	-8.78	-3.01	0.00	0.00	0.00	-11.79

WHEEL (0.00 + -11.79 + 0.00) = 0.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	0.00	-8.78	-3.01	0.00	0.00	0.00	-11.79

Segment Leq : 0.00 dBA

Total Leq All Segments: 0.00 dBA

↟
Road data, segment # 1: Lincoln (day/night)

Car traffic volume : 13243/1471 veh/TimePeriod *
Medium truck volume :   736/82   veh/TimePeriod *
Heavy truck volume :   736/82   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): 13149
    Percentage of Annual Growth   :   2.00
    Number of Years of Growth   : 11.00
    Medium Truck % of Total Volume   :   5.00
    Heavy Truck % of Total Volume   :   5.00
    Day (16 hrs) % of Total Volume   : 90.00

Data for Segment # 1: Lincoln (day/night)

Angle1   Angle2   : -90.00 deg   90.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   0 / 0
Surface   :   2   (Reflective ground surface)
Receiver source distance : 176.37 / 176.37 m

```
Receiver height           :  10.80 / 10.80  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↑
Road data, segment # 2: Burgar (day/night)
-----------------------------------------
Car traffic volume  :  2782/309   veh/TimePeriod  *
Medium truck volume :   155/17    veh/TimePeriod  *
Heavy truck volume  :   155/17    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):   2762
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  11.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: Burgar (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  64.65 / 64.65  m
Receiver height           :  10.80 / 10.80  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↑
Results segment # 1: Lincoln (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 57.81 + 0.00) = 57.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  68.52   0.00 -10.70   0.00   0.00   0.00   0.00  57.81
-------------------------------------------------------------------------------

Segment Leq : 57.81 dBA

↑
Results segment # 2: Burgar (day)
```

Source height = 1.50 m

ROAD (0.00 + 52.40 + 0.00) = 52.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	61.75	0.00	-6.34	-3.01	0.00	0.00	0.00	52.40

Segment Leq : 52.40 dBA

Total Leq All Segments: 58.91 dBA

↟

Results segment # 1: Lincoln (night)

Source height = 1.50 m

ROAD (0.00 + 51.29 + 0.00) = 51.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	61.99	0.00	-10.70	0.00	0.00	0.00	0.00	51.29

Segment Leq : 51.29 dBA

↟

Results segment # 2: Burgar (night)

Source height = 1.49 m

ROAD (0.00 + 45.82 + 0.00) = 45.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	55.17	0.00	-6.34	-3.01	0.00	0.00	0.00	45.82

Segment Leq : 45.82 dBA

Total Leq All Segments: 52.37 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.11
(NIGHT): 52.37

STAMSON 5.0 NORMAL REPORT Date: 31-12-2024 15:44:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4p.te Time Period: Day/Night 16/8 hours
Description: Predicted Noise Impact at R4_POW

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

Car traffic volume : 13243/1471 veh/TimePeriod *
Medium truck volume : 736/82 veh/TimePeriod *
Heavy truck volume : 736/82 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): 13149
Percentage of Annual Growth : 2.00
Number of Years of Growth : 11.00
Medium Truck % of Total Volume : 5.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Lincoln (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 177.94 / 177.94 m
Receiver height : 10.80 / 10.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Burgar (day/night)

Car traffic volume : 2782/309 veh/TimePeriod *
Medium truck volume : 155/17 veh/TimePeriod *
Heavy truck volume : 155/17 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): 2762
Percentage of Annual Growth : 2.00

```
    Number of Years of Growth          :  11.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: Burgar (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  62.71 / 62.71  m
Receiver height           :  10.80 / 10.80  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠝
Results segment # 1: Lincoln (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.77 + 0.00) = 54.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  68.52   0.00 -10.74  -3.01   0.00   0.00   0.00  54.77
-------------------------------------------------------------------------------

Segment Leq : 54.77 dBA

🠝
Results segment # 2: Burgar (day)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.54 + 0.00) = 55.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  61.75   0.00  -6.21   0.00   0.00   0.00   0.00  55.54
-------------------------------------------------------------------------------

Segment Leq : 55.54 dBA

Total Leq All Segments: 58.18 dBA

🠝
Results segment # 1: Lincoln (night)
------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 48.24 + 0.00) = 48.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	61.99	0.00	-10.74	-3.01	0.00	0.00	0.00	48.24

Segment Leq : 48.24 dBA

↟

Results segment # 2: Burgar (night)

Source height = 1.49 m

ROAD (0.00 + 48.96 + 0.00) = 48.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	55.17	0.00	-6.21	0.00	0.00	0.00	0.00	48.96

Segment Leq : 48.96 dBA

Total Leq All Segments: 51.63 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 58.18
(NIGHT): 51.63

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APPENDIX F

SOUNDPLAN SAMPLE CALCULATION

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	I or A m,m²	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)
Receiver R1 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 52.3 dB(A) Leq,d 50.4 dB(A) Leq,e 50.4 dB(A) Leq,n 42.2 dB(A)																							
C1_Con1	Point	Leq,d			88.1	88.1		0.0	0.0	3	204.29	-57.2	-3.2	0.0	-0.4		0.0	0.0	30.3	0.0	0.0	0.0	30.3
C1_Con1	Point	Leq,e			88.1	88.1		0.0	0.0	3	204.29	-57.2	-3.2	0.0	-0.4		0.0	0.0	30.3	0.0	0.0	0.0	30.3
C1_Con1	Point	Leq,n			88.1	88.1		0.0	0.0	3	204.29	-57.2	-3.2	0.0	-0.4		0.0	0.0	30.3	0.0	0.0	0.0	30.3
C1_Con2	Point	Leq,d			86.9	86.9		0.0	0.0	3	205.53	-57.2	-3.2	0.0	-0.4		0.0	0.0	29.0	0.0	0.0	0.0	29.0
C1_Con2	Point	Leq,e			86.9	86.9		0.0	0.0	3	205.53	-57.2	-3.2	0.0	-0.4		0.0	0.0	29.0	0.0	0.0	0.0	29.0
C1_Con2	Point	Leq,n			86.9	86.9		0.0	0.0	3	205.53	-57.2	-3.2	0.0	-0.4		0.0	0.0	29.0	0.0	0.0	0.0	29.0
C1_Con3	Point	Leq,d			86.9	86.9		0.0	0.0	3	184.26	-56.3	-3.0	0.0	-0.4		0.0	0.0	30.2	0.0	0.0	0.0	30.2
C1_Con3	Point	Leq,e			86.9	86.9		0.0	0.0	3	184.26	-56.3	-3.0	0.0	-0.4		0.0	0.0	30.2	0.0	0.0	0.0	30.2
C1_Con3	Point	Leq,n			86.9	86.9		0.0	0.0	3	184.26	-56.3	-3.0	0.0	-0.4		0.0	0.0	30.2	0.0	0.0	0.0	30.2
C1_Con4	Point	Leq,d			86.9	86.9		0.0	0.0	3	180.94	-56.1	-3.0	0.0	-0.3		0.0	0.0	30.4	0.0	0.0	0.0	30.4
C1_Con4	Point	Leq,e			86.9	86.9		0.0	0.0	3	180.94	-56.1	-3.0	0.0	-0.3		0.0	0.0	30.4	0.0	0.0	0.0	30.4
C1_Con4	Point	Leq,n			86.9	86.9		0.0	0.0	3	180.94	-56.1	-3.0	0.0	-0.3		0.0	0.0	30.4	0.0	0.0	0.0	30.4
C1_Con5	Point	Leq,d			86.9	86.9		0.0	0.0	3	177.72	-56.0	-2.9	0.0	-0.3		0.0	0.0	30.6	0.0	0.0	0.0	30.6
C1_Con5	Point	Leq,e			86.9	86.9		0.0	0.0	3	177.72	-56.0	-2.9	0.0	-0.3		0.0	0.0	30.6	0.0	0.0	0.0	30.6
C1_Con5	Point	Leq,n			86.9	86.9		0.0	0.0	3	177.72	-56.0	-2.9	0.0	-0.3		0.0	0.0	30.6	0.0	0.0	0.0	30.6
C1_RTU1	Point	Leq,d			88.3	88.3		0.0	0.0	3	395.97	-62.9	-4.0	0.0	-0.8		0.0	0.0	23.6	0.0	0.0	0.0	23.6
C1_RTU1	Point	Leq,e			88.3	88.3		0.0	0.0	3	395.97	-62.9	-4.0	0.0	-0.8		0.0	0.0	23.6	0.0	0.0	0.0	23.6
C1_RTU1	Point	Leq,n			88.3	88.3		0.0	0.0	3	395.97	-62.9	-4.0	0.0	-0.8		0.0	0.0	23.6	-3.0	0.0	0.0	20.6
C1_RTU2	Point	Leq,d			88.3	88.3		0.0	0.0	3	384.33	-62.7	-4.0	0.0	-0.7		0.0	0.0	23.9	0.0	0.0	0.0	23.9
C1_RTU2	Point	Leq,e			88.3	88.3		0.0	0.0	3	384.33	-62.7	-4.0	0.0	-0.7		0.0	0.0	23.9	0.0	0.0	0.0	23.9
C1_RTU2	Point	Leq,n			88.3	88.3		0.0	0.0	3	384.33	-62.7	-4.0	0.0	-0.7		0.0	0.0	23.9	-3.0	0.0	0.0	20.9
C1_RTU3	Point	Leq,d			75.6	75.6		0.0	0.0	3	378.33	-62.5	-4.0	0.0	-0.7		0.0	0.0	11.3	0.0	0.0	0.0	11.3
C1_RTU3	Point	Leq,e			75.6	75.6		0.0	0.0	3	378.33	-62.5	-4.0	0.0	-0.7		0.0	0.0	11.3	0.0	0.0	0.0	11.3
C1_RTU3	Point	Leq,n			75.6	75.6		0.0	0.0	3	378.33	-62.5	-4.0	0.0	-0.7		0.0	0.0	11.3	-3.0	0.0	0.0	8.3
C1_RTU4	Point	Leq,d			88.3	88.3		0.0	0.0	3	371.06	-62.4	-4.0	0.0	-0.7		0.0	0.0	24.2	0.0	0.0	0.0	24.2
C1_RTU4	Point	Leq,e			88.3	88.3		0.0	0.0	3	371.06	-62.4	-4.0	0.0	-0.7		0.0	0.0	24.2	0.0	0.0	0.0	24.2
C1_RTU4	Point	Leq,n			88.3	88.3		0.0	0.0	3	371.06	-62.4	-4.0	0.0	-0.7		0.0	0.0	24.2	-3.0	0.0	0.0	21.2
C1_RTU5	Point	Leq,d			88.3	88.3		0.0	0.0	3	364.02	-62.2	-4.0	0.0	-0.7		0.0	0.0	24.4	0.0	0.0	0.0	24.4
C1_RTU5	Point	Leq,e			88.3	88.3		0.0	0.0	3	364.02	-62.2	-4.0	0.0	-0.7		0.0	0.0	24.4	0.0	0.0	0.0	24.4
C1_RTU5	Point	Leq,n			88.3	88.3		0.0	0.0	3	364.02	-62.2	-4.0	0.0	-0.7		0.0	0.0	24.4	-3.0	0.0	0.0	21.4
C1_RTU6	Point	Leq,d			75.6	75.6		0.0	0.0	3	357.91	-62.1	-4.0	0.0	-0.7		0.0	0.0	11.9	0.0	0.0	0.0	11.9
C1_RTU6	Point	Leq,e			75.6	75.6		0.0	0.0	3	357.91	-62.1	-4.0	0.0	-0.7		0.0	0.0	11.9	0.0	0.0	0.0	11.9

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_RTU6	Point	Leq,n			75.6	75.6		0.0	0.0	3	357.91	-62.1	-4.0	0.0	-0.7		0.0	0.0	11.9	-3.0	0.0	0.0	8.9
C1_RTU7	Point	Leq,d			75.6	75.6		0.0	0.0	3	349.96	-61.9	-3.9	0.0	-0.7		0.0	0.0	12.1	0.0	0.0	0.0	12.1
C1_RTU7	Point	Leq,e			75.6	75.6		0.0	0.0	3	349.96	-61.9	-3.9	0.0	-0.7		0.0	0.0	12.1	0.0	0.0	0.0	12.1
C1_RTU7	Point	Leq,n			75.6	75.6		0.0	0.0	3	349.96	-61.9	-3.9	0.0	-0.7		0.0	0.0	12.1	-3.0	0.0	0.0	9.1
C1_RTU8	Point	Leq,d			75.6	75.6		0.0	0.0	3	333.05	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU8	Point	Leq,e			75.6	75.6		0.0	0.0	3	333.05	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU8	Point	Leq,n			75.6	75.6		0.0	0.0	3	333.05	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	-3.0	0.0	0.0	9.6
C1_RTU9	Point	Leq,d			75.6	75.6		0.0	0.0	3	333.04	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU9	Point	Leq,e			75.6	75.6		0.0	0.0	3	333.04	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU9	Point	Leq,n			75.6	75.6		0.0	0.0	3	333.04	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	-3.0	0.0	0.0	9.6
C1_RTU10	Point	Leq,d			75.6	75.6		0.0	0.0	3	329.28	-61.3	-3.9	0.0	-0.6		0.0	0.0	12.7	0.0	0.0	0.0	12.7
C1_RTU10	Point	Leq,e			75.6	75.6		0.0	0.0	3	329.28	-61.3	-3.9	0.0	-0.6		0.0	0.0	12.7	0.0	0.0	0.0	12.7
C1_RTU10	Point	Leq,n			75.6	75.6		0.0	0.0	3	329.28	-61.3	-3.9	0.0	-0.6		0.0	0.0	12.7	-3.0	0.0	0.0	9.7
C1_RTU11	Point	Leq,d			75.6	75.6		0.0	0.0	3	328.49	-61.3	-3.9	0.0	-0.6		0.0	0.0	12.8	0.0	0.0	0.0	12.8
C1_RTU11	Point	Leq,e			75.6	75.6		0.0	0.0	3	328.49	-61.3	-3.9	0.0	-0.6		0.0	0.0	12.8	0.0	0.0	0.0	12.8
C1_RTU11	Point	Leq,n			75.6	75.6		0.0	0.0	3	328.49	-61.3	-3.9	0.0	-0.6		0.0	0.0	12.8	-3.0	0.0	0.0	9.8
C1_RTU12	Point	Leq,d			88.3	88.3		0.0	0.0	3	317.72	-61.0	-3.8	0.0	-0.6		0.0	0.0	25.8	0.0	0.0	0.0	25.8
C1_RTU12	Point	Leq,e			88.3	88.3		0.0	0.0	3	317.72	-61.0	-3.8	0.0	-0.6		0.0	0.0	25.8	0.0	0.0	0.0	25.8
C1_RTU12	Point	Leq,n			88.3	88.3		0.0	0.0	3	317.72	-61.0	-3.8	0.0	-0.6		0.0	0.0	25.8	-3.0	0.0	0.0	22.8
C1_RTU13	Point	Leq,d			88.3	88.3		0.0	0.0	3	313.99	-60.9	-3.8	0.0	-0.6		0.0	0.0	25.9	0.0	0.0	0.0	25.9
C1_RTU13	Point	Leq,e			88.3	88.3		0.0	0.0	3	313.99	-60.9	-3.8	0.0	-0.6		0.0	0.0	25.9	0.0	0.0	0.0	25.9
C1_RTU13	Point	Leq,n			88.3	88.3		0.0	0.0	3	313.99	-60.9	-3.8	0.0	-0.6		0.0	0.0	25.9	-3.0	0.0	0.0	22.9
C1_RTU14	Point	Leq,d			75.6	75.6		0.0	0.0	3	280.31	-59.9	-3.7	0.0	-0.5		0.0	0.0	14.4	0.0	0.0	0.0	14.4
C1_RTU14	Point	Leq,e			75.6	75.6		0.0	0.0	3	280.31	-59.9	-3.7	0.0	-0.5		0.0	0.0	14.4	0.0	0.0	0.0	14.4
C1_RTU14	Point	Leq,n			75.6	75.6		0.0	0.0	3	280.31	-59.9	-3.7	0.0	-0.5		0.0	0.0	14.4	-3.0	0.0	0.0	11.4
C1_RTU15	Point	Leq,d			75.6	75.6		0.0	0.0	3	265.12	-59.5	-3.7	0.0	-0.5		0.0	0.0	15.0	0.0	0.0	0.0	15.0
C1_RTU15	Point	Leq,e			75.6	75.6		0.0	0.0	3	265.12	-59.5	-3.7	0.0	-0.5		0.0	0.0	15.0	0.0	0.0	0.0	15.0
C1_RTU15	Point	Leq,n			75.6	75.6		0.0	0.0	3	265.12	-59.5	-3.7	0.0	-0.5		0.0	0.0	15.0	-3.0	0.0	0.0	12.0
C1_RTU16	Point	Leq,d			92.5	92.5		0.0	0.0	3	287.29	-60.2	-3.7	0.0	-0.6		0.0	0.0	31.1	0.0	0.0	0.0	31.1
C1_RTU16	Point	Leq,e			92.5	92.5		0.0	0.0	3	287.29	-60.2	-3.7	0.0	-0.6		0.0	0.0	31.1	0.0	0.0	0.0	31.1
C1_RTU16	Point	Leq,n			92.5	92.5		0.0	0.0	3	287.29	-60.2	-3.7	0.0	-0.6		0.0	0.0	31.1	-3.0	0.0	0.0	28.1
C1_RTU17	Point	Leq,d			88.3	88.3		0.0	0.0	3	275.73	-59.8	-3.7	0.0	-0.5		0.0	0.0	27.3	0.0	0.0	0.0	27.3
C1_RTU17	Point	Leq,e			88.3	88.3		0.0	0.0	3	275.73	-59.8	-3.7	0.0	-0.5		0.0	0.0	27.3	0.0	0.0	0.0	27.3

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_RTU17	Point	Leq,n			88.3	88.3		0.0	0.0	3	275.73	-59.8	-3.7	0.0	-0.5		0.0	0.0	27.3	-3.0	0.0	0.0	24.3
C1_RTU18	Point	Leq,d			75.6	75.6		0.0	0.0	3	265.12	-59.5	-3.7	0.0	-0.5		0.0	0.0	15.0	0.0	0.0	0.0	15.0
C1_RTU18	Point	Leq,e			75.6	75.6		0.0	0.0	3	265.12	-59.5	-3.7	0.0	-0.5		0.0	0.0	15.0	0.0	0.0	0.0	15.0
C1_RTU18	Point	Leq,n			75.6	75.6		0.0	0.0	3	265.12	-59.5	-3.7	0.0	-0.5		0.0	0.0	15.0	-3.0	0.0	0.0	12.0
C1_RTU19	Point	Leq,d			75.6	75.6		0.0	0.0	3	291.51	-60.3	-3.8	0.0	-0.6		0.0	0.0	14.0	0.0	0.0	0.0	14.0
C1_RTU19	Point	Leq,e			75.6	75.6		0.0	0.0	3	291.51	-60.3	-3.8	0.0	-0.6		0.0	0.0	14.0	0.0	0.0	0.0	14.0
C1_RTU19	Point	Leq,n			75.6	75.6		0.0	0.0	3	291.51	-60.3	-3.8	0.0	-0.6		0.0	0.0	14.0	-3.0	0.0	0.0	11.0
C1_RTU20	Point	Leq,d			88.3	88.3		0.0	0.0	3	273.62	-59.7	-3.7	0.0	-0.5		0.0	0.0	27.4	0.0	0.0	0.0	27.4
C1_RTU20	Point	Leq,e			88.3	88.3		0.0	0.0	3	273.62	-59.7	-3.7	0.0	-0.5		0.0	0.0	27.4	0.0	0.0	0.0	27.4
C1_RTU20	Point	Leq,n			88.3	88.3		0.0	0.0	3	273.62	-59.7	-3.7	0.0	-0.5		0.0	0.0	27.4	-3.0	0.0	0.0	24.3
C1_RTU21	Point	Leq,d			75.6	75.6		0.0	0.0	3	265.63	-59.5	-3.7	0.0	-0.5		0.0	0.0	14.9	0.0	0.0	0.0	14.9
C1_RTU21	Point	Leq,e			75.6	75.6		0.0	0.0	3	265.63	-59.5	-3.7	0.0	-0.5		0.0	0.0	14.9	0.0	0.0	0.0	14.9
C1_RTU21	Point	Leq,n			75.6	75.6		0.0	0.0	3	265.63	-59.5	-3.7	0.0	-0.5		0.0	0.0	14.9	-3.0	0.0	0.0	11.9
C1_RTU22	Point	Leq,d			88.3	88.3		0.0	0.0	3	289.90	-60.2	-3.7	0.0	-0.6		0.0	0.0	26.8	0.0	0.0	0.0	26.8
C1_RTU22	Point	Leq,e			88.3	88.3		0.0	0.0	3	289.90	-60.2	-3.7	0.0	-0.6		0.0	0.0	26.8	0.0	0.0	0.0	26.8
C1_RTU22	Point	Leq,n			88.3	88.3		0.0	0.0	3	289.90	-60.2	-3.7	0.0	-0.6		0.0	0.0	26.8	-3.0	0.0	0.0	23.7
C1_RTU23	Point	Leq,d			88.3	88.3		0.0	0.0	3	277.91	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.2	0.0	0.0	0.0	27.2
C1_RTU23	Point	Leq,e			88.3	88.3		0.0	0.0	3	277.91	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.2	0.0	0.0	0.0	27.2
C1_RTU23	Point	Leq,n			88.3	88.3		0.0	0.0	3	277.91	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.2	-3.0	0.0	0.0	24.2
C1_RTU24	Point	Leq,d			88.3	88.3		0.0	0.0	3	262.54	-59.4	-3.6	0.0	-0.5		0.0	0.0	27.8	0.0	0.0	0.0	27.8
C1_RTU24	Point	Leq,e			88.3	88.3		0.0	0.0	3	262.54	-59.4	-3.6	0.0	-0.5		0.0	0.0	27.8	0.0	0.0	0.0	27.8
C1_RTU24	Point	Leq,n			88.3	88.3		0.0	0.0	3	262.54	-59.4	-3.6	0.0	-0.5		0.0	0.0	27.8	-3.0	0.0	0.0	24.8
C1_RTU25	Point	Leq,d			88.3	88.3		0.0	0.0	3	254.13	-59.1	-3.6	0.0	-0.5		0.0	0.0	28.1	0.0	0.0	0.0	28.1
C1_RTU25	Point	Leq,e			88.3	88.3		0.0	0.0	3	254.13	-59.1	-3.6	0.0	-0.5		0.0	0.0	28.1	0.0	0.0	0.0	28.1
C1_RTU25	Point	Leq,n			88.3	88.3		0.0	0.0	3	254.13	-59.1	-3.6	0.0	-0.5		0.0	0.0	28.1	-3.0	0.0	0.0	25.1
C1_RTU26	Point	Leq,d			88.3	88.3		0.0	0.0	3	245.60	-58.8	-3.5	0.0	-0.5		0.0	0.0	28.5	0.0	0.0	0.0	28.5
C1_RTU26	Point	Leq,e			88.3	88.3		0.0	0.0	3	245.60	-58.8	-3.5	0.0	-0.5		0.0	0.0	28.5	0.0	0.0	0.0	28.5
C1_RTU26	Point	Leq,n			88.3	88.3		0.0	0.0	3	245.60	-58.8	-3.5	0.0	-0.5		0.0	0.0	28.5	-3.0	0.0	0.0	25.5
C1_RTU27	Point	Leq,d			75.6	75.6		0.0	0.0	3	253.41	-59.1	-3.6	0.0	-0.5		0.0	0.0	15.4	0.0	0.0	0.0	15.4
C1_RTU27	Point	Leq,e			75.6	75.6		0.0	0.0	3	253.41	-59.1	-3.6	0.0	-0.5		0.0	0.0	15.4	0.0	0.0	0.0	15.4
C1_RTU27	Point	Leq,n			75.6	75.6		0.0	0.0	3	253.41	-59.1	-3.6	0.0	-0.5		0.0	0.0	15.4	-3.0	0.0	0.0	12.4
C1_RTU28	Point	Leq,d			75.6	75.6		0.0	0.0	3	259.96	-59.3	-3.6	0.0	-0.5		0.0	0.0	15.2	0.0	0.0	0.0	15.2
C1_RTU28	Point	Leq,e			75.6	75.6		0.0	0.0	3	259.96	-59.3	-3.6	0.0	-0.5		0.0	0.0	15.2	0.0	0.0	0.0	15.2

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_RTU28	Point	Leq,n			75.6	75.6		0.0	0.0	3	259.96	-59.3	-3.6	0.0	-0.5		0.0	0.0	15.2	-3.0	0.0	0.0	12.2
C1_RTU29	Point	Leq,d			75.6	75.6		0.0	0.0	3	257.95	-59.2	-3.6	0.0	-0.5		0.0	0.0	15.2	0.0	0.0	0.0	15.2
C1_RTU29	Point	Leq,e			75.6	75.6		0.0	0.0	3	257.95	-59.2	-3.6	0.0	-0.5		0.0	0.0	15.2	0.0	0.0	0.0	15.2
C1_RTU29	Point	Leq,n			75.6	75.6		0.0	0.0	3	257.95	-59.2	-3.6	0.0	-0.5		0.0	0.0	15.2	-3.0	0.0	0.0	12.2
C1_RTU30	Point	Leq,d			88.3	88.3		0.0	0.0	3	251.51	-59.0	-3.6	0.0	-0.5		0.0	0.0	28.2	0.0	0.0	0.0	28.2
C1_RTU30	Point	Leq,e			88.3	88.3		0.0	0.0	3	251.51	-59.0	-3.6	0.0	-0.5		0.0	0.0	28.2	0.0	0.0	0.0	28.2
C1_RTU30	Point	Leq,n			88.3	88.3		0.0	0.0	3	251.51	-59.0	-3.6	0.0	-0.5		0.0	0.0	28.2	-3.0	0.0	0.0	25.2
C1_RTU31	Point	Leq,d			75.6	75.6		0.0	0.0	3	238.91	-58.6	-3.5	0.0	-0.5		0.0	0.0	16.1	0.0	0.0	0.0	16.1
C1_RTU31	Point	Leq,e			75.6	75.6		0.0	0.0	3	238.91	-58.6	-3.5	0.0	-0.5		0.0	0.0	16.1	0.0	0.0	0.0	16.1
C1_RTU31	Point	Leq,n			75.6	75.6		0.0	0.0	3	238.91	-58.6	-3.5	0.0	-0.5		0.0	0.0	16.1	-3.0	0.0	0.0	13.1
C1_RTU32	Point	Leq,d			75.6	75.6		0.0	0.0	3	229.70	-58.2	-3.4	0.0	-0.4		0.0	0.0	16.5	0.0	0.0	0.0	16.5
C1_RTU32	Point	Leq,e			75.6	75.6		0.0	0.0	3	229.70	-58.2	-3.4	0.0	-0.4		0.0	0.0	16.5	0.0	0.0	0.0	16.5
C1_RTU32	Point	Leq,n			75.6	75.6		0.0	0.0	3	229.70	-58.2	-3.4	0.0	-0.4		0.0	0.0	16.5	-3.0	0.0	0.0	13.5
C1_RTU33	Point	Leq,d			92.5	92.5		0.0	0.0	3	196.19	-56.8	-3.1	-2.5	-0.4		0.0	0.0	32.7	0.0	0.0	0.0	32.7
C1_RTU33	Point	Leq,e			92.5	92.5		0.0	0.0	3	196.19	-56.8	-3.1	-2.5	-0.4		0.0	0.0	32.7	0.0	0.0	0.0	32.7
C1_RTU33	Point	Leq,n			92.5	92.5		0.0	0.0	3	196.19	-56.8	-3.1	-2.5	-0.4		0.0	0.0	32.7	-3.0	0.0	0.0	29.7
C1_RTU34	Point	Leq,d			88.3	88.3		0.0	0.0	3	227.74	-58.1	-3.4	0.0	-0.4		0.0	0.0	29.3	0.0	0.0	0.0	29.3
C1_RTU34	Point	Leq,e			88.3	88.3		0.0	0.0	3	227.74	-58.1	-3.4	0.0	-0.4		0.0	0.0	29.3	0.0	0.0	0.0	29.3
C1_RTU34	Point	Leq,n			88.3	88.3		0.0	0.0	3	227.74	-58.1	-3.4	0.0	-0.4		0.0	0.0	29.3	-3.0	0.0	0.0	26.3
C1_RTU35	Point	Leq,d			75.6	75.6		0.0	0.0	3	228.33	-58.2	-3.4	0.0	-0.4		0.0	0.0	16.6	0.0	0.0	0.0	16.6
C1_RTU35	Point	Leq,e			75.6	75.6		0.0	0.0	3	228.33	-58.2	-3.4	0.0	-0.4		0.0	0.0	16.6	0.0	0.0	0.0	16.6
C1_RTU35	Point	Leq,n			75.6	75.6		0.0	0.0	3	228.33	-58.2	-3.4	0.0	-0.4		0.0	0.0	16.6	-3.0	0.0	0.0	13.6
C1_RTU36	Point	Leq,d			92.5	92.5		0.0	0.0	3	206.17	-57.3	-3.2	0.0	-0.4		0.0	0.0	34.6	0.0	0.0	0.0	34.6
C1_RTU36	Point	Leq,e			92.5	92.5		0.0	0.0	3	206.17	-57.3	-3.2	0.0	-0.4		0.0	0.0	34.6	0.0	0.0	0.0	34.6
C1_RTU36	Point	Leq,n			92.5	92.5		0.0	0.0	3	206.17	-57.3	-3.2	0.0	-0.4		0.0	0.0	34.6	-3.0	0.0	0.0	31.6
C1_RTU37	Point	Leq,d			92.5	92.5		0.0	0.0	3	176.85	-55.9	-2.9	0.0	-0.3		0.0	0.0	36.3	0.0	0.0	0.0	36.3
C1_RTU37	Point	Leq,e			92.5	92.5		0.0	0.0	3	176.85	-55.9	-2.9	0.0	-0.3		0.0	0.0	36.3	0.0	0.0	0.0	36.3
C1_RTU37	Point	Leq,n			92.5	92.5		0.0	0.0	3	176.85	-55.9	-2.9	0.0	-0.3		0.0	0.0	36.3	-3.0	0.0	0.0	33.3
C1_TRK1	Line	Leq,d			63.1	90.5	545.8	0.0	0.0	3	179.42	-56.1	-3.5	-2.9	-0.3		0.0	0.8	31.5	3.0	0.0	0.0	34.5
C1_TRK1	Line	Leq,e			63.1	90.5	545.8	0.0	0.0	3	179.42	-56.1	-3.5	-2.9	-0.3		0.0	0.8	31.5	3.0	0.0	0.0	34.5
C1_TRK1	Line	Leq,n			63.1	90.5	545.8	0.0	0.0	3	179.42	-56.1	-3.5	-2.9	-0.3		0.0	0.8	31.5	0.0	0.0	0.0	31.5
C2_PB1	Point	Leq,d			86.7	86.7		0.0	0.0	3	66.94	-47.5	0.0	-12.1	-0.1		0.0	0.0	29.7	0.0	0.0	0.0	29.7
C2_PB1	Point	Leq,e			86.7	86.7		0.0	0.0	3	66.94	-47.5	0.0	-12.1	-0.1		0.0	0.0	29.7	0.0	0.0	0.0	29.7

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	I or A m,m²	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)
C2_PB1	Point	Leq,n			86.7	86.7		0.0	0.0	3	66.94	-47.5	0.0	-12.1	-0.1		0.0	0.0	29.7	0.0	0.0	0.0	29.7
C2_TRK1	Line	Leq,d			63.1	89.9	478.6	0.0	0.0	3	44.30	-43.9	-0.1	0.0	-0.1		0.0	0.5	49.1	0.0	0.0	0.0	49.1
C2_TRK1	Line	Leq,e			63.1	89.9	478.6	0.0	0.0	3	44.30	-43.9	-0.1	0.0	-0.1		0.0	0.5	49.1	0.0	0.0	0.0	49.1
C2_TRK1	Line	Leq,n			63.1	89.9	478.6	0.0	0.0	3	44.30	-43.9	-0.1	0.0	-0.1		0.0	0.5	49.1		0.0		
Receiver R2 FI F2 dB(A) Lr,lim dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 51.6 dB(A) Leq,d 49.2 dB(A) Leq,e 49.2 dB(A) Leq,n 42.4 dB(A)																							
C1_Con1	Point	Leq,d			88.1	88.1		0.0	0.0	3	207.16	-57.3	-3.2	0.0	-0.4		0.0	0.0	30.2	0.0	0.0	0.0	30.2
C1_Con1	Point	Leq,e			88.1	88.1		0.0	0.0	3	207.16	-57.3	-3.2	0.0	-0.4		0.0	0.0	30.2	0.0	0.0	0.0	30.2
C1_Con1	Point	Leq,n			88.1	88.1		0.0	0.0	3	207.16	-57.3	-3.2	0.0	-0.4		0.0	0.0	30.2	0.0	0.0	0.0	30.2
C1_Con2	Point	Leq,d			86.9	86.9		0.0	0.0	3	208.69	-57.4	-3.2	0.0	-0.4		0.0	0.0	28.9	0.0	0.0	0.0	28.9
C1_Con2	Point	Leq,e			86.9	86.9		0.0	0.0	3	208.69	-57.4	-3.2	0.0	-0.4		0.0	0.0	28.9	0.0	0.0	0.0	28.9
C1_Con2	Point	Leq,n			86.9	86.9		0.0	0.0	3	208.69	-57.4	-3.2	0.0	-0.4		0.0	0.0	28.9	0.0	0.0	0.0	28.9
C1_Con3	Point	Leq,d			86.9	86.9		0.0	0.0	3	187.16	-56.4	-3.0	0.0	-0.4		0.0	0.0	30.1	0.0	0.0	0.0	30.1
C1_Con3	Point	Leq,e			86.9	86.9		0.0	0.0	3	187.16	-56.4	-3.0	0.0	-0.4		0.0	0.0	30.1	0.0	0.0	0.0	30.1
C1_Con3	Point	Leq,n			86.9	86.9		0.0	0.0	3	187.16	-56.4	-3.0	0.0	-0.4		0.0	0.0	30.1	0.0	0.0	0.0	30.1
C1_Con4	Point	Leq,d			86.9	86.9		0.0	0.0	3	183.92	-56.3	-3.0	0.0	-0.4		0.0	0.0	30.3	0.0	0.0	0.0	30.3
C1_Con4	Point	Leq,e			86.9	86.9		0.0	0.0	3	183.92	-56.3	-3.0	0.0	-0.4		0.0	0.0	30.3	0.0	0.0	0.0	30.3
C1_Con4	Point	Leq,n			86.9	86.9		0.0	0.0	3	183.92	-56.3	-3.0	0.0	-0.4		0.0	0.0	30.3	0.0	0.0	0.0	30.3
C1_Con5	Point	Leq,d			86.9	86.9		0.0	0.0	3	180.77	-56.1	-3.0	0.0	-0.3		0.0	0.0	30.4	0.0	0.0	0.0	30.4
C1_Con5	Point	Leq,e			86.9	86.9		0.0	0.0	3	180.77	-56.1	-3.0	0.0	-0.3		0.0	0.0	30.4	0.0	0.0	0.0	30.4
C1_Con5	Point	Leq,n			86.9	86.9		0.0	0.0	3	180.77	-56.1	-3.0	0.0	-0.3		0.0	0.0	30.4	0.0	0.0	0.0	30.4
C1_RTU1	Point	Leq,d			88.3	88.3		0.0	0.0	3	398.83	-63.0	-4.0	0.0	-0.8		0.0	0.0	23.5	0.0	0.0	0.0	23.5
C1_RTU1	Point	Leq,e			88.3	88.3		0.0	0.0	3	398.83	-63.0	-4.0	0.0	-0.8		0.0	0.0	23.5	0.0	0.0	0.0	23.5
C1_RTU1	Point	Leq,n			88.3	88.3		0.0	0.0	3	398.83	-63.0	-4.0	0.0	-0.8		0.0	0.0	23.5	-3.0	0.0	0.0	20.5
C1_RTU2	Point	Leq,d			88.3	88.3		0.0	0.0	3	387.37	-62.8	-4.0	0.0	-0.7		0.0	0.0	23.8	0.0	0.0	0.0	23.8
C1_RTU2	Point	Leq,e			88.3	88.3		0.0	0.0	3	387.37	-62.8	-4.0	0.0	-0.7		0.0	0.0	23.8	0.0	0.0	0.0	23.8
C1_RTU2	Point	Leq,n			88.3	88.3		0.0	0.0	3	387.37	-62.8	-4.0	0.0	-0.7		0.0	0.0	23.8	-3.0	0.0	0.0	20.8
C1_RTU3	Point	Leq,d			75.6	75.6		0.0	0.0	3	381.54	-62.6	-4.0	0.0	-0.7		0.0	0.0	11.2	0.0	0.0	0.0	11.2
C1_RTU3	Point	Leq,e			75.6	75.6		0.0	0.0	3	381.54	-62.6	-4.0	0.0	-0.7		0.0	0.0	11.2	0.0	0.0	0.0	11.2
C1_RTU3	Point	Leq,n			75.6	75.6		0.0	0.0	3	381.54	-62.6	-4.0	0.0	-0.7		0.0	0.0	11.2	-3.0	0.0	0.0	8.2
C1_RTU4	Point	Leq,d			88.3	88.3		0.0	0.0	3	374.44	-62.5	-4.0	0.0	-0.7		0.0	0.0	24.1	0.0	0.0	0.0	24.1
C1_RTU4	Point	Leq,e			88.3	88.3		0.0	0.0	3	374.44	-62.5	-4.0	0.0	-0.7		0.0	0.0	24.1	0.0	0.0	0.0	24.1
C1_RTU4	Point	Leq,n			88.3	88.3		0.0	0.0	3	374.44	-62.5	-4.0	0.0	-0.7		0.0	0.0	24.1	-3.0	0.0	0.0	21.1
C1_RTU5	Point	Leq,d			88.3	88.3		0.0	0.0	3	367.14	-62.3	-4.0	0.0	-0.7		0.0	0.0	24.3	0.0	0.0	0.0	24.3

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_RTU5	Point	Leq,e			88.3	88.3		0.0	0.0	3	367.14	-62.3	-4.0	0.0	-0.7		0.0	0.0	24.3	0.0	0.0	0.0	24.3
C1_RTU5	Point	Leq,n			88.3	88.3		0.0	0.0	3	367.14	-62.3	-4.0	0.0	-0.7		0.0	0.0	24.3	-3.0	0.0	0.0	21.3
C1_RTU6	Point	Leq,d			75.6	75.6		0.0	0.0	3	361.08	-62.1	-4.0	0.0	-0.7		0.0	0.0	11.8	0.0	0.0	0.0	11.8
C1_RTU6	Point	Leq,e			75.6	75.6		0.0	0.0	3	361.08	-62.1	-4.0	0.0	-0.7		0.0	0.0	11.8	0.0	0.0	0.0	11.8
C1_RTU6	Point	Leq,n			75.6	75.6		0.0	0.0	3	361.08	-62.1	-4.0	0.0	-0.7		0.0	0.0	11.8	-3.0	0.0	0.0	8.8
C1_RTU7	Point	Leq,d			75.6	75.6		0.0	0.0	3	353.38	-62.0	-3.9	0.0	-0.7		0.0	0.0	12.0	0.0	0.0	0.0	12.0
C1_RTU7	Point	Leq,e			75.6	75.6		0.0	0.0	3	353.38	-62.0	-3.9	0.0	-0.7		0.0	0.0	12.0	0.0	0.0	0.0	12.0
C1_RTU7	Point	Leq,n			75.6	75.6		0.0	0.0	3	353.38	-62.0	-3.9	0.0	-0.7		0.0	0.0	12.0	-3.0	0.0	0.0	9.0
C1_RTU8	Point	Leq,d			75.6	75.6		0.0	0.0	3	335.89	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.5	0.0	0.0	0.0	12.5
C1_RTU8	Point	Leq,e			75.6	75.6		0.0	0.0	3	335.89	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.5	0.0	0.0	0.0	12.5
C1_RTU8	Point	Leq,n			75.6	75.6		0.0	0.0	3	335.89	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.5	-3.0	0.0	0.0	9.5
C1_RTU9	Point	Leq,d			75.6	75.6		0.0	0.0	3	336.12	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.5	0.0	0.0	0.0	12.5
C1_RTU9	Point	Leq,e			75.6	75.6		0.0	0.0	3	336.12	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.5	0.0	0.0	0.0	12.5
C1_RTU9	Point	Leq,n			75.6	75.6		0.0	0.0	3	336.12	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.5	-3.0	0.0	0.0	9.5
C1_RTU10	Point	Leq,d			75.6	75.6		0.0	0.0	3	333.42	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU10	Point	Leq,e			75.6	75.6		0.0	0.0	3	333.42	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU10	Point	Leq,n			75.6	75.6		0.0	0.0	3	333.42	-61.5	-3.9	0.0	-0.6		0.0	0.0	12.6	-3.0	0.0	0.0	9.6
C1_RTU11	Point	Leq,d			75.6	75.6		0.0	0.0	3	332.69	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU11	Point	Leq,e			75.6	75.6		0.0	0.0	3	332.69	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	0.0	0.0	0.0	12.6
C1_RTU11	Point	Leq,n			75.6	75.6		0.0	0.0	3	332.69	-61.4	-3.9	0.0	-0.6		0.0	0.0	12.6	-3.0	0.0	0.0	9.6
C1_RTU12	Point	Leq,d			88.3	88.3		0.0	0.0	3	321.39	-61.1	-3.8	0.0	-0.6		0.0	0.0	25.7	0.0	0.0	0.0	25.7
C1_RTU12	Point	Leq,e			88.3	88.3		0.0	0.0	3	321.39	-61.1	-3.8	0.0	-0.6		0.0	0.0	25.7	0.0	0.0	0.0	25.7
C1_RTU12	Point	Leq,n			88.3	88.3		0.0	0.0	3	321.39	-61.1	-3.8	0.0	-0.6		0.0	0.0	25.7	-3.0	0.0	0.0	22.7
C1_RTU13	Point	Leq,d			88.3	88.3		0.0	0.0	3	318.01	-61.0	-3.8	0.0	-0.6		0.0	0.0	25.8	0.0	0.0	0.0	25.8
C1_RTU13	Point	Leq,e			88.3	88.3		0.0	0.0	3	318.01	-61.0	-3.8	0.0	-0.6		0.0	0.0	25.8	0.0	0.0	0.0	25.8
C1_RTU13	Point	Leq,n			88.3	88.3		0.0	0.0	3	318.01	-61.0	-3.8	0.0	-0.6		0.0	0.0	25.8	-3.0	0.0	0.0	22.8
C1_RTU14	Point	Leq,d			75.6	75.6		0.0	0.0	3	285.22	-60.1	-3.7	0.0	-0.5		0.0	0.0	14.2	0.0	0.0	0.0	14.2
C1_RTU14	Point	Leq,e			75.6	75.6		0.0	0.0	3	285.22	-60.1	-3.7	0.0	-0.5		0.0	0.0	14.2	0.0	0.0	0.0	14.2
C1_RTU14	Point	Leq,n			75.6	75.6		0.0	0.0	3	285.22	-60.1	-3.7	0.0	-0.5		0.0	0.0	14.2	-3.0	0.0	0.0	11.2
C1_RTU15	Point	Leq,d			75.6	75.6		0.0	0.0	3	269.66	-59.6	-3.7	0.0	-0.5		0.0	0.0	14.8	0.0	0.0	0.0	14.8
C1_RTU15	Point	Leq,e			75.6	75.6		0.0	0.0	3	269.66	-59.6	-3.7	0.0	-0.5		0.0	0.0	14.8	0.0	0.0	0.0	14.8
C1_RTU15	Point	Leq,n			75.6	75.6		0.0	0.0	3	269.66	-59.6	-3.7	0.0	-0.5		0.0	0.0	14.8	-3.0	0.0	0.0	11.8
C1_RTU16	Point	Leq,d			92.5	92.5		0.0	0.0	3	291.15	-60.3	-3.7	0.0	-0.6		0.0	0.0	30.9	0.0	0.0	0.0	30.9

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_RTU16	Point	Leq,e			92.5	92.5		0.0	0.0	3	291.15	-60.3	-3.7	0.0	-0.6		0.0	0.0	30.9	0.0	0.0	0.0	30.9
C1_RTU16	Point	Leq,n			92.5	92.5		0.0	0.0	3	291.15	-60.3	-3.7	0.0	-0.6		0.0	0.0	30.9	-3.0	0.0	0.0	27.9
C1_RTU17	Point	Leq,d			88.3	88.3		0.0	0.0	3	279.28	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.1	0.0	0.0	0.0	27.1
C1_RTU17	Point	Leq,e			88.3	88.3		0.0	0.0	3	279.28	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.1	0.0	0.0	0.0	27.1
C1_RTU17	Point	Leq,n			88.3	88.3		0.0	0.0	3	279.28	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.1	-3.0	0.0	0.0	24.1
C1_RTU18	Point	Leq,d			75.6	75.6		0.0	0.0	3	268.17	-59.6	-3.7	0.0	-0.5		0.0	0.0	14.8	0.0	0.0	0.0	14.8
C1_RTU18	Point	Leq,e			75.6	75.6		0.0	0.0	3	268.17	-59.6	-3.7	0.0	-0.5		0.0	0.0	14.8	0.0	0.0	0.0	14.8
C1_RTU18	Point	Leq,n			75.6	75.6		0.0	0.0	3	268.17	-59.6	-3.7	0.0	-0.5		0.0	0.0	14.8	-3.0	0.0	0.0	11.8
C1_RTU19	Point	Leq,d			75.6	75.6		0.0	0.0	3	293.46	-60.3	-3.8	0.0	-0.6		0.0	0.0	13.9	0.0	0.0	0.0	13.9
C1_RTU19	Point	Leq,e			75.6	75.6		0.0	0.0	3	293.46	-60.3	-3.8	0.0	-0.6		0.0	0.0	13.9	0.0	0.0	0.0	13.9
C1_RTU19	Point	Leq,n			75.6	75.6		0.0	0.0	3	293.46	-60.3	-3.8	0.0	-0.6		0.0	0.0	13.9	-3.0	0.0	0.0	10.9
C1_RTU20	Point	Leq,d			88.3	88.3		0.0	0.0	3	275.87	-59.8	-3.7	0.0	-0.5		0.0	0.0	27.3	0.0	0.0	0.0	27.3
C1_RTU20	Point	Leq,e			88.3	88.3		0.0	0.0	3	275.87	-59.8	-3.7	0.0	-0.5		0.0	0.0	27.3	0.0	0.0	0.0	27.3
C1_RTU20	Point	Leq,n			88.3	88.3		0.0	0.0	3	275.87	-59.8	-3.7	0.0	-0.5		0.0	0.0	27.3	-3.0	0.0	0.0	24.3
C1_RTU21	Point	Leq,d			75.6	75.6		0.0	0.0	3	267.10	-59.5	-3.7	0.0	-0.5		0.0	0.0	14.9	0.0	0.0	0.0	14.9
C1_RTU21	Point	Leq,e			75.6	75.6		0.0	0.0	3	267.10	-59.5	-3.7	0.0	-0.5		0.0	0.0	14.9	0.0	0.0	0.0	14.9
C1_RTU21	Point	Leq,n			75.6	75.6		0.0	0.0	3	267.10	-59.5	-3.7	0.0	-0.5		0.0	0.0	14.9	-3.0	0.0	0.0	11.9
C1_RTU22	Point	Leq,d			88.3	88.3		0.0	0.0	3	290.34	-60.3	-3.7	0.0	-0.6		0.0	0.0	26.7	0.0	0.0	0.0	26.7
C1_RTU22	Point	Leq,e			88.3	88.3		0.0	0.0	3	290.34	-60.3	-3.7	0.0	-0.6		0.0	0.0	26.7	0.0	0.0	0.0	26.7
C1_RTU22	Point	Leq,n			88.3	88.3		0.0	0.0	3	290.34	-60.3	-3.7	0.0	-0.6		0.0	0.0	26.7	-3.0	0.0	0.0	23.7
C1_RTU23	Point	Leq,d			88.3	88.3		0.0	0.0	3	278.56	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.2	0.0	0.0	0.0	27.2
C1_RTU23	Point	Leq,e			88.3	88.3		0.0	0.0	3	278.56	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.2	0.0	0.0	0.0	27.2
C1_RTU23	Point	Leq,n			88.3	88.3		0.0	0.0	3	278.56	-59.9	-3.7	0.0	-0.5		0.0	0.0	27.2	-3.0	0.0	0.0	24.2
C1_RTU24	Point	Leq,d			88.3	88.3		0.0	0.0	3	261.89	-59.4	-3.6	0.0	-0.5		0.0	0.0	27.8	0.0	0.0	0.0	27.8
C1_RTU24	Point	Leq,e			88.3	88.3		0.0	0.0	3	261.89	-59.4	-3.6	0.0	-0.5		0.0	0.0	27.8	0.0	0.0	0.0	27.8
C1_RTU24	Point	Leq,n			88.3	88.3		0.0	0.0	3	261.89	-59.4	-3.6	0.0	-0.5		0.0	0.0	27.8	-3.0	0.0	0.0	24.8
C1_RTU25	Point	Leq,d			88.3	88.3		0.0	0.0	3	254.67	-59.1	-3.6	0.0	-0.5		0.0	0.0	28.1	0.0	0.0	0.0	28.1
C1_RTU25	Point	Leq,e			88.3	88.3		0.0	0.0	3	254.67	-59.1	-3.6	0.0	-0.5		0.0	0.0	28.1	0.0	0.0	0.0	28.1
C1_RTU25	Point	Leq,n			88.3	88.3		0.0	0.0	3	254.67	-59.1	-3.6	0.0	-0.5		0.0	0.0	28.1	-3.0	0.0	0.0	25.1
C1_RTU26	Point	Leq,d			88.3	88.3		0.0	0.0	3	246.46	-58.8	-3.5	0.0	-0.5		0.0	0.0	28.5	0.0	0.0	0.0	28.5
C1_RTU26	Point	Leq,e			88.3	88.3		0.0	0.0	3	246.46	-58.8	-3.5	0.0	-0.5		0.0	0.0	28.5	0.0	0.0	0.0	28.5
C1_RTU26	Point	Leq,n			88.3	88.3		0.0	0.0	3	246.46	-58.8	-3.5	0.0	-0.5		0.0	0.0	28.5	-3.0	0.0	0.0	25.4
C1_RTU27	Point	Leq,d			75.6	75.6		0.0	0.0	3	255.90	-59.2	-3.6	0.0	-0.5		0.0	0.0	15.3	0.0	0.0	0.0	15.3

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_RTU27	Point	Leq,e			75.6	75.6		0.0	0.0	3	255.90	-59.2	-3.6	0.0	-0.5		0.0	0.0	15.3	0.0	0.0	0.0	15.3
C1_RTU27	Point	Leq,n			75.6	75.6		0.0	0.0	3	255.90	-59.2	-3.6	0.0	-0.5		0.0	0.0	15.3	-3.0	0.0	0.0	12.3
C1_RTU28	Point	Leq,d			75.6	75.6		0.0	0.0	3	262.38	-59.4	-3.7	0.0	-0.5		0.0	0.0	15.1	0.0	0.0	0.0	15.1
C1_RTU28	Point	Leq,e			75.6	75.6		0.0	0.0	3	262.38	-59.4	-3.7	0.0	-0.5		0.0	0.0	15.1	0.0	0.0	0.0	15.1
C1_RTU28	Point	Leq,n			75.6	75.6		0.0	0.0	3	262.38	-59.4	-3.7	0.0	-0.5		0.0	0.0	15.1	-3.0	0.0	0.0	12.1
C1_RTU29	Point	Leq,d			75.6	75.6		0.0	0.0	3	261.68	-59.3	-3.7	0.0	-0.5		0.0	0.0	15.1	0.0	0.0	0.0	15.1
C1_RTU29	Point	Leq,e			75.6	75.6		0.0	0.0	3	261.68	-59.3	-3.7	0.0	-0.5		0.0	0.0	15.1	0.0	0.0	0.0	15.1
C1_RTU29	Point	Leq,n			75.6	75.6		0.0	0.0	3	261.68	-59.3	-3.7	0.0	-0.5		0.0	0.0	15.1	-3.0	0.0	0.0	12.1
C1_RTU30	Point	Leq,d			88.3	88.3		0.0	0.0	3	256.20	-59.2	-3.6	0.0	-0.5		0.0	0.0	28.0	0.0	0.0	0.0	28.0
C1_RTU30	Point	Leq,e			88.3	88.3		0.0	0.0	3	256.20	-59.2	-3.6	0.0	-0.5		0.0	0.0	28.0	0.0	0.0	0.0	28.0
C1_RTU30	Point	Leq,n			88.3	88.3		0.0	0.0	3	256.20	-59.2	-3.6	0.0	-0.5		0.0	0.0	28.0	-3.0	0.0	0.0	25.0
C1_RTU31	Point	Leq,d			75.6	75.6		0.0	0.0	3	244.04	-58.7	-3.5	0.0	-0.5		0.0	0.0	15.9	0.0	0.0	0.0	15.9
C1_RTU31	Point	Leq,e			75.6	75.6		0.0	0.0	3	244.04	-58.7	-3.5	0.0	-0.5		0.0	0.0	15.9	0.0	0.0	0.0	15.9
C1_RTU31	Point	Leq,n			75.6	75.6		0.0	0.0	3	244.04	-58.7	-3.5	0.0	-0.5		0.0	0.0	15.9	-3.0	0.0	0.0	12.9
C1_RTU32	Point	Leq,d			75.6	75.6		0.0	0.0	3	235.29	-58.4	-3.4	0.0	-0.5		0.0	0.0	16.3	0.0	0.0	0.0	16.3
C1_RTU32	Point	Leq,e			75.6	75.6		0.0	0.0	3	235.29	-58.4	-3.4	0.0	-0.5		0.0	0.0	16.3	0.0	0.0	0.0	16.3
C1_RTU32	Point	Leq,n			75.6	75.6		0.0	0.0	3	235.29	-58.4	-3.4	0.0	-0.5		0.0	0.0	16.3	-3.0	0.0	0.0	13.3
C1_RTU33	Point	Leq,d			92.5	92.5		0.0	0.0	3	203.18	-57.1	-3.2	0.0	-0.4		0.0	0.0	34.8	0.0	0.0	0.0	34.8
C1_RTU33	Point	Leq,e			92.5	92.5		0.0	0.0	3	203.18	-57.1	-3.2	0.0	-0.4		0.0	0.0	34.8	0.0	0.0	0.0	34.8
C1_RTU33	Point	Leq,n			92.5	92.5		0.0	0.0	3	203.18	-57.1	-3.2	0.0	-0.4		0.0	0.0	34.8	-3.0	0.0	0.0	31.8
C1_RTU34	Point	Leq,d			88.3	88.3		0.0	0.0	3	232.73	-58.3	-3.4	0.0	-0.4		0.0	0.0	29.1	0.0	0.0	0.0	29.1
C1_RTU34	Point	Leq,e			88.3	88.3		0.0	0.0	3	232.73	-58.3	-3.4	0.0	-0.4		0.0	0.0	29.1	0.0	0.0	0.0	29.1
C1_RTU34	Point	Leq,n			88.3	88.3		0.0	0.0	3	232.73	-58.3	-3.4	0.0	-0.4		0.0	0.0	29.1	-3.0	0.0	0.0	26.1
C1_RTU35	Point	Leq,d			75.6	75.6		0.0	0.0	3	232.30	-58.3	-3.4	0.0	-0.4		0.0	0.0	16.4	0.0	0.0	0.0	16.4
C1_RTU35	Point	Leq,e			75.6	75.6		0.0	0.0	3	232.30	-58.3	-3.4	0.0	-0.4		0.0	0.0	16.4	0.0	0.0	0.0	16.4
C1_RTU35	Point	Leq,n			75.6	75.6		0.0	0.0	3	232.30	-58.3	-3.4	0.0	-0.4		0.0	0.0	16.4	-3.0	0.0	0.0	13.4
C1_RTU36	Point	Leq,d			92.5	92.5		0.0	0.0	3	210.26	-57.4	-3.2	0.0	-0.4		0.0	0.0	34.4	0.0	0.0	0.0	34.4
C1_RTU36	Point	Leq,e			92.5	92.5		0.0	0.0	3	210.26	-57.4	-3.2	0.0	-0.4		0.0	0.0	34.4	0.0	0.0	0.0	34.4
C1_RTU36	Point	Leq,n			92.5	92.5		0.0	0.0	3	210.26	-57.4	-3.2	0.0	-0.4		0.0	0.0	34.4	-3.0	0.0	0.0	31.4
C1_RTU37	Point	Leq,d			92.5	92.5		0.0	0.0	3	181.77	-56.2	-3.0	0.0	-0.4		0.0	0.0	36.0	0.0	0.0	0.0	36.0
C1_RTU37	Point	Leq,e			92.5	92.5		0.0	0.0	3	181.77	-56.2	-3.0	0.0	-0.4		0.0	0.0	36.0	0.0	0.0	0.0	36.0
C1_RTU37	Point	Leq,n			92.5	92.5		0.0	0.0	3	181.77	-56.2	-3.0	0.0	-0.4		0.0	0.0	36.0	-3.0	0.0	0.0	33.0
C1_TRK1	Line	Leq,d			63.1	90.5	545.8	0.0	0.0	3	185.84	-56.4	-3.5	-1.6	-0.3		0.0	1.0	32.6	3.0	0.0	0.0	35.6

Noise Impact Study
Mean propagation Leq - Single Points

Source	Source type	Time slice	Li	R'w	L'w	Lw	l or A	KI	KT	Ko	S	Adiv	Agr	Abar	Aatm	Amisc	ADI	dLrefl	Ls	dLw	Cmet	ZR	Lr
			dB(A)	dB	dB(A)	dB(A)	m,m²	dB	dB	dB	m	dB	dB	dB	dB	dB	dB	dB(A)	dB(A)	dB	dB	dB	dB(A)
C1_TRK1	Line	Leq,e			63.1	90.5	545.8	0.0	0.0	3	185.84	-56.4	-3.5	-1.6	-0.3		0.0	1.0	32.6	3.0	0.0	0.0	35.6
C1_TRK1	Line	Leq,n			63.1	90.5	545.8	0.0	0.0	3	185.84	-56.4	-3.5	-1.6	-0.3		0.0	1.0	32.6	0.0	0.0	0.0	32.6
C2_PB1	Point	Leq,d			86.7	86.7		0.0	0.0	3	75.45	-48.5	0.0	-10.4	-0.1		0.0	0.0	30.5	0.0	0.0	0.0	30.5
C2_PB1	Point	Leq,e			86.7	86.7		0.0	0.0	3	75.45	-48.5	0.0	-10.4	-0.1		0.0	0.0	30.5	0.0	0.0	0.0	30.5
C2_PB1	Point	Leq,n			86.7	86.7		0.0	0.0	3	75.45	-48.5	0.0	-10.4	-0.1		0.0	0.0	30.5	0.0	0.0	0.0	30.5
C2_TRK1	Line	Leq,d			63.1	89.9	478.6	0.0	0.0	3	53.35	-45.5	-0.2	0.0	-0.1		0.0	0.4	47.4	0.0	0.0	0.0	47.4
C2_TRK1	Line	Leq,e			63.1	89.9	478.6	0.0	0.0	3	53.35	-45.5	-0.2	0.0	-0.1		0.0	0.4	47.4	0.0	0.0	0.0	47.4
C2_TRK1	Line	Leq,n			63.1	89.9	478.6	0.0	0.0	3	53.35	-45.5	-0.2	0.0	-0.1		0.0	0.4	47.4		0.0		

Noise Impact Study
Octave spectra of the sources in dB(A) - Single Points

Name	Source type	l or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	500Hz dB(A)	
C1_Con1	Point				88.1	88.1	0.0	0.0		0	100%/24h		88.1	
C1_Con2	Point				86.9	86.9	0.0	0.0		0	100%/24h		86.9	
C1_Con3	Point				86.9	86.9	0.0	0.0		0	100%/24h		86.9	
C1_Con4	Point				86.9	86.9	0.0	0.0		0	100%/24h		86.9	
C1_Con5	Point				86.9	86.9	0.0	0.0		0	100%/24h		86.9	
C1_RTU1	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU2	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU3	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU4	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU5	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU6	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU7	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU8	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU9	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU10	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU11	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU12	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU13	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU14	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU15	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU16	Point				92.5	92.5	0.0	0.0		0	D60/N30 min		92.5	
C1_RTU17	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU18	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU19	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU20	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU21	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU22	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU23	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU24	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU25	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	

Noise Impact Study
Octave spectra of the sources in dB(A) - Single Points

Name	Source type	l or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	500Hz dB(A)	
C1_RTU26	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU27	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU28	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU29	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU30	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU31	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU32	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU33	Point				92.5	92.5	0.0	0.0		0	D60/N30 min		92.5	
C1_RTU34	Point				88.3	88.3	0.0	0.0		0	D60/N30 min		88.3	
C1_RTU35	Point				75.6	75.6	0.0	0.0		0	D60/N30 min		75.6	
C1_RTU36	Point				92.5	92.5	0.0	0.0		0	D60/N30 min		92.5	
C1_RTU37	Point				92.5	92.5	0.0	0.0		0	D60/N30 min		92.5	
C1_TRK1	Line	545.81			63.1	90.5	0.0	0.0		0	D2/N1 Events		90.5	
C2_PB1	Point				86.7	86.7	0.0	0.0		0	100%/24h		86.7	
C2_TRK1	Line	478.59			63.1	89.9	0.0	0.0		0	D1/N0 Events		89.9	

APPENDIX G

STATIONARY SOUCE 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)	Nightime (23:00 - 07:00)
Commercial 1										
C1_RTU1	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643684.59	4760666.90	185.80	6.8	60	30
C1_RTU2	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643672.58	4760665.32	185.80	6.8	60	30
C1_RTU3	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643666.15	4760663.14	185.60	6.6	60	30
C1_RTU4	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643658.45	4760661.14	185.80	6.8	60	30
C1_RTU5	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643652.36	4760667.49	185.80	6.8	60	30
C1_RTU6	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643646.18	4760667.58	185.60	6.6	60	30
C1_RTU7	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643637.64	4760664.65	185.60	6.6	60	30
C1_RTU8	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643622.55	4760677.69	185.60	6.6	60	30
C1_RTU9	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643621.95	4760673.62	185.60	6.6	60	30
C1_RTU10	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643615.08	4760656.64	185.60	6.6	60	30
C1_RTU11	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643614.07	4760655.71	185.60	6.6	60	30
C1_RTU12	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643605.29	4760666.85	185.80	6.8	60	30
C1_RTU13	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643600.58	4760662.07	185.80	6.8	60	30
C1_RTU14	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643564.90	4760656.81	185.60	6.6	60	30
C1_RTU15	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643551.43	4760665.91	185.60	6.6	60	30
C1_RTU16	Rooftop HVAC Unit (15-ton)	92.5	2.0	7.0	643575.00	4760670.38	186.00	7.0	60	30
C1_RTU17	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643564.50	4760677.37	185.80	6.8	60	30
C1_RTU18	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643555.15	4760686.26	185.60	6.6	60	30
C1_RTU19	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643583.06	4760697.98	185.60	6.6	60	30
C1_RTU20	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643564.89	4760695.85	185.80	6.8	60	30
C1_RTU21	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643557.82	4760707.50	185.60	6.6	60	30
C1_RTU22	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643582.57	4760720.41	185.80	6.8	60	30
C1_RTU23	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643570.55	4760717.98	185.80	6.8	60	30
C1_RTU24	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643554.94	4760736.18	185.80	6.8	60	30
C1_RTU25	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643546.81	4760720.71	185.99	6.8	60	30
C1_RTU26	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643538.22	4760717.22	186.23	6.8	60	30
C1_RTU27	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643544.53	4760695.60	185.77	6.6	60	30
C1_RTU28	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643551.12	4760695.58	185.60	6.6	60	30
C1_RTU29	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643546.66	4760678.59	185.60	6.6	60	30

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)	Nightime (23:00 - 07:00)
C1_RTU30	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643537.85	4760667.55	185.98	6.8	60	30
C1_RTU31	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643524.39	4760665.44	186.34	6.6	60	30
C1_RTU32	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643514.08	4760662.47	186.60	6.6	60	30
C1_RTU33	Rooftop HVAC Unit (15-ton)	92.5	2.0	7.0	643477.72	4760658.47	187.00	7.0	60	30
C1_RTU34	Rooftop HVAC Unit (10-ton)	88.3	1.8	6.8	643514.07	4760670.21	186.80	6.8	60	30
C1_RTU35	Rooftop HVAC Unit (4-ton)	75.6	1.6	6.6	643517.18	4760681.97	186.60	6.6	60	30
C1_RTU36	Rooftop HVAC Unit (15-ton)	92.5	2.0	7.0	643495.34	4760685.69	186.60	6.6	60	30
C1_RTU37	Rooftop HVAC Unit (15-ton)	92.5	2.0	7.0	643465.24	4760684.88	187.00	7.0	60	30
C1_Con1	Rooftop Condenser Unit (8-fan)	88.1	2.0	7.0	643495.48	4760698.90	187.00	7.0	60	60
C1_Con2	Rooftop Condenser Unit (6-fan)	86.9	2.0	7.0	643496.32	4760695.71	187.00	7.0	60	60
C1_Con3	Rooftop Condenser Unit (6-fan)	86.9	2.0	7.0	643475.68	4760702.00	187.00	7.0	60	60
C1_Con4	Rooftop Condenser Unit (6-fan)	86.9	2.0	7.0	643472.31	4760701.83	187.00	7.0	60	60
C1_Con5	Rooftop Condenser Unit (6-fan)	86.9	2.0	7.0	643469.05	4760701.71	187.00	7.0	60	60
C1_TRK1	Truck Movement	106.1	-	1.5	643498.73	4760565.58	181.50	1.5	2 events/hr	1 event/hr
Commercial 2										
C2_PB1	Paint Booth Stack	86.7	3.8	10.8	643355.83	4760701.36	190.80	10.8	60	60
C2_TRK1	Truck Movement	106.1	-	1.5	643313.63	4760564.53	181.50	1.5	1 event/hr	0

Noise Impact due to Commercial 1 against Class 1 Limits

Daytime/Evening	Receptors	
	R1	R2
East Façade - 4th Level	44.2	-
East Façade - 4th Level	-	44.4

Nighttime	Receptors	
	R1	R2
East Façade - 4th Level	42	-
East Façade - 4th Level	-	42.1

Noise Impact due to Commercial 2 against Class 1 Limits

Daytime/Evening	Receptors	
	R1	R2
East Façade - 4th Level	49.2	-
East Façade - 4th Level	-	47.5

Nighttime	Receptors	
	R1	R2
East Façade - 4th Level	29.7	-
East Façade - 4th Level	-	30.5