

**LAND USE COMPATIBILITY STUDY &  
AIR QUALITY STUDY**

**FOR**

**642 DUNLOP STREET WEST, BARRIE**

**SUBMITTED TO:**

2507517 Ontario Inc.  
12 Chiavatti Drive  
Markham, Ontario, L3R 1E2

**SUBMITTED BY:**

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

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## **1.0 INTRODUCTION**

2507517 Ontario Inc. (the “Client”) retained SONAIR Environmental Inc. (SONAIR) to prepare a Land Use Compatibility Study and an Air Quality Study in support of a Site Plan Control Application for a proposed mixed-use development located at 642 Dunlop Street West in Barrie. The proposal would introduce a sensitive land use to a residential, agricultural, commercial, and industrial area. At the request of the City of Barrie, a Land Use Compatibility Study and an Air Quality Study is required which covers the environmental aspects of noise, vibration, dust, and odour emissions.

In support of the Land Use Compatibility Study, detailed noise/vibration impact has been assessed and provided under separate covers prepared by Sirati & Partners Consultants Limited (SPCL).

The purpose of this assessment is to determine if noise, vibration, dust, and odour 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
- Ontario Regulation (O. Reg.) 419/05: Air Pollution – Local Air Quality

### **1.1 Subject Site**

The Client is proposing to develop the property located at 642 Dunlop Street West in Barrie. The proposed development is a sensitive land use, consisting of a 5-storey mixed-use condo building with a total of seventy-two (72) residential units.

The proposed development is currently zoned as General Commercial, and is surrounded by neighborhood, medium density, natural heritage system, greenspace, and employment land uses. The nearest existing residential area is approximately 388m North of the subject site; however, lands to the immediate North, and approximately 25m to the West are zoned Residential Hold (RH), and Residential Multiple Dwellings Second Density (RM2), respectively.

The surrounding land can be characterized as:

*Table 1 – Summary of Surrounding Land Use*

| Direction | Land Use                                            |
|-----------|-----------------------------------------------------|
| North     | Neighbourhood, Natural Heritage System, Greenspace  |
| East      | Employment, Natural Heritage System, Greenspace     |
| South     | Neighbourhood, Employment, Natural Heritage System  |
| West      | Medium Density, Employment, Natural Heritage System |

A zoning map for the City of Barrie is shown in Appendix A.

## 2.0 LAND USE COMPATIBILITY ASSESSMENT

### 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   | <b>NOISE:</b><br>Sound not audible off property.<br><b>DUST and/or ODOUR:</b><br>Infrequent and not intense.<br><b>VIBRATION:</b><br>No ground- borne vibration on plant property.                                          | - No outside storage<br>- 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<br>- Infrequent movement of products and/or heavy trucks                                                      |
| CLASS II  | <b>NOISE:</b><br>Sound occasionally audible off property.<br><b>DUST and/or ODOUR:</b><br>Frequent and occasionally intense.<br><b>VIBRATION:</b><br>Possible ground-borne vibration, but cannot be perceived off property. | - Outside storage permitted<br>- Medium level of production allowed                                                 | - Open process<br>- Periodic outputs of minor annoyance<br>- Low probability of fugitive emissions                  | - Shift operations permitted<br>- Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours |
| CLASS III | <b>NOISE:</b><br>Sound frequently audible off property.<br><b>DUST and/or ODOUR:</b><br>Persistent and/or intense.<br><b>VIBRATION:</b>                                                                                     | - Outside storage of raw and finished products<br>- Large production levels                                         | - Open process<br>- Frequent outputs of major annoyances<br>- High probability of fugitive emissions                | - Continuous movement of products and employees<br>- Daily shift operations permitted                                                   |

|  |                                                                  |  |  |  |
|--|------------------------------------------------------------------|--|--|--|
|  | Ground-borne vibration can frequently be perceived off property. |  |  |  |
|--|------------------------------------------------------------------|--|--|--|

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*

| <b>Class</b> | <b>Recommended Separation Distance</b> | <b>Potential Influence Area</b> |
|--------------|----------------------------------------|---------------------------------|
| 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 facility property line to a 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.

## 2.2 Summary of Facilities within the Study Area

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

*Table 4 – Study Area Facility Classification*

| <b>Facility</b>                         | <b>Address</b>                 | <b>Distance (m)</b> | <b>Operations</b>            | <b>ECA/EASR (Year)</b> | <b>MECP Industrial Class</b> | <b>Comments</b>                 |
|-----------------------------------------|--------------------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|
| MacEwen Car Wash                        | 652 Dunlop St W                | 21                  | Car Wash                     | -                      | I                            | Within Potential Influence Area |
| MacEwen Barrie                          | 652 Dunlop St W                | 21                  | Gas Station                  | -                      | I                            | Within Potential Influence Area |
| Subway                                  | 652 Dunlop St W                | 21                  | Restaurant                   | -                      | 0                            | No Adverse Impact               |
| Access Storage - Barrie Miller Drive    | 30 Miller Dr                   | 111                 | Self-Storage Facility        | -                      | 0                            | No Adverse Impact               |
| Miller Lumber                           | 662 Dunlop St W                | 185                 | Wood Supplier                | -                      | II                           | Within Potential Influence Area |
| The Tire Guys                           | 692 Dunlop St W                | 318                 | Used Tire Shop               | -                      | I                            | Acceptable Range                |
| RAES Auto Sales                         | 692 Dunlop St W                | 318                 | Used Car Dealer              | -                      | 0                            | No Adverse Impact               |
| Beyond Trailer Sales                    | 752 Dunlop St W                | 458                 | Trailer Dealer               | -                      | 0                            | No Adverse Impact               |
| Rudy Mak Surveying Ltd                  | 732 Dunlop St W                | 543                 | Land Surveyor                | -                      | 0                            | No Adverse Impact               |
| Bradford Greenhouses Garden Gallery     | 4346 County Rd 90, Springwater | 746                 | Garden Centre                | -                      | I                            | Acceptable Range                |
| ASE Mobile Storage                      | 687 Dunlop St W                | 256                 | Storage Facility             | -                      | 0                            | No Adverse Impact               |
| Mits Airconditioning Inc. Barrie Branch | 691 Dunlop St W                | 285                 | General Contractor           | -                      | I                            | Acceptable Range                |
| Lafarge Aggregates                      | 701 Dunlop St W                | 329                 | Aggregate Supplier           | -                      | III                          | Within Potential Influence Area |
| Carr Landscape Depot                    | 653 Dunlop St W                | 103                 | Landscape Material Supplier  | -                      | II                           | Within Potential Influence Area |
| Simcoe Hose & Hydraulic                 | 551 Tiffin St                  | 104                 | Hydraulic Repair Service     | -                      | I                            | Acceptable Range                |
| Commercial Fleet Parking                | 545 Tiffin St                  | 159                 | Commercial Fleet Parking Lot | -                      | I                            | Acceptable Range                |

| Facility                            | Address         | Distance (m) | Operations                      | ECA/EASR (Year)         | MECP Industrial Class | Comments                        |
|-------------------------------------|-----------------|--------------|---------------------------------|-------------------------|-----------------------|---------------------------------|
| Big Blue Bins                       | 636 Dunlop St W | 0            | Bin Rental Service              | R-004-2507957283 (2015) | I                     | Recommended Min Not Met         |
| United Rentals                      | 630 Dunlop St W | 30           | Equipment Rental Agency         | -                       | I                     | Within Potential Influence Area |
| Bobcat of Barrie                    | 614 Dunlop St W | 137          | Construction Equipment Supplier | -                       | I                     | Acceptable Range                |
| Heavy's BMX Shop                    | 514 Tiffin St   | 396          | Bicycle Shop                    | -                       | 0                     | No Adverse Impact               |
| Guaranteed Services                 | 472 Tiffin St   | 586          | Waste Disposal Services         | -                       | I                     | Acceptable Range                |
| D&A Towing & Storage                | 462 Tiffin St,  | 690          | Towing Equipment Supplier       | -                       | I                     | Acceptable Range                |
| A&A Auto Wreckers                   | 456 Tiffin St   | 733          | Auto Wrecker                    | R-007-1112280247 (2020) | I                     | Acceptable Range                |
| A&A Auto Wreckers                   | 452 Tiffin St   | 781          | Auto Wrecker                    | -                       | I                     | Acceptable Range                |
| A&A Auto Wreckers & Metal Recyclers | 440 Tiffin St   | 754          | Auto Wrecker & Metal Recycler   | -                       | II                    | Acceptable Range                |
| Humber Aggregates & Soil Mixture    | 434 Tiffin St   | 843          | Aggregate Supplier              | -                       | II                    | Acceptable Range                |
| OrvAuto Accessories                 | 434 Tiffin St   | 843          | Window Tinting Service          | -                       | I                     | Acceptable Range                |
| Dan Miller Cabinets Inc.            | 428 Tiffin St   | 936          | Cabinet Maker                   | -                       | I                     | Acceptable Range                |
| Halls Service Center                | 428 Tiffin St   | 936          | Auto Repair Shop                | -                       | I                     | Acceptable Range                |
| Terry & Marsh's 24 Hour Towing      | 422 Tiffin St   | 967          | Towing Service                  | -                       | I                     | Acceptable Range                |
| RSA Auto Parts                      | 521 Dunlop St W | 807          | Auto Parts Store                | -                       | I                     | Acceptable Range                |
| Homegrown Hydroponics Inc.          | 521 Dunlop St W | 807          | Hydroponics Supplier            | -                       | 0                     | No Adverse Impact               |
| Northern Air Quality Services       | 521 Dunlop St W | 807          | Environmental Consultant        | -                       | 0                     | No Adverse Impact               |

| Facility                                  | Address         | Distance (m) | Operations                        | ECA/EASR (Year)        | MECP Industrial Class | Comments         |
|-------------------------------------------|-----------------|--------------|-----------------------------------|------------------------|-----------------------|------------------|
| Highway 90 Signs & Printing               | 521 Dunlop St W | 807          | Sign Shop                         | -                      | I                     | Acceptable Range |
| Muffler Medic                             | 521 Dunlop St W | 807          | Auto Repair Shop                  | -                      | I                     | Acceptable Range |
| Radiant Auto Repair                       | 521 Dunlop St W | 807          | Auto Repair Shop                  | -                      | I                     | Acceptable Range |
| Marshall Automotive - Auto Service Centre | 521 Dunlop St W | 807          | Auto Repair Shop                  | -                      | I                     | Acceptable Range |
| Bardon Supplies                           | 500 Dunlop St W | 963          | Plumbing Supply Store             | -                      | I                     | Acceptable Range |
| 1000112488 Ontario Inc.                   | 8 Raynolds Lane | 880          | Waste Management Systems Services | R004-5115214577 (2023) | I                     | Acceptable Range |

*Note: Class 0 is neither Class I, II, nor III and is not anticipated to adversely impact the proposed development.*

### **3.0 IDENTIFIED FACILITIES WITH POTENTIAL IMPACTS**

Based on the study area within a 1000m radius, four (4) Class I, two (2) Class II, and one (1) Class III facilities were identified as having potential for an adverse impact as a result of the proposed development.

#### **3.1 MacEwen Car Wash & MacEwen Barrie**

MacEwen Barrie, which is a gas station, is located on the same property as the MacEwen Car Wash at 652 Dunlop Street West, approximately 21m to the Southwest of the proposed development. Both, the gas station and the car wash are expected to operate throughout the day. This facility has been classified as a Class I facility based on a small-scale facility and nature of its operations. This facility is located within the potential influence area, but beyond the minimum separation distance.

A site visit was conducted by staff at SONAIR on December 13<sup>th</sup>, 2023 where no dust, odour or noise/vibration concerns were identified. A search in the MECP approval database returned no results for this facility.

Dust emissions from vehicles entering and exiting the site are not anticipated to be a concern given that all on-site roadways are paved.

Odour emissions are also considered infrequent and are typically only perceptible in close proximity to the gas pumps when fueling, but not off-property. Given the distance between the gas bar and the proposed development, it is unlikely that potential odour emissions from the facility will impact the subject site.

Noise can be generated from the car wash, particularly from any rooftop equipment, vehicle idling, blowers/dryers, tire inflator, and vacuums. The impact from these sources will be investigated in the noise study prepared by SPCL.

#### **3.2 Miller Lumber**

Miller Lumber is a supplier of wood products, such as shavings, lumber, mulch, firewood, top soil and wood posts, located at 662 Dunlop Street West, approximately 185m to the Southwest of the proposed development. The facility is only expected to operate during the daytime. This facility has been classified as a Class II facility based on a medium-scale facility and nature of its operations, where outdoor storage of wood products can be identified, and fugitive emissions can

be generated from unpaved roadways due to movement of vehicles and equipment. This facility is located within the potential influence area, but beyond the minimum separation distance.

Based on the site visit conducted by staff at SONAIR, no dust, odour or noise/vibration concerns were identified. However, it is anticipated that fugitive dust may potentially be generated from vehicles and equipment being operated on the unpaved roadways of the site during the summer months. A search in the MECP approval database returned no results for this facility.

Fugitive dust emissions are expected from this facility, resulting from the grinder and unpaved roadways. However, it is not anticipated that the products being stored, and operations are significant sources of odour emissions.

Based on site operations, noise may also be generated from mobile grinders as well as vehicles and other mobile equipment used in support of its operations. The impact from these sources will be investigated in the noise study prepared by SPCL.

### 3.3 **Lafarge Aggregates**

Lafarge Aggregates is a supplier of aggregate materials located at 701 Dunlop Street West, approximately 329m to the Southwest of the proposed development. The facility is only expected to operate during the daytime. This facility has been classified as a Class III facility based on a large-scale facility and nature of its operations, where significant outdoor aggregate stockpiles can be identified, and fugitive emissions can be generated from unpaved roadways due to movement of vehicles and equipment as well as material handling, stockpiling, and loading and unloading operations. This facility is located within the potential influence area, but beyond the minimum separation distance.

Based on the site visit conducted by staff at SONAIR, fugitive dusts can be seen from vehicle movements on unpaved roadways. A search in the MECP approval database yielded no results for this facility.

Odour was not a concern during the visit and is not anticipated to be an issue given that the material stockpiles and the on-site processes are not significant sources of odour.

Noise may be generated from on-site equipment and operations, and may be audible off-property. However, existing residential dwellings along Dunlop Street West are located much

closer in proximity and are expected to be more adversely impacted than the proposed development. The existing residential dwellings are located roughly 41m across the road to the North as well as 164m to the East of the facility. While the proposed development is located beyond the minimum recommended separation distance, the existing residential dwellings fall within.

Based on the above rationale, the addition of the proposed development as a new sensitive land use will not introduce new regulatory requirements for the facility, as there is already an obligation for the facility to meet the air and noise standards at their property line and at sensitive receptors in closer proximity.

### **3.4 Carr Landscape Depot**

Carr Landscape Depot is a supplier of landscaping materials, such as paver stones, aggregates and sand, located at 653 Dunlop Street West, approximately 103m to the South of the proposed development. The facility is only expected to operate during the daytime. This facility has been classified as a Class II facility based on a medium-scale facility and nature of its operations, where outdoor storage of aggregate and sand stockpiles can be identified, and fugitive emissions can be generated from unpaved roadways due to movement of vehicles and equipment as well as material handling, stockpiling, and loading and unloading operations. This facility is located within the potential influence area, but beyond the minimum separation distance.

Based on the site visit conducted by staff at SONAIR, fugitive dusts can be seen from vehicle movements on unpaved roadways. A search in the MECP approval database yielded no results for this facility.

An existing residential dwelling along Dunlop Street West is located much closer in proximity and is expected to be more adversely impacted than the proposed development. The existing residential dwellings is located to the immediate Northwest of the facility. While the proposed development is located beyond the minimum recommended separation distance, the existing residential dwelling fall within.

Based on the above rationale, the addition of the proposed development as a new sensitive land use will not introduce new regulatory requirements for the facility, as there is already an

obligation for the facility to meet the air and noise standards at their property line and at the sensitive receptor in closer proximity.

Odour was not a concern during the visit and is not anticipated to be an issue given that the material stockpiles and the on-site processes are not significant sources of odour.

Based on site operations, noise may also be generated from on-site vehicles and mobile equipment used in support of its operations. The impact from these sources will be investigated in the noise study prepared by SPCL.

### 3.5 **Big Blue Bins**

Big Blue Bins is a bins rental company that provides empty waste disposal bins for its customers ranging from 4 yard to 20 yard, located at 636 Dunlop Street West, to the immediate East of the proposed development. The facility is only expected to operate during the daytime. This facility has been classified as a Class I facility based on a small-scale facility and nature of its operations, where the site is only used for bin and vehicle storage.

Based on the site visit conducted by staff at SONAIR, no dust, odour or noise/vibration concerns were identified.

A search in the MECP approval database shows that this site has been issued an EASR (R-004-2507957283) for Waste Management Systems on May 29, 2015, to permit the site to be used as a waste transportation vehicle storage yard, as shown in Appendix C.

The EASR was issued for Southshore Group Inc; however, upon detailed research through its website, it was noted that Big Blue Bins is the sister company to Southshore Group Inc.; therefore, it is believed that Big Blue Bins is currently operating under the existing EASR issued for Southshore Group Inc.

Dust and odour emissions are not anticipated to be a concern given that on-site roadways are paved and empty disposal bins are not considered significant sources of odour.

Noise can be generated from empty bins dropping and associated activities. The impact from these sources will be investigated in the noise study prepared by SPCL.

### **3.6 United Rentals**

United Rentals is an equipment rental agency, located at 630 Dunlop Street West, approximately 30m to the East of the proposed development. The facility is only expected to operate during the daytime. This facility has been classified as a Class I facility based on a small-scale facility and nature of its operations, where the site is anticipated to be only used for vehicle and equipment storage for rental purposes as well as repair and maintenance. This facility is located within the potential influence area, but beyond the minimum separation distance.

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

Dust and odour emissions are not anticipated to be a concern given that on-site roadways are paved and its activities and operations are not expected to be significant sources of odour.

Noise may be generated from rooftop units, on-site equipment and vehicles movements. The impact from these sources will be investigated in the noise study prepared by SPCL.

### **4.0 METEOROLOGICAL DATA**

A wind rose has also been developed from local meteorological conditions, attached in Appendix B, to determine the frequency of wind occurrences that blows from the facilities to the proposed development. Based on a historical 5-year (41,240 hours) local weather data obtained for 2019-2023 from the EGBERT CS weather station (Climate ID 611001), prevailing winds are blowing from the Northwest and North-northwest.

The proposed development is located outside of the prevailing wind where emissions, if any, from all identified facilities of concern, are generally directed away from the proposed development.

MacEwen Barrie (gas bar) is located to the West of the proposed development. Wind is anticipated to be blown from the Southwest and West-Southwest towards the proposed development roughly 11% of the time.

Miller Lumber is located further West of the proposed development. Wind is anticipated to be blown from the West-southwest through West-northwest towards the proposed development roughly 16% of the time.

Lafarge Aggregates is located to the Southwest of the proposed development. Wind is anticipated to be blown from the Southwest and South-Southwest towards the proposed development roughly 13% of the time.

Carr Landscape Depot is located to the South of the proposed development. Wind is anticipated to be blown from the South towards the proposed development roughly 12% of the time.

Big Blue Bins and United Rentals are located to the Northeast of the proposed development. Wind from both facilities is anticipated to be blown from the East through North-northeast towards the proposed development roughly 9% of the time.

## 5.0 TRAFFIC-RELATED AIR POLLUTION

Based on the City of Toronto’s report titled “Reducing Health Risks from Traffic-Related Air Pollution (TRAP) in Toronto”, the health risk associated with TRAP on sensitive receptors is greater in highly urbanized areas. The report denotes that major highways within 500m of a proposed development with an average daily traffic volume of 100,000 vehicles or more, highways within 150 m with an average daily traffic volume of 50,000 vehicles or more, and arterial roads within 100m of a proposed development with an average daily traffic volume of 15,000 vehicles or more have a greater risk for TRAP impacting a nearby sensitive receptor.

### 5.1 Road Traffic Volumes

The subject site is abutting Dunlop Street West and Miller Drive. Dunlop Street West and Miller Drive/Tiffin Street are all within 100m of the proposed development. Based on the most recent data provided by the City of Barrie to SPCL in support of the noise study, the traffic volume was forecasted to 2041, as shown in the table below, to determine the impact from vehicle emissions from an air quality perspective.

*Table 5 – Current and Forecasted Road Traffic Volumes*

| Roadways                            | AADT   |        | Growth Rate  |              | Trucks | Truck Ratio<br>(Med:Heav) |
|-------------------------------------|--------|--------|--------------|--------------|--------|---------------------------|
|                                     | (2023) | (2041) | (until 2031) | (after 2031) |        |                           |
| Dunlop Street W<br>(East of Miller) | 17,000 | 29,470 | 4.5%         | 2.0%         | 12%    | 6:4                       |
| Dunlop Street W                     | 22,000 | 38,138 | 4.5%         | 2.0%         | 14.5%  | 6:4                       |

|                  |       |        |      |      |      |     |
|------------------|-------|--------|------|------|------|-----|
| (West of Miller) |       |        |      |      |      |     |
| Tiffin Street    | 6,700 | 10,755 | 3.5% | 2.0% | 7.5% | 6:4 |
| Miller Drive     | 5,000 | 5,981  | 1.0% | 1.0% | 3.0% | 6:4 |

Based on the above table, TRAP is not considered significant for Tiffin Street and Miller Drive given that the forecasted AADT data will be under the threshold; however, the existing traffic data for Dunlop Street West already exceeds the 15,000 vehicles and will continue to increase over the years. Therefore, TRAP assessment for Dunlop Street West is warranted.

## 5.2 Emission Estimates

Emissions of particulate matter from vehicles travelling on paved roadways were estimated based on emission factors obtained from US EPA AP-42 “Paved Roads”, Chapter 13.2.1, October 2002.

Emission factors for NO<sub>2</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, Acetaldehyde, Acrolein, Benzene, 1,3-Butadiene, Formaldehyde, and Benzo(a)Pyrene were obtained from the US EPA Motor Vehicle Emission Simulator (MOVES), version 4.0 model.

## 5.3 Model Input Information

### 5.3.1 MOVES Model Input

MOVES 4.0 is a recognized model by the Ministry of Transportation (MTO) for similar studies and was used to develop emission factors of contaminants from vehicles due to brake and tire wear, fuel evaporation, refuelling leaks etc. The analysis was based on the forecasted AADT data for Dunlop Street West using vehicle information per Table 5.

The following input parameters were used within the MOVES model:

*Table 6 – MOVES Input Parameters*

| Parameters | Input Information               |
|------------|---------------------------------|
| Scale      | County, On-road, Emission Rates |
| Year       | 2024, 2041                      |
| Month      | January, July                   |

|                  |                                                                                                                                                 |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Road Type        | Rural Unrestricted                                                                                                                              |
| Fuels            | Gasoline/Diesel                                                                                                                                 |
| Source Use Type  | Passenger Car / Light Commercial Truck<br>/ Combination Long Haul Truck                                                                         |
| Pollutants       | CO, NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , Acetaldehyde,<br>Acrolein, Benzene, 1,3-Butadiene,<br>Formaldehyde, Benzo(a)Pyrene |
| Meteorology      | Temperature and Relative Humidity<br>obtained from Environment Canada Met<br>Station                                                            |
| Age Distribution | MOVES Default for the years                                                                                                                     |

### 5.3.2 AERMOD Model Input

The dispersion modelling was conducted using AERMOD (v.22112) to predict maximum POI concentrations resulting from TRAP at identified sensitive receptors. A five (5) year data set of hourly meteorological readings for the Southwest Region was used in the AERMOD model, and the SUBURBAN land-use as well as the Rural dispersion coefficient was selected.

A unitized approach was used for the modelling in order to generate maximum dispersion factors for various averaging periods and multiply them with the emission rates to determine the Point of Impingement (POI) concentration for each identified contaminant. Non-unitized approach was used for the modelling of NO<sub>2</sub> for a more representative prediction scenario.

## 5.4 Receptors

Discrete receptors were placed on the East, South, and West facades of the proposed building. The proposed development will consist of 5-storeys, up to a maximum of 14m in height; therefore, each floor was assumed to be 2.8m in height. A flagpole receptor was placed on each floor and to the East, South, and West of the building.

## 5.5 Ambient Air Quality Criteria/Standard

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

*Table 5 – Ontario and Canadian Ambient Air Quality Criteria/Standard*

| Pollutant         | Averaging Period | Criteria/Standard (µg/m3) |
|-------------------|------------------|---------------------------|
| NO <sub>2</sub>   | 1-hr             | 79 (CAAQS)                |
|                   | 24-hr            | 200                       |
|                   | Annual           | 23 (CAAQS)                |
| CO                | 1-hr             | 36,200                    |
|                   | 8-hr             | 15,700                    |
| TSP               | 24-hr            | 120                       |
|                   | Annual           | 60                        |
| PM <sub>10</sub>  | 24-hr            | 50                        |
| PM <sub>2.5</sub> | 24-hr            | 27                        |
|                   | Annual           | 8.8                       |
| Acrolein          | 1-hr             | 4.5                       |
|                   | 24-hr            | 0.4                       |
| Acetaldehyde      | 1/2-hr           | 500                       |
|                   | 24-hr            | 500                       |
| 1,3-Butadiene     | 24-hr            | 10                        |
|                   | Annual           | 2                         |
| Formaldehyde      | 24-hr            | 65                        |
| Benzene           | 24-hr            | 2.3                       |
|                   | Annual           | 0.45                      |
| Benzo(a)pyrene    | 24-hr            | 0.00005                   |
|                   | Annual           | 0.00001                   |

## 5.6 Ambient Air Quality Data

Environment Canada’s National Air Pollution Surveillance (NAPS) air quality monitoring stations in close proximity to the subject site were used to gather background concentration levels for the various pollutants. For the purpose of this assessment, background concentration information was gathered using the NAPS program (Station ID 65001, 60440, 60438, and 65101) with available data for the year 2020 to 2022. Data for acrolein, acetaldehyde, and formaldehyde were only monitored at station 60438 (Resources Road) for the years prior to 2019; therefore, data between 2017 and 2019 were analysed for these contaminants.

Background concentrations identified in Table 6 below are based on a 90<sup>th</sup> percentile of the monitoring information available for the ½-hour, 1-hour, 8-hour, and 24-hour averaging periods. Annual background concentrations are based on the average of the air quality data available. 90<sup>th</sup> percentile to represent the baseline background concentration is applicable to allow variability in the baseline due to anthropogenic or unusual local sources, in accordance with Alberta’s Air Quality Model Guideline, 2013.

TSP, PM<sub>10</sub> and PM<sub>2.5</sub> are in many ways similar where PM<sub>2.5</sub> is a subset of PM<sub>10</sub>, and PM<sub>10</sub> is a subset of TSP. As a result, the concentration for TSP is generally greater than PM<sub>10</sub>, and consequently, PM<sub>10</sub> is greater than PM<sub>2.5</sub>. According to an ambient air quality report (prepared by the Canadian Environmental Protection Act/FPAC) PM<sub>10</sub> accounts for roughly 50% of TSP, while PM<sub>2.5</sub> accounts for approximately 25% of TSP. Therefore, this ratio was used to estimate the background concentrations for both TSP and PM<sub>10</sub> using information available for PM<sub>2.5</sub>.

*Table 6 – Background Air Quality Concentrations*

| Pollutant       | Averaging Period | Station ID | Background (µg/m3) | Threshold (µg/m3) | Percent of Threshold |
|-----------------|------------------|------------|--------------------|-------------------|----------------------|
| NO <sub>2</sub> | 1-hr             | 65001      | 49.9               | 79                | 63%                  |
|                 | 24-hr            | 65001      | 20.1               | 200               | 10%                  |
|                 | Annual           | 65001      | 10.6               | 23                | 46%                  |
| CO              | 1-hr             | 60440      | 510.2              | 36,200            | 1%                   |
|                 | 8-hr             | 60440      | 285                | 15,700            | 2%                   |
| TSP             | 24-hr            | 65001      | 15.6               | 120               | 13%                  |
|                 | Annual           | 65001      | 8.9                | 60                | 15%                  |

|                   |        |       |         |         |      |
|-------------------|--------|-------|---------|---------|------|
| PM <sub>10</sub>  | 24-hr  | 65001 | 7.8     | 50      | 16%  |
| PM <sub>2.5</sub> | 24-hr  | 65001 | 11.7    | 27      | 43%  |
|                   | Annual | 65001 | 6.7     | 8.8     | 76%  |
| Acrolein          | 1-hr   | 60438 | 0.3     | 4.5     | 7%   |
|                   | 24-hr  | 60438 | 0.12    | 0.4     | 30%  |
| Acetaldehyde      | 1/2-hr | 60438 | 3.1     | 500     | 1%   |
|                   | 24-hr  | 60438 | 9.4     | 500     | 2%   |
| 1-3, Butadiene    | 24-hr  | 65101 | 0.01    | 10      | 0.2% |
|                   | Annual | 65101 | 0.01    | 2       | 1%   |
| Formaldehyde      | 24-hr  | 60438 | 3.1     | 65      | 5%   |
| Benzene           | 24-hr  | 65101 | 0.2     | 2.3     | 9%   |
|                   | Annual | 65101 | 0.08    | 0.45    | 18%  |
| Benzo(a)pyrene    | 24-hr  | 60438 | 0.0002  | 0.00005 | 440% |
|                   | Annual | 60438 | 0.00006 | 0.00001 | 690% |

Note: Station ID: 65001 – Barrie; 60440 – Dufferin St.; 60438 – Resources Rd; 65101 - Newmarket

## 5.7 Model Assessment and Results

Air dispersion modeling was completed to determine the impact the TRAP may have towards the proposed development. The resulting modelled POI concentrations are shown in Table 7.

Table 7 – Modelled Vehicular Emissions

| Pollutant        | Averaging Period | Modelled Concentrations (µg/m <sup>3</sup> ) | Threshold (µg/m <sup>3</sup> ) | Percent of Threshold |
|------------------|------------------|----------------------------------------------|--------------------------------|----------------------|
| NO <sub>2</sub>  | 1-hr             | 30.4                                         | 79                             | 38%                  |
|                  | 24-hr            | 21.7                                         | 200                            | 11%                  |
|                  | Annual           | 6.3                                          | 23                             | 27%                  |
| CO               | 1-hr             | 123.4                                        | 36,200                         | 0.3%                 |
|                  | 8-hr             | 88.4                                         | 15,700                         | 1%                   |
| TSP              | 24-hr            | 27.2                                         | 120                            | 23%                  |
|                  | Annual           | 7.9                                          | 60                             | 13%                  |
| PM <sub>10</sub> | 24-hr            | 5.3                                          | 50                             | 11%                  |

|                   |        |            |         |       |
|-------------------|--------|------------|---------|-------|
| PM <sub>2.5</sub> | 24-hr  | 1.4        | 27      | 5%    |
|                   | Annual | 0.4        | 8.8     | 5%    |
| Acrolein          | 1-hr   | 0.01       | 4.5     | 0.3%  |
|                   | 24-hr  | 0.01       | 0.4     | 1%    |
| Acetaldehyde      | 1/2-hr | 0.2        | 500     | 0.04% |
|                   | 24-hr  | 0.1        | 500     | 0.01% |
| 1-3, Butadiene    | 24-hr  | -          | 10      | -     |
|                   | Annual | -          | 2       | -     |
| Formaldehyde      | 24-hr  | 0.04       | 65      | 0.1%  |
| Benzene           | 24-hr  | 0.02       | 2.3     | 1%    |
|                   | Annual | 0.01       | 0.45    | 1%    |
| Benzo(a)pyrene    | 24-hr  | 0.00000006 | 0.00005 | 0.1%  |
|                   | Annual | 0.00000002 | 0.00001 | 0.2%  |

The resulting modelled POI concentration were added to the background concentration for each contaminant and compared against applicable air quality thresholds, as shown in Table 8.

*Table 8 – Cumulative Air Quality Concentrations*

| Pollutant         | Averaging Period | Cumulative Concentrations (µg/m <sup>3</sup> ) | Threshold (µg/m <sup>3</sup> ) | Percent of Threshold |
|-------------------|------------------|------------------------------------------------|--------------------------------|----------------------|
| NO <sub>2</sub>   | 1-hr             | 80.3                                           | 79                             | 102%                 |
|                   | 24-hr            | 41.8                                           | 200                            | 21%                  |
|                   | Annual           | 16.9                                           | 23                             | 73%                  |
| CO                | 1-hr             | 633.6                                          | 36,200                         | 2%                   |
|                   | 8-hr             | 373.4                                          | 15,700                         | 2%                   |
| TSP               | 24-hr            | 42.8                                           | 120                            | 36%                  |
|                   | Annual           | 16.8                                           | 60                             | 28%                  |
| PM <sub>10</sub>  | 24-hr            | 13.1                                           | 50                             | 26%                  |
| PM <sub>2.5</sub> | 24-hr            | 13.1                                           | 27                             | 48%                  |
|                   | Annual           | 7.1                                            | 8.8                            | 81%                  |

|                |        |         |         |      |
|----------------|--------|---------|---------|------|
| Acrolein       | 1-hr   | 0.3     | 4.5     | 7%   |
|                | 24-hr  | 0.1     | 0.4     | 31%  |
| Acetaldehyde   | 1/2-hr | 3.4     | 500     | 1%   |
|                | 24-hr  | 9.5     | 500     | 2%   |
| 1-3, Butadiene | 24-hr  | 0.02    | 10      | 0.2% |
|                | Annual | 0.01    | 2       | 1%   |
| Formaldehyde   | 24-hr  | 3.2     | 65      | 5%   |
| Benzene        | 24-hr  | 0.2     | 2.3     | 10%  |
|                | Annual | 0.1     | 0.45    | 19%  |
| Benzo(a)pyrene | 24-hr  | 0.00022 | 0.00005 | 440% |
|                | Annual | 0.00007 | 0.00001 | 690% |

Based on the predictable concentrations from air dispersion modelling, results suggests that impact on the proposed development due to TRAP is not expected as all of the contaminants are below the applicable Ontario AAQC and CAAQS. All contaminants, from a background air quality perspective are below applicable threshold with the exception of benzo(a)pyrene, as shown in Table 6. Adding the modelled concentrations to the background concentrations, as shown in Table 8, all contaminants are below applicable criteria with the exception of benzo(a)pyrene and NO<sub>2</sub> (marginally over). Benzo(a)pyrene and NO<sub>2</sub> represent 38% and less than 1% of the contribution, respectively. It is worth noting that the only data available for benzo(a)pyrene is at Resource Road (Station ID 60438), which is abutting one of the busiest highways in Toronto; therefore, the background concentration may not be representative of the area surrounding the proposed development as the highway is expected to have significantly higher emissions.

Given that the background air quality typically represents emission contribution from all present sources to the overall regional air quality, emissions due to TRAP is accounted for in the background concentrations; therefore, addition of modelled concentrations to the background could be considered as double counting emissions due to TRAP.

Based on the assessment, it is in our opinion that adverse impact is not expected on the proposed development resulting from vehicular traffic along Dunlop Street West.

## **6.0 CONCLUSION AND RECOMMENDATIONS**

SONAIR was retained by 2507517 Ontario Inc. to conduct a Land Use Compatibility Study and Air Quality Study to assess potential impacts from surrounding facilities and roadways towards the proposed development located at 642 Dunlop Street West in Barrie.

Based on the assessment of the various facility operations in the vicinity of the proposed development, noise, vibration, dust, and odour concerns from identified facilities and roadways are not expected to adversely impact the proposed development with the proper mitigations in place.

From an air quality and odour perspective, no facilities or roadways are expected to adversely impact the proposed development based on the assessments presented within this report. However, given the proximity of the proposed development and the surrounding industrial facilities, a Warning Clause should be registered on title, leases, and purchase and sale agreements for all proposed residential units, as specified in Appendix E. With the inclusion of the Warning Clause, 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.

From a noise perspective, all identified facilities are expected to comply with the limits at the proposed development. Noise levels from roadways are predicted to exceed applicable NPC-300 guideline limits during the daytime and nighttime periods at numerous identified points of reception. Therefore, air conditioning, Warning Clause Type D and E, as well as upgraded building component requirements were recommended and can be finalized when detailed site plan drawings become available at later stages of the approval process.

Given the findings and results of this Land Use Compatibility Study and Air Quality Study, as well as the Noise Impact Study prepared by SPCL, the proposed development is expected to be compatible with the surrounding land uses provided the aforementioned mitigation measures are implemented.

## 7.0 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

Ministry of the Environment, Conservation and Parks, “*Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants*”, Version 3.0, April 2023

Ministry of the Environment, Conservation and Parks, “*Procedure for Preparing an Emission Summary and Dispersion Modelling Report [Guideline A-10]*”, Version 4.1, March 2018

Ministry of the Environment, Conservation and Parks, “*Air Dispersion Modelling Guideline for Ontario [Guideline A-11]*”, Version 3.0, February 2017

California Air Resources Board, “*Methods to Find the Cost-Effectiveness of Funding Air Quality Projects For Evaluating Motor Vehicle Registration Fee Projects and Congestion and Mitigation and Air Quality Improvement (CMAQ) Projects – Emission Factor Table*”, October 2023

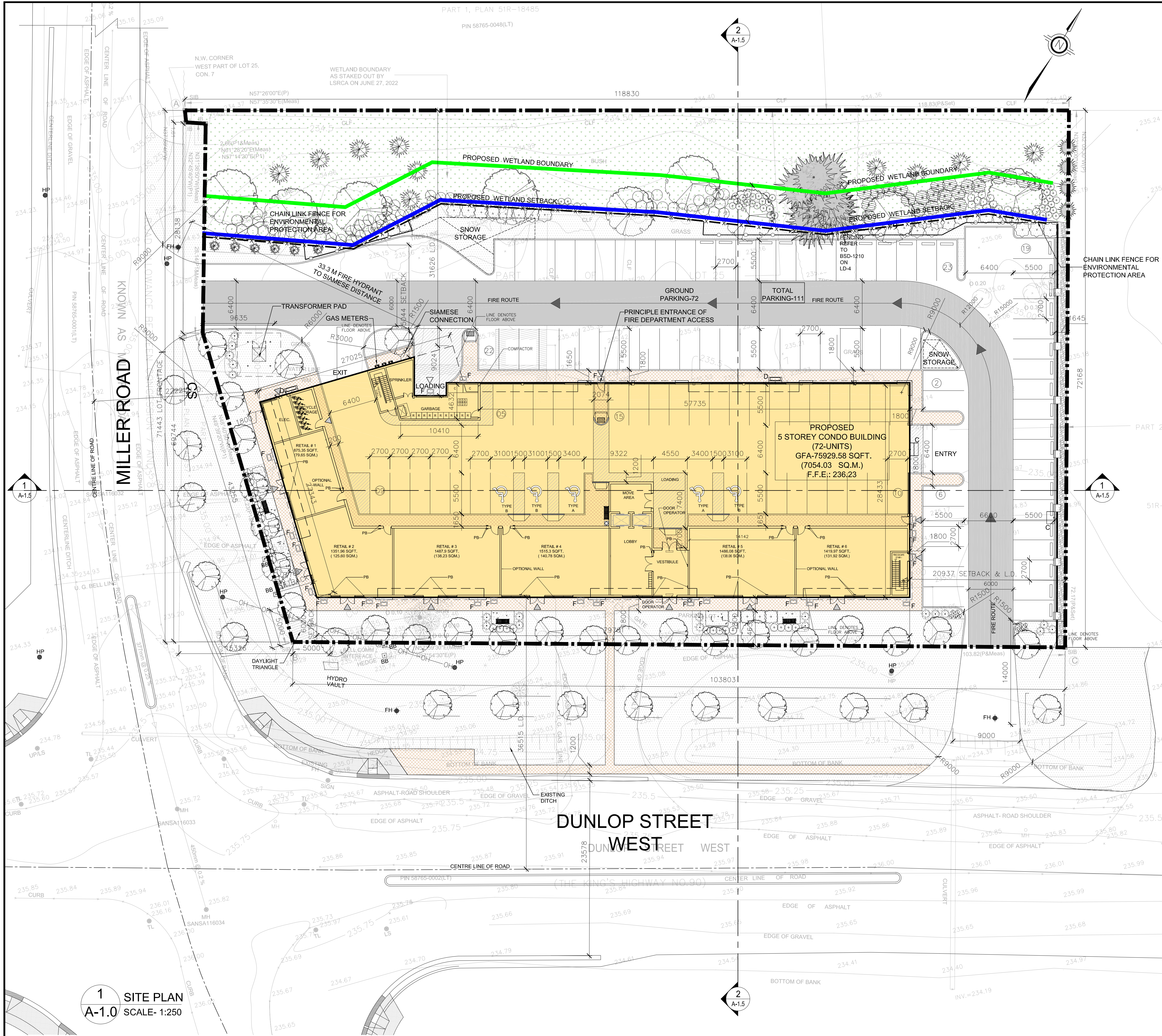
U.S. Environmental Protection Agency AP-42, “*Paved Roads*”, Chapter 13.2.1, October 2002

Alberta, “*Air Quality Model Guideline*”, October 1, 2013



**APPENDIX A**

**SITE PLAN & DRAWINGS**



KEY PLAN

| PROJECT STATISTICS               |                                     |                        |
|----------------------------------|-------------------------------------|------------------------|
| ADDRESS                          | 642 DUNLOP STREET WEST, BARRIE, ON. |                        |
| ZONING                           | GENERAL COMMERCIAL (C4)             |                        |
|                                  | REQUIRED                            | PROPOSED               |
| LOT(SITE) AREA (m <sup>2</sup> ) | 450 SQ.M.                           | 8084.59 SQ.M.          |
| LOT FRONTAGE                     |                                     | 71.44 M.               |
| RETAIL                           |                                     | 754.24 SQ.M.           |
| RESIDENTIAL UNITS                |                                     | 6233.07 SQ.M.          |
| AMENITY AREA                     |                                     | 395.60 SQ.M.           |
| TOTAL GFA                        |                                     | 7054.03 SQ.M.          |
| COVERAGE                         | 50% MAX                             | 2420.23 SQ.M. (29.93%) |
| LANDSCAPE AREA                   |                                     | 2811.57 SQ.M. (34.77%) |
| PAVED AREA                       |                                     | 531.58 SQ.M. (6.47%)   |
| BUILDING HEIGHT (MAX.)           | 14.0 M.                             | 13.95 M.               |
| TOTAL PARKING (MIN.)             | 126 CARS                            | 111 CARS               |
| BARRIER FREE PARKING (MIN.)      | 5 CARS                              | 5 CARS                 |
| BICYCLE PARKING (MIN.)           | 4                                   | 7                      |
| LOADING SPACE (MIN.)             | 1                                   | 1                      |
| LOT FRONTAGE (MIN.)              | 15 M.                               | 69.7 M.                |
| DUNLOP STREET WEST               |                                     |                        |

| BUILDING SETBACKS          |          |          |
|----------------------------|----------|----------|
|                            | REQUIRED | PROPOSED |
| FRONT YARD (WEST)          | 6.0M     | 4.76 M.  |
| EXTERIOR SIDE YARD (SOUTH) | 5.0M     | 6.0 M.   |
| INTERIOR SIDE YARD (NORTH) | 3.0M     | 15.04 M. |
| REAR YARD (EAST)           | 7.0M     | 20.93 M. |

| PARKING CALCULATIONS                           |            |                   |          |          |
|------------------------------------------------|------------|-------------------|----------|----------|
| ITEM                                           | AREA(SQM.) | RATE              | REQUIRED | PROVIDED |
| RETAIL                                         | 754.24     | 1 PER 24 SQ.M.    | 31       | 16       |
| RESIDENTIAL UNITS (72)                         | 6233.07    | 1.25 PER DWELLING | 90       | 90       |
| H.C. PARKING (OVER 100 - 1+3% OF REG. PARKING) |            |                   | 5        | 5        |
| TOTAL                                          |            |                   | 126      | 111      |
| CAR SPACE SIZE                                 |            |                   | 2.7X5.5M | 2.7X5.5M |
| H/C CAR SPACE SIZE (TYPE-A)                    |            |                   | 3.4X5.5M | 3.4X5.5M |
| (TYPE-B)                                       |            |                   | 3.1X5.5M | 3.1X5.5M |

**LEGEND**

- NEW BUILDING
- ASPHALT
- LANDSCAPE
- CONC. PAVEMENT, 150MM RAISED
- HANDICAP PARKING
- MAIN ENTRANCE
- OVERHEAD DOOR
- TREE
- BARRIER CURB
- BARRIER FREE CURB
- PB BARRIER FREE PUSH BUTTON

**MUNICIPAL ADDRESS & LEGAL DESCRIPTION:**

PART 3 OF LOT 25 REGISTERED PLAN F45 CITY OF BARRIE COUNTY OF SIMCOE

**APPLICANT:**

IPS (INNOVATIVE PLANNING SOLUTIONS)  
647 WELHAM RD., UNIT 9A  
BARRIE, ON L4N 0B7

**SURVEY INFORMATION TAKEN FROM:**

OMARI MINNY SURVEYING LTD.  
1905 PINE GROVE AVENUE PICKERING  
ONTARIO, L1V 6T1  
Ph: (905) 728-8863  
Fax: (905) 492-5465

**OWNER:**

2507517 ONTARIO INC.  
12 CHIAVATTI DR., MARKHAM,  
ON L3R 1E2

|                               |    |
|-------------------------------|----|
| TOTAL UNITS:                  |    |
| TWO BED ROOM UNITS            | 30 |
| ONE BED ROOM UNITS            | 30 |
| ACCESSIBLE ONE BED ROOM UNITS | 06 |
| ACCESSIBLE TWO BED ROOM UNITS | 06 |
| TOTAL                         | 72 |

**n Architecture Inc**

PRINCIPAL: NITIN MALHOTRA, ARCHITECT.  
9120 Leslie Street, Suite-208  
Richmond Hill, Ontario. L4B 3J9  
T : 4 1 6 . 2 5 6 . 9 7 4 1  
E : info@narchitecture.com  
www.narchitecture.com

PROJECT NORTH

MAR. 28, 2023

28th MARCH 2023  
ISSUED FOR SPA-2

|     |             |                             |      |
|-----|-------------|-----------------------------|------|
| 4.  | 28-MAR-2023 | ISSUED FOR SPA-2            | EY   |
| 3.  | 21-APR-2022 | ISSUED FOR SPA-1            | SB   |
| 2.  | 13-JUN-2018 | ISSUED FOR PRE-CONSULTATION | SB   |
| 1.  | 04-APR-2016 | ISSUED FOR PRE-CONSULTATION | FK   |
| No. | Date        | Version                     | Dwn. |

This drawing is copyright property of 'n Architecture Inc'. Not to be reproduced. Contractor must verify all job dimensions, drawings, details and specifications and report any discrepancies to the architect before proceeding with work.

PROJECT:

**PROPOSED 5-STOREY CONDO BUILDING**  
**642 DUNLOP STREET W**  
**BARRIE, ON.**

DRAWING TITLE:

**SITE PLAN**

|                |                   |
|----------------|-------------------|
| DRAWN BY: FK   | DATE: DEC 02 2015 |
| CHECKED BY: NM | SCALE: AS NOTED   |
| PROJECT NO.:   | DRAWING NO.:      |

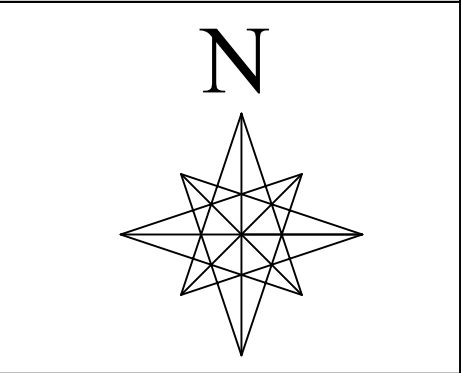
15-48

A-1.0



| FACILITY NAMES |                                    |
|----------------|------------------------------------|
| 1.             | MacEwen Car Wash                   |
| 2.             | MacEwen Barrie                     |
| 3.             | Subway                             |
| 4.             | Access Storage - Barrie Miller Dr. |
| 5.             | Miller Lumber                      |
| 6.             | The Tire Guys                      |
| 7.             | RAES Auto Sales                    |
| 8.             | Beyond Trailer Sales               |
| 9.             | Rudy Mak Surveying Ltd             |
| 10.            | Bradford Greenhouses Garden Gal.   |
| 11.            | ASE Mobile Storage                 |
| 12.            | Mits Airconditioning Inc.          |
| 13.            | Lafarge Aggregates                 |
| 14.            | Carr Landscape Depot               |
| 15.            | Simcoe Hose & Hydraulic            |
| 16.            | Commercial Fleet Parking           |
| 17.            | Big Blue Bins                      |
| 18.            | United Rentals                     |
| 19.            | Bobcat of Barrie                   |
| 20.            | Heavy's BMX Shop                   |
| 21.            | Guaranteed Services                |
| 22.            | D&A Towing & Storage               |
| 23.            | A&A Auto Wreckers                  |
| 24.            | A&A Auto Wreckers                  |
| 25.            | A&A Auto Wreckers & Metal Rec.     |
| 26.            | Humber Aggregates & Soil Mixture   |
| 27.            | OrvAuto Accessories                |
| 28.            | Dan Miller Cabinets Inc.           |
| 29.            | Halls Service Center               |
| 30.            | Terry & Marsh's 24 Hour Towing     |
| 31.            | RSA Auto Parts                     |
| 32.            | Homegrown Hydroponics Inc.         |
| 33.            | Northern Air Quality Services      |
| 34.            | Highway 90 Signs & Printing        |
| 35.            | Muffler Medic                      |
| 36.            | Radiant Auto Repair                |
| 37.            | Marshall Automotive                |
| 38.            | Bardon Supplies                    |
| 39.            | 1000112488 Ontario Inc.            |

| LEGEND                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div></div> Class I Facility</div> <div><div></div> Class II Facility</div> <div><div></div> Class III Facility</div> <div><div></div> Class 0 Facility</div> |



|                                                                |                     |                                   |                                        |                                                        |                    |
|----------------------------------------------------------------|---------------------|-----------------------------------|----------------------------------------|--------------------------------------------------------|--------------------|
| ADDRESS:<br>PO BOX 56702 PINE VALLEY PO<br>VAUGHAN, ON L4L 8V3 | DRAWN BY:<br>TL     | CHECKED BY:<br>-                  | CLIENT'S NAME:<br>2507517 Ontario Inc. | CLIENT'S ADDRESS:<br>12 Chiavatti Drive<br>Markham, ON | SCALE:<br>As shown |
| SE#:<br>1265.001                                               | DATE:<br>2023-12-13 | DRAWING NAME:<br>1000m Study Area | REVISION #:<br>0                       | NOTES:<br>Site at 642 Dunlop Street West, Barrie       |                    |







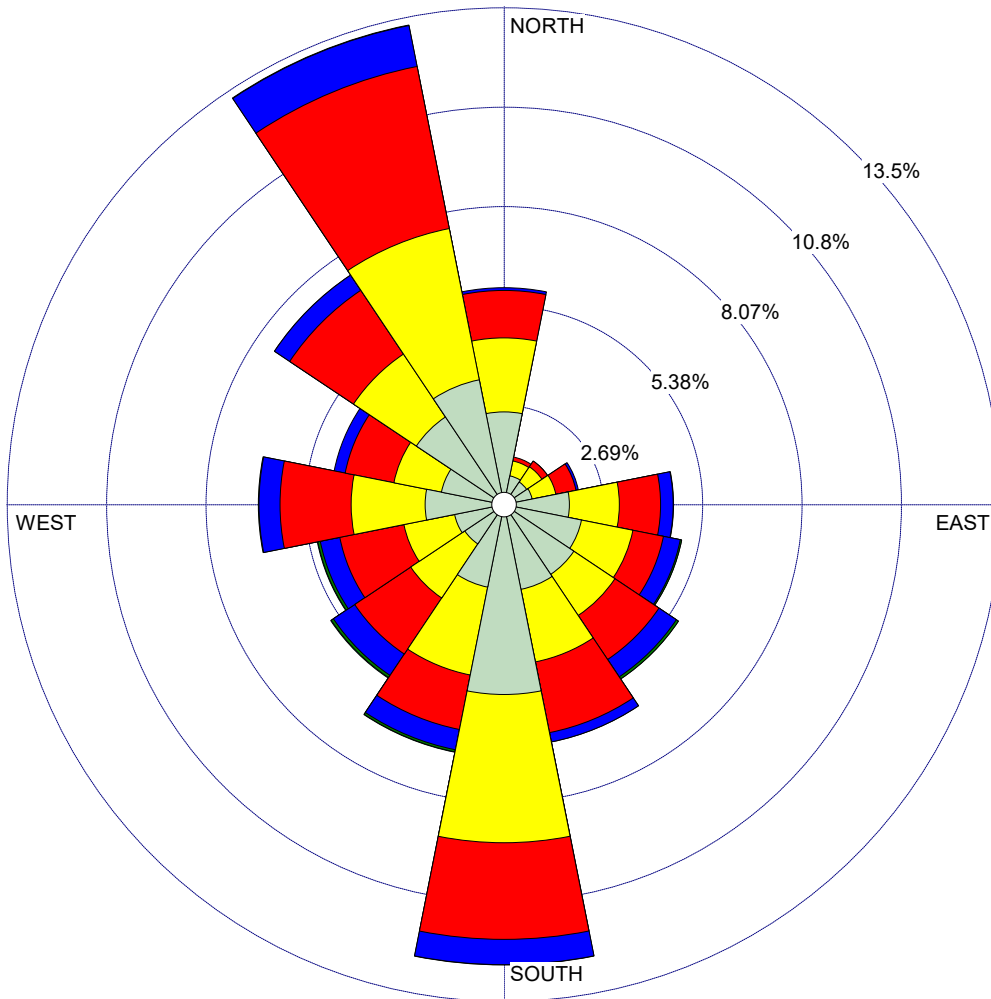
## **APPENDIX B**

### **WIND ROSE**

WIND ROSE PLOT:

**Wind Rose Plot (2019-2023)**  
**Barrie, Ontario**

DISPLAY:

**Wind Speed**  
**Direction (blowing from)**

## COMMENTS:

Climate ID: 611001  
Data retained from Environment  
Canada Hourly Data for  
EGBERT CS weather station  
from 2019-2023.

## DATA PERIOD:

**Start Date: 2019-01-01 - 00:00**  
**End Date: 2023-12-17 - 05:00**

## CALM WINDS:

**1.22%**

## AVG. WIND SPEED:

**2.96 m/s**

## COMPANY NAME:

**SONAIR Environmental Inc.**

## MODELER:

**TL**

## TOTAL COUNT:

**41240 hrs.**

## DATE:

**2023-12-18**

## PROJECT NO.:

**1265.001**



## **APPENDIX C**

### **ECA / EASR APPROVALS**



Ministry of the Environment and Climate Change  
Operations Division

## Confirmation of Registration

**Registration Number: R-004-2507957283**

**Version Number: 001**

**Date Registration Filed: May 29, 2015 12:08:39 PM**

Dear Sir/Madam,

SOUTHSHORE GROUP INC.  
636 DUNLOP STREET WEST,  
BARRIE ON L4N 9W5

You have registered, in accordance with Section 20.21(1)(a) of the *Environmental Protection Act*, the use, operation, establishment, alteration, engagement or extension or replacement of a waste management system serving the Province of Ontario. The Waste Transportation Vehicle storage yard related to this registration is located at:

636 Dunlop Street West Barrie ON L4N 9W5

Please note that the Waste Transportation Vehicle is subject to the applicable provisions of O.Reg 245/11 and O. Reg. 351/12. Environmental Protection Act.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'

Dated on May 29, 2015

Director  
Environmental Approvals Access and Service Integration Branch  
Ministry of the Environment and Climate Change  
2 St. Clair Avenue West, Floor 12A  
Toronto ON M4V 1L5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment and Climate Change  
Customer Service Representative  
Environmental Approvals Access and Service Integration Branch

Phone: (416) 314-8001  
Toll free: 1-800-461-6090

## Schedule 'A'

### Part 3 . Activity Information

3.1 This form is to be used to register the use, operation, establishment, alteration, enlargement or extension of a waste management system that is a waste transportation system. Please confirm that you will be engaging in one or more of these activities.

☒ Yes ☐ No

3.2 For the waste management system that is the subject of this registration, please confirm that ALL of the following statements apply:

(a) The waste management system involves only the collection, handling, transportation and transfer of waste by waste transportation vehicle (truck).

☒ Yes ☐ No

(b) The waste transportation system does not include any on-truck processing of waste.

☒ Yes ☐ No

3.3 Does the waste management system involve the management of any of the following waste types (as they are defined within the meaning of Regulation 347 of the Environmental Protection Act, or in the case of biomedical waste or treated biomedical waste, the Ministry of the Environment.s Guideline C-4: The Management of Biomedical Waste in Ontario)?

(a) Hazardous waste\*

☐ Yes ☒ No

(b) Liquid industrial waste

☐ Yes ☒ No

(c) Biomedical waste or treated biomedical waste

☐ Yes ☒ No

(d) Asbestos waste

☐ Yes ☒ No

\* Please note that hazardous waste should also be interpreted to include waste that was characteristic waste but that has been treated so that it is no longer characteristic waste, if the waste may not be disposed of by land disposal under subsection 79 (1) of Regulation 347 of the Revised Regulations of Ontario, 1990 made under the Act.

3.4 Please select in the table below all of the categories of waste that will be transported by the system. Note that the responses given in question 3.3 should be true for any of the waste categories selected.

(a) Blue Box Materials

☒

(b) Domestic Sources

☒

(c) Dewatered Catch Basin Clean-Out Material

☒

(d) Waste from Food Processing/Preparation Operations

☒

(e) Leaf/Yard Waste

☒

(f) Tires

☒

(g) Commercial Waste

☒

(h) Wood Waste

☒

(i) Waste Wash Water

☒

(j) Non-hazardous Solid Industrial Waste

☒

(k) Contaminated Soil

☒

(l) Processed Organics

☒

(m) Hauled Sewage

☒

(n) Non-hazardous Spill Cleanup Material

☒

(o) Describe any other waste types managed by the system, if applicable:

3.5 Will waste be stored at any truck storage yard or other location as part of the operation of the waste management system?

☐ Yes

☒ No

3.6 (a) How many waste transportation vehicles (trucks) are included in the waste management system?

2

(b) Does the waste management system involve transportation of waste into or out of the Province of Ontario?

☐ Yes

☒ No

(c) Please indicate the jurisdictions from which the waste transportation vehicle(s) normally enter/exit Ontario.  
Please check all that apply:

|           |                                     |                                  |
|-----------|-------------------------------------|----------------------------------|
| Quebec    | <input type="checkbox"/> Enter from | <input type="checkbox"/> Exit to |
| Manitoba  | <input type="checkbox"/> Enter from | <input type="checkbox"/> Exit to |
| New York  | <input type="checkbox"/> Enter from | <input type="checkbox"/> Exit to |
| Michigan  | <input type="checkbox"/> Enter from | <input type="checkbox"/> Exit to |
| Minnesota | <input type="checkbox"/> Enter from | <input type="checkbox"/> Exit to |

(d) Please indicate all jurisdictions in which waste is transferred to a storage or disposal site outside of Ontario.  
Please check all that apply:

|                                         |                                                |                                         |                                        |                                        |
|-----------------------------------------|------------------------------------------------|-----------------------------------------|----------------------------------------|----------------------------------------|
| <input type="checkbox"/> Alberta        | <input type="checkbox"/> British Columbia      | <input type="checkbox"/> Manitoba       | <input type="checkbox"/> New Brunswick | <input type="checkbox"/> Newfoundland  |
| <input type="checkbox"/> Nova Scotia    | <input type="checkbox"/> Northwest Territories | <input type="checkbox"/> Nunavut        | <input type="checkbox"/> PEI           | <input type="checkbox"/> Quebec        |
| <input type="checkbox"/> Saskatchewan   | <input type="checkbox"/> Yukon                 | <input type="checkbox"/> Alaska         | <input type="checkbox"/> Alabama       | <input type="checkbox"/> Arkansas      |
| <input type="checkbox"/> Arizona        | <input type="checkbox"/> California            | <input type="checkbox"/> Colorado       | <input type="checkbox"/> Connecticut   | <input type="checkbox"/> Delaware      |
| <input type="checkbox"/> Florida        | <input type="checkbox"/> Georgia               | <input type="checkbox"/> Iowa           | <input type="checkbox"/> Idaho         | <input type="checkbox"/> Illinois      |
| <input type="checkbox"/> Indiana        | <input type="checkbox"/> Kansas                | <input type="checkbox"/> Kentucky       | <input type="checkbox"/> Louisiana     | <input type="checkbox"/> Massachusetts |
| <input type="checkbox"/> Maryland       | <input type="checkbox"/> Maine                 | <input type="checkbox"/> Michigan       | <input type="checkbox"/> Minnesota     | <input type="checkbox"/> Missouri      |
| <input type="checkbox"/> Mississippi    | <input type="checkbox"/> Montana               | <input type="checkbox"/> North Carolina | <input type="checkbox"/> North Dakota  | <input type="checkbox"/> Nebraska      |
| <input type="checkbox"/> Nevada         | <input type="checkbox"/> New Hampshire         | <input type="checkbox"/> New Jersey     | <input type="checkbox"/> New Mexico    | <input type="checkbox"/> New York      |
| <input type="checkbox"/> Ohio           | <input type="checkbox"/> Oklahoma              | <input type="checkbox"/> Oregon         | <input type="checkbox"/> Pennsylvania  | <input type="checkbox"/> Rhode Island  |
| <input type="checkbox"/> South Carolina | <input type="checkbox"/> South Dakota          | <input type="checkbox"/> Tennessee      | <input type="checkbox"/> Texas         | <input type="checkbox"/> Utah          |
| <input type="checkbox"/> Virginia       | <input type="checkbox"/> Vermont               | <input type="checkbox"/> Washington     | <input type="checkbox"/> Wisconsin     | <input type="checkbox"/> West Virginia |
| <input type="checkbox"/> Wyoming        |                                                |                                         |                                        |                                        |



Ministry of the Environment, Conservation and Parks  
Operations Division

## Confirmation of Registration

**Registration Number: R-007-1112280247**

**Version Number: 001**

**Date Registration Filed: May 11, 2020 11:30:22 AM**

Dear Sir/Madam,

5030915 ONTARIO INC.

200 Wellington Avenue (av) West  
BARRIE ON L4N 1K9

You have registered, in accordance with Section 20.21(1)(a) of the *Environmental Protection Act*, the use, operation, establishment, alteration, enlargement or extension of an end-of-life vehicle waste disposal site, as prescribed in O. Reg. 85/16.

Please note if you answered 'Yes' to question 3.4a, or if you answered 'No' to the questions 3.4b (i), or 3.4c (i) your site may be required to obtain an Environmental Compliance Approval for your air activities in addition to your registration on the Environmental Activity and Sector Registry for your waste operations.

456 Tiffin Street Barrie ON L4N 9W9

Please note that the end-of-life vehicle waste disposal site is subject to the applicable provisions of O.Reg 245/11 and O. Reg. 85/16.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on May 11, 2020

Director  
Environmental Approvals Access and Service Integration Branch  
Ministry of the Environment, Conservation and Parks  
135 St. Clair Avenue West, 1st Floor  
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment, Conservation and Parks  
Customer Service Representative  
Environmental Approvals Access and Service Integration Branch  
Phone:(416) 314-8001  
Toll free: 1-800-461-6290

## Schedule 'A'

### Part 3 — Activity Information

#### 3.1 Registration Information

|                                                                                                                                                                                                                                                                                                                                            |                                         |                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|
| (a) Does your site receive end-of-life vehicles?                                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| (b) Does your site have 10 or more end-of-life vehicles on site at any one time, receive more than 2 end-of-life vehicles in any one calendar year, and engage in anything other than the removal of parts from end-of-life vehicles for reuse and the collection, handling, transportation, storage and transfer of end-of-life vehicles? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| (c) Does your site engage in anything other than the collection, handling, transportation, storage and/or transfer of end-of-life vehicles, or store or handle any end-of-life vehicle for more than 180 days?                                                                                                                             | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

#### 3.2 End-of-Life Vehicle Site Related Information

|                                                                                                                                                                                                                                    |                              |                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| (a) Has your site been identified as a significant drinking water threat in a source protection plan prepared under the Clean Water Act, 2006?                                                                                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (b) Other than waste generated on the property upon which the end-of-life vehicle waste disposal site is situated, does your site accept or manage any PCB waste, radioactive waste, or treated and/or untreated biomedical waste? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (c) Does your site accept or manage any asbestos waste, other than components removed from a motor vehicle that contain asbestos (e.g. brake pads)?                                                                                | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (d) Does your site accept or manage fluids removed from an end-of-life vehicle that were removed off the site?                                                                                                                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

#### 3.3 End-of-Life Vehicle Activity Related Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|
| (a) Are the only wastes managed on site the following:<br>-End-of-life vehicles;<br>-A component removed from an end-of-life vehicle, including fluid-containing components (e.g. internal combustion engine, transmission, radiator) or other wastes removed from an end-of-life vehicle (e.g. tires);<br>-Metal, or other waste that is primarily metal by weight, that is destined for a site at which the principal purpose of use is not waste management or combustion.                                                                                                                                                                                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| (b) Does your site engage in thermal treatment of waste (e.g. incineration)?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| (b)(i) If yes, is one of the following conditions met?<br><br>-An environmental compliance approval has been issued in respect of the thermal treatment site; OR<br>-The site is a waste-derived fuel site that includes a combustion unit that is used principally for heating the interior of a building or other enclosed space for the comfort of occupants or for the provision of a suitable temperature for materials (including plant or animal life) in the building or enclosed space and is located in the Territorial District of Algoma, Cochrane, Kenora, Manitoulin, Nipissing, Parry Sound, Rainy River, Sudbury, Thunder Bay or Timiskaming. |                                         |                                        |
| (c) Does your site engage in the disposal of waste by depositing it into the land?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| (c)(i) If yes, is the following condition met?<br>- An environmental compliance approval has been issued that permits the disposal of the waste.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |

#### 3.4 End-of-Life Vehicle Equipment Related Information

|                                                                                                                                                                                                                                                                                                                                     |                              |                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| (a) Does your site use any shredding or rotary shearing/shredding equipment?<br><br>If the answer to this question is yes, you may be required to obtain an Environmental Compliance Approval for your air activities in addition to your registration on the Environmental Activity and Sector Registry for your waste operations. | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (b) Does your site engage in any torching or lancing of materials?                                                                                                                                                                                                                                                                  | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (b)(i) If yes, are the following conditions met?                                                                                                                                                                                                                                                                                    |                              |                                        |

-The metal cut has a maximum thickness of 250 mm; AND

-A plan is in place to prevent visible emissions from being carried beyond the property upon which the end-of-life vehicle site is situated.

☐ Yes

☐ No

If the answer to this question is no, you may be required to obtain an Environmental Compliance Approval for your air activities in addition to your registration on the Environmental Activity and Sector Registry for your waste operations.

---

(c) Does your site operate crushing equipment?

☒ Yes

☐ No

(c)(i) If yes, is one or more of the following conditions met?

-Crushing equipment is located a minimum distance of 250m from the property boundary of the closest noise receptor; OR

☒ Yes

☐ No

-The crushing equipment has a barrier with a minimum density of 20 kg/m<sup>2</sup> installed that blocks the line of sight between the crushing equipment and the closest noise receptor; OR

-The crushing equipment is not operated for more than 50 days per calendar year.

If the answer to this question is no, you may be required to obtain an Environmental Compliance Approval for your air activities in addition to your registration on the Environmental Activity and Sector Registry for your waste operations.

---



Ministry of the Environment, Conservation and Parks  
Operations Division

## Confirmation of Registration

**Registration Number: R-004-5115214577**

**Version Number: 001**

**Date Registration Filed: Jun 20, 2023 14:51:42 PM**

Dear Sir/Madam,

1000112488 ONTARIO INC.

8 Reynolds Lane  
Barrie ON L4N 0R2

You have registered, in accordance with Section 20.21(1)(a) of the *Environmental Protection Act*, the use, operation, establishment, alteration, engagement or extension or replacement of a waste management system serving the Province of Ontario. The Waste Management System storage yard related to this registration is located at:

8 REYNOLDS Lane BARRIE ON L4N 0R2

Please note that the Waste Management System is subject to the applicable provisions of O.Reg 245/11 and O. Reg. 351/12.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on Jun 20, 2023

Director

Environmental Approvals Access and Service Integration Branch  
Ministry of the Environment, Conservation and Parks  
135 St. Clair Avenue West, 1st Floor  
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment, Conservation and Parks

Customer Service Representative

Environmental Approvals Access and Service Integration Branch

Phone:(416) 314-8001

Toll free: 1-800-461-6290

## Schedule 'A'

### Part 3 - Activity Information

3.1 This form is to be used to register the use, operation, establishment, alteration, enlargement or extension of a waste management system that is a waste transportation system. Please confirm that you will be engaging in one or more of these activities.

☒ Yes ☐ No

3.2 For the waste management system that is the subject of this registration, please confirm that ALL of the following statements apply:

(a) The waste management system involves only the collection, handling, transportation and transfer of waste by waste transportation vehicle (truck).

☒ Yes ☐ No

(b) The waste transportation system does not include any on-truck processing of waste.

☒ Yes ☐ No

3.3 Does the waste management system involve the management of any of the following waste types (as they are defined within the meaning of Regulation 347 of the Environmental Protection Act, or in the case of biomedical waste or treated biomedical waste, the Ministry of the Environment's Guideline C-4: The Management of Biomedical Waste in Ontario)?

(a) Hazardous waste\*

☐ Yes ☒ No

(b) Liquid industrial waste

☐ Yes ☒ No

(c) Biomedical waste or treated biomedical waste

☐ Yes ☒ No

(d) Asbestos waste

☐ Yes ☒ No

\* Please note that hazardous waste should also be interpreted to include waste that was characteristic waste but that has been treated so that it is no longer characteristic waste, if the waste may not be disposed of by land disposal under subsection 79 (1) of Regulation 347 of the Revised Regulations of Ontario, 1990 made under the Act.

3.4 Please select in the table below all of the categories of waste that will be transported by the system. Note that the responses given in question 3.3 should be true for any of the waste categories selected.

(a) Blue Box Materials

☐

(b) Domestic Sources

☒

(c) Dewatered Catch Basin Clean-Out Material

☐

(d) Waste from Food Processing/Preparation Operations

☐

(e) Leaf/Yard Waste

☐

(f) Tires

☐

(g) Commercial Waste

☐

(h) Wood Waste

☒

(i) Waste Wash Water

☐

(j) Non-hazardous Solid Industrial Waste

☐

(k) Contaminated Soil

☐

(l) Processed Organics

☐

(m) Hauled Sewage

☐

(n) Non-hazardous Spill Cleanup Material

☐

(o) Describe any other waste types managed by the system, if applicable:

3.5 Will waste be stored at any truck storage yard or other location as part of the operation of the waste management system?

☐ Yes

☒ No

3.6 (a) How many waste transportation vehicles (trucks) are included in the waste management system?

1

(b) Does the waste management system involve transportation of waste into or out of the Province of Ontario?

☐ Yes

☒ No

(c) Please indicate the jurisdictions from which the waste transportation vehicle(s) normally enter/exit Ontario.  
Please check all that apply:

Quebec

☐ Enter from

☐ Exit to

Manitoba

☐ Enter from

☐ Exit to

New York

☐ Enter from

☐ Exit to

Michigan

☐ Enter from

☐ Exit to

Minnesota

☐ Enter from

☐ Exit to

(d) Please indicate all jurisdictions in which waste is transferred to a storage or disposal site outside of Ontario.  
Please check all that apply:

☐ Alberta

☐ Nova Scotia

☐ Saskatchewan

☐ Arizona

☐ Florida

☐ Indiana

☐ Maryland

☐ Mississippi

☐ Nevada

☐ Ohio

☐ South Carolina

☐ Virginia

☐ Wyoming

☐ British Columbia

☐ Northwest

☐ Yukon

☐ California

☐ Georgia

☐ Kansas

☐ Maine

☐ Montana

☐ New Hampshire

☐ Oklahoma

☐ South Dakota

☐ Vermont

☐ Hawaii

☐ Manitoba

☐ Nunavut

☐ Alaska

☐ Colorado

☐ Iowa

☐ Kentucky

☐ Michigan

☐ North Carolina

☐ New Jersey

☐ Oregon

☐ Tennessee

☐ Washington

☐ New Brunswick

☐ PEI

☐ Alabama

☐ Connecticut

☐ Idaho

☐ Louisiana

☐ Minnesota

☐ North Dakota

☐ New Mexico

☐ Pennsylvania

☐ Texas

☐ Wisconsin

☐ Newfoundland

☐ Quebec

☐ Arkansas

☐ Delaware

☐ Illinois

☐ Massachusetts

☐ Missouri

☐ Nebraska

☐ New York

☐ Rhode Island

☐ Utah

☐ West Virginia



## **APPENDIX D**

### **SAMPLE CALCULATIONS**

### Summary of Air Emissions from Vehicles Travelling Along Dunlop Street West

Source ID: DUN\_E & DUN\_W

#### Emission Methodology

- Particulate Matter emissions vehicles travelling on paved roadways were determined based on emission factors obtained from US EPA AP-42 "Paved Roads", Chapter 13.2.1.
- The Silt Loading was obtained from Table 13.2.1-2 for >10,000 ADT Category.
- It was assumed that vehicles have an average weight of 3 tons.

$$E = k * (sL)^{0.91} * (W)^{1.02}$$

Where,

E = particulate emission factor (having units matching the units of k)

k = particle size multiplier for particle size range and units of interest

sL = road surface silt loading (g/m<sup>2</sup>)

W = average weight (tons) of the vehicle traveling the road

- Vehicles emissions for CO, TSP, PM10, PM2.5, Acrolein, Acetaldehyde, 1,3, Butadiene, Formaldehyde, Benzene, and Benzo(a)pyrene were determined from the US EPA Motor Vehicle Emission Simulator (MOVES), Version 4.0 model.
- Particulate matter from roadway emissions were added to the vehicle emissions based on emission factors generated from the MOVES model.
- The number of volume sources were also taken into account to determine the emission rate.

#### Emissions from Paved Roadways

| Size Range | Particle Size Multiplier, k (g/VKT) |
|------------|-------------------------------------|
| TSP        | 3.23                                |
| PM10       | 0.62                                |
| PM2.5      | 0.15                                |

Note: VKT = Vehicle Kilometer Travelled

|                                  |      |
|----------------------------------|------|
| Silt Loading (g/m <sup>2</sup> ) | 0.03 |
|----------------------------------|------|

| Roads                       | Source ID | Avg Vehicle Wt (tons) |
|-----------------------------|-----------|-----------------------|
| Dunlop Street (E of Miller) | DUN_E     | 3                     |
| Dunlop Street (W of Miller) | DUN_W     | 3                     |

| Roads                       | Volume Sources | Distance (km) | AADT (veh/day) | VKT   |
|-----------------------------|----------------|---------------|----------------|-------|
| Dunlop Street (E of Miller) | 381            | 0.7626        | 29,470         | 22474 |
| Dunlop Street (W of Miller) | 339            | 0.6788        | 38,138         | 25888 |

| Roads                       | Emission Rate (g/s) |          |          |
|-----------------------------|---------------------|----------|----------|
|                             | TSP                 | PM10     | PM2.5    |
| Dunlop Street (E of Miller) | 1.06E-01            | 2.03E-02 | 4.92E-03 |
| Dunlop Street (W of Miller) | 1.22E-01            | 2.34E-02 | 5.67E-03 |

| Contaminant    | Emission Factor (g/VKT)        |                                |
|----------------|--------------------------------|--------------------------------|
|                | Dunlop St. W. (East of Miller) | Dunlop St. W. (West of Miller) |
| NO2            | 1.19E+02                       | 1.19E+02                       |
| CO             | 2.98E+02                       | 2.99E+02                       |
| TSP            | 8.13E-01                       | 8.13E-01                       |
| PM10           | 8.13E-01                       | 8.13E-01                       |
| PM2.5          | 7.39E-01                       | 7.39E-01                       |
| Acrolein       | 3.18E-02                       | 3.19E-02                       |
| Acetaldehyde   | 3.67E-01                       | 3.67E-01                       |
| 1,3-Butadiene  | -                              | -                              |
| Formaldehyde   | 2.46E-01                       | 2.46E-01                       |
| Benzene        | 1.15E-01                       | 1.17E-01                       |
| Benzo(a)pyrene | 3.01E-07                       | 3.06E-07                       |

Note:

- TSP assumed to be the same as PM10

- No results returned for 1,3-Butadiene from MOVES model for the assessment year.

**Summary of Air Emissions from Vehicles Travelling Along Dunlop Street West**

| Contaminant    | CAS #       | Emission Rate (g/s)               |                                   |
|----------------|-------------|-----------------------------------|-----------------------------------|
|                |             | Dunlop St. W.<br>(East of Miller) | Dunlop St. W.<br>(West of Miller) |
| NO2            | 10102-44-0  | 8.14E-02                          | 1.05E-01                          |
| CO             | 630-08-0    | 2.04E-01                          | 2.64E-01                          |
| TSP            | n/a - PM    | 1.07E-01                          | 1.23E-01                          |
| PM10           | n/a - PM10  | 2.09E-02                          | 2.42E-02                          |
| PM2.5          | n/a - PM2.5 | 5.43E-03                          | 6.32E-03                          |
| Acrolein       | 107-02-8    | 2.17E-05                          | 2.82E-05                          |
| Acetaldehyde   | 75-07-0     | 2.51E-04                          | 3.25E-04                          |
| 1,3-Butadiene  | 106-99-0    | -                                 | -                                 |
| Formaldehyde   | 50-00-0     | 1.68E-04                          | 2.18E-04                          |
| Benzene        | 71-43-2     | 7.88E-05                          | 1.03E-04                          |
| Benzo(a)pyrene | 50-32-8     | 2.05E-10                          | 2.71E-10                          |



## **APPENDIX E**

### **WARNING CLAUSE**

## **Summary of Applicable Warning Clauses**

### ***Air Quality, Dust, and Odour Warning Clause:***

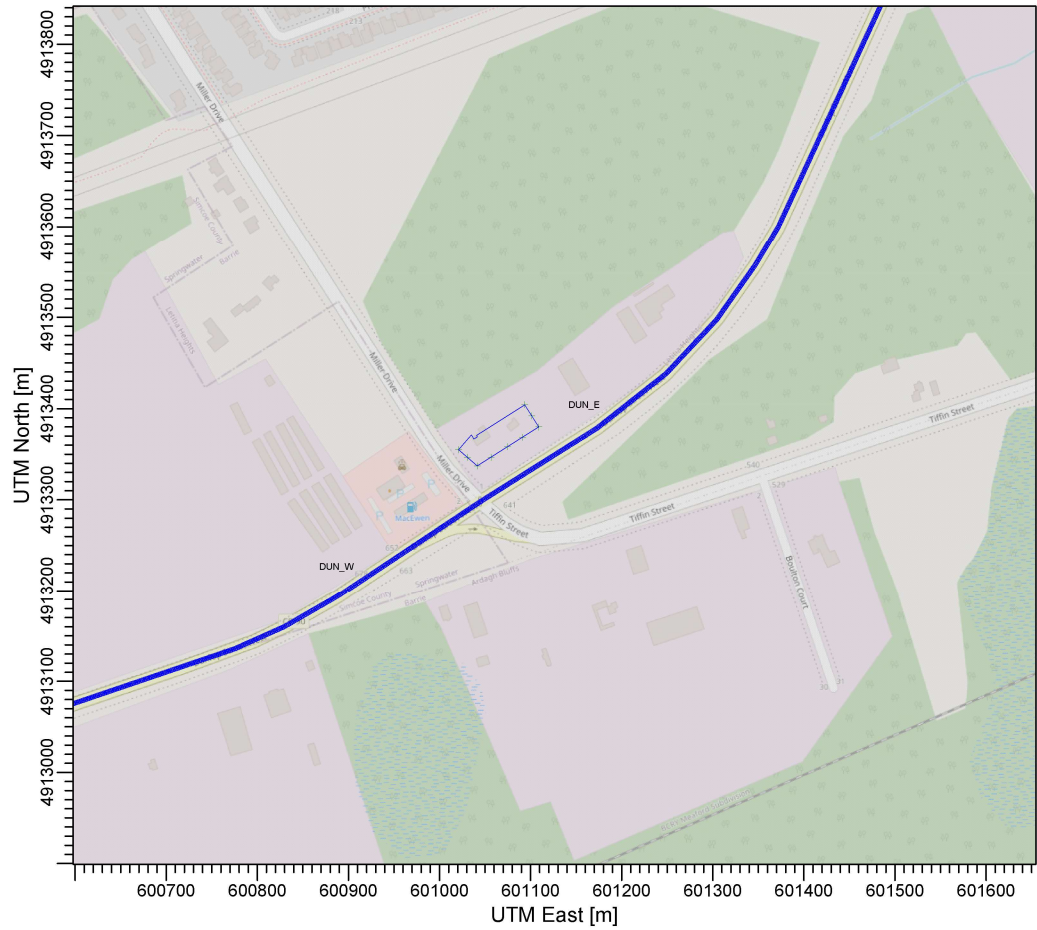
“Purchasers/tenants are advised that due to the proximity of adjacent industries, dust and odour from the facilities may at times be perceptible.”



## **APPENDIX F**

### **AERMOD OUTPUTS**

PROJECT TITLE:  
**642 Dunlop Street, Barrie  
Base**



|                                  |                             |                                                                                                                           |                                                                                       |
|----------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| COMMENTS:<br><br>TRAP Assessment | SOURCES:<br><br><b>2</b>    | COMPANY NAME:<br><br><b>SONAIR Environmental Inc.</b>                                                                     |                                                                                       |
|                                  | RECEPTORS:<br><br><b>45</b> | MODELER:<br><br><b>TL</b>                                                                                                 |  |
|                                  |                             | SCALE:<br><br>1:6,643<br><br>0  0.2 km |                                                                                       |
|                                  |                             | DATE:<br><br><b>2023-12-18</b>                                                                                            | PROJECT NO.:<br><br><b>1265.001</b>                                                   |

# Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

## BASE - Concentration - Source Group: DUN\_E

| Averaging Period | Rank | Peak      | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|-----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| 1-HR             | 1ST  | 162.48804 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 8.40      | 235.00    |                       |
| 1-HR             | 1ST  | 189.43278 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 8.40      | 235.00    | 1997-01-01, 19        |
| 1-HR             | 1ST  | 232.36093 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 8.40      | 235.00    | 1999-12-31, 7         |
| 1-HR             | 1ST  | 228.95513 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 8.40      | 235.00    | 1999-01-11, 24        |
| 1-HR             | 1ST  | 232.61491 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 5.60      | 235.00    | 1999-12-31, 7         |
| 1-HR             | 1ST  | 236.02642 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 5.60      | 235.00    | 1999-01-11, 24        |
| 1-HR             | 1ST  | 239.90920 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 5.60      | 235.00    | 1999-01-11, 24        |
| 1-HR             | 1ST  | 189.06599 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 5.60      | 235.00    | 1999-12-31, 7         |
| 1-HR             | 1ST  | 156.25018 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 5.60      | 235.00    |                       |
| 24-HR            | 1ST  | 81.55714  | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 8.40      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 97.29974  | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 137.21785 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 148.61921 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 155.22253 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 158.57025 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 160.59141 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 117.11748 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| 24-HR            | 1ST  | 95.40863  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 5.60      | 235.00    | 1999-02-11, 24        |
| MONTH            | 1ST  | 22.00187  | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 28.77391  | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |

## Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_E

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| MONTH            | 1ST  | 42.90180 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 49.48768 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 54.01826 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 56.42642 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 58.05871 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 40.52897 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| MONTH            | 1ST  | 30.96852 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| ANNUAL           |      | 16.91739 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 22.16359 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 33.14566 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 38.52166 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 42.28111 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 44.31424 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 45.71911 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 31.83559 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 24.26018 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 17.67624 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 16.85812 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 17.40835 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 16.15418 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |

# Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

## BASE - Concentration - Source Group: DUN\_E

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| ANNUAL Y5        |      | 16.49004 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 23.15428 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 22.07647 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 22.78824 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 21.19842 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 21.60056 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 34.62137 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 32.98670 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 34.03640 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 31.76653 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 32.31732 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 40.28759 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 38.35483 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 39.48380 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 36.92205 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 37.56004 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 44.26302 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 42.20199 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 43.30671 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 40.47376 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |

# Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

## BASE - Concentration - Source Group: DUN\_E

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| ANNUAL Y5        |      | 41.16006 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 46.41574 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 44.32462 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 45.38163 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 42.38156 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 43.06765 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 47.90208 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 45.81351 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 46.82085 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 43.69404 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 44.36508 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 33.37219 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 31.83115 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 32.60481 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 30.42583 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 30.94396 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 25.43160 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 24.20503 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 24.85492 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 23.19453 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |

## Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_E

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| ANNUAL Y5        |      | 23.61484 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |

## Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_W

| Averaging Period | Rank | Peak      | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|-----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| 1-HR             | 1ST  | 186.04758 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 11.20     | 235.00    | 1998-02-08, 5         |
| 1-HR             | 1ST  | 216.68538 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 11.20     | 235.00    | 1996-01-11, 2         |
| 1-HR             | 1ST  | 270.85393 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 8.40      | 235.00    | 1996-01-11, 2         |
| 1-HR             | 1ST  | 274.64108 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 8.40      | 235.00    | 1996-01-11, 2         |
| 1-HR             | 1ST  | 280.08351 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 11.20     | 235.00    | 1997-01-31, 6         |
| 1-HR             | 1ST  | 282.45939 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 11.20     | 235.00    | 1998-01-12, 6         |
| 1-HR             | 1ST  | 277.41321 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 11.20     | 235.00    | 1997-12-14, 21        |
| 1-HR             | 1ST  | 233.31635 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 11.20     | 235.00    | 1998-12-27, 4         |
| 1-HR             | 1ST  | 198.79148 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 11.20     | 235.00    | 1998-12-24, 1         |
| 24-HR            | 1ST  | 71.59116  | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 8.40      | 235.00    | 1997-01-02, 24        |
| 24-HR            | 1ST  | 75.63359  | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 8.40      | 235.00    | 1997-01-02, 24        |
| 24-HR            | 1ST  | 82.15258  | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    | 1997-01-02, 24        |
| 24-HR            | 1ST  | 67.43969  | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 8.40      | 235.00    | 1997-12-18, 24        |
| 24-HR            | 1ST  | 64.56156  | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 11.20     | 235.00    | 1998-12-24, 24        |
| 24-HR            | 1ST  | 63.29153  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 11.20     | 235.00    | 1998-12-24, 24        |
| 24-HR            | 1ST  | 59.91653  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 11.20     | 235.00    | 1998-12-24, 24        |
| 24-HR            | 1ST  | 50.72029  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 11.20     | 235.00    | 1998-12-24, 24        |
| 24-HR            | 1ST  | 41.65875  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 11.20     | 235.00    | 1998-12-24, 24        |
| MONTH            | 1ST  | 22.65722  | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 26.21121  | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    | 1998-12-31, 24        |

## Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_W

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| MONTH            | 1ST  | 31.34576 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 23.99552 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 20.15693 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 8.40      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 17.48831 | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 8.40      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 15.12860 | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 8.40      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 13.69311 | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 8.40      | 235.00    | 1998-12-31, 24        |
| MONTH            | 1ST  | 12.35357 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 8.40      | 235.00    | 1998-12-31, 24        |
| ANNUAL           |      | 15.79328 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 18.12139 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 21.25853 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 15.39573 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 11.16355 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 8.80595  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 7.11878  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 6.80509  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL           |      | 6.47726  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 16.69406 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 16.24015 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 16.13652 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 14.88419 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |

# Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

## BASE - Concentration - Source Group: DUN\_W

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| ANNUAL Y5        |      | 15.01147 | ug/m^3 | 12          | 601020.92 | 4913355.02 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 19.14653 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 18.70214 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 18.52505 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 17.04445 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 17.18876 | ug/m^3 | 23          | 601030.61 | 4913346.50 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 22.44978 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 22.08551 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 21.76193 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 19.92704 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 20.06838 | ug/m^3 | 34          | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 16.26982 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 16.24561 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 15.82277 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 14.30043 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 14.34000 | ug/m^3 | 45          | 601056.53 | 4913346.66 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 11.79480 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 11.92743 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 11.51934 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 10.29912 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |

## Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_W

| Averaging Period | Rank | Peak     | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|----------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| ANNUAL Y5        |      | 10.27705 | ug/m^3 | 53          | 601074.64 | 4913358.11 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 9.29939  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 9.47843  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 9.11377  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 8.08369  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 8.05449  | ug/m^3 | 63          | 601091.12 | 4913368.57 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 7.51421  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 7.70568  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 7.38708  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 6.50332  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 6.48362  | ug/m^3 | 73          | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 7.19692  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 7.32317  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 7.03524  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 6.24120  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 6.22891  | ug/m^3 | 82          | 601101.22 | 4913392.17 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 6.86578  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 6.93141  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 6.67649  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 5.95445  | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |

## Sensitive Receptor Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_W

| Averaging Period | Rank | Peak    | Units  | Receptor ID | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|---------|--------|-------------|-----------|------------|-----------|-----------|-----------|-----------------------|
| ANNUAL Y5        |      | 5.95819 | ug/m^3 | 95          | 601093.55 | 4913404.18 | 235.00    | 0.00      | 235.00    |                       |

# Results Summary

642 Dunlop Street, Barrie  
Base

## BASE - Concentration - Source Group: DUN\_E

| Averaging Period | Rank | Peak      | Units  | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|-----------|--------|-----------|------------|-----------|-----------|-----------|-----------------------|
| 1-HR             | 1ST  | 239.90920 | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 5.60      | 235.00    | 1999-01-11, 24        |
| 24-HR            | 1ST  | 160.59141 | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    | 1999-02-11, 24        |
| MONTH            | 1ST  | 58.05871  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    | 1996-06-30, 24        |
| ANNUAL           |      | 45.71911  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 47.90208  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 45.81351  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 46.82085  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 43.69404  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 44.36508  | ug/m^3 | 601108.89 | 4913379.90 | 235.00    | 0.00      | 235.00    |                       |

## Results Summary

642 Dunlop Street, Barrie  
Base

### BASE - Concentration - Source Group: DUN\_W

| Averaging Period | Rank | Peak      | Units  | X (m)     | Y (m)      | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|------------------|------|-----------|--------|-----------|------------|-----------|-----------|-----------|-----------------------|
| 1-HR             | 1ST  | 282.45939 | ug/m^3 | 601091.12 | 4913368.57 | 235.00    | 11.20     | 235.00    | 1998-01-12, 6         |
| 24-HR            | 1ST  | 82.15258  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    | 1997-01-02, 24        |
| MONTH            | 1ST  | 31.34576  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    | 1998-12-31, 24        |
| ANNUAL           |      | 21.25853  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y1        |      | 22.44978  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y2        |      | 22.08551  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y3        |      | 21.76193  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y4        |      | 19.92704  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |
| ANNUAL Y5        |      | 20.06838  | ug/m^3 | 601041.33 | 4913337.14 | 235.00    | 0.00      | 235.00    |                       |