

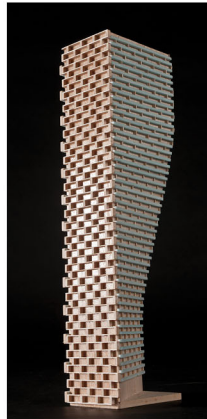
# GRADIENTWIND

ENGINEERS & SCIENTISTS

## LAND USE COMPATIBILITY STUDY

1995 Dundas Street East  
Mississauga, Ontario

REPORT: GW23-020-LUC



November 7, 2024

PREPARED FOR

**Landeal Asset Management Inc.**

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PREPARED BY

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## EXECUTIVE SUMMARY

This report describes land-use compatibility study undertaken in support of a municipal application for the property at 1995 Dundas Street East, in Mississauga, Ontario. The proposed development comprises a two-building mixed-use residential building. The complete scope of work within our mandate includes studies for air quality and stationary noise impacts from surrounding industrial-use properties. Figure 1-3 illustrate the subject site and surrounding zoning. This report has been updated to address minor changes to the building design, and the original calculation or the March 3, 2023 report remain unchanged.

In keeping with standard building construction and good engineering practice, as well as City of Mississauga guidelines, the following comments and recommendations are provided to be incorporated into the design of the building to ensure indoor air quality is maintained for future developments:

- (i) Sensitive land use is feasible.
- (ii) The development meets the minimum recommended separation distance from established industries operating with a valid ECA.
- (i) Based on Gradient Wind's experience on other projects in the area, air quality impacts from surrounding roadways are expected to be minor with gaseous concentrations of Nitrogen Dioxide (NO<sub>2</sub>), Carbon Monoxide (CO), and Particulate Matter (PM) remaining compliant with the MECP's Ambient Air Quality Criteria (AAQC). With improvements to vehicle technology, concentrations are expected to reduce in the future.
- (iii) In line with standard building practices, design, install, operate, and maintain air filtration at the fresh air intakes of the mechanical systems serving all habitable areas, including the addition of air conditioning. The areas that would not require filtered air would be parking garages and utility spaces. Minimum Efficiency Reporting Value (MERV) 8 certification filters should be used for this development. Details of the air filtration system will be designed by the mechanical engineers during the detailed design phase.



- (IV) Under reasonable future growth scenarios for roadway traffic volume, technological improvements and more stringent emission standards will likely result in lower emissions and improved air quality for the site over time.

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## **1. INTRODUCTION**

Gradient Wind Engineering Inc. (Gradient Wind) has been retained by Landeal Asset Management Inc. to undertake a land use compatibility study, to support a Zoning By-law Amendment Application, for the property at 1995 Dundas Street East, in Mississauga, Ontario. The complete scope of work within our mandate includes the assessment of air quality and stationary noise impacts from surrounding industrial-use properties. Transportation noise impacts are covered under a separate report by others. The study is based on the Ontario Ministry of Environment, Conservation and Parks (MECP) Land Use Compatibility Guidelines (D-Series) and other relevant MECP guidelines, architectural drawings provided by RAW Design in November 2024

The proposed development comprises two mixed-use residential buildings, Phase A & B. The site is located in the northwest quadrant of the intersection of Dundas Street East and Universal Drive. The surrounding uses consist of low-rise commercial and employment uses. Along the Dundas Street East corridor, the land is zoned Commercial (C3). Beyond the commercial zone is Employment (E2). Figure 1-3 illustrate the subject site and surrounding zoning.

It should be noted that information regarding complaints and/or concerns with regard to air quality and/or noise are predominantly obtained via a Freedom of Information (FOI) request made to the Ministry of Ontario Freedom of Information Office. Complaint history gathered from this request is typically a useful tool during the preliminary evaluation stage of the nearby facilities. However, taking into account the exceptionally long processing time necessary for each FOI request, in addition to the intrinsic nature of the focus area and its surroundings, Gradient Wind concluded that the information gathered from the FOI request would not be a crucial aspect of the analysis and would likely have a negligible impact on the overall findings.

Gradient Wind conducted a site visit and on March 2, 2023. During the site visit, a circuit was made around Universal Drive, Lenworth Drive, Wharton Way, and Dundas Street East. On site, it was observed that the dominant source of noise was from roadway traffic from Dundas Street East and Universal Drive. No sources of emissions or odour were detected.



## **2. STUDY METHODOLOGY**

### **2.1 Land Use Compatibility in relation to Provincial Policy Statement (PPS)**

Related to land use compatibility, the Provincial Policy Statement (PPS 2024) policy 3.5.1 states:

*Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.*

Where *major facilities* are defined as:

*Facilities which may require separation from sensitive land uses, including but not limited to airports, manufacturing uses, transportation infrastructure and corridors, rail facilities, marine facilities, sewage treatment facilities, waste management systems, oil and gas pipelines, industries, energy generation facilities and transmission systems, and resource extraction activities.*

Based on a review of the surroundings, the only major facilities as defined by the PPS in proximity to the development are arterial roadways and light industrial facilities. As demonstrated in this study, the development maintains the recommended setback distances (i.e. the development is not in the potential influence area) from these industries as described in Ontario Ministry of Environment, Conservation and Parks D-6 Guidelines regarding Compatibility between Industrial Facilities. The potential influence zone of light, medium and heavy industries is 70 m, 300 m and 1,000 m respectively, as discussed in Section 2.3.

Policy 3.4.1 of the PPS states:

*Planning for land uses in the vicinity of airports, rail facilities and marine facilities shall be undertaken so that:*

- a) their long-term operation and economic role are protected; and*



- b) *airports, rail facilities and marine facilities and sensitive land uses are appropriately designed, buffered and/or separated from each other, in accordance with policy 3.5*

There are no airports, or marine facilities within the influence zone of the Subject Lands that noise, emission, dust or odour would be of concern.

The surrounding commercial lands (C3-General Commercial) permit a variety of possible future uses, however, these are all strictly mixed-use commercial in nature and would not be classified as industrial. Furthermore, the C3 zone allows for sensitive land uses such as hotels, schools, colleges, university, and conference centres. The employment zone (E2-Employment) permits a variety of light industrial uses which must primarily be contained inside a building, with an accessory use of outdoor storage.

## **2.2 Identifying Critical Points of Impingement**

The critical points of impingement for this study include fresh-air intakes, public sidewalks, walkways, building entrances, balconies, and terraces/green roofs devoted to common amenity space. Different receiver location types can have varying exposure times and sensitivities to pollutants. For instance, fresh air intakes continuously provide air to the building's mechanical systems and can affect a large number of the building's occupants, making them the most sensitive. Main entrances operate intermittently, predominantly during daytime hours; therefore, the sensitivity of these locations is lower.



## 2.3 Identifying Emissions Sources

Following the definition of the critical points of impingement, a review of the study area was conducted to locate sources of airborne pollutants and odours. In general, emission sources that are considered as potentially influential to residential properties include nearby, existing industrial facilities.

Industrial processes are bound by the requirements of Section 9 of the Environmental Protection Act (EPA) R.S.O 1990 and Ontario Regulation (O. Reg.) 419/05 - Air Pollution and Local Air Quality. Section 9 of the Environmental Protection Act states that *“No person shall, except under and in accordance with an environmental compliance approval, use, operate, construct, alter, extend or replace any plant, structure, equipment, apparatus, mechanism or thing that may discharge or from which may be discharged a contaminant into any part of the natural environment other than water”*. Despite compliance to Section 9 of the EPA, a facility may be liable under Section 14 of the EPA if they permit the discharge of a contaminant, including odour, which causes an adverse effect. Under O. Reg 419/05 *“a person shall not discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect”*.

In order to obtain and maintain an Environmental Compliance Approval (ECA) (formerly referred to as a Certificate of Approval (CoA)), the emitting source must show compliance with O. Reg. 419/05.

Compliance with O. Reg. 419/05 for air emissions is shown through an Emissions Summary and Dispersion Modelling (ESDM) report. An ESDM report quantifies all emissions from a facility and must demonstrate, through air dispersion modelling, that contaminant concentrations are below standards prescribed in O.Reg 419/05 at all points of impingement.

To minimize the potential for adverse impacts of industrial activities on sensitive land uses the MECP has provided guidelines for adequate buffering of incompatible land uses under “Guideline D-6 Compatibility Between Industrial Facilities and Sensitive Land Uses”. The minimum separation distances are based on both the size of a facility and the scope of industrial activities within the facility, classified as Class I, II, or III, for light, medium and heavy industrial uses, respectively. Table 1 summarizes the recommended separation distance and potential area of influence for each class. A sensitive development may be permitted within an industrial influence zone if appropriate air quality studies are undertaken, and





potential causes of adverse effects are mitigated. It is noted that there are no facilities in proximity to the site operating as propane storage and/or distribution facilities.

**TABLE 1: D-6 RECOMMENDED SEPERATION & INFLUENCE AREA**

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

Based on a review of the surroundings via aerial imagery and a search of the MECP “Access Environment” database of registered ECA and EASR permit holders, the following industries have been identified:

**Class I**

**2615 Wharton Glen Avenue**

This property, Dominion Colour Corporation, operates a manufacturing facility of inks, paints and coatings with an Environmental Compliance Approval (ECA#: 8429-A35QP5). Activities include mixing and blending tanks, paint booths, curing ovens, and maintenance activities. The facility is mainly indoors with small stacks on the roof, therefore the facility is considered to be a Class I industry. The facility is 240 m from the site and is beyond the potential influence are so no adverse impacts are expected.

**3279 Lenworth Drive**

Cameron Compressor Limited operates a pump repair and manufacturing facility with ECA# 4695-7DYGQ8. They operate a paint spray booth. The Class I facility is located more then 600 m from the subject site and beyond the potential influence area. No adverse impacts are expected at the subject site.

**3197 Lenworth Drive**

Paint-A-Car Collision operates an auto repair facility with ECA# : 1798-5L4PP5. They operate two paint spray booths. The Class I Industry is more then 400 m from the site and beyond the potential influence area. No adverse impacts are expected at the subject site.



**1865 Sharlyn Road & 3280 Wharton Way**

Wajax operates an equipment sale and maintenance facility and has two adjacent business with ECA# 9441-967PNX and 1476-4H8JV5. The Class I facility is located at 750 m from the subject site and beyond the potential influence area. No adverse impacts are expected at the subject site.

**3227 Lenworth Drive**

Automotive Refinish Technologies Inc. operates an automotive refinishing facility with ECA# 5446-549SJ3. The facility is more than 500 m from the subject site and beyond the potential influence area. No adverse impacts are expected at the subject site.

**3075 Lenworth Drive**

Switzer Carty Transportation operates a school bus storage and maintenance facility. The facility has no ECA and the only anticipated emissions would be from idling buses. The facility would be considered a Class I industry, is located more than 70 m from the subject site and beyond the potential influence area. No adverse impacts are expected at the subject site.

**3070 Universal Drive**

Unirope Limited operates a steel rope and rigging manufacturing/sales facility. The facility has no ECA. There are no major sources of air quality or noise emissions and all operations occur inside the facility. The facility would be considered a Class I industry. With the future street proposed the facility will meet the minimum separation distance of 20 m. No adverse impacts are expected at the subject site.

**Class II**

**170 The West Mall**

Metro operates a food distribution centre. The facility does not have an ECA for air and noise so the only emissions anticipated would be from truck traffic around the facility, refrigerated trailers, and HVAC equipment on the facility. Due to the size of the facility, it is considered to be a Class II facility and is located more than 500 m from the subject site and beyond the potential influence area. No adverse impacts are expected at the subject site.



### Obsolete Industries

#### **3161 Wharton Way North**

Industrial Tires Limited operated a manufacturing facility under ECA # 3148-5HTV6E. The facility is more than 400 m from the subject site, and a meat store and design studio now occupy the building.

#### **3151 Lenworth Drive**

Perola Kitchens Interiors Limited operated a cabinet manufacturing facility under ECA# 9781-7HFHM4. The facility is no longer in operation and the building is used for offices.

#### **3076 Lenworth Drive**

The facility was formally Ideal Railings Ltd., with an ECA # 1254-7HBJ4B. It now operates as Albatross Kitchens as a store/display shop. The Class I facility is 400 m from the site and beyond the potential influence area. No adverse impacts are expected at the subject site.

## **2.4 Meteorological Data Analysis**

A statistical model for winds in Toronto was developed from approximately 40-years of hourly meteorological wind data recorded at Lester B. Pearson International Airport and obtained from Environment and Climate Change Canada. Wind speed and direction data were analyzed for each month of the year in order to determine the statistically prominent wind directions and corresponding speeds, and to characterize similarities between monthly weather patterns. Based on this portion of the analysis, the four seasons are represented by grouping data from consecutive months based on similarity of weather patterns, and not according to the traditional calendar method.

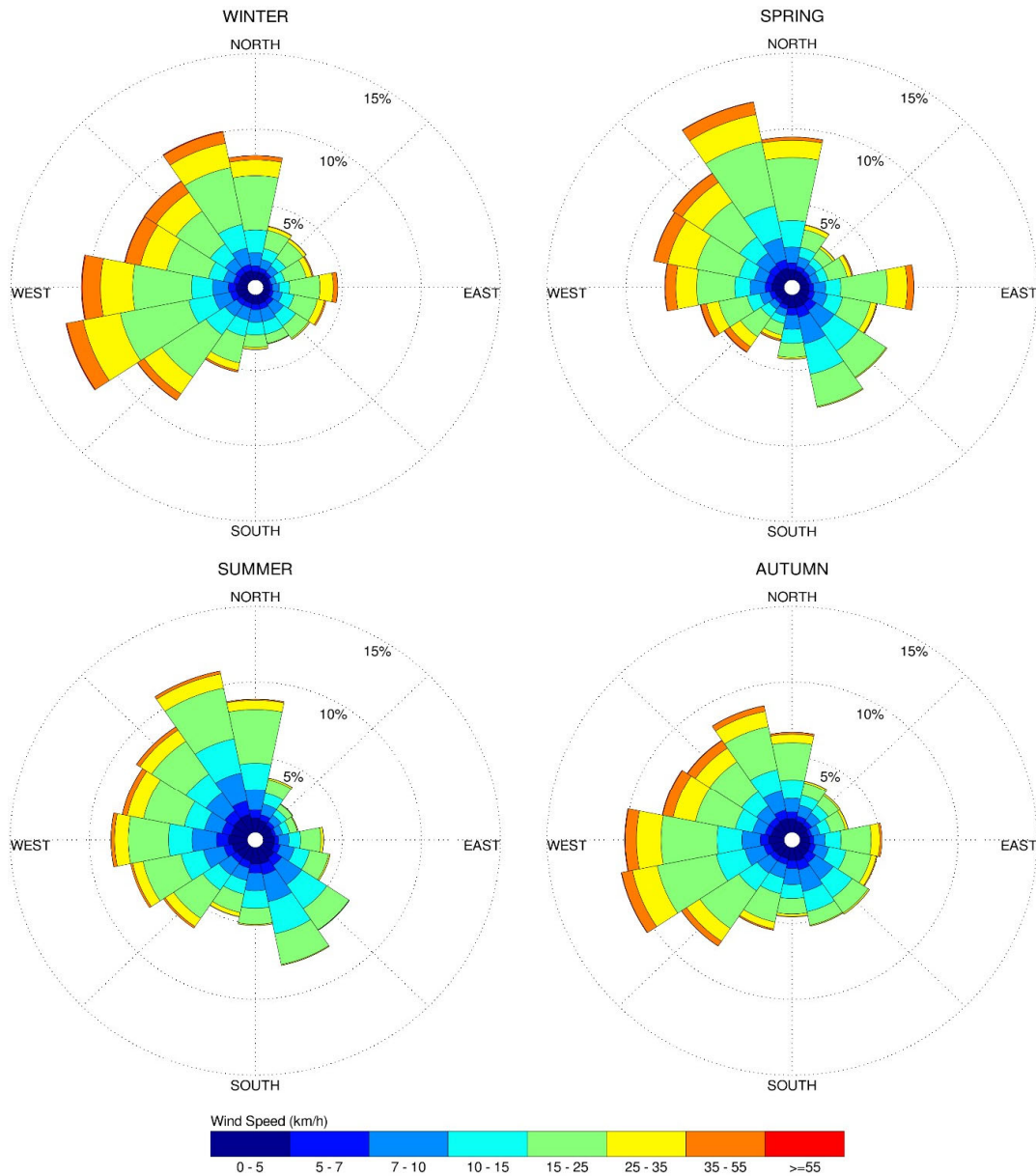
The statistical model of the Toronto area wind climate, which indicates the directional character of local winds on a seasonal basis, is illustrated on the following page. The plots illustrate seasonal distribution of measured wind speeds and directions in kilometers per hour (km/h). Probabilities of occurrence of different wind speeds are represented as stacked polar bars in sixteen azimuth divisions. The radial direction represents the percentage of time for various wind speed ranges per wind direction during the measurement period. The common wind speeds and directions can be identified by the longer length of the bars. For Toronto, the most common winds concerning pedestrian comfort occur from the southwest clockwise to the north, as well as those from the east. The directional preference and relative magnitude



of the wind speed vary somewhat from season to season, with the summer months displaying the calmest winds relative to the remaining seasonal periods.

## SEASONAL DISTRIBUTION OF WIND

### LESTER B. PEARSON INTERNATIONAL AIRPORT, TORONTO, ONTARIO



#### Notes:

1. Radial distances indicate percentage of time of wind events.
2. Wind speeds are mean hourly in km/h, measured at 10 m above the ground.



### **3. STATIONARY NOISE IMPACTS**

Gradient Wind investigated the potential stationary noise impacts from nearby industrial/commercial properties surrounding the subject site. As previously mentioned, the site is surrounded by mixed-use commercial and employment facilities. These properties contain small rooftop equipment for HVAC, and as such are not expected to have a significant impact on the subject site.

Stationary noise impacts of the subject site onto the surroundings will be determined at a future stage to ensure noise levels at nearby areas meet the NPC-300 criteria. Similarly, off-site noise impacts are not expected to be a concern given the set back distances to nearby existing low-rise noise-sensitive properties. Furthermore, the site will have elevated background noise levels as a result of the proximity to major roadways. Elevated background noise will serve to mitigate the effects of stationary noise sources. Where necessary, noise impacts can generally be minimized by judicious selection and placement of the proposed equipment.

### **4. TRANSPORTATION AIR QUALITY IMPACTS**

The dominant sources of transportation emissions include Dundas Street East. This is based on their distance relative to the subject site as well as their roadway/railway classifications.

Roadways are not considered within the MECP D-Series guidelines, the City of Toronto has created a report detailing the impacts of roadway traffic pollution onto sensitive buildings and ways to mitigate such impacts. This report is titled “*Avoiding the TRAP: Traffic-Related Air Pollution in Toronto and Options for Reducing Exposure*”. Based on the findings of the report, closer transportation sources typically have greater emission impacts mostly on the lower floors. The only source adjacent to the study site is Dundas Street East.

The following is a list of a few suggested mitigation strategies presented in the TRAP report to address air pollution impacts from transportation sources:



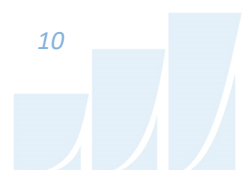
- Implementing barriers between sources and sensitive areas (i.e., physical or vegetation).
- Consideration for the location and orientation of individual buildings and outdoor amenity areas (i.e., position sensitive areas as far as possible from roadways and buffered by transitional uses).
- Mechanical building ventilation with Minimum Efficiency Reporting Value (MERV) 8 certification particulate filters.
- Where possible, only opening windows on the side of buildings that face away from TRAP sources.
- Locating ventilation intakes away from transportation sources (i.e., the highest point of the building).

It should be noted that only opening windows on the side of buildings that face away from TRAP sources may not be feasible from a design and administrative perspective. Therefore, it is important to include appropriate ventilation systems in the sensitive spaces such as centralized air conditioning, or similar equipment, to allow residents to keep windows closed and achieve a comfortable indoor environment.

With that notion, the subject property is considered to be compatible with existing TRAP sources with the inclusion of select air quality mitigation measures described above. As these are suggested mitigation strategies, it is advised that a detailed assessment be completed at a future stage to determine the appropriate air quality mitigation specific to the development.

## **5. IMPACTS ON EMPLOYMENT LANDS**

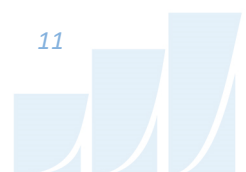
While the overall area still comprises of commercial/employment land uses, the current zoning allows for some sensitive land uses such as hotels, schools, and places of worship. There are currently a few properties in the area which are currently being used as such. The general provisions within the employment zones only allows for operations to be inside the building, so no medium or heavy industrial facilities would be permitted in the area. The change in land use will also not trigger any existing facilities to be non compliant with their ECA.



## **6. RESULTS AND CONCLUSIONS**

In keeping with standard building construction and good engineering practice, as well as City of Mississauga guidelines, the following comments and recommendations are provided to be incorporated into the design of the building to ensure indoor air quality is maintained for future developments:

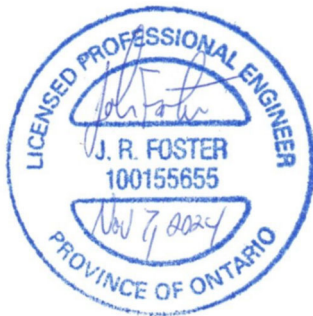
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- (iv) Under reasonable future growth scenarios for roadway traffic volume, technological improvements and more stringent emission standards will likely result in lower emissions and improved air quality for the site over time.



This concludes our land use compatibility study and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

Sincerely,

***Gradient Wind Engineering Inc.***



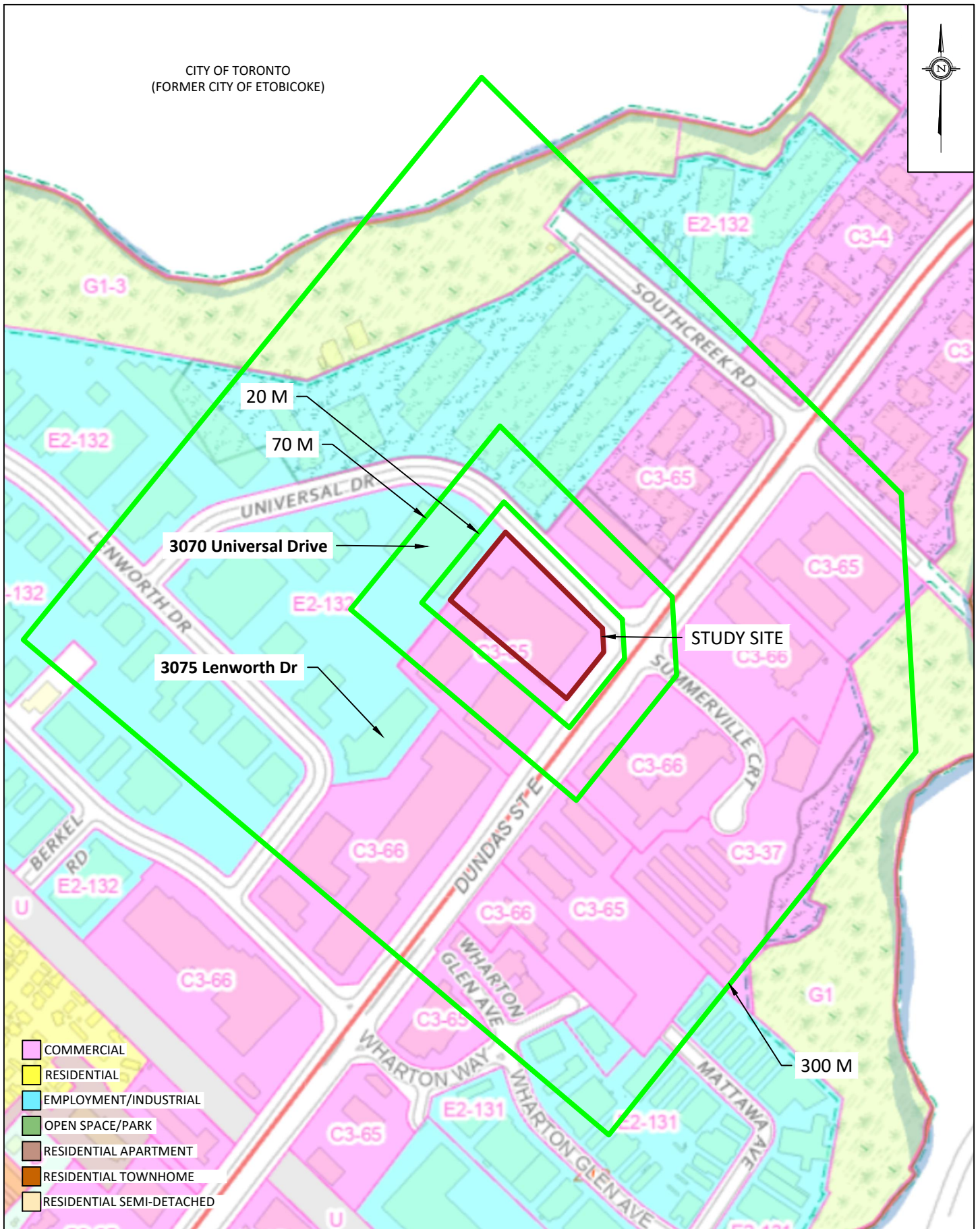
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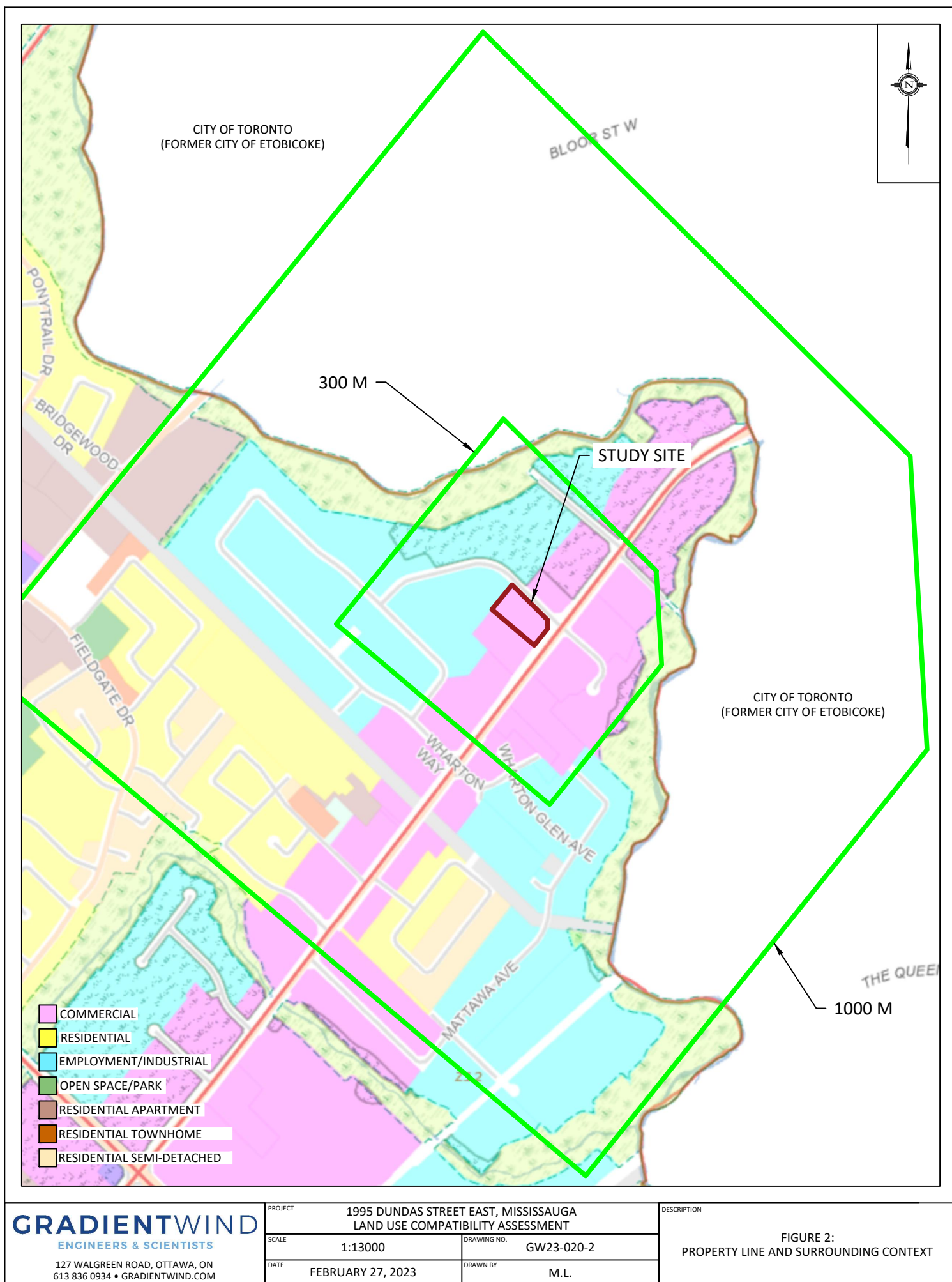
*Gradient Wind File #23-020-LUC*





CITY OF TORONTO  
(FORMER CITY OF ETOBICOKE)





<div>GRADIENTWIND</div> <div>ENGINEERS &amp; SCIENTISTS</div> <div>127 WALGREEN ROAD, OTTAWA, ON 613 836 0934 • GRADIENTWIND.COM</div>	PROJECT 1995 DUNDAS STREET EAST, MISSISSAUGA LAND USE COMPATIBILITY ASSESSMENT		DESCRIPTION  FIGURE 2: PROPERTY LINE AND SURROUNDING CONTEXT
	SCALE 1:13000	DRAWING NO. GW23-020-2	
	DATE FEBRUARY 27, 2023	DRAWN BY M.L.	



