

April 7, 2021

Barton Street Developments Inc.

12 Chiavatti Drive
Markham, ON L3R 1E2

Attn: Rajan Banwait
Broker & Development Manager
rajanbanwait@gmail.com

Dear Mr. Banwait:

Re: Land Use Compatibility Assessment
2481 Barton Street East, Hamilton
Gradient Wind File 21-061-Land Use Compatibility

1. INTRODUCTION AND TERMS OF REFERENCE

Gradient Wind Engineering Inc. (Gradient Wind) has been retained by Barton Street Developments Inc. to undertake a land use compatibility study for the proposed development located at 2481 Barton Street East in Hamilton, Ontario. The complete scope of work within our mandate includes a preliminary review and a professional opinion in terms of expected air quality and noise impacts on the development, such as the impact of emissions from nearby commercial and industrial sources as applicable. 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, as well as digital maps received from the City of Hamilton.

The study site located on a parcel of land bordered by Barton Street East to the south and adjacent commercial buildings and their respective parking lots to the north, east, and west (gas station). The development comprises a 20-storey apartment building with commercial space at grade and building access points located on the east, south and west facades. There is one storey of below-grade parking. The ground floor comprises commercial, amenity, bicycle storage, and lobby space. Floors 2-3 comprise further parking space. The building sets back from the podium at Level 4 creating a podium terrace. Level 4 comprises one-and two-bedroom residential suites as well as an amenity room. The remaining floors comprise one-and two-bedroom residential suites exclusively, with balconies serving all facades of the building. Figure 1 and 2 illustrate the study site and surrounding context.

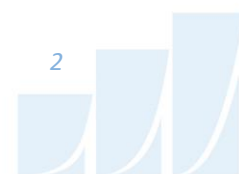
The relevant pollution sources surrounding the site include existing nearby industrial and commercial facilities. Roadways and railways are not considered within the MECP D-Series guidelines. Barton Street East and Centennial Parkway North are the primary sources of roadway emissions. Based on our experience, roadway and railway sources will not have any significant impacts on the proposed development. 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.

The primary sources of transportation noise impacting the site include Barton Street East and Centennial Parkway North. During the Rezoning and/or Site Plan Control submission stage, a transportation noise analysis will be required to determine the appropriate noise mitigation measures to ensure indoor noise levels comply with MECP NPC-300 noise guidelines. The current land use compatibility assessment also provides commentary on the potential impact of existing nearby stationary sources on the subject site. There are no railway corridors within 75 m of the study property, therefore any ground vibration impacts will be insignificant and an assessment is not required. The site is currently zoned as JJ 'Restricted Light Industrial'.

2. METHODOLOGY

2.1 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.



2.2 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 commercial/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. Figure 1 and 2 illustrate relevant setback distances from the study site, and Appendix A defines the zoning classes surrounding the study site. 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.

TABLE 1: D-6 RECOMMENDED SEPERATION & INFLUENCE AREA

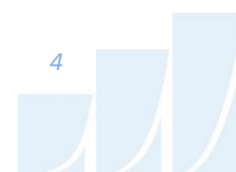
Class	Minimum Recommended Separation Distance (m)	Potential Influence Area (m)
I	20	70
II	70	300
III	300	1000

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. One Class I property, one Class II property, and four Class III properties are located within the corresponding potential influence areas, as detailed below. There are a number of commercial properties surrounding the study site, however operations at these properties are contained within the buildings, and do not contain processes which produce significant air quality or noise emissions.

Class I Industries

25 Covington Street

The property at 25 Covington Street operates a scrap metal recycling center. The facility does not have an Environmental Compliance Approval (ECA). Based on observations from satellite imagery, the facility appears to have small-scale sorting and storage yards for material. There is not expected to be significant sources of air quality emissions from the site, however stationary noise impacts from the yards may require mitigation, as determined during subsequent planning applications. It is recommended that the subject site limit noise exposure to noise sensitive areas by placing non-sensitive rooms along the north and east façades. The subject site is expected to have air conditioning installed due to elevated roadway traffic, therefore windows can remain closed during the summer months. The facility is beyond the minimum recommended separation distance.



Class II Industries

2545 Barton Street East

The property at 2545 Barton Street East operates a poultry processing and distribution center. The facility has an existing ECA (ECA#: 9414-6TVKNC). The facility contains various exhaust systems for odour emissions from unloading, hanging, boiler, defeathering, offal storage and waste treatment areas. The exhausts are equipped with a scrubber/filtration system. There are several rooftop air handling units on the roof of the building, however these are typical of most commercial developments. As such, no significant sources of emissions, odour or noise are expected from the facility. Furthermore, the facility is favorably downwind of the study site and is beyond the minimum recommended separation distance.

Class III Industries

190 Lanark Street

The property at 190 Lanark Street operates a metallurgical coke, steel slag and dolomite processing facility. The facility has an existing ECA (ECA#: 022-ACFP5T). Processes at the facility comprise material receipt and storage, material screening and drying, material handling, classification, and shipping. Sources of air quality emissions include fugitive dust and odours. Because the facility is favorably downwind of the study site and is at a similar setback distance from existing residential properties along Bow Valley Drive, no significant emission impacts, odour or noise, are expected at the study site. Furthermore, the facility is beyond the minimum recommended separation distance.

244 Lanark Street

The property at 244 Lanark Street operates a steel surface coating facility. The facility has an existing ECA (ECA#: 2423-BSZLEH). Processes at the facility comprise steel pre-treatment, wastewater treatment, washing, painting, coating, curing and quenching. Sources of air quality emissions include two afterburners and one regenerative thermal oxidizer exhausting into the air through roof stacks. Because the facility is favorably downwind of the study site and is at a similar setback distance from existing residential properties along Bow Valley Drive, no significant emission impacts, odour or noise, are

expected at the study site. Furthermore, the facility is beyond the minimum recommended separation distance.

81 Brockley Drive

The property at 81 Brockley Drive operates a hot mix asphalt plant. The facility has an existing ECA (ECA#: 1680-7QMMVX). Sources of air quality and noise emissions at the facility include a batch dryer and mixing tower, a baghouse dust collector, a natural gas fire oil heater, three hot mix asphalt storage silos, three liquid asphalt cement storage tanks, and maintenance welding activities. These sources include fugitive dust and odours. Because the facility is favorably downwind of the study site and is at a shorter setback distance from existing residential properties along Bow Valley Drive, no significant emission impacts, odour or noise, are expected at the study site. Furthermore, the facility is beyond the minimum recommended separation distance.

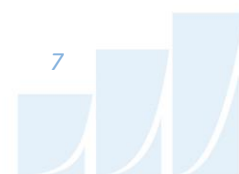
274 Lake Avenue North

The property at 274 Lake Avenue North operates a ready-mix supply business. The facility does not have an existing ECA. Sources of air quality and noise emissions at the facility include a mixing tower, a baghouse dust collector, and aggregate storage piles. These sources include fugitive dust and odours. Because the facility is favorably downwind of the study site and is at a shorter setback distance from existing residential properties along Bow Valley Drive, no significant emission impacts, odour or noise, are expected at the study site. Furthermore, the facility is beyond the minimum recommended separation distance.

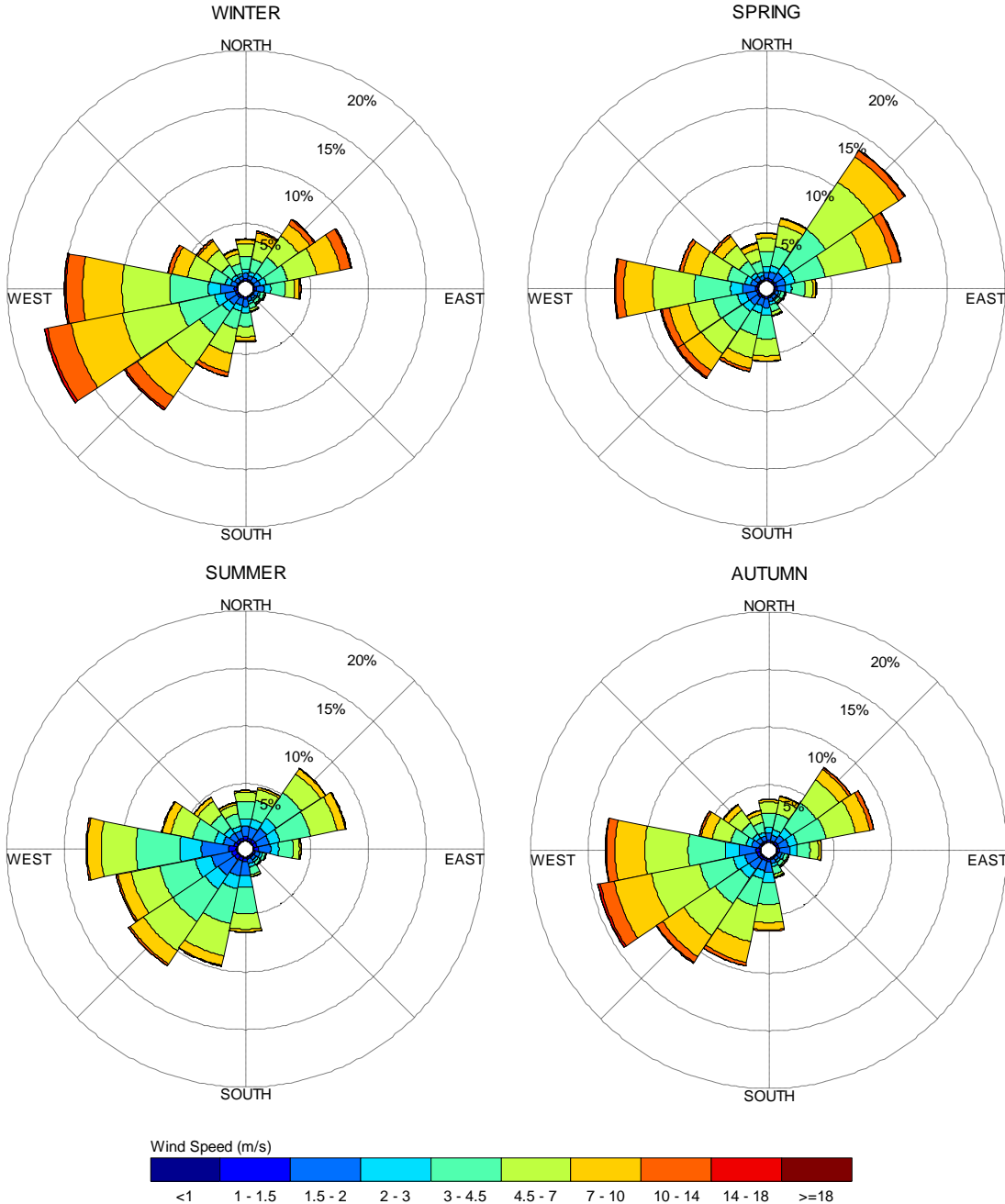
2.3 Meteorological Data Analysis

A statistical model for winds in Hamilton was developed from approximately 40-years of hourly meteorological wind data recorded at Hamilton International Airport, and obtained from the local branch of Atmospheric Environment Services of Environment 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 Hamilton 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 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 preferred wind speeds and directions can be identified by the longer length of the bars. For Hamilton, the most common winds concerning pedestrian comfort occur from the southwest clockwise to the west, as well as those from the northeast. The directional preference and relative magnitude of the wind speed varies somewhat from season to season, with the summer months displaying the calmest winds relative to the remaining seasonal periods. Westerly winds are favourable for the study site, which will force emissions from the Class III industries to the northeast, away from critical points of impingement on the study site. Northwesterly winds are less favorable, however these are only present during the spring season.



**SEASONAL DISTRIBUTION OF WINDS FOR VARIOUS PROBABILITIES
HAMILTON INTERNATIONAL AIRPORT, HAMILTON, 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.

2.4 Potential Stationary Noise Impacts – Existing Buildings and Proposed Development

Gradient Wind investigated the potential stationary noise impacts from nearby industrial/commercial properties surrounding the study site. As previously mentioned, the site is surrounded by commercial and light industrial facilities. These properties contain small rooftop equipment for HVAC, and as such are not expected to have a significant impact on the study site. Noise impacts from the property at 25 Covington Street may require mitigation, as determined at a future stage of development. It is recommended that the subject site limit noise exposure to noise sensitive areas by placing non-sensitive rooms along the north and east façades. The subject site is expected to have air conditioning installed due to elevated roadway traffic, therefore windows can remain closed during the summer months, mitigation stationary noise impacts.

Furthermore, stationary noise impacts of the subject site onto the surroundings will be determined at a future stage of development to ensure noise levels at nearby areas meet the NPC-300 criteria. Where necessary, noise impacts can generally be minimized by judicious selection and placement of the proposed equipment.

3. RESULTS AND CONCLUSIONS

In keeping with standard building construction and good engineering practice, as well as City of Hamilton and MECP 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 the proposed development:

- (i) Based on the findings of this report, Gradient Wind concludes that the residential sensitive land use is feasible.
- (ii) The development meets the minimum setback distance from established industries operating with a valid ECA for all off-site properties.
- (iii) A stationary noise assessment shall be conducted at a future stage of development to assess off-site impacts from the development, and on-site impacts from the surrounding properties.
- (iv) 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 in all occupied spaces. Details of the air filtration system will be designed by the mechanical engineers during the detailed design phase.

- (v) 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.

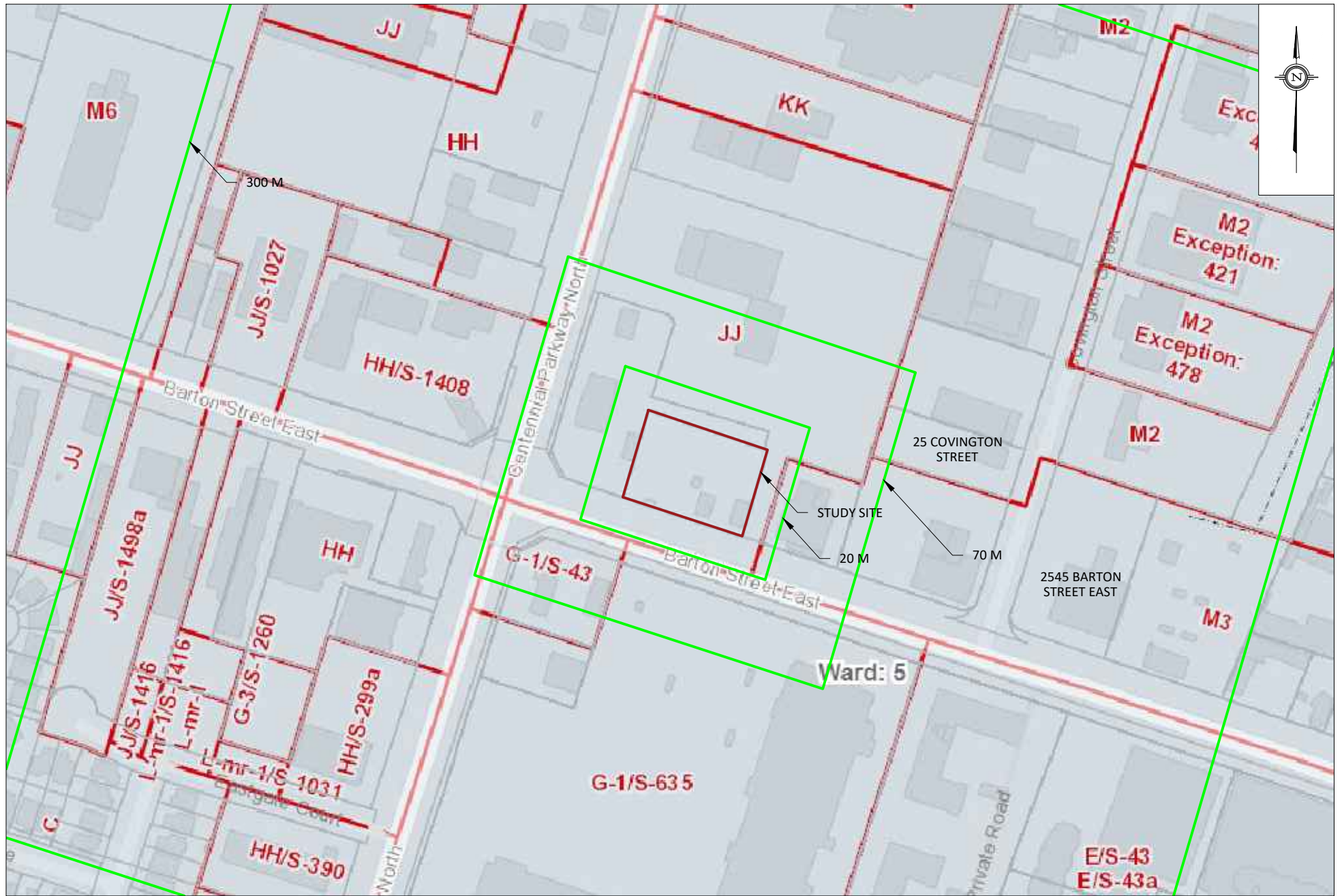


Michael Lafortune, C.E.T.
Environmental Scientist



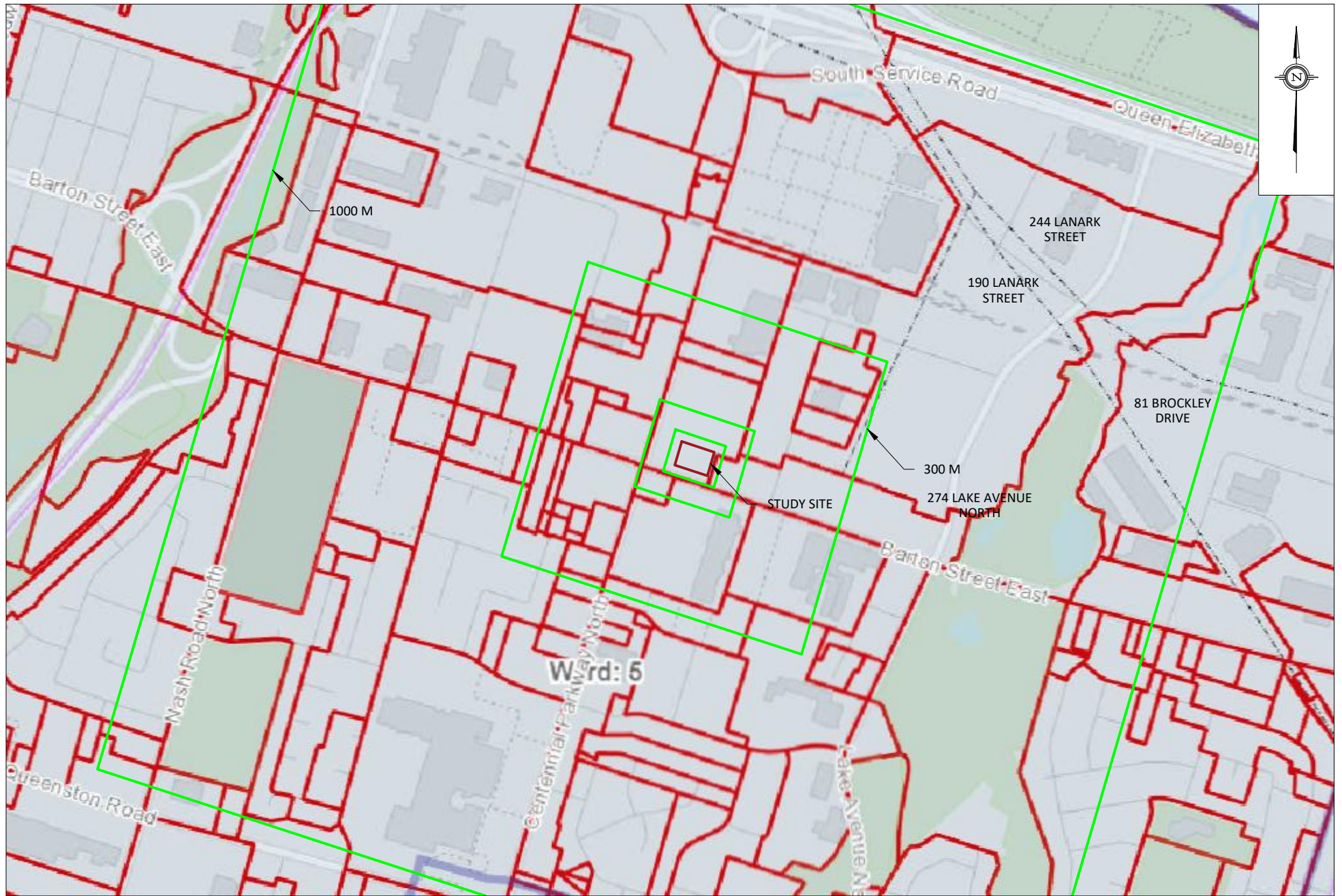
Joshua Foster, P.Eng.
Principal

Gradient Wind File #21-061-Land Use Compatibility



PROJECT	2481 BARTON STREET, HAMILTON LAND-USE COMPATIBILITY ASSESSMENT		DESCRIPTION
SCALE	1:3000 (APPROX)	DRAWING NO.	GW21-061-1
DATE	MARCH 24, 2021	DRAWN BY	M.L.

FIGURE 1:
SITE LOCATION AND SURROUNDING INDUSTRIES



GRADIENTWIND

ENGINEERS & SCIENTISTS

127 WALGREEN ROAD, OTTAWA, ON
613 836 0934 • GRADIENTWIND.COM

PROJECT	2481 BARTON STREET, HAMILTON LAND-USE COMPATIBILITY ASSESSMENT		DESCRIPTION
SCALE	1:11000 (APPROX.)	DRAWING NO.	GW21-061-2
DATE	MARCH 24, 2021	DRAWN BY	M.L.

FIGURE 2:
SITE LOCATION AND SURROUNDING INDUSTRIES

GRADIENTWIND

ENGINEERS & SCIENTISTS



APPENDIX A

ZONING BY-LAW DESCRIPTIONS – CITY OF HAMILTON

- (5) Notwithstanding subsection 4, in an "L" District, no building or structure shall be erected, altered, extended or enlarged, nor shall any building or structure or part thereof be used, nor shall any land be used except in accordance with a by-law enacted under subsection 6. (72-144)
- (6) In an "L" District, the District Maps appended to and forming part of Zoning By-Law No. 6593 shall be amended in accordance with (72-144)
 - (a) such further and other restricted area by-law as may be passed by the Council of The Corporation of the City under Section 34 of The Planning Act, (92-170)
 - (i) by changing from "L" (Planned Development) district marked "L-r" on the District Maps to either
 - A. "B" (Suburban Agricultural and Residential, etc.) District, or
 - B. "B-1" (Suburban Agricultural and Residential, etc.) District, or
 - C. "B-2" (Suburban Residential) District, or
 - D. "C" (Urban Protected Residential, etc.) District, or
 - E. "D" (Urban Protected Residential - One and Two Family Dwellings, etc.) District, or (92-170)
 - F. "R-2" (Urban Protected Residential - One and Two Family Dwelling) District, or (92-170)
 - G. "R-4" (Small Lot Single Family Dwelling) District; (92-170)
 - (ii) by changing from "L" (Planned Development) District marked "L-mr-1" on the District Maps to either,
 - A. "DE" (Low Density Multiple Dwellings) District, or
 - B. "DE-2" (Multiple Dwellings) District, or
 - C. "DE-3" (Multiple Dwellings) District, or
 - D. "E-2" (Multiple Dwellings) District;
 - E. "RT-10" (Townhouse) District; (73-245) (78-45) (78-209)

- F. "RT-20" (Townhouse-Maisonette) District; (73-245)
(78-45) (78-209)
 - G. "RT-30" (Street Townhouse) District. (78-45) (78-209)
- (iii) by changing from "L" (Planned Development) district marked "L-mr-2" on the District Maps to either
- A. "E" (Multiple Dwellings, Lodges, Clubs, etc.) District, or
 - B. "E-1" (Multiple Dwellings, Lodges, Clubs, etc.) District, or
 - C. "E-3" (High Density Multiple Dwellings) District.
- (iv) by changing from "L" (Planned Development) District marked "L-pn" on the District Maps to any one of the Districts made subject to a Public or Institutional use under subsection 4;
- (v) by changing from "L" (Planned Development) District marked "L-c" on the District Maps to either,
- A. "G" (Neighbourhood Shopping Centre, etc.) District, or
 - B. "G-1" (Designed Shopping Centre) District, or
 - C. "G-2" (Regional Shopping Centres) District, or
 - D. "G-3" (Public Parking Lots) District, or
 - E. "G-4" (Designed Neighbourhood Shopping Area) District,
or
 - F. "H" (Community Shopping and Commercial, etc.) District,
or
 - G. "HH" (Restricted Community Shopping and Commercial)
District, or
 - H. "HI" (Civic Centre Protected) District, or
 - I. "I" (Central Business, etc.) District, or (73-233)
 - J. "CR-1" District, or (73-233)
 - K. "CR-2" District, or (73-233)
 - L. "CR-3" District, or (73-233)

- M. "M-11" (Prestige Industrial) District. (74-151) (92-170)
- (vi) by changing from "L" (Planned Development) District marked "L-i" on the District Maps to either,
 - A. "J" (Light and Limited Heavy Industry, etc.) District, or
 - B. "JJ" (Restricted Light Industrial) District, or
 - C. "J-3" (Prestige Industrial) District, or
 - (vi) D. "K" (Heavy Industry, etc.) District, or
 - E. "KK" (Restricted Heavy Industrial) District or
 - F. "M-11" (Prestige Industrial) District, or (77-277)
 - G. "M-12" (Prestige Industrial) District, or (74-151)
 - H. "M-13" (Prestige Industrial) District, or (74-151)
 - I. "M-14" (Prestige Industrial) District, or (74-151)
 - J. "M-15" (Prestige Industrial) District. (77-277)
- (vii) by changing from "L" (Planned Development) District marked "L-f" on the District Maps to any one of the Districts made subject to the transportation use under subsection 4. (71-318)
- (viii) by changing from "L" (Planned Development) District marked "L-f-1" on the District Maps to,
 - A. "F-1" (Waterfront Recreational) Districts; (83-232)
- (ix) by changing from "L" (Planned Development) District marked "L-s" on the District Maps to,
 - A. An appropriate zoning district in keeping with the findings of a Special Waterfront Study for the area so designated. (83-232)
- (b) Repealed (74-78)
- (7) Repealed (74-78) (72-144)