REPORT

PLAINS ROAD AND FAIRVIEW STREET MASTER PLAN REDEVELOPMENT

BURLINGTON, ONTARIO

LAND USE COMPATIBILITY ASSESSMENT

RWDI # 2004217

May 13, 2021

SUBMITTED TO

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1 INTRODUCTION

Molinaro Group retained RWDI to undertake assessments of land use compatibility respecting a proposed residential development at 1134 & 1167 Plains Road East in Burlington, Ontario (subject lands). **Figure 1** shows the subject lands outlined and **Figure 2** shows a preliminary concept plan for the site.

Note that the results presented herein are based on an earlier iteration of this design with a shorter version of the Parcel B towers. RWDI does not expect the alteration to materially change the conclusions of this report.

The subject lands are currently zoned as Commercial Corridor (H-MXC-423). The proposed development consists of two Parcels. Parcel A will consist of a 35-storey and a 30-storey tower connected with a 2-storey podium. Parcel B will include 30-storey and 22-storey towers connected with a 2-storey podium.

The scope of this study was to assess the potential for impact from adjacent and nearby properties that may be a source of pollutants, dust, odour, noise and/or vibration on the proposed development. To investigate this potential, the following tasks were undertaken:

- Site visit to identify types and nature of existing land uses in the area;
- Review of the Preliminary Concept Plan for the subject lands;
- Review of zoning by-law information;
- Review of Guideline D-6 from the Ministry of the Environment, Conservation and Parks (MECP);
- Review of MECP's Environmental Compliance Approvals (ECA) for existing industries within 1000 m of the subject lands;
- Review of Environment and Climate Change Canada's (ECCC) National Pollutant Release Inventory (NPRI) data for industries within 1000 m of the subject lands;
- Review of meteorological data; and,
- Interpretation of the above information based on our experience with air quality, dust, odour, noise and vibration effects.

The study investigated the compatibility of the proposed mixed-use development with existing industrial land uses up to 1000 m from the subject lands.

2 INDUSTRIAL AIR EMISSIONS AND NOISE

2.1 Applicable Guidelines

The following guidelines relate to assessing the potential for adverse air quality and noise impacts from industry:

- Ontario Environmental Protection Act and Ontario Regulation 419/05;
- Environmental Noise Guideline – Stationery and Transportation Sources – Approval and Planning (NPC-300), (MOE, 2013); and
- D-6 Compatibility between Industrial Facilities (MOE, 1995).

The applicability of each of these guidelines is discussed below.

2.2 Ontario Environmental Protection Act and Regulation 419/05

Industrial air and noise emissions in Ontario are governed by the Environmental Protection Act (EPA) and its regulations. **Table 1** summarizes key sections of the EPA and the relevant MECP regulations.

Table 1: Summary of Ontario Regulations

Ontario Statute	Section	Summary
EPA	9	Prohibits the use, operation, construction, alteration, expansion or replacement of anything that may discharge a contaminant into the atmosphere, unless in accordance with an Environmental Compliance Approval (ECA), issued by MOECP. There are exceptions to this requirement for certain minor types of emission sources.
Reg. 419/05	Various Sections	Sets out requirements for air quality modelling and reporting that must be completed when applying for an ECA.
EPA	14	Prohibits anyone from discharging a contaminant (including noise and odour) into the environment if it causes or may cause an adverse effect.
		Adverse effect: impairment of the quality of the natural environment for any use; injury or damage to property or to plant or animal life; harm or material discomfort to any person; an adverse effect on the health of any person; rendering any property or plant or animal life unfit for human use; loss of enjoyment of normal use of property; and/or interference with the normal conduct of business.
419/05	45	Prohibits anyone from causing or permitting the emission of any air contaminant to a degree that may cause discomfort to persons, loss of enjoyment of normal use of property, interference with normal conduct of business or damage to property.
419/05	46	Prohibits anyone from causing or permitting visible emissions if they obstruct the passage of light by more than 20% for at least 6 minutes.
419/05	Schedules 2 and 3	Sets out standards for air contaminant concentrations.
419/05	19 and 20	Prohibits anyone from causing or permitting the standards to be exceeded at points of impingement.

2.3 Environmental Noise Guideline NPC-300

The MECP Environmental Noise Guideline NPC-300, Stationery and Transportation Sources – Approval and Planning (MOECC, 2013) sets out requirements for noise and vibration modelling, monitoring, and reporting that must be completed when applying for an ECA. The guideline also supports land use applications made under the Planning Act. Guidance from NPC-300 was used to assess environmental sound from industrial sources. NPC-300 also specifies that industry and road traffic noise are to be assessed separately.

NPC-300 noise criteria applicable to an industry vary depending on the character of ambient noise in the surrounding area. Class 1 is an urban area with an acoustic environment that is continuously dominated by the sounds of human activity, as would be found in a major urban centre. Class 2 areas are suburban or semi-rural areas where sounds of human activity drop off earlier in the evening. Class 3 areas are rural where the acoustic environment is dominated by natural sounds. The acoustic environment surrounding the study area would be classified as a Class 2 area.

Industrial sources are required to meet daytime, evening and nighttime 1-hour L_{EQ} sound level limits as summarized in **Table 2**.

Table 2 provides both outdoor point of reception criteria and plane of the window criteria at the receptor. Outdoor points of reception are assessed when associated with dwellings or noise sensitive zoned lots. For dwellings, the outdoor point of reception is on the land use within 30 m of a façade of the building, at a height of 1.5 m above ground, in backyards, front yards, terraces or patios. Points of reception at the façade of a building include windows or openings in the façade leading to noise sensitive spaces such as bedrooms, living rooms, eat in kitchens, classrooms, therapy or treatment rooms, and assembly spaces for worship.

Table 2: NPC-300 Limits for Industrial Sources

Time of Day	Time Period	Exclusion Limit for Outdoor Points of Reception	Exclusion Limit for Plane of Window of Noise Sensitive Spaces
		Class 2, L_{EQ-1hr}	Class 2, L_{EQ-1hr}
Daytime	07:00-19:00h	50 dBA	50 dBA
Evening	19:00-23:00h	45 dBA	50 dBA
Nighttime	23:00-7:00h	45 dBA	45 dBA

Another important piece of legislation is the Ontario Environmental Bill of Rights (EBR). Section 22 of the EBR requires the MECP to give public notice of certain classes of proposals, including a proposal to issue an ECA. Section 38 of the EBR grants any resident of Ontario the right to seek leave to appeal an MECP decision to issue and ECA.

2.4 D-Series Guidelines

In addition to the regulations cited in the preceding sections, land use considerations are another means to reduce the risk of adverse air quality and noise effects from industrial facilities. For example, this can be achieved by creating a land use buffer between industry and a sensitive land use, such as residences, schools, seniors' facilities, daycares, hospitals, churches and campgrounds. The MECP has a guideline (D-6: Compatibility between Industrial Facilities) to assist planners in establishing adequate buffers.

The D-series guidelines, and specifically Guideline D-6, are intended to minimize encroachment of sensitive land uses on industrial facilities and vice versa. It addresses potential incompatibilities due to emissions such as noise, odour and dust. Guideline D-6 provides a classification scheme for industries, based on their potential for fugitive emissions that could cause adverse effects. For each class, the guideline provides an estimate of a potential influence area and a recommended minimum separation distance between each class of industry and sensitive land use (see **Table 3**).

Table 3: Summary of Guideline D-6

Industry Class	Definition	Potential Influence Area	Recommended Minimum Separation Distance (property line to property line)
I	Small scale, self-contained, daytime only, infrequent heavy vehicle movements, no outside storage.	70m	20m
II	Medium scale, outdoor storage of wastes or materials, shift operations and frequent heavy equipment movement during the daytime.	300m	70m
III	Large scale, outdoor storage of raw and finished products, large production volume, continuous movement of products and employees during daily shift operations.	1000m	300m

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule and intensity of operations. **Table 4** provides the classification criteria. A comparison with anticipated operations at each of the businesses nearby the proposed development is provided in **Appendix B**.

Often an industry will fall between two classes and judgment is required to apply the most appropriate classification given the balance of the criteria. Guideline D-6 states that no incompatible development should occur within the recommended minimum separation distance as noted in **Table 3**. Section 4.10 of D-6 however identifies exceptional circumstances with respect to redevelopment, infill and mixed-use areas. In these cases, the guideline suggests that separation distances less than the recommended minimum values may be acceptable if a justifying impact assessment is provided.

Table 4: Guideline D-6 Industrial Categorization Criteria

Criteria	Class I	Class II	Class III
Outputs	• Sound not audible off property • Infrequent dust and/ or odour emissions and not intense	• Sound occasionally audible off property • Frequent dust and/ or odour emissions and occasionally intense	• Sound frequently audible off property • Persistent and intense dust and/ or odour emissions
Scale	• No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria	• Outside storage permitted • Medium level of production	• Outside storage of raw and finished products • Large production levels
Process	• Self-contained plant or building which produces / stores a packaged product • Low probability of fugitive emissions	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions
Operation / Intensity	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Shift operations permitted • Frequent movements of products and/or heavy trucks with the majority of movements during daytime hours	• Continuous movement of products and employees • Daily shift operations permitted

3 INDUSTRIAL LAND USES

3.1 Potential for Incompatibility

A search for existing ECA and NPRI information for industries within 1000 m of the subject lands was completed in combination with a preliminary review of industries from the street during a visit to the site and surrounding area. This helped identify any industries that may have a potential to impact air quality and/or noise at the subject lands. Using the gathered information, industries were classified based on their potential to influence the proposed development, as per the D-6 classifications (Class I, II or III). A site visit was completed on November 12th, 2020 to verify the existing industrial areas within the 1000 m zone around the subject lands. The identified industries are shown in **Figures 3, 4 and 5**.

The subject lands lie just east of the Queen Elizabeth Way (QEW) and adjacent to CN and GO transit railway lines. Land zoning within the study area are a mix of residential, utility, commercial and industrial. The lands immediately surrounding the proposed development are zoned for Utility ("S"), Regional Commercial ("CR"), Commercial Corridor ("MCX"), and Employment Corridor ("MXE"). The zoning within 1000m of the subject lands is shown in **Appendix A**. Land zoning that permits industrial uses is identified at several locations: along King Road between Enfield Road and Hydro Lane, along Plains Road East toward Brant Street, and along Fairview Road closer to Brant Street. These lands contain Class I, II and III facilities defined using the classification scheme identified in **Table 4**. Some

commercial facilities within the study area were also identified and assessed due to their potential for generating stationary noise impacts at the subject lands.

Existing facilities within the respective zone of influence areas and their potential impact on the subject lands are discussed below.

3.1.1 Non-Industrial Facilities

As seen in **Figure 3**, there are thirteen (13) non-industrial facilities located within one kilometre of the subject lands. These sites were identified as they have current MECP ECAs or EASR registrations; however, they do not meet Guideline D-6 classification criteria as they are not industrial in nature. Four of these sites: IKEA Burlington and Fortinos (both on Plains Road East), The Burlington Storage Barn (at Plains Road East and Maple Avenue) and the Maple View Shopping Centre (900 Maple Avenue) are located relatively close to the proposed development and are equipped with HVAC equipment that were assessed for potential stationary noise impacts in a noise and vibration study[1] by HGC Engineering that was commissioned by the proponent. **Appendix C** contains a copy of this study. The study stated that noise emissions from these sites were not audible due to high ambient sound from roadways nearby and that there were no other stationary noise sources within 500m of the proposed development. The study further stated that dominant sources of noise in the area were road traffic on Fairview Street and the QEW and rail traffic in the rail corridor were confirmed as being the dominant sources of noise. Based on this observation, it is believed that these sites will not cause stationary noise impacts at the proposed development. The remainder of the non-industrial sites in the study area were not expected to cause adverse noise or air quality impacts at the proposed development. These sites are either not sources of noise and air emissions, or they are located far enough away from the subject lands to have noise or air quality impacts.

3.1.2 Class I

As seen on **Figure 3**, there are no Class 1 industrial facilities located within the potential influence area of 70 m from the subject lands.

3.1.3 Class II

As seen in **Figure 4**, there is one Class II facility, the Elliot Group/Ebara Corporation facility on 955 Maple Avenue, located within 300m of the subject lands but well beyond the minimum D-6 setback distance of 70 m for a Class II industry. This facility is a service centre for pumps, compressors and other industrial equipment. It is located to the north east of the subject lands. Additional details on this site are provided in **Appendix B Table B-1**.

From an air quality perspective, the facility is well contained and has no observed potential for fugitive dust or odour emissions and is located closer to existing residential areas than the subject lands. Exhaust stacks at the site are low lying and emissions are expected comply with MECP benchmarks at the facility's property line and beyond.

[1] Howe Gastmeier Chapnik Limited (HGC Engineering). September 17th, 2020. Section 2 *in* Noise and Vibration Feasibility Study Proposed Residential Development Plains Road and Fairview Street, Burlington, Ontario. HGC Project# 02000534.

The noise impact from the facility on the subject lands are of no concern based on the noise study commissioned by the Proponent (See **Appendix C** for a copy). This study found no significant sources of noise within 500m of the proposed development and that traffic on Fairview Street and the QEW and rail traffic were the dominant sources of noise. In addition, desktop analysis and site visit observations indicate that the facility is located far enough away from the subject lands and much closer to existing residential areas. These existing residential areas are much more likely to be impacted by noise from the facility rather than the subject lands.

Wind patterns in the study area were analysed using meteorological data from the Hamilton RBG Meteorological Station located in Hamilton. As shown in **Figure 6**, winds in the area are predominantly from the southwest. Winds blowing south west from the Elliot Group facility towards the subject lands occur infrequently, approximately 5% of the time, which further indicates minimal potential for air emission impacts from the facility to occur at the proposed development.

3.1.4 Class III

There two Class III facilities located within 1000m of the subject lands as seen in **Figure 5**. Both these facilities are located outside of the minimum D-6 setback distance of 300 m for a Class III industry. They are however within 1,000m of the subject lands and their potential to influence the development at the subject lands was considered.

The existing Class III industries within the potential influence area are listed below:

- Pollard Windows Inc. a window and door manufacturing facility; and,
- Solenis Canada, a chemical manufacturing facility

A summary of information for the above sites are provided in **Appendix B Table B-1**. The potential for impact of the Class III facilities on the proposed development is discussed further in the following sections.

3.1.4.1 *Pollard Windows Inc.*

Pollard Windows Inc. is located at 1217 King Road. The facility is located approximately 800m west south west of the subject lands. The QEW is located to the east north east of this facility and intervenes between it and the subject lands. A review of the local wind data (**Figure 6**) indicates that winds blowing from this facility toward the subject lands are frequent, occurring 20% of the time. The facility is also located in close proximity to existing residential areas to the south east.

Based on a desktop review and site visit observations, the facility is a large manufacturing site producing window and doors. The facility has an MECP EASR registration for a heating system. No NPRI reports were found for this location. A visit to the area revealed that the facility has dust collection equipment installed outdoors and was audible a few metres away from the property.

Air emissions from Pollard Windows are not expected to cause adverse air quality impacts at the subject lands. No fugitive dust and odour emissions are expected since the facility is well contained and there was no evidence of outdoor storage of materials that could contribute to emissions. All emission points at the facility appear to be directed using exhausts and there are no tall stacks. Any contaminant emissions from these exhausts are expected

to impact existing residential areas closer to the facility property line rather than the property line which is located much further away.

From a noise perspective, since the facility is located beyond the minimum setback distance, and there are existing residential locations closer to the facility than the proposed development, it is expected that the facility will not have an impact at the subject lands. As stated in the HGC noise report (see **Appendix C**), traffic on Fairview street and the QEW and rail traffic are confirmed to be the dominant noise sources near the subject lands.

3.1.4.2 *Solenis Canada*

Solenis Canada is located at 942 Brant Street, which is the former location of Ashland Canada Corp. Solenis is a chemical manufacturing facility that makes water treatment products. The facility is located approximately 650m north east of the subject lands. A review of local wind data (**Figure 6**) indicates that winds blowing from this facility toward the subject lands are infrequent, occurring 5% of the time. The facility is also located in very close proximity to existing residential areas to the south east.

Based on a desktop review and observations made during the visit to the study area, the facility is a large chemical manufacturing site with raw materials delivered via trucks and railcars. The facility reports to the NPRI for ethylene glycol. A search on the MECP's Access Environment website did not find any ECA and EASRs under the current facility name however, ECA records were present for the former facility name of Ashland Canada Corp. The Ashland ECA was for storage tanks and a wet scrubber for pollution control. Observations during a visit to the area confirmed the presence of outdoor storage tanks and revealed that noise from the facility is audible a few metres away from the property.

Emissions from this facility are not expected to cause adverse air quality impacts at the subject lands. The site has no evidence of open outdoor storage of materials and is well contained as result, no fugitive dust and odour emissions are expected. All emission points at the facility appear to be directed using exhausts and there are no tall stacks at the facility. Any contaminant emissions from these exhausts are expected impact existing residential areas closer to the facility property line rather than the property line which is located much further away.

From a noise perspective, the facility is located beyond the minimum setback distance and there are existing residential locations closer to the facility than the proposed development, it is expected that the facility will not have an impact at the subject lands. As stated in the HGC noise report (see **Appendix C**), traffic on Fairview street and the QEW and rail traffic are confirmed to be the dominant noise sources near the subject lands.

4 CONCLUSIONS

RWDI completed a feasibility study for the proposed development at 1134 & 1167 Plains Road East in Burlington, Ontario to assess the potential for air and noise influence from nearby industries.

Industrial facilities within the 1000m study area were identified as Class I, II or III under the D-6 Guideline. Based on the desktop review for the industrial facilities within the study area, the potential influence area for some existing Class II and III industries overlap with the proposed development. However, all industries identified are located beyond the Guideline D-6 recommended minimum separation distance to the proposed development. In addition, any fugitive dust, odour and other air quality emissions from these facilities are expected to impact existing residential areas closer to these facilities rather than the subject lands which are located much further away. Noise emissions from stationary sources in the study area were not expected to significantly impact the subject lands; a noise study commissioned by the Proponent found that traffic on Fairview Street and the QEW and rail traffic in the nearby rail corridor were the dominant sources of noise at the proposed development. This is complemented by the desktop review and site visit observations at industrial sites which indicate that industrial sources of noise in the study area are located closer to existing residential areas which are more likely to be impacted than the subject lands further afield.

5 REFERENCES

Ontario Ministry of the Environment (MOE), July 1995, Guideline D-6, *Compatibility Between Industrial Facilities and Sensitive Land Uses.*

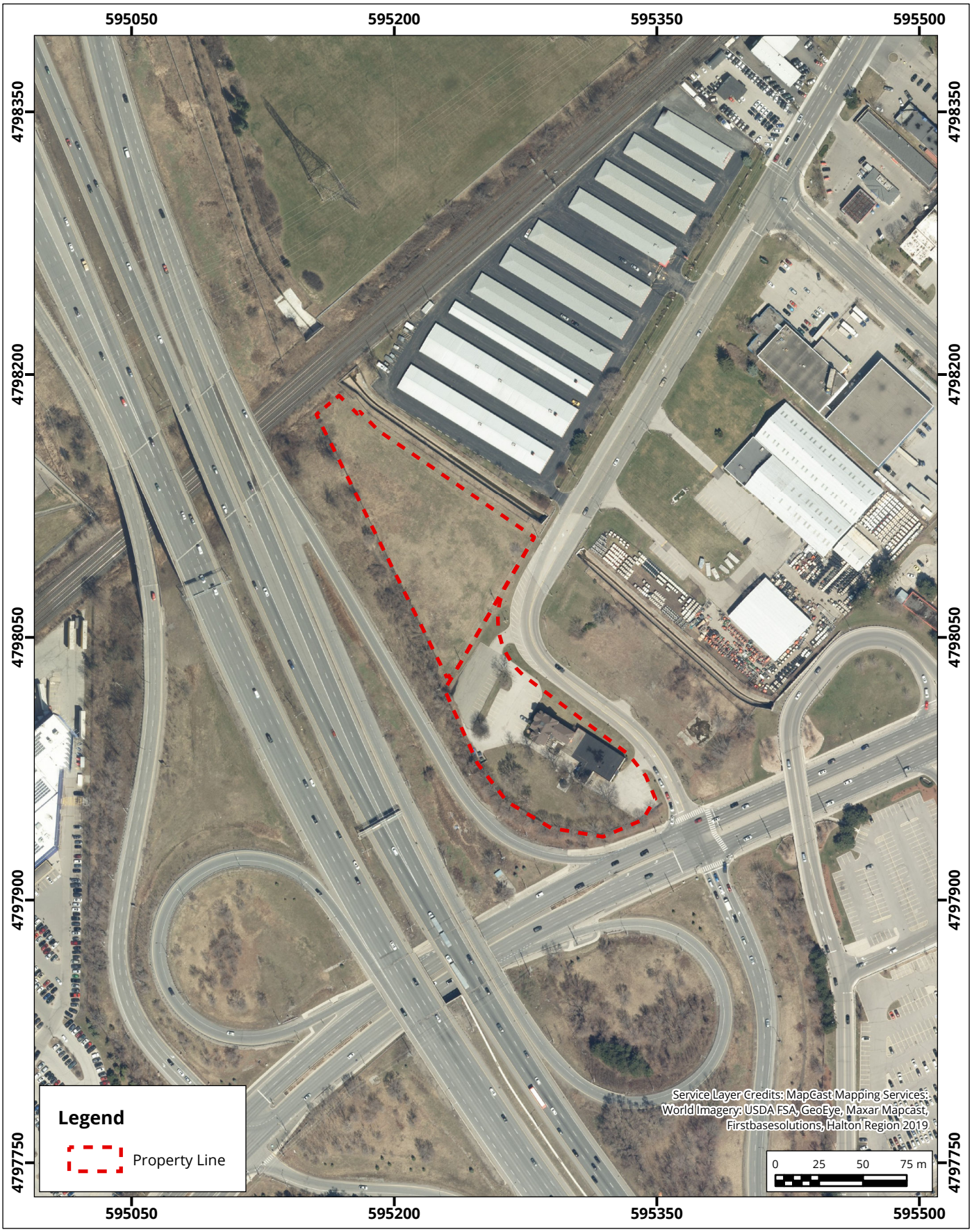
Ontario Ministry of the Environment (MOE), April 1994, Guideline D-4, *Land Use On or Near Landfills and Dumps*.

Ontario Ministry of the Environment (MOE), August 2013, Publication NPC-300, *Environmental Noise Guideline Stationery and Transportation Sources – Approval and Planning*.

Ontario Ministry of the Environment and Climate Change (MOECC), March 2018, Guideline A10: Procedure for Preparing an Emission Summary and Dispersion Modelling (ESDM) Report, version 4.1.

Ontario Ministry of the Environment and Climate Change (MOECC), February 2017, MOECC Guideline A11: Air Dispersion Modelling Guideline for Ontario, version 3.0.

FIGURES



Site Location and Property Boundary

Plains Road and Fairview Street Master Plan

Map Projection: NAD 1983 UTM Zone 17N

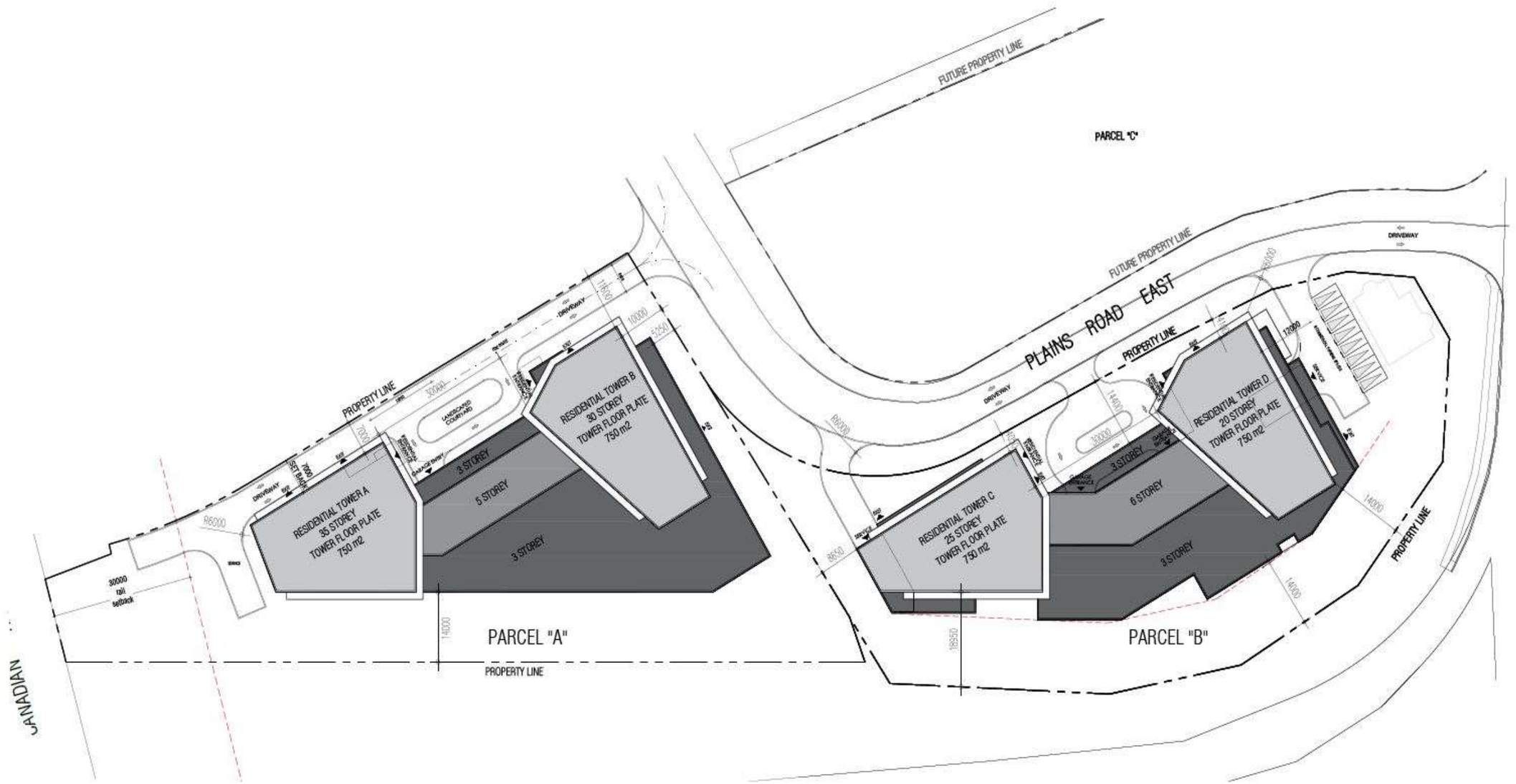
1134 & 1167 Plains Road East, Burlington ON

True North

Project #: 2004217

Drawn by: LJN	Figure: 1
Approx. Scale:	1:3,000
Date Revised:	Nov 24, 2020

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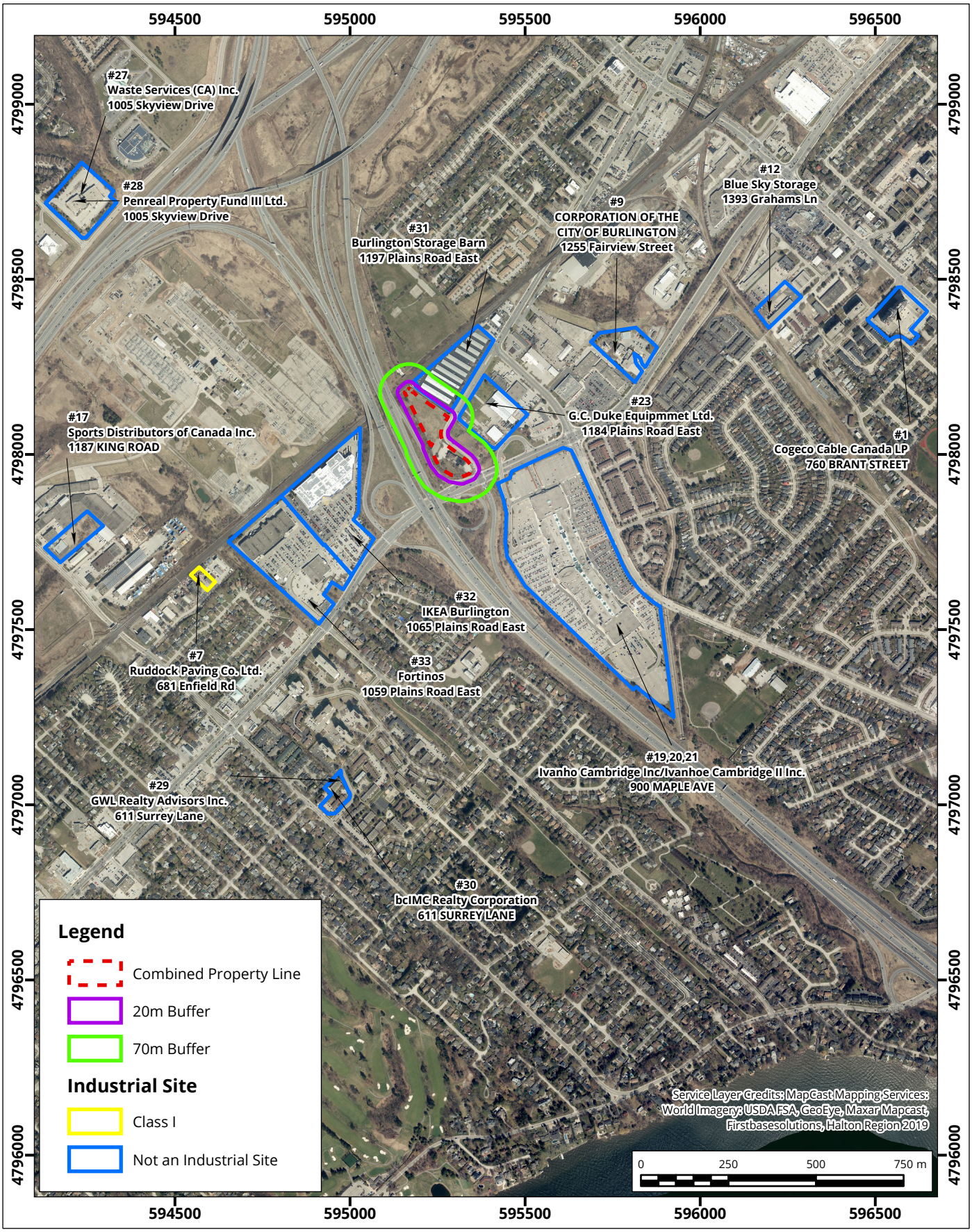
Concept Plan
Plains Road and Fairview Street Master Plan

1134 & 1167 Plains Road East – Burlington, Ontario

Project #2004217

Figure: 2

Date: November 23rd , 2020



Proposed Development and Surrounding Class I Industrial Sites and Other Sites of Interest

Map Projection: NAD 1983 UTM Zone 17N

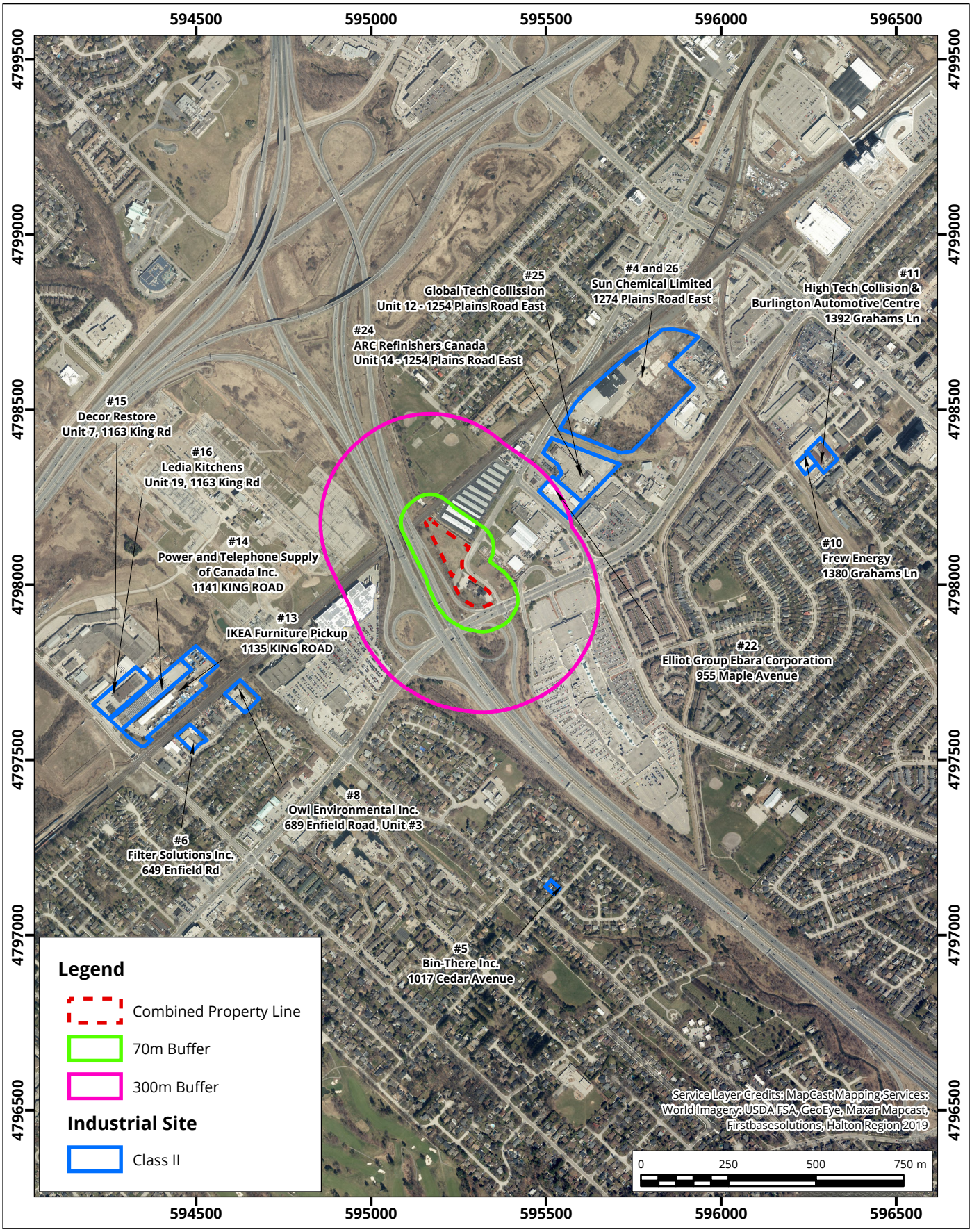
1134 & 1167 Plains Road East, Burlington ON

Project #: 2004217

True North

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Date Revised:	Nov 24, 2020		

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Proposed Development and Surrounding Class II Industrial Sites

Map Projection: NAD 1983 UTM Zone 17N

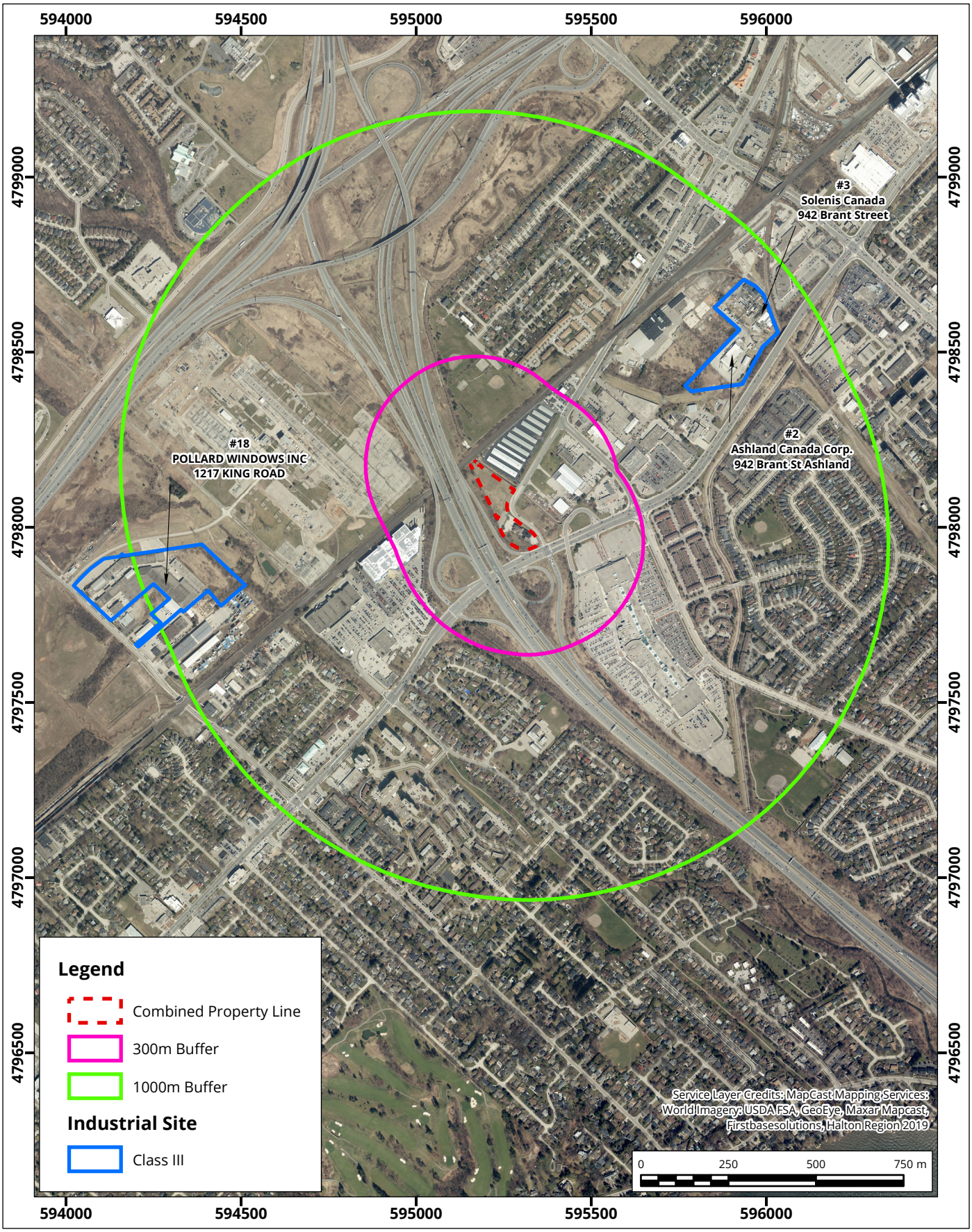
1134 & 1167 Plains Road East, Burlington ON

True North

Project #: 2004217

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Date Revised:	Nov 24, 2020

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Proposed Development and Surrounding Class III Industrial Sites

Map Projection: NAD 1983 UTM Zone 17N

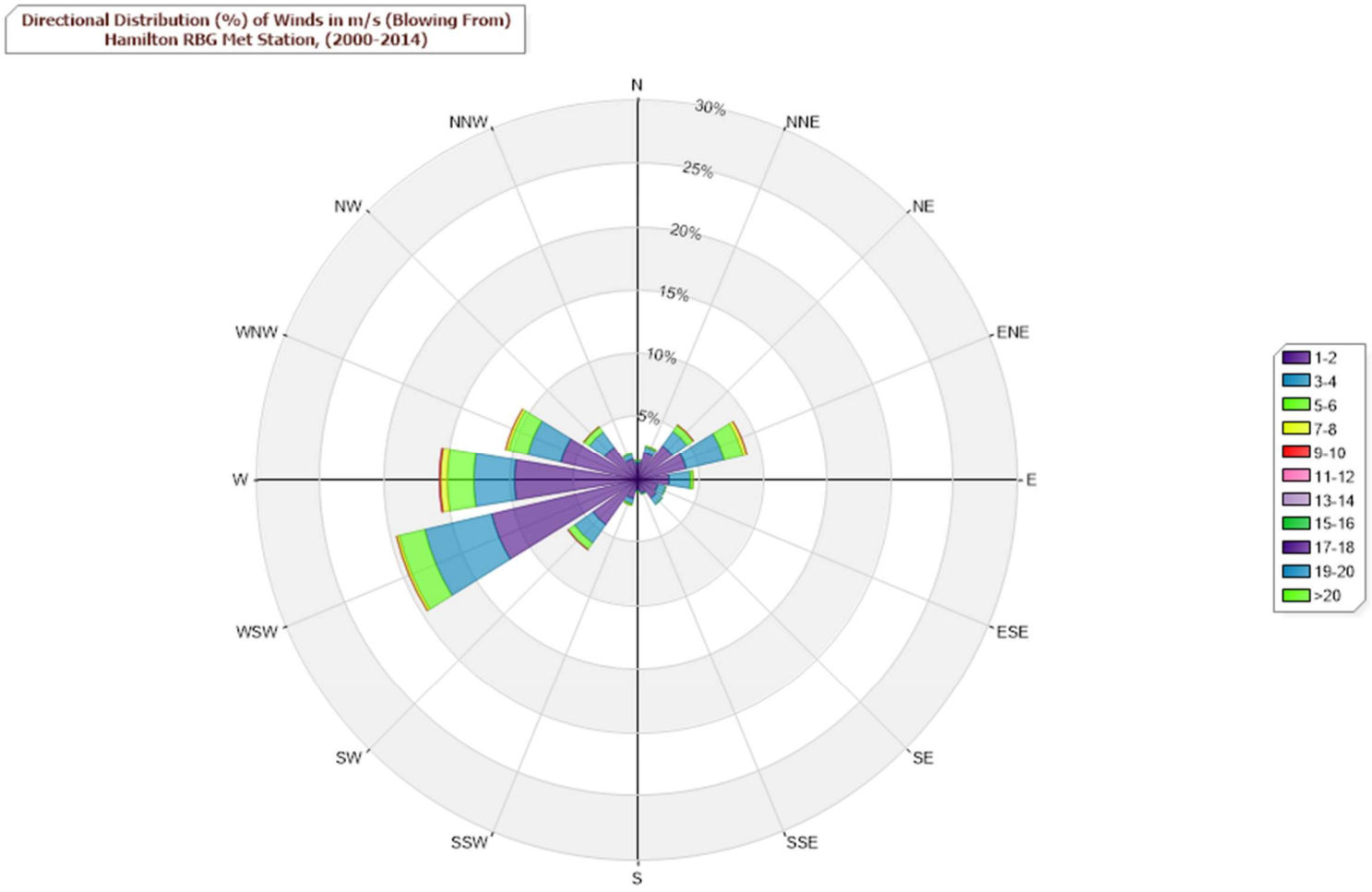
1134 & 1167 Plains Road East, Burlington ON

True North

Project #: 2004217

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Approx. Scale:	1:15,000
Date Revised:	Nov 24, 2020

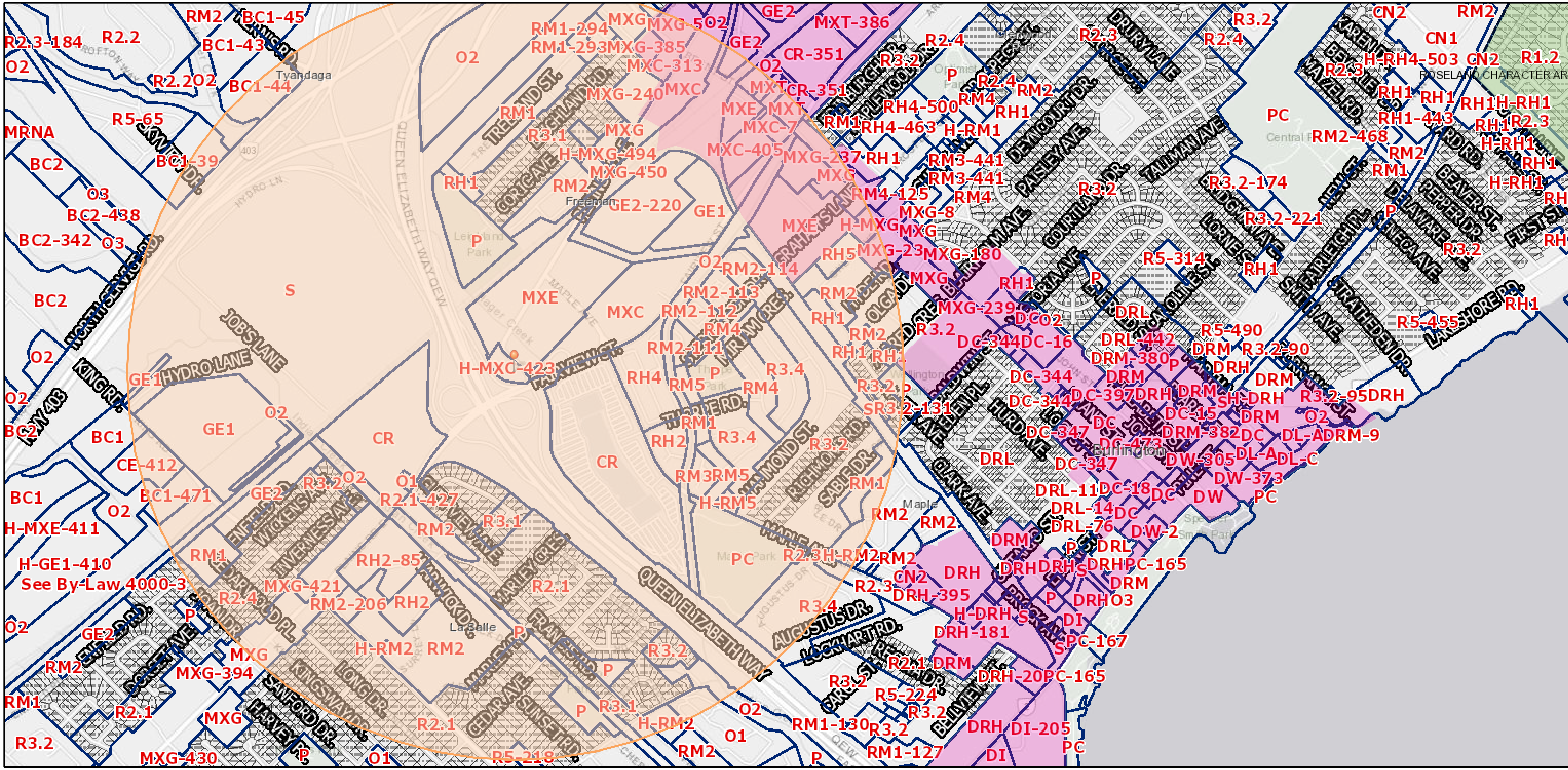
Map Document: C:\Users\LJN\OneDrive - ROWAN WILLIAMS DAVIES & IRWIN INC\Desktop\GIS\Plains Road East\2004217_1134_1167_PlainsRdEast.aprx



Directional Distribution (%) of Winds Blowing from Hamilton RBG Meteorological Station (Years 2000-2014)	Figure: 6	
Plains Road and Fairview Street Master Plan 1134 & 1167 Plains Road East, Burlington, Ontario Project #2004217	Date: November 23rd 2020	

APPENDIX A

Figure A-1 City of Burlington Zoning Within Study Area



11/23/2020, 10:44:40 PM

Override 1

Override 1

Zoning Bylaw Amendment Interim Control 10_2019

Designated area for lot coverage

Zoning Bylaw

Shoreacres

Roseland

Indian Point

NEC Development Control

Street Names

1:18,056

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Esri, HERE, City of Burlington

City of Burlington

APPENDIX B

Table B-1 List of Industries and Sites of Interest in Study Area

Map Icon Number	BUSINESS_N	ADDRESS	APPROVAL_N	APPROVAL DATE	APPROVAL TYPE	STATUS	MOE_DISTRICT	In Study Area	Facility/Process Description	NOISE/VIB/AAR Requirements in ECA	Comment on ECA Conditions	Tall Stack in ECA Approval	NPRI	D-6 Class
1	Cogeco Cable Canada LP	760 BRANT STREET, Burlington, L7R 4B8	R-002-9844707899	3/28/2012	EASR-Standby Power System	REGISTERED	Halton-Peel	Y	EASR for Standby Power	n/a	n/a	n/a	n/a	n/a - not an industrial site
2 & 3	Ashland Canada Corp.	942 Brant St Ashland, Burlington, L7R 3X8	3448-8PJRH9	9/7/2012	ECA-AIR	Approved	Halton-Peel	Y	This facility appear to have changed ownership - now called Solenis. Chemical manufacturing facility with storage tanks, wet scrubber. Producton Limit of 40 million Kg.	AAR completed	Must meet NPC 205/207	n/a	n/a	III
	Solenis Canada	942 Brant Street	n/a	n/a	n/a	n/a	n/a	Y	No ECA on Record. It looks like they have taken over the Ashland operation that was located at this site. Sounds from the site were audible above background noise sources (observed during site visit).	n/a	n/a	n/a	n/a	III
4	Sun Chemical Limited	1274 Plains Road East, Burlington, L7S 3Z1	0564-4R5SFL	11/30/2001	ECA-AIR	Approved	Halton-Peel	Y	Pigment/Ink Manufacturing. Has dust collectors and oil scrubber and storage tanks	n/a	n/a	n/a	n/a	II
5	Bin-There Inc.	1017 Cedar Avenue, Burlington, L7T 2R8	A841596	6/22/2005	ECA-WASTE MANAGEMENT SYSTEMS	Approved	Halton-Peel	Y	ECA for a waste management system. Address is residential and is for fleet storage. No waste is allowed to be stored or transferred in the vehicles or the yard.	n/a	n/a	n/a	n/a	II
6	Filter Solutions Inc.	649 Enfield Rd, Burlington, L6L 5V6	6831-86JHRZ	6/25/2010	ECA-AIR	Approved	Halton-Peel	Y	ECA for Paint Booth	n/a	NPC 205	n/a	n/a	II
7	Ruddock Paving Co. Ltd.	681 Enfield Rd, Burlington, ON L7T 2X9	n/a	n/a	n/a	n/a	n/a	Y	Storage Yard for Paving Equipment	n/a	n/a	n/a	n/a	I
8	Owl Environmental Inc.	689 Enfield Road, Unit #3, Burlington, L7S 1B4	A841536	4/21/2005	ECA-WASTE MANAGEMENT SYSTEMS	Approved	Halton-Peel	Y	ECA for a waste management system. Address is residential and is for fleet storage. No waste is allowed to be stored or transferred in the vehicles or the yard.	n/a	n/a	n/a	n/a	II
9	CORPORATION OF THE CITY OF BURLINGTON	1255 Fairview Street, Burlington, L7S 1Y3	R-002-2418662074	5/21/2014	EASR-Standby Power System	REGISTERED	Halton-Peel	Y	EASR for Standby Power (Fire Dept.)	n/a	n/a	n/a	n/a	n/a - not an industrial site
10	Frew Energy	1380 Grahams Ln, Burlington, ON L7S 1W3	n/a	n/a	n/a	n/a	n/a	Y	Fuel Delivery Service. Operates a Truck Fleet. Site is an office and fleet storage yard	n/a	n/a	n/a	n/a	II
11	High Tech Collision & Burlington Automotive Centre	1392 Grahams Ln, Burlington, ON L7S 1W3	n/a	n/a	n/a	n/a	n/a	Y	Automotive Body Shop with Paint Booth	n/a	n/a	n/a	n/a	II
12	Blue Sky Storage	1393 Grahams Ln, Burlington, ON L7S 1W4	n/a	n/a	n/a	n/a	n/a	Y	Storage Warehouse	n/a	n/a	n/a	n/a	n/a - not an industrial site
13	IKEA Furniture Pickup	1135 KING ROAD, Burlington, ON.	n/a	n/a	n/a	n/a	n/a	Y	Warehouse/Logistics	n/a	n/a	n/a	n/a	II
14	Power and Telephone Supply of Canada Inc.	1141 KING ROAD, Burlington, ON.	n/a	n/a	n/a	n/a	n/a	Y	Warehouse/Logistics	n/a	n/a	n/a	n/a	II
15	Décor Restore	Unit 7, 1163 King Rd, Burlington, ON L7R 3X5	n/a	n/a	n/a	n/a	n/a	Y	Kitchen millwork and counters showroom. Has a spray booth.	n/a	n/a	n/a	n/a	II
16	Ledia Kitchens	Unit 19, 1163 King Rd, Burlington, ON L7R 3X5	n/a	n/a	n/a	n/a	n/a	Y	Kitchen millwork and counters showroom. Has a spray booth.	n/a	n/a	n/a	n/a	II
17	Sports Distributors of Canada Inc.	1187 KING ROAD, Burlington, ON.	n/a	n/a	n/a	n/a	n/a	Y	Warehouse/Logistics	n/a	n/a	n/a	n/a	n/a - not an industrial site
18	POLLARD WINDOWS INC	1217 KING ROAD, Burlington, L7R 3Y3	R-003-1123168641	6/5/2012	EASR-Heating System	REGISTERED	Halton-Peel	Y	Window manufacturing. EASR is for Heating System. Site is quite large with evidence of dust collectors/cyclones. No Tall Stacks. Site generates noise (observed on site visit).	n/a	n/a	n/a	n/a	III
19	Ivanhoe Cambridge II Inc.	900 Maple Avenue, Burlington, M5J 2R2	5970-6LDN3J	1/26/2006	ECA-AIR	Approved	Halton-Peel	Y	ECA for comfort heating and emgergency generators	n/a	n/a	n/a	n/a	n/a - not an industrial site
20	Ivanho Cambridge Inc.	900 MAPLE AVE, Burlington, L7S 2J8	R-003-5155751432	9/11/2012	EASR-Heating System	REGISTERED	Halton-Peel	Y	EASR for Heating System	n/a	n/a	n/a	n/a	n/a - not an industrial site
21	IVANHOE CAMBRIDGE II INC./IVANHOE CAMBRIDGE II INC.	900 Maple AV, Burlington, L7S 2J8	R-010-4112516687	9/15/2020	EASR-Air Emissions	REGISTERED	Halton-Peel	Y	EASR for Emissions from Leased Property. EASR EST shows emissions from emergency power generator.	AAR completed	n/a	n/a	n/a	n/a - not an industrial site
22	Elliot Group Ebara Corporation	955 Maple Avenue, Burlington, Ontario, L7S 2J4	n/a	n/a	n/a	n/a	n/a	Y	Full service repair centre for turbomachinery, pumps and compressors and other industrial equipment.	n/a	n/a	n/a	n/a	II
23	G.C. Duke Equipmmet Ltd.	1184 Plains Road Ease, Burlington, ON.	n/a	n/a	n/a	n/a	n/a	Y	Turf Maintenance Equipment Dealer with Service Facilities.	n/a	n/a	n/a	n/a	n/a - not an industrial site
24	ARC Refinishers Canada	Unit 14 - 1254 Plains Road East, Burlington, ON. L7S 1W4	n/a	n/a	n/a	n/a	n/a	Y	Automotive Body Shop with Paint Booth	n/a	n/a	n/a	n/a	II
25	Global Tech Collission	Unit 12 - 1254 Plains Road East, Burlington, ON. L7S 1W4	n/a	n/a	n/a	n/a	n/a	Y	Automotive Body Shop with Paint Booth	n/a	n/a	n/a	n/a	II
26	Sun Chemical Limited	1274 Plains Rd E, Burlington, L7S 3Z1	1946-8DWSMN	12/20/2012	ECA-AIR	Approved	Halton-Peel	Y	Pigment/Ink Manufacturing. Exhaust Vents for ink transfer.	AAR completed	Must meet NPC 205	n/a	n/a	II

Table B-1 List of Industries and Sites of Interest in Study Area

Map Icon Number	BUSINESS_N	ADDRESS	APPROVAL_N	APPROVAL DATE	APPROVAL TYPE	STATUS	MOE_DISTRICT	In Study Area	Facility/Process Description	NOISE/VIB/AAR Requirements in ECA	Comment on ECA Conditions	Tall Stack in ECA Approval	NPRI	D-6 Class
27	Waste Services (CA) Inc.	1005 Skyview Drive, Burlington, L7P 5B1	0667-6W3ND8	12/11/2006	ECA-AIR	Approved	Halton-Peel	Y	Stand-By Power	n/a	n/a	n/a	n/a	n/a - Not an industrial site
28	Penreal Property Fund III Ltd.	1005 Skyview Drive, Burlington, M5J 2H7	2901-6LULXJ	3/2/2006	ECA-AIR	Approved	Halton-Peel	Y	Gas fired comfot heating	n/a	n/a	n/a	n/a	n/a - Not an industrial site
29	GWL Realty Advisors Inc.	611 Surrey Lane, Burlington, M5G 1R8	5381-7JTQRK	9/25/2008	ECA-AIR	Approved	Halton-Peel	Y	ECA for heating	n/a	n/a	n/a	n/a	n/a - not an industrial site
30	bcIMC Realty Corporation	611 SURREY LANE, Burlington, L7T 3S7	R-003-1618481868	8/2/2016	EASR-Heating System	REGISTERED	Halton-Peel	Y	EASR for Heating System	n/a	n/a	n/a	n/a	n/a - not an industrial site
31	Burlington Storage Barn	1197 Plains Road East, Burlington, L7S 2K2	n/a	n/a	n/a	n/a	n/a	Y	This is not a source of signifcant air quality emissions that can impact the subject lands. It was included here since it was mentioned in a noise study[1] comissioned by the proponent. This study determined that the facility is not likely to have a noise impact on the subject lands.	n/a	n/a	n/a	n/a	n/a - not an industrial site
32	IKEA Burlington	1065 Plains Road East, Burlington, L7T 4K1	n/a	n/a	n/a	n/a	n/a	Y	This is not a source of signifcant air quality emissions that can impact the subject lands. It was included here since it was mentioned in a noise study[1] comissioned by the proponent. This study determined that the facility is not likely to have a noise impact on the subject lands.	n/a	n/a	n/a	n/a	n/a - not an industrial site
33	Fortinos	1059 Plains Road East, Burlington, L7T 4K1	n/a	n/a	n/a	n/a	n/a	Y	This is not a source of signifcant air quality emissions that can impact the subject lands. It was included here since it was mentioned in a noise study[1] comissioned by the proponent. This study determined that the facility is not likely to have a noise impact on the subject lands.	n/a	n/a	n/a	n/a	n/a - not an industrial site

Notes:

[1] Noise Study: HGC Engineering. September 17 2020. Noise and Vibration Feasibility Study Proposed Residential Development Plains Road & Fairview Street Burlington, Ontario. HGC # 02000534.

APPENDIX C

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Noise and Vibration Feasibility Study
Proposed Residential Development
1134 & 1167 Plains Road
Burlington, Ontario

Prepared for:

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Prepared by



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May 6, 2021

HGC Project No: 02000534

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1 Introduction & Summary

Howe Gastmeier Chapnik Limited (HGC Engineering) was retained by Plains Road East Joint Venture to complete a Noise and Vibration Feasibility Study for the proposed residential development, to be located at the northwest corner of Plains Road and Fairview Street, in Burlington, Ontario. This study is based on architectural drawings prepared by Graziana + Corazza Architects Inc. dated April 13, 2021. The proposed development will consist of four residential buildings ranging from 20 – 35 storeys in height above two 2-storey podiums.

This study is required by the City of Burlington as part of a Zoning By-Law Amendment (ZBA) and Official Plan Amendment (OPA) application.

The primary noise sources impacting the development were determined to be road traffic on Fairview Street and The Queen Elizabeth Way (QEW); and rail traffic on the Canadian National (CN) railway subdivisions to the north. Traffic volumes for the roadways and rail lines were obtained from the relevant authorities and adjusted as warranted to account for future potential growth. The road and rail traffic data were used to estimate future sound levels (L_{EQ}) at the location of the proposed building façades. The estimated sound levels were evaluated with respect to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the railway authorities.

The sound level predictions indicate that the future road and rail traffic sound levels will exceed MECP guidelines at the buildings in the proposed development. The predicted sound level in the proposed outdoor amenity areas exceed MECP targets; consideration should be given in detail design to integrate some smaller structures, screens, or landscaping features to create quieter pockets or zones in these areas, as needed or incorporate acoustic barriers. Central air conditioning is required for the proposed buildings. Upgraded building and glazing constructions are also required for the proposed buildings. Warning clauses are recommended to inform the residents of the building of the traffic noise impacts and the presence of nearby commercial/office/retail facilities.

The impact of vibration from the rail corridor, located approximately 45 m west of the closest proposed building façade and 30 m west of the closest underground parking level wall, has also been assessed. Vibration associated with the rail corridor is expected to be within CN limits and vibration mitigation measures are not anticipated to be required.

As this project is at an early stage of development, a review should be conducted to verify and/or refine the acoustic recommendations when more detailed floor plans and elevations are available. In addition, an acoustical consultant should review the mechanical drawings and details of demising constructions, when available, to help ensure that the noise impact of the development on the environment, and of the development on itself, are maintained within acceptable levels.

2 Site Description

The subject property includes two parcels of land (Parcel A and Parcel B) and is located at the northwest corner of Plains Road and Fairview Street, in Burlington, Ontario. A key plan is attached as Figure 1a, and the proposed site plan is attached as Figure 2a. Surrounding uses are identified in Figure 1b.

The drawings indicate that Parcel A will consist of a 35-storey and 30-storey residential tower (Buildings A and B, respectively) above a common 2-storey podium and one level of underground parking. Parcel B will consist of a 25-storey and 20-storey residential tower (Buildings C and D, respectively) above a 2-storey podium and one level of underground parking.

A site visit was made by HGC Engineering personnel on August 2020, to make observations of the acoustical environment, identify the significant noise sources in the vicinity, and perform ground-borne vibration measurements from train pass-bys in the rail corridor.

The area is considered to be Class I (urban) in terms of its acoustical environment. The subject site is currently vacant. The surrounding land includes commercial and industrial uses, including an IKEA and Fortino's to the west of the QEW, Burlington Storage yard to the east, and Mapleview Shopping Centre to the south of Fairview Street. Sounds from these facilities were not audible at the time of the site visit due to high ambient sound from the surrounding roadways, regardless a warning clause is included in Section 8 of the report. Road traffic on Fairview Street

and the QEW, and rail traffic in the rail corridor to the north were confirmed to be the dominant sources of noise. There are no other significant sources of stationary noise within 500 m of the subject site.

There are no impulsive noise sources in the area. The proposed development is not located in a flight path associated with any airports nearby.

3 Noise Level and Vibration Criteria

3.1 Road and Rail Noise

Guidelines for acceptable levels of road and rail traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Part C release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A weighted decibels [dBA].

Table 1: Road and Rail Traffic Noise Criteria

Space	Daytime $L_{EQ(16\ hour)}$ Road / Rail	Nighttime $L_{EQ(8\ hour)}$ Road / Rail
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA / 40 dBA	45 dBA / 40 dBA
Inside Bedrooms	45 dBA / 40 dBA	40 dBA / 35 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. Living areas include dining rooms, dens, studies, etc. Corridors and washrooms are not considered to be noise-sensitive areas.

The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace, a garden, or common areas associated with high-rise multi-unit buildings where passive outdoor recreation is expected to occur. Balconies and elevated terraces (e.g., rooftops) with a depth of less than 4 meters are not considered OLAs under MECP guidelines, and accordingly the noise criteria are not applicable there, unless they are the only OLA for the occupant.

The guidelines in the MECP publication allow the sound level in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible. Note that not all OLA's necessarily require protection, if there are other protected outdoor areas accessible to future residents.

Indoor guidelines are 5 dBA more stringent for rail noise than for road noise, to account for the low frequency (rumbling) character of locomotive sound, and its greater potential to transmit through exterior wall/window assemblies.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels at the façade exceed 60 dBA or daytime sound levels at the façade exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at the façade are in the range of 51 to 60 dBA or when daytime sound levels at the façade are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the sound level at the façade is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise and greater than 55 dBA in the nighttime or greater than 60 dBA during the daytime hours due to rail traffic noise.

Railway guidelines recommend brick exterior walls from foundation to rafters as a minimum construction for any dwellings with a 24 hour L_{EQ} that is greater than 60 dBA, and which are within 100 m of the right of way of the railway.

The railways also provide minimum requirements for safety as well as sound and vibration for proposed residential developments located adjacent to their rights-of-way. These refer to minimum required setbacks, berms, fencing and warning clauses. The reader is referred to a copy of CN and Metrolinx requirements for a new development adjacent to a principal main rail line, which is included in Appendix A.

3.2 Ground-Borne Vibration

CN and Metrolinx guidelines require measurements of ground-borne vibration when residential dwelling units are to be located within 75 metres of a principal mainline.

Vibration is typically measured in terms of oscillatory velocity or acceleration. The CN guidelines recommend that ground-borne vibration be limited to a vibratory velocity of 0.14 mm/s (-17 dB) between 10 and 100 Hz. The CN limits for acceptable ground-borne vibration are frequency dependent and are presented as a curve of maximum allowable vibratory acceleration versus frequency. The CN criteria have been overlaid on the graphs of measured vibration for easy reference (Figures 4 to 8).

4 Traffic Noise Predictions

4.1 Road Traffic Data

Traffic data for the QEW Ramp and Fairview Street in the site area was obtained from the City of Burlington Traffic Services and is contained within Appendix B. Traffic volumes were conservatively assumed to grow at a typical rate of 2.5%/yr on all roadways, and average future daytime (07:00 to 23:00) and night-time (23:00 to 07:00) hourly volumes that will exist in 10 years (2031) were then calculated. The resulting future traffic volumes are listed in Table 2, in addition to calculated commercial vehicle (truck). A posted speed limit of 100 km/hr and 50km/hr was used for QEW Ramp and Fairview Street, respectively. A 90%/10% day/night split was used for the roadways.

Road traffic data for the QEW was obtained from the Ministry of Transportation (Appendix B) and projected to the year 2031 at a conservative growth rate of 2.5%/yr. A 67%/33% day/night split was used in the analysis. A commercial vehicle percentage of 25% was used for both daytime and nighttime volumes. These vehicles were assumed to be travelling at the posted maximum speed of 100 km/hr. The projected road traffic volumes are shown in Table 2 below.

Table 2: Projected Road Traffic Data for 2031

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Fairview Street	Daytime	38 514	274	392	39 180
	Nighttime	4 279	30	44	4 353
	Total	**42 793**	**305**	**435**	**43 533**
QEW Ramp	Daytime	9 777	250	407	10 434
	Nighttime	1 086	28	45	1 159
	Total	**10 863**	**278**	**452**	**11 593**
QEW	Daytime	135 575	17 610	28 249	183 433
	Nighttime	70 872	9 072	14 552	94 496
	Total	**208 446**	**26 681**	**42 801**	**277 928**

4.2 Rail Traffic Data

Rail traffic data was recently obtained from both Metrolinx and CN representatives and is included in Appendix C. The data were projected to the year 2031 at an assumed growth of 2.5%/year, as required by MECP and CN guidelines. The GO Transit rail data is already expressed as 10 year future volumes. The rail volumes used in the analysis are summarized in Table 3.

Table 3: Rail Traffic Data Projected to Year 2031

Type of Train	Number of Trains Day/ Night	Number of locomotives	Number of cars	Max Speed (KPH)
CN – Oakville Subdivision				
Way Freight	5 / 3	4	25	97
Passenger	19 / 0	2	10	129
GO	197 / 47	1	12	153
CN – Halton Subdivision				
Freight	13 / 5	4	140	80
Way Freight	3 / 0	2	25	80

Note: All GO trains have been modeled as diesel trains as per recent direction from Metrolinx.

4.3 Prediction Results

To assess the levels of traffic noise that will impact the site, predictions were made using a numerical computer modelling package (*Cadna-A version 2021 MR1 (32 bit): build 183.5110)*. The model is based on the methods from ISO Standard 9613-2.2, "*Acoustics - Attenuation of Sound During Propagation Outdoors*" , which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures. The road and rail sources were included in the model using line sources, calibrated to levels predicted in STAMSON 5.04, a computer algorithm developed by the MECP.

The model was used to predict traffic noise levels at each of the building façades. The worst-case predicted sound levels at each of the building façades (for the extent of the total building height) calculated by Cadna-A are shown in Figures 3a and 3b. A breakdown of the partial maximum sound level contributions from road and rail traffic noise sources at each façade are shown in Table 4 below.

Table 4: Worst- Case Traffic Sound Level Predictions, Typical Daytime Hour [dBA] Levels for Road/Rail/Total

Building	Location Description	Daytime (16hr avg)			Night (8hr avg)		
		Road Traffic	Rail Traffic	Total	Road Traffic	Rail Traffic	Total
Podium A/B	North Façade	65	71	72	65	68	70
	East Façade	66	57	66	64	56	65
	South Façade	73	68	74	72	65	73
	West Façade	71	72	74	71	69	73
Tower A	North Façade	65	71	72	65	68	69
	East Façade	69	61	69	69	58	69
	South Façade	72	68	74	72	64	73
	West Façade	71	72	74	71	68	73
Tower B	North Façade	63	67	68	63	63	66
	East Façade	65	58	65	64	55	65
	South Façade	71	53	71	70	50	71
	West Façade	70	66	71	70	63	71
Podium C/D	North Façade	64	62	65	63	59	64
	East Façade	69	55	69	69	52	69
	South Façade	73	57	73	72	54	72
	West Façade	71	60	71	71	57	71
Tower C	North Façade	64	62	66	63	58	64
	East Façade	70	56	70	69	53	69
	South Façade	72	58	72	72	54	72
	West Façade	71	61	71	71	58	71
Tower D	North Façade	62	61	65	61	58	63
	East Façade	69	54	69	67	51	67
	South Façade	72	<50	72	71	<45	71
	West Façade	71	59	71	70	56	70

The preliminary plans indicate that there will be residential outdoor amenity spaces on the 3rd floor of the proposed buildings. Figure 2b shows the locations of the receivers used to predicted future noise levels in these areas. The results are summarized in Table 5.

Table 5: Predicted Sound Levels at OLA's*, [dBA]Error! Reference source not found.

Receiver	Parcel	Location	*Daytime L_{EQ} (16 hr)
R1	A	3/F	65
R2	A	3/F	67
R3	B	3/F	70
R4	B	3/F	68

Note:
* Assuming a standard 1.07 m high parapet or solid railing for elevated terraces, except as noted.

4.4 Recommendations

The following discussion outlines preliminary recommendations for building façade constructions to achieve the noise criteria stated in Table 1. Ventilation requirements and noise mitigation measures for outdoor amenity areas are also discussed below.

4.4.1 Outdoor Amenity Areas

The predicted sound levels in all proposed outdoor amenity areas will be greater than 60 dBA with a standard 1.07 m high parapet.

A barrier height table indicating the barrier heights needed to achieve 55 dBA in areas with projected sound level excesses is provided in Table 6. Acoustic barrier locations are indicated in Figure 2b.

Table 6: Acoustic Barrier Heights Required to Achieve Various Sound Levels, [m]

Receiver	55 dBA	56 dBA	57 dBA	58 dBA	59 dBA	60 dBA
R1	7.5+	7.5+	7.0	5.0	4.0	3.5
R2	7.5	6.5	5.5	5.0	4.0	3.7
R3	6.0	5.2	4.5	4.0	3.5	3.2
R4	7.5+	7.5+	7.5+	7.5+	7.5+	7.5+

Consideration should be given in detailed design to integrate smaller structures or landscaping features to create quieter pockets or zones. Alternatively, these outdoor amenity areas could be reduced in size or relocated to an area that experiences greater shielding from the proposed or adjacent buildings.

The residential units may have balconies that are less than 4 metres in depth (which are exempt from the definition of OLA under MECP guidelines).

4.4.2 Ventilation Requirements

Predicted sound levels at most of the building facades exceed 65 dBA during the day and/or 60 dBA during the night. Central air conditioning is required, and is expected to be provided. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope.

4.4.3 Building Facade Constructions

Predicted sound levels at the building facades were used to determine sound insulation requirements of the building envelope. The required acoustic insulation of the wall and window components was determined using methods developed by the National Research Council (NRC).

Exterior Wall Constructions

These calculations assume insignificant sound transmission through the walls in comparison with the windows. Exterior walls that are not glazed should have sufficient acoustical insulation value such that the noise transmitted through is negligible in comparison with the windows; to achieve this, exterior wall assemblies with a rating of at least 5-10 STC points above the surrounding

window STC requirements are typically required, depending on the amount of wall area relative to window. In most cases, the wall sound insulation is much higher than this; sections of poured or pre-cast concrete will typically have a sound insulation rating of STC-55 or more, and can be discounted. Insulated spandrel or metal panels backed by a drywall assembly generally have sound insulation ratings in the range of STC-45 to STC-60.

Acoustical Requirements for Glazing

Detailed floor plans and building elevations were not available for this development at the time of this report. Upgraded glazing requirements are required for the spaces in the proposed buildings. The window to floor area ratios of bedrooms and living/dining rooms were assumed to be 50% (40% fixed, 10% operable). If more glazing is incorporated, higher STC requirements may apply. The minimum acoustical requirement for the fixed glazing elements is provided in Table 7. Small leaks through operable doors and windows are assumed, however, tight weather seals should be provided to reduce such leakage to the extent feasible; awning windows and swing or sliding doors to balconies should have tight seals sufficient to achieve similar acoustical performance ratings.

Table 7: Minimum Glazing Requirements

Tower	Façade	Glazing STC
Podium A/B	North façade	STC-39
	East façade	STC-33
	South façade	STC-40
	West façade	STC-41
Tower A	North façade	STC-39
	East façade	STC-36
	South façade	STC-40
	West façade	STC-41
Tower B	North façade	STC-35
	East façade	OBC
	South façade	STC-36
	West façade	STC-38
Podium C/D	North façade	STC-33
	East façade	STC-34
	South façade	STC-38
	West façade	STC-37
Tower C	North façade	OBC
	East façade	STC-35
	South façade	STC-38
	West façade	STC-37
Tower D	North façade	OBC
	East façade	STC-33
	South façade	STC-37
	West façade	STC-36

Note: OBC – Ontario Building Code

The north and south façades of Podium A/B; and south and west façades of Tower A have significant STC requirements. It may be difficult to find suitable STC constructions. It is suggested that the window to floor area ratios be minimized as much as possible along these façades.

Note that acoustic performance varies with manufacturer's construction details, and these are only guidelines to provide some indication of the type of glazing likely to be required. Acoustical test data for the selected assemblies should be requested from the suppliers, to ensure that the stated acoustic performance will be achieved by their assemblies.

Further Analysis

When detailed floor plans and elevations are available for the proposed buildings, a detailed noise study should be performed to specify wall and window requirements with sufficient acoustical insulation for the dwelling units based on actual window to floor area ratios.

5 Vibration Assessment

To assess the potential ground-borne vibration impact on the development due to rail traffic, HGC Engineering measured vibration levels impacting the site. The vibration data was analyzed and compared to the criteria outlined in Section 3.2.

5.1 Site Measurements

CN and Metrolinx require an assessment of ground-borne vibration through measurement if residential building foundations are to be located within 75 metres of the right-of-way. The west foundation wall of Buildings A and B will be located 30 m from the CN railway corridor.

Measurements of ground-borne rail vibration were conducted at the location of the nearest foundation wall (M1), as shown in Figure 2a. Ground-borne vibration was measured for a total of five GO trains and freight trains on August 6, 2020.

The vibration measurements were conducted using a Hewlett Packard 3569A Real Time Frequency Analyzer outfitted with a Wilcoxon Research type 793V velocity transducer correctly field calibrated before and after the measurements.

The results are plotted as Figures 4 to 8. Table 8 shows the maximum RMS vibration velocity measurements during each of the train pass-bys.

Table 8: Maximum RMS Vibration Velocity Measurements of Train Pass-bys

Train Pass-by	Train Type	Measured Level at 30 m from right of way (mm/s)	Criteria (mm/s)
1	CN (Eastbound) + GO (Westbound)	0.03	0.14
2	CN (Eastbound)	0.04	
3	CN (Eastbound)	0.04	
4	CN (Westbound)	0.06	
5	GO (Westbound)	0.02	

Vibration levels are below the CN and Metrolinx limit of 0.14 mm/s at the proposed location of the closest building foundation wall. Thus, vibration mitigation measures are not required for this development.

6 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

7 Impact of the Development on the Environment

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be in the range of 50 dBA or more during the day and 45 dBA or more at night. Thus any electro-mechanical equipment associated with this development (e.g. emergency generator testing, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges.

At the time of this study, the design of the proposed building was in its initial stages, and the mechanical systems had not yet been developed. The City typical requires neoprene/rubber gaskets or alternative measures for any grates located on the driveways that are in a vehicle's path.

Per the City of Burlington's comment, a preliminary noise impact assessment of the mechanical equipment associated with the proposed residential development at existing residences has been conducted based on information obtained from similar residential buildings. The potential sources of concern associated with this development are understood to be parking garage exhaust fans and cooling units located in the rooftop mechanical penthouse. Most of the mechanical units will likely be located inside the rooftop mechanical penthouse with an opening at the top for the cooling tower. The location of the parking garage exhaust fan well is indicated on the plans included in Appendix A.

There are existing residences to the surrounding the site and representative residences are considered to be the sensitive receptors in this assessment (R1 to R3). R1 is single-storey residence to the southwest, R2 is an 3-storey residential building to the east, R3 is a 2-storey building to the north. Receptor locations are shown on Figure 9. The exclusionary MECP daytime and night-time limits of 50 dBA and 45 dBA apply for all receptors.

An overall outdoor sound power level of 92 dBA was assumed for the rooftop mechanical

penthouse of each residential tower (cooling tower opening). The HVAC equipment was assumed to operate at 100% capacity during daytime hours and 50% during night-time hours. The parking garage exhaust fans are likely to be low pressure fans which will be connected to a carbon monoxide system and as such, the exhaust fans will only operate on an as needed basis. An overall sound power level of 79 dBA at the at-grade parking garage exhaust grates were assumed. The parking garage exhaust fans are assumed to operate at 50% capacity conservatively during daytime and night-time hours.

The source sound levels for typical mechanical equipment from our files were used as input to a predictive computer model (*Cadna-A version 2021 MR1 (32 bit): build 183.5110*), in order to estimate the sound levels at the neighbouring residential units. The source sound levels are provided in Appendix D. Cadna/A is a computer implementation of ISO Standard 9613-2, *"Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation*", which takes into account attenuation due to distance (geometrical spreading), shielding by intervening structures and air attenuation.

Calculations at the worst-case location at each receptor, 1st Floor at R1, 3rd floor at R2 and 2nd floor at R3, indicate that the predicted sound levels from the proposed development using the assumptions stated above, can meet the applicable MECP sound level limits at residential receptors. The highest predicted daytime and night-time sound levels for each residential building is also shown on Figures 10 and 11.

The mechanical systems should be designed not to exceed the sound level assumptions mentioned above. A Professional Engineer qualified to perform acoustical engineering services should review the design of the mechanical building systems and the equipment selections when they have been determined, to ensure that the noise levels emitted by the development to the environment will meet the applicable MECP sound level limits.

8 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units/lots/blocks with anticipated traffic sound level excesses. Examples are provided below.

Suggested wording for buildings with sound level excesses the MECP criteria is given below:

Type A:

> Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road and rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the noise criteria of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suitable wording for future dwellings requiring central air conditioning systems is given below.

Type B:

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

Suggested wording for future dwellings adjacent to commercial/retail facilities is given below.

Type C:

> Purchasers are advised that due to the proximity of the existing commercial, and retail facilities, sound levels from these facilities may at times be audible.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

Suggested wording for future dwellings with private balconies less than 4.0 m in depth is given

below.

Type D:

> Purchasers/Tenants are advised that the private terraces of each unit are less than 4.0m deep and therefore are not required to have mitigation measures installed for noise as per the Ministry of the Environment, Conservations and Parks NPC-300. Sound levels due to road and rail traffic, increasing road and rail traffic, and no mitigation measures may interfere with some activities of eth dwelling occupants use of their private terrace.

CN requires a standard warning clause as this development is located near a principal mainline. The following sample clause is typical of those included in agreements of purchase and sale or lease on the Lands for all lots in the development.

Type E:

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

GO Transit's standard warning clause for residential developments located within 300 m of a railway right-of-way (principal main line) is given below.

Type F:

> Warning: Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest are the owners of lands within 300 metres from the land which is the subject hereof. In addition to the current use of the lands owned by Metrolinx, there may be alterations to or expansions of the rail and other facilities on such lands in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the Metrolinx lands or Metrolinx and their respective assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under its lands.

9 Summary of Recommendations

The following list summarizes the recommendations made in this report:

1. Barriers greater than 3.0 m in height are required in the proposed outdoor amenity areas to reduce sound levels to less than 60 dBA during the day. Consideration should be given in detail design to integrate smaller structures or landscaping features to create quieter pockets or zones. Alternatively, these outdoor amenity areas could be reduced in size or relocated to an area that experiences greater shielding from the proposed or adjacent buildings.

2. Central air conditioning is required for the buildings in the proposed development. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope.

3. Upgraded building and glazing constructions are required for the buildings in the proposed development. When detailed floor plans and building elevations are available, a detailed noise study should be conducted to refine acoustic requirements.

4. Warning clauses should be included in the property and tenancy agreements and offers of purchase and sale to inform future residents of the traffic noise issues.

5. Tarion Builder's Bulletin B19R requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure compliance with the City's by-law.

9.1 Implementation

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

1) At the site plan stage, a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the architectural plans and building elevations to refine glazing requirement based on actual window to floor areas ratios.

2) Prior to the issuance of occupancy permits for this development, the City's building inspector or a Professional Engineer qualified to provide acoustical engineering services in the Province of Ontario should certify that the noise control measures for the development have been properly incorporated, installed and constructed.

10 CONCLUSION

The results of this study indicate that the proposed development is feasible on this site from a noise impact perspective, with the inclusion of appropriate acoustical features. Preliminary design recommendations are provided herein, and can be developed in greater detail as the design proceeds through tender and construction.



Figure 1: Key Plan



Figure 1b: Surrounding Uses

Job #:1572.17 - PHASE 1+2
Date: April 20, 2021
Project Statistics

	Permitted / Required	PHASE 1	PHASE 2	OVERAL T+2
01. Site Area		8019 m2 86310 ft2	7566 m2 81441 ft2	15585 m2 167751 ft2
02. G.C.A(m2)				
Residential		41,834	34,559	76393
Retail		791	207	998
Total		42,625	34,766	77391
03. F.S.I		5.32	4.60	5.0
04. Setbacks (m) *				
Above Grade				
North		7	0.6	
East		3	32	
South		17	16	
West		45	8.65	
Below Grade				
North		0	0	
East		0	0	
South		14	14	
West		15.8	6	
05. Unit Count **				
1 Bedroom		347	219	566
2 Bedroom		213	187	400
3 Bedroom		27	56	83
Total		**587**	**462**	**1049**
06. Barrier Free Unit Count **				
1 Bedroom	15%	42	33	75
2 Bedroom	15%	34	29	63
3 Bedroom	15%	9	9	18
Total				
Total Barrier Free units included in Total unit count above		**85**	**71**	**156**
07. Parking Provided				
Residential	(1.0 per unit)	549	459	1008
Visitor/Retail	(0.2 per unit)	118	93	211
Total		**667**	**552**	**1219**
08. Bike Parking				
Residential		TBA	TBA	TBA
Visitor				
Total				
09. Lockers		TBA		
10. Building Height		30-35 STY	22-30 STY	
11.Amenity Space(m2)				
Indoor		2590	2033	4623
Outdoor		2908	2108	5016
Terraces/Balconies		8846	5810	14656
Total	20m2/ unit	**14344**	**9951**	**24295**

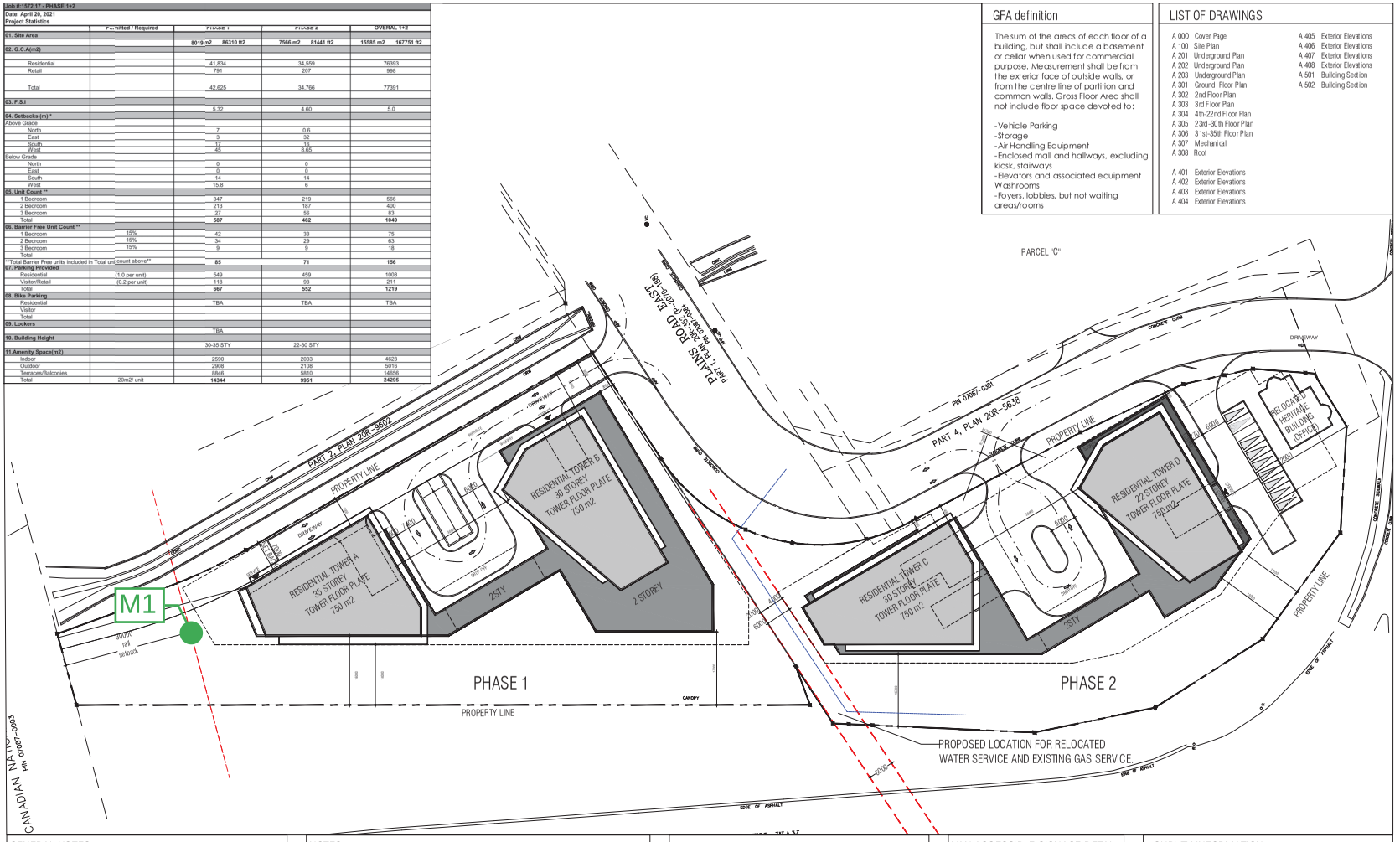
GFA definition

The sum of the areas of each floor of a building, but shall include a basement or cellar when used for commercial purpose. Measurement shall be from the exterior face of outside walls, or from the centre line of partition and common walls. Gross Floor Area shall not include floor space devoted to:

- Vehicle Parking
- Storage
- Air Handling Equipment
- Enclosed mall and hallways, excluding kiosk, stairways
- Elevators and associated equipment
- Washrooms
- Foyers, lobbies, but not waiting areas/rooms

LIST OF DRAWINGS

A 000	Cover Page
A 100	Site Plan
A 201	Underground Plan
A 202	Underground Plan
A 203	Underground Plan
A 301	Ground Floor Plan
A 302	2nd Floor Plan
A 303	3rd Floor Plan
A 304	4th-22nd Floor Plan
A 305	23rd-30th Floor Plan
A 306	31st-35th Floor Plan
A 307	Mechanical
A 308	Roof
A 401	Exterior Elevations
A 402	Exterior Elevations
A 403	Exterior Elevations
A 404	Exterior Elevations
A 405	Exterior Elevations
A 406	Exterior Elevations
A 407	Exterior Elevations
A 408	Exterior Elevations
A 501	Building Section
A 502	Building Section



GENERAL NOTES

1. For landscaping, refer to landscape drawings.
2. For proposed grading, refer to landscape drawings and approved grading plan.
3. All perimeter existing information indicated taken from survey.
4. All work to be done in conformance with the 2012 Ontario Building Code (O.B.C., as amended)
5. All driveway with access onto City owned roadway conform to City of Burlington standards.

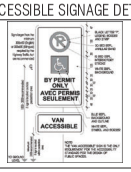
NOTES

1. Fire access route to existing buildings will be maintained during construction.
2. Accessibility for all pathway to Go Station, Wal-Mart during construction will be maintained.
3. The fire access route will be designed to support a load of not less than 11,363 kg per axle and have a change in gradient of not more than 1 in 12.5 over a minimum distance of 15m.
4. Fire Department access route will be constructed of hard surface material such as asphalt, concrete or lockstone.

KEY PLAN



VAN ACCESSIBLE SIGNAGE DETAIL



SURVEY INFORMATION

PLAN OF SURVEY OF
PART OF LOT 14 (REGISTERED PLAN 99
PART OF HAMILTON & NELSON ROAD SHOWN
REGISTERED PLAN 99
IN THE CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

A.T. McLaren LIMITED
69 JOHN STREET SOUTH, SUITE 230
HAMILTON, ONTARIO
L8N 2B9
telephone (905) 527-8559

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This drawing is not to be scaled. All architectural symbols indicated on this drawing are graphic representations only.

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issued for revisions

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Phone 905.795.2601 Fax 905.795.2644 www.gc-architects.com

Residential Development

PLAINS RD
MASTER PLAN

Burlington — Ontario

Project Architect:	B. Graziani
Assistant Designer:	S. Saleri/R. Alani
Drawn By:	S. Saleri/R. Alani
Checked By:	D. Biase
Plot Date:	Apr. 13, 2021
Job #	1572.17

SITE PLAN

1:450

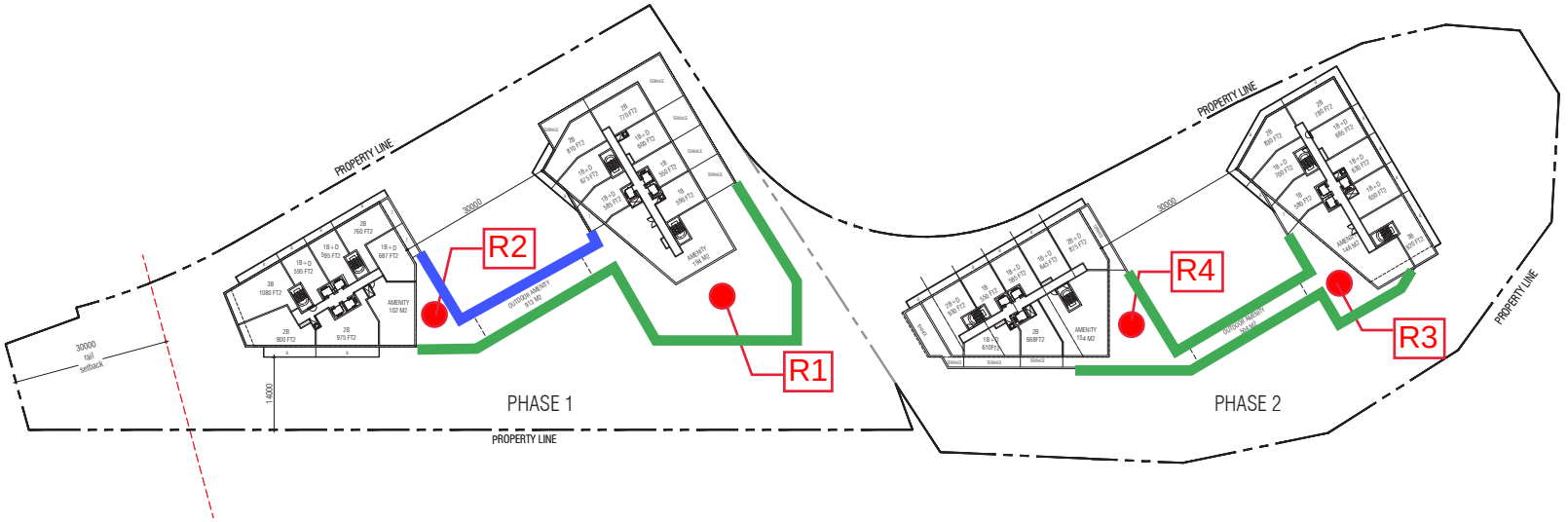
A101

TITLEBLOCK SIZE: 610 x 900

Figure 2a: Proposed Site Plan

LEGEND

- Standard 1.07m solid parapet or guard
- Acoustic barrier with heights to be selected by the City



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Residential Developement

PLAINS RD
MASTER PLAN

Burlington Ontario

Project Architect:	B. Graziani
Assistant Designer:	S. Salari/R. Alani
Drawn By:	S. Salari/R. Alani
Checked By:	D. Biase
Plot Date:	Apr. 13, 2021
Job #	1572.17

3RD FLOOR

1:450 A303

TITLEBLOCK SIZE: 610 x 900

Figure 2b: Proposed 3rd Floor Plan Showing Receptor Locations



Figure 3a: Maximum Predicted Daytime Sound Level Predictions at Buildings A and B from Transportation Noise Sources

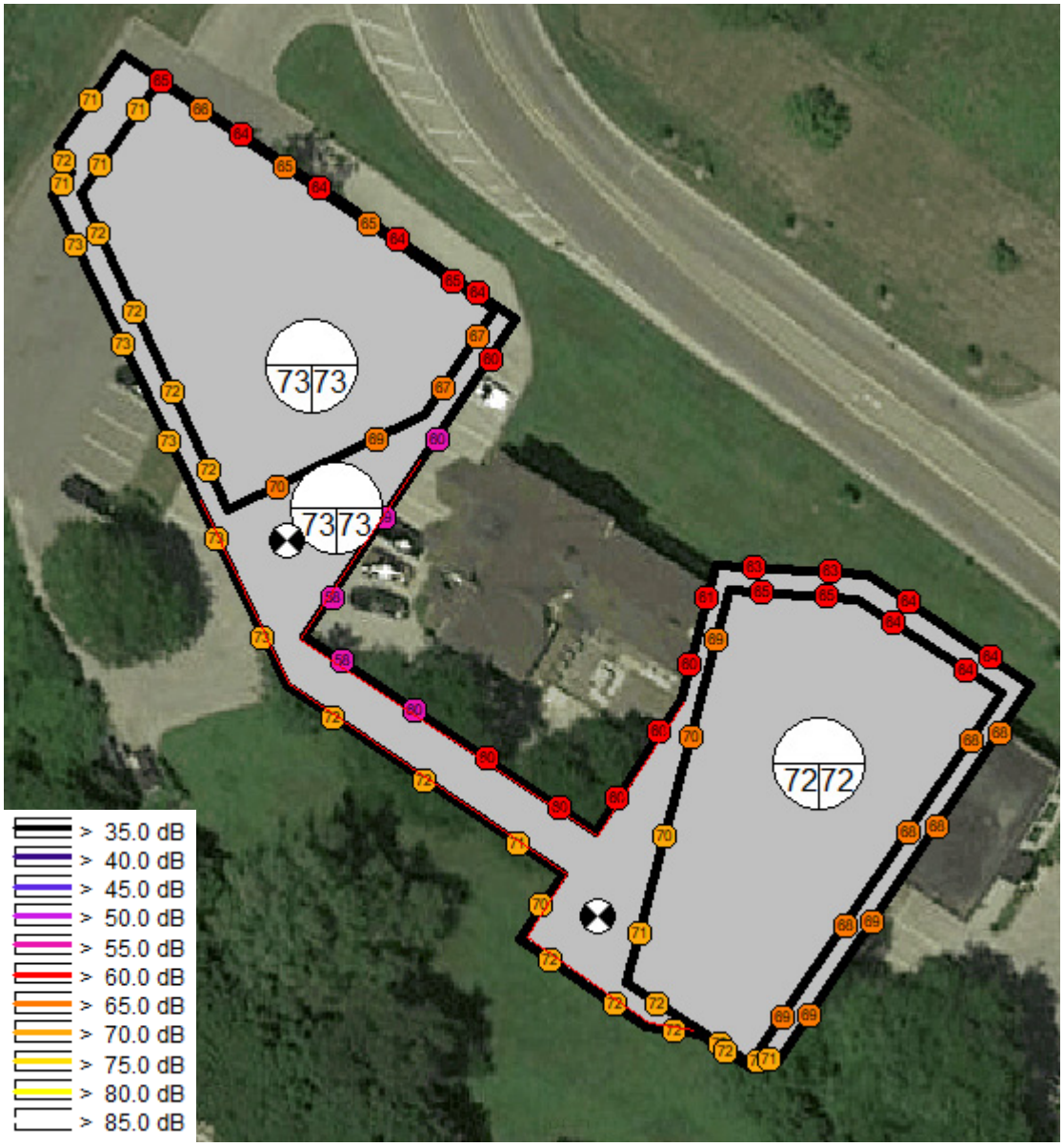


Figure 3b: Maximum Predicted Sound Level Predictions at Buildings C and D from Transportation Noise Sources

Figure 4a: Pass-by 1
Measured Vibratory Velocity Level

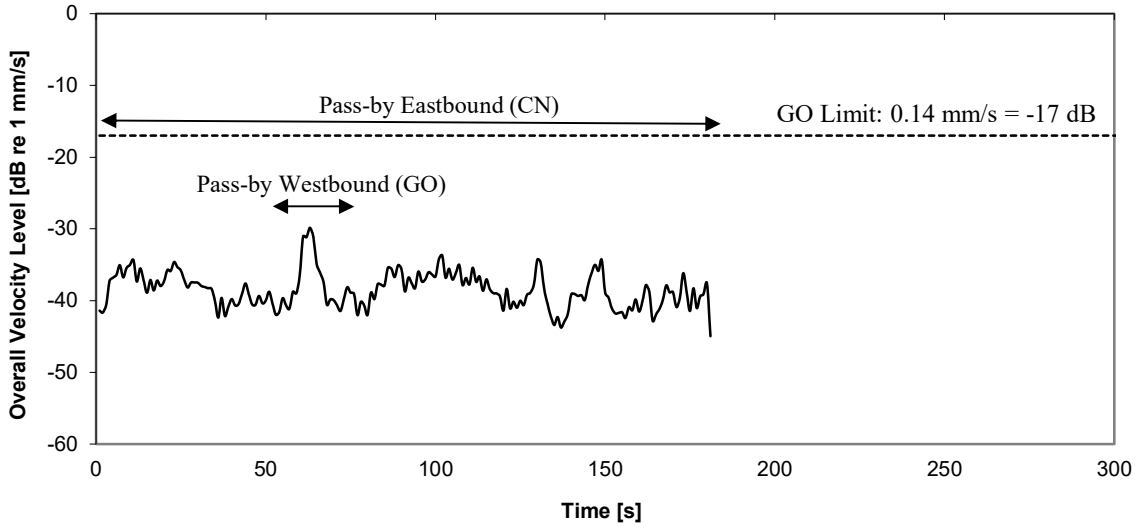


Figure 4b: Pass-by 1
Acceleration Spectrum @ Peak Level (1 sec. Duration)

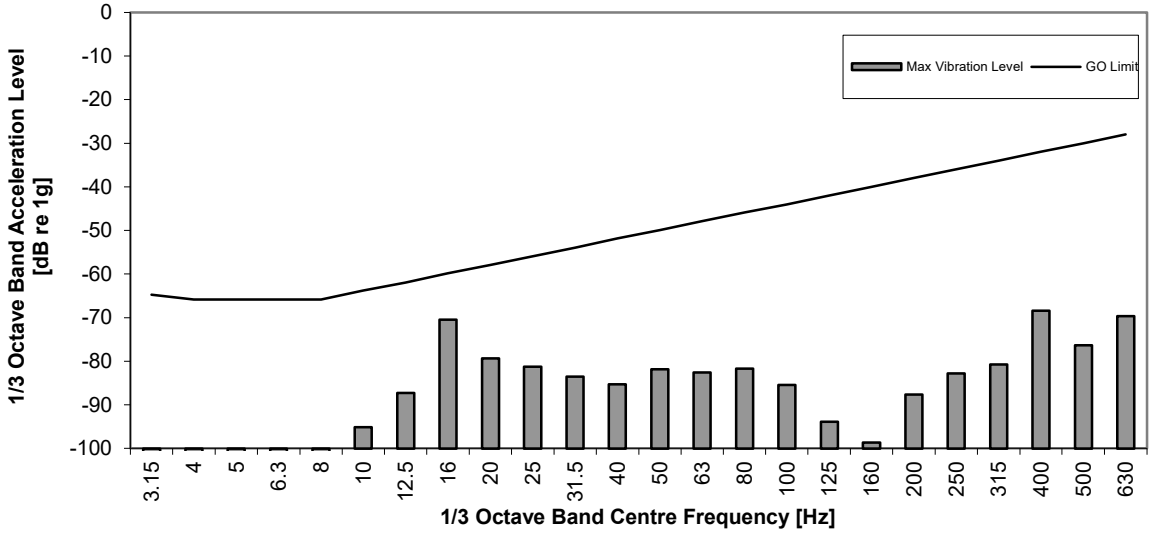


Figure 5a: Pass-by 2
Measured Vibratory Velocity Level

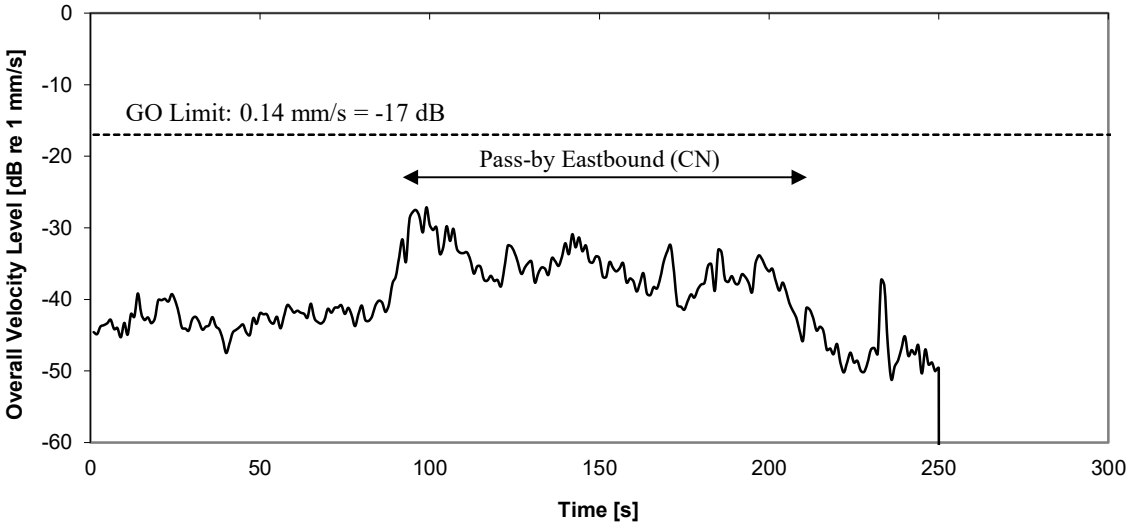


Figure 5b: Pass-by 2
Acceleration Spectrum @ Peak Level (1 sec. Duration)

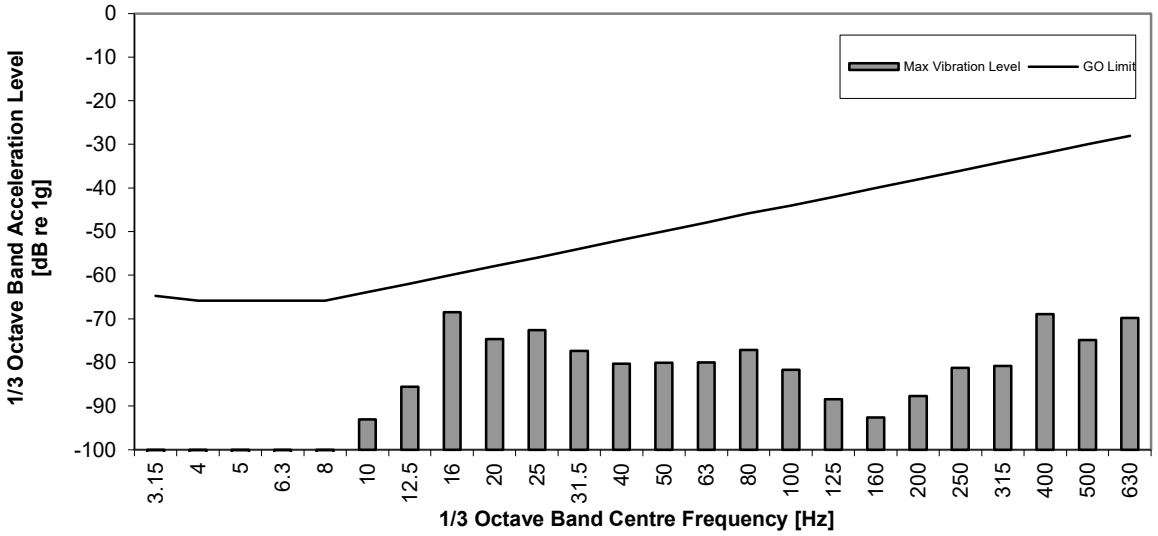


Figure 6a: Pass-by 3
Measured Vibratory Velocity Level

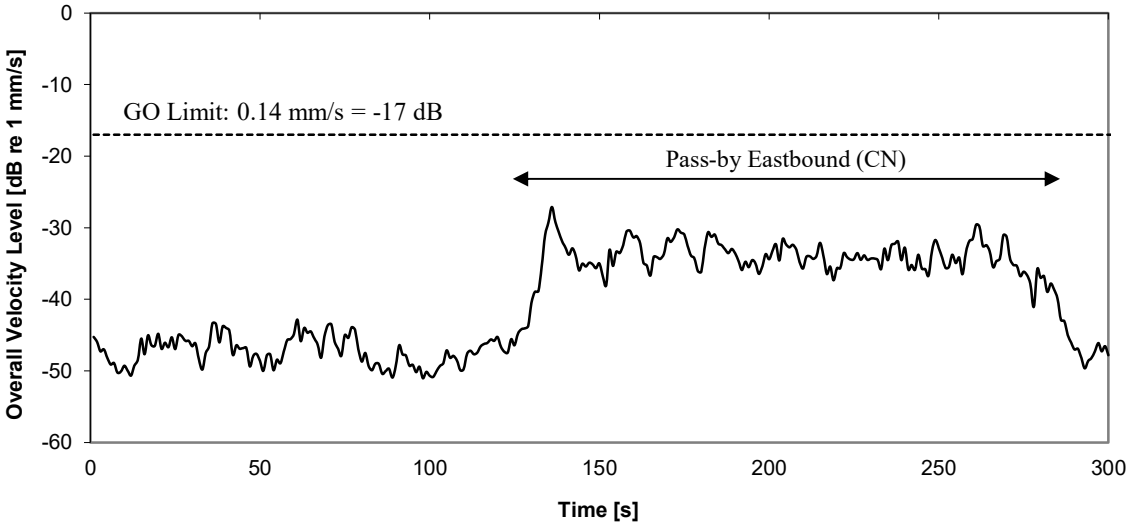


Figure 6b: Pass-by 3
Acceleration Spectrum @ Peak Level (1 sec. Duration)

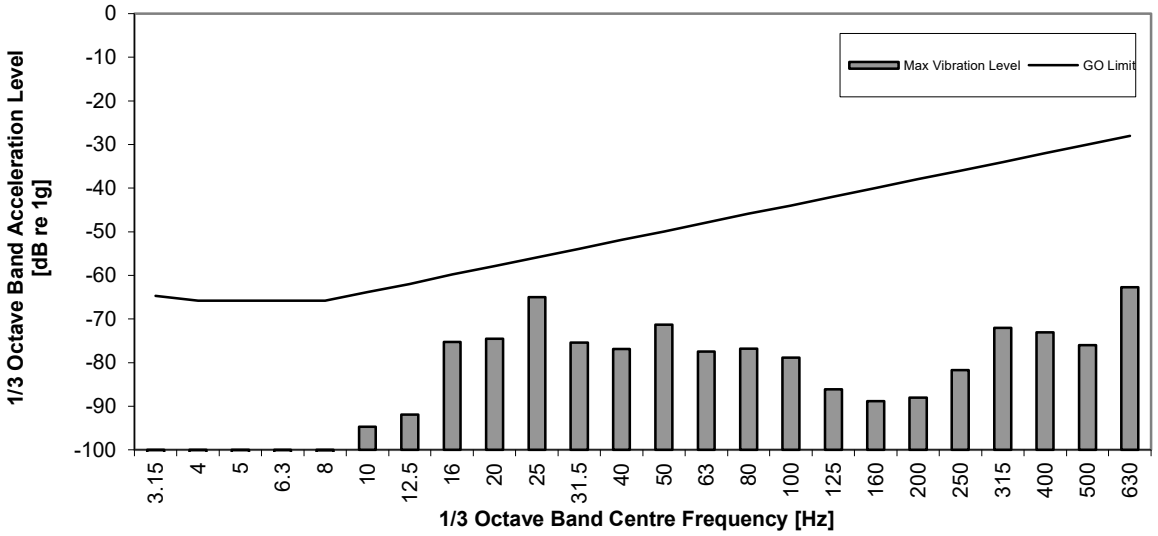


Figure 7a: Pass-by 4
Measured Vibratory Velocity Level

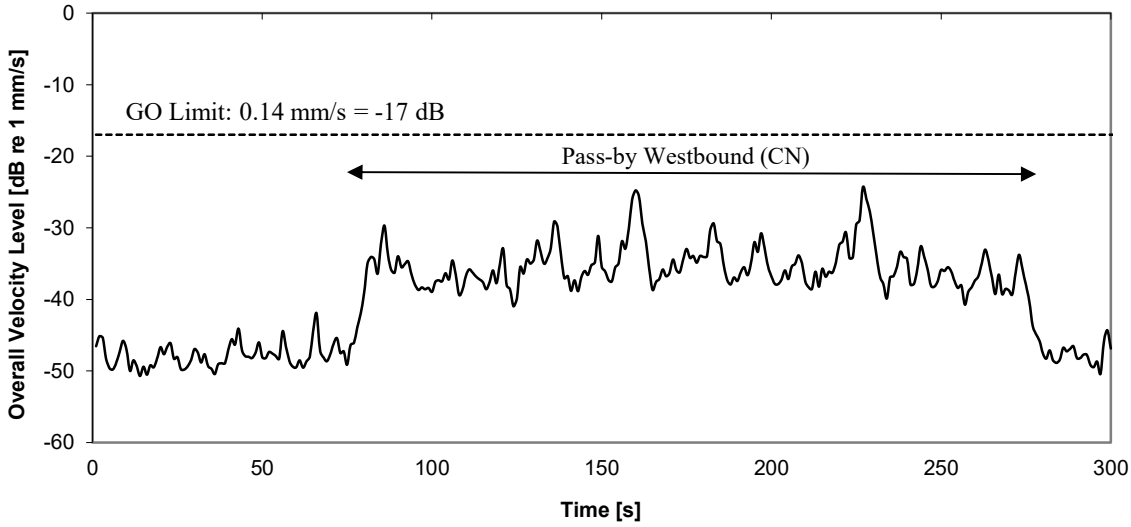


Figure 7b: Pass-by 4
Acceleration Spectrum @ Peak Level (1 sec. Duration)

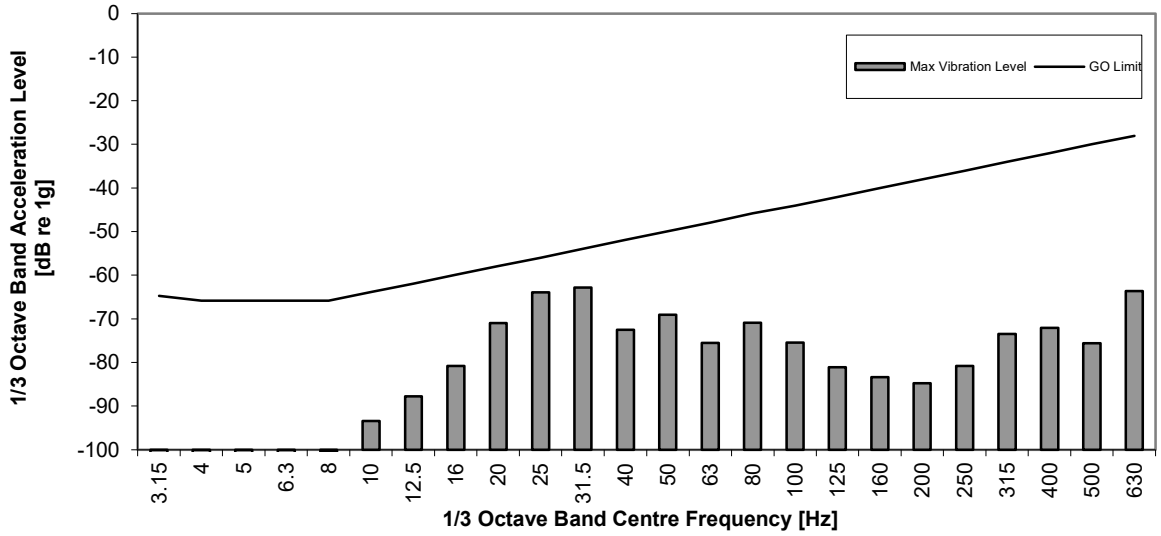


Figure 8a: Pass-by 5
Measured Vibratory Velocity Level

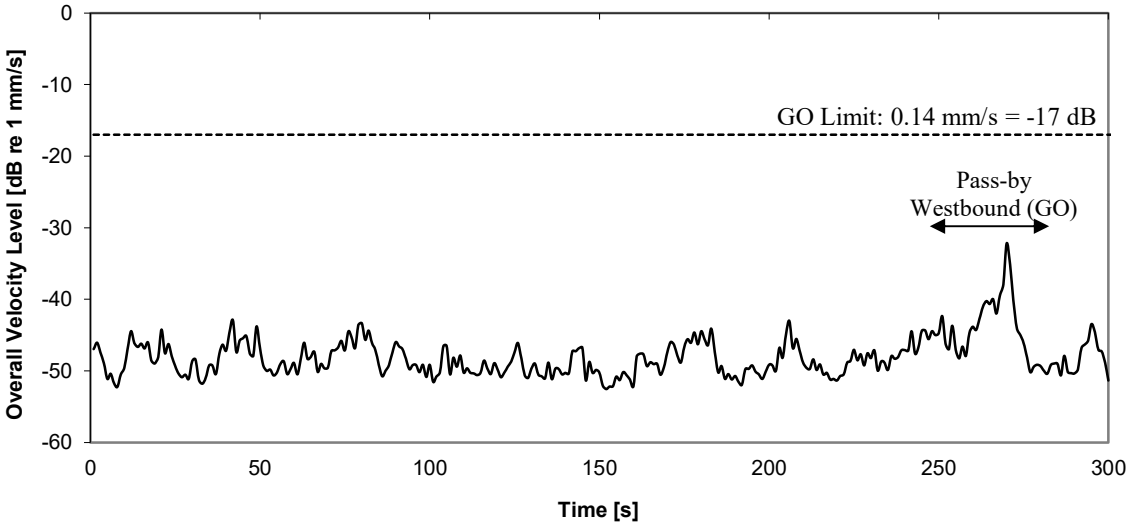


Figure 8b: Pass-by 5
Acceleration Spectrum @ Peak Level (1 sec. Duration)

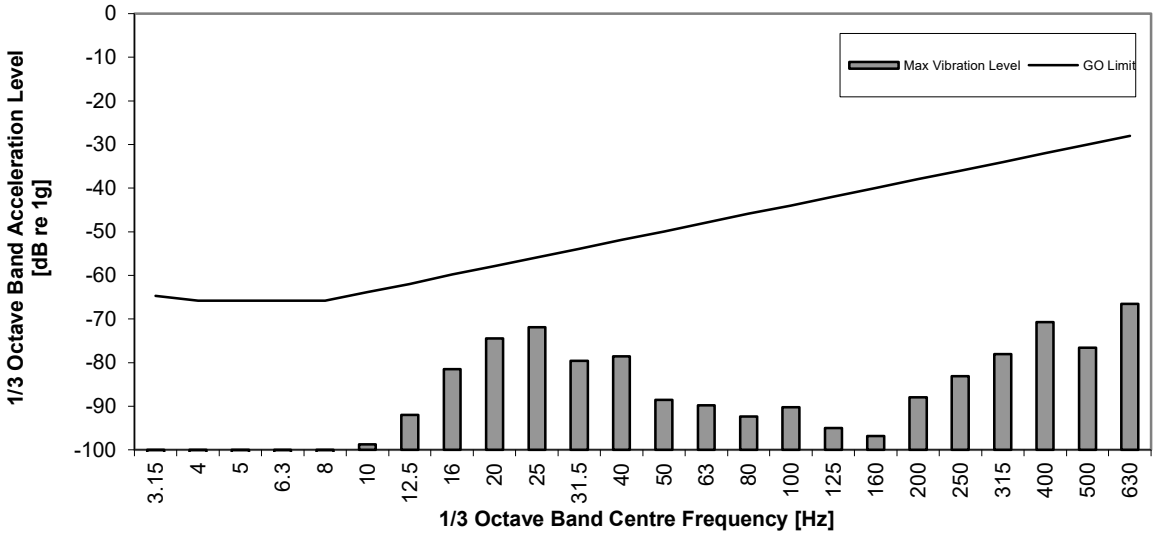




Figure 9: Proposed Noise Source Locations

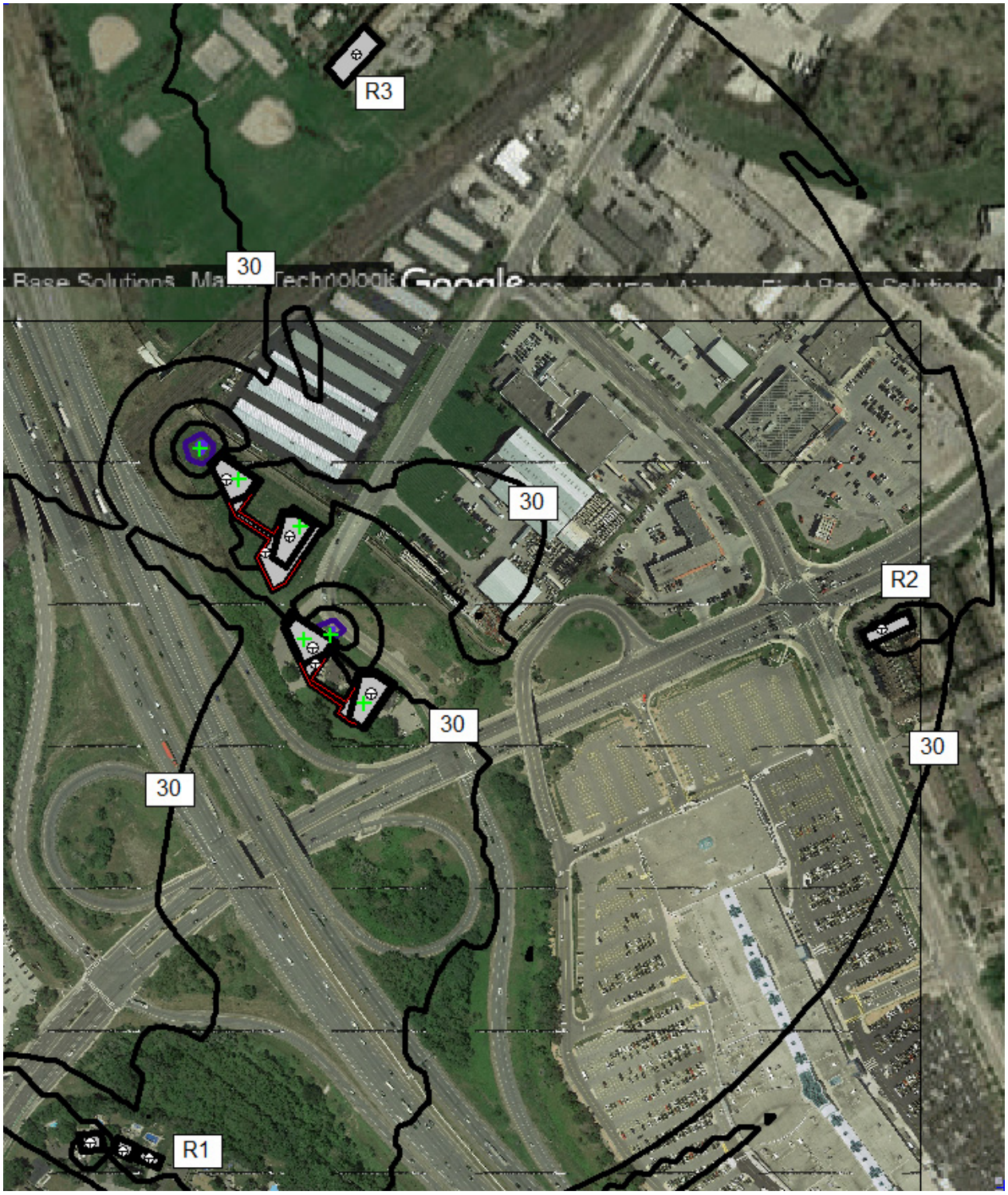


Figure 10: Predicted Daytime Stationary Noise Sound Levels, dBA

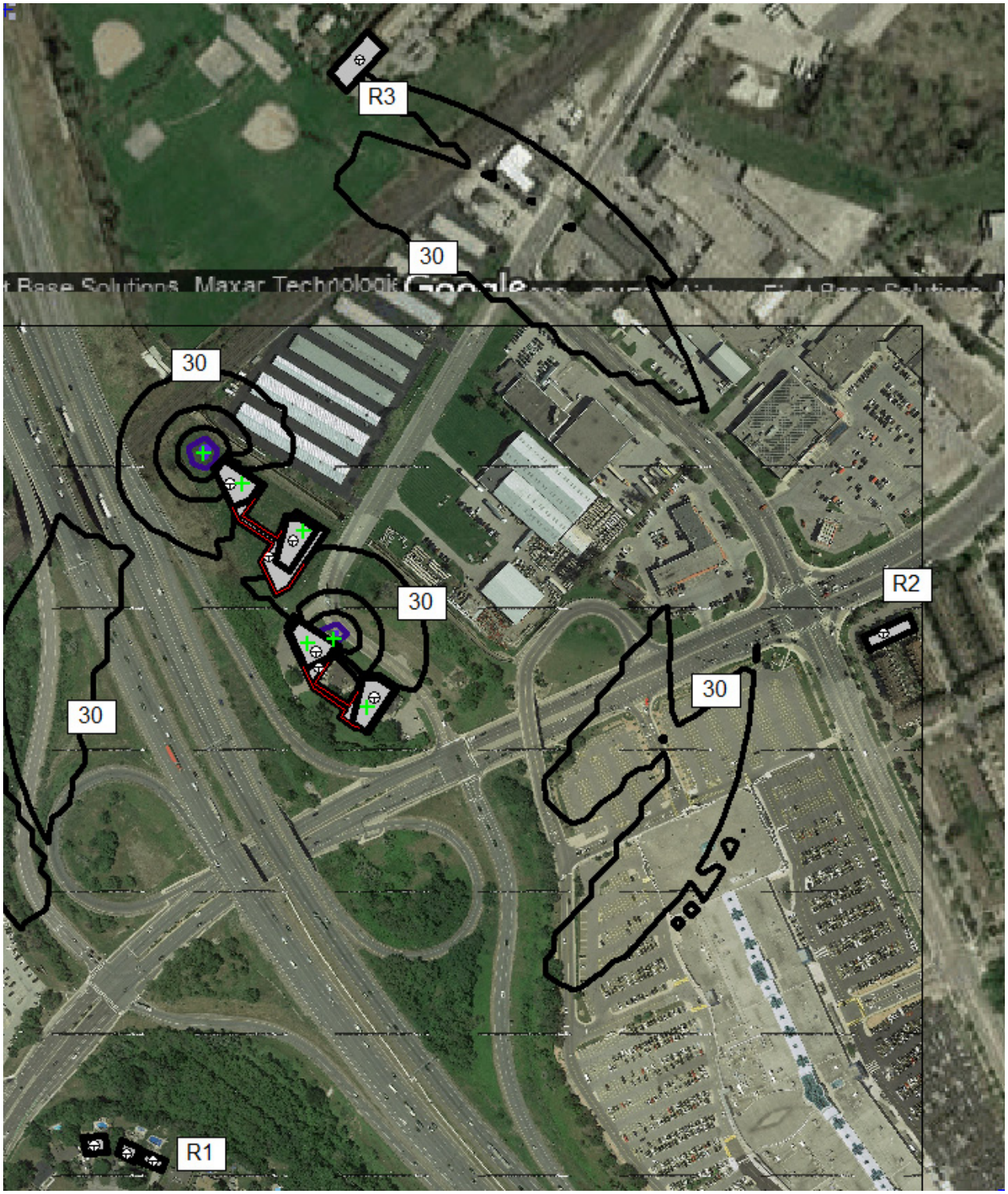


Figure 11: Predicted Nighttime Stationary Noise Sound Levels, dBA

APPENDIX A

CN and Metrolinx Principle Mainline Requirements

Canadian National Railway Properties Inc.
Propriétés ferroviaires du Canadien National Inc.

277 Front Street West
Floor 8
Toronto, Ontario
M5V 2X7

Telephone: (416) 217-6961
Facsimile: (416) 217-6743

277, rue Front ouest
8e étage
Toronto (Ontario)
M5V 2X7

Téléphone: (416) 217-6961
Télécopieur: (416) 217-6743

PRINCIPAL MAIN LINE REQUIREMENTS

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 30 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.5 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. The Owner shall engage a consultant to undertake an analysis of noise. At a minimum, a noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 5.5 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, the Railway may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, ±3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way: "Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way."

F. Any proposed alterations to the existing drainage pattern affecting railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of CN.

H. The Owner enter into an Agreement stipulating how CN's concerns will be resolved and will pay CN's reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant CN an environmental easement for operational noise and vibration emissions, registered against the subject property in favour of CN.

A wholly owned subsidiary of Canadian National Railway Company / Une filiale en propriété exclusive de la Compagnie des chemins de fer nationaux du Canada

PRINCIPAL MAIN LINE REQUIREMENTS FOR NEW DEVELOPMENT

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 30 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.5 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. Noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 5.5 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, GO Transit may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, $\pm$ 3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way.

> **Warning:** Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the right-of-way or their assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.

F. Any proposed alterations to the existing drainage pattern affecting the railway right-of-way must receive prior concurrence from GO Transit and be substantiated by a drainage report to the satisfaction of GO Transit.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of GO Transit.

H. The Owner enter into an Agreement stipulating how GO Transit's concerns will be resolved and will pay GO Transit's reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant GO Transit an environmental easement for operational emissions, registered on title against the subject property in favour of GO.

APPENDIX B

Road Traffic Data

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			2014	CR	155,300	183,200	181,700	132,000	N/A
			2015	CR	158,300	186,800	185,200	134,600	N/A
			2016	CR	161,300	190,300	188,700	137,100	N/A
QEW	FAIRVIEW ST IC-99	1.0	1988	IC	68,000	78,800	76,800	59,800	0.7
			1989	IC	76,600	88,000	86,500	68,100	0.8
			1990	IC	80,500	91,700	90,100	71,600	0.8
			1991	IC	82,900	93,600	91,900	73,700	1.1
			1992	IC	83,500	94,300	93,500	74,300	0.8
			1993	IC	84,100	93,300	92,500	76,500	0.6
			1994	IC	92,100	102,700	103,500	81,600	0.8
			1995	IC	95,900	106,900	108,400	85,000	0.3
			1996	IC	99,700	111,200	112,700	88,300	0.4
			1997	IC	103,600	115,500	117,100	91,200	0.4
			1998	IC	107,400	119,800	120,700	95,200	0.3
			1999	IC	111,300	124,100	125,100	98,600	0.6
			2000	IC	115,100	128,300	129,400	102,000	0.4
			2001	IC	118,900	133,200	133,200	104,600	0.3
			2002	IC	122,800	136,900	138,000	108,200	0.4
			2003	IC	126,600	140,500	141,800	111,400	0.3
			2004	IC	130,400	145,300	146,700	115,500	0.4
			2005	IC	134,300	149,300	150,800	118,400	0.5
			2006	IC	138,100	153,400	154,900	122,300	0.5
			2007	IC	141,900	157,600	162,500	125,400	0.4
			2008	IC	145,800	161,500	156,300	128,600	0.4
			2009	IC	149,600	165,800	167,300	132,600	0.4
			2010	IC	153,400	169,800	171,200	136,000	0.3
			2011	IC	157,300	173,000	179,300	141,500	N/A
			2012	IC	157,200	174,500	168,200	139,900	N/A
			2013	IC	153,000	169,800	168,300	136,200	N/A
			2014	IC	165,700	183,900	182,200	147,400	N/A
			2015	IC	169,300	187,900	186,200	150,700	N/A
			2016	IC	172,900	191,900	190,200	153,900	N/A
QEW	HWY 403/407 IC-100	0.8	1988	C	90,800	100,800	100,800	81,700	1.1

Yvonne Lo

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: Wednesday, July 22, 2020 11:56 AM
To: Yvonne Lo
Cc: Bee, Christopher (MTO)
Subject: Fw: Bee, Christopher (MTO) shared "QEW at Fairview St(Plains Rd) (East Ramp)" with you.
Attachments: QEW at Fairview St(Plains Rd) (East Ramp).pdf; QEW at Fairview St(Plains Rd) (West Ramp).pdf

To Yvonne Lo:

The "% commercial" at QEW and Fairview was 25% for 2016, and several years before.
This includes small trucks, large trucks, cars with trailer, and specials, but NOT REGULAR CARS. There is no further breakdown.

This is a relatively large number, but does not imply the "% commercial" on the on-ramp is the same.

Christopher Bee
MTO CR Traffic Office
STIRCS

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: Wednesday, July 22, 2020 11:50 AM
To: Banger, Kamal (MTO) <Kamal.Banger@ontario.ca>
Cc: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: Fw: Bee, Christopher (MTO) shared "QEW at Fairview St(Plains Rd) (East Ramp)" with you.

Thanks Kamal.

Chris

From: Banger, Kamal (MTO) <Kamal.Banger@ontario.ca>
Sent: Wednesday, July 22, 2020 11:40 AM
To: Yvonne Lo <ylo@hgcengineering.com>
Cc: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: RE: Bee, Christopher (MTO) shared "QEW at Fairview St(Plains Rd) (East Ramp)" with you.

Hi Yvonne,

Attached are the TMC data you requested.

Thanks,

Kamal

From: Yvonne Lo <ylo@hgcengineering.com>
Sent: July 22, 2020 8:13 AM
To: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Cc: Banger, Kamal (MTO) <Kamal.Banger@ontario.ca>; Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: RE: Bee, Christopher (MTO) shared "QEW at Fairview St(Plains Rd) (East Ramp)" with you.

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Christopher,

Thanks for coordination. I look forward to getting the volume data associated with the onramp. Can you please also provide "% commercial" on QEW in the vicinity of the on-ramp location?

Thank you!

Best,

Yvonne Lo, BASc, PEng
Project Consultant

HGC Engineering **NOISE | VIBRATION | ACOUSTICS**
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044 **e:** ylo@hgcengineering.com
Visit our website: www.hgcengineering.com **Follow Us** – LinkedIn | Twitter | YouTube

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: Tuesday, July 21, 2020 6:58 PM
To: Yvonne Lo <ylo@hgcengineering.com>
Cc: Banger, Kamal (MTO) <Kamal.Banger@ontario.ca>; Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: Fw: Bee, Christopher (MTO) shared "QEW at Fairview St(Plains Rd) (East Ramp)" with you.

To Yvonne Lo, HGC:

RE: % commercial + volume at on- ramp from Plains Road/Fairview to QEW

Sorry about the delay.

Re the above, unfortunately we do not have "% commercial" at the indicated on-ramp. But we have "% commercial" on QEW in the vicinity of the on-ramp location. I assume that is not what you want.

Re volume at the on-ramp, the latest we have is 2015. We do not have the on-ramp volumes, but we have the TMCs at both ramp terminals at QEW and Fairivew. From the TMCs, you can infer the on-ramp volume. The TMC data are on shared drive, and my computer cannot send the data to you. I have sent the data to Kamal Banger, who will forward both ramp terminal TMCs to you (please see email below).

Thanks

Christopher Bee
MTO CR Traffic Office
STIRCS

Fairview St & QEW E Ramp

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

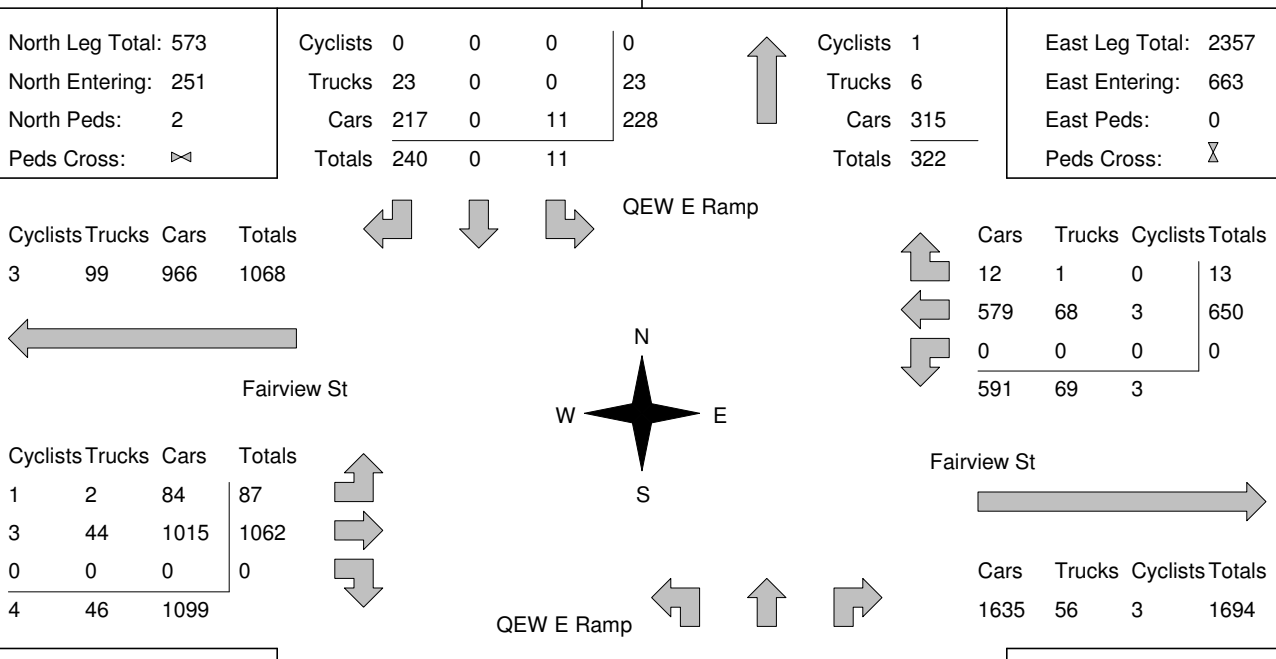
Municipality: Burlington
Site #: 0000201936
Intersection: Fairview St & QEW E Ramp
TFR File #: 1
Count date: 15-Nov-2017

Weather conditions:
Cloudy

Person(s) who counted:
Nikola
Mike

**** Signalized Intersection ****

Major Road: Fairview St runs W/E



Comments

Fairview St & QEW E Ramp

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:30:00
To: 13:30:00

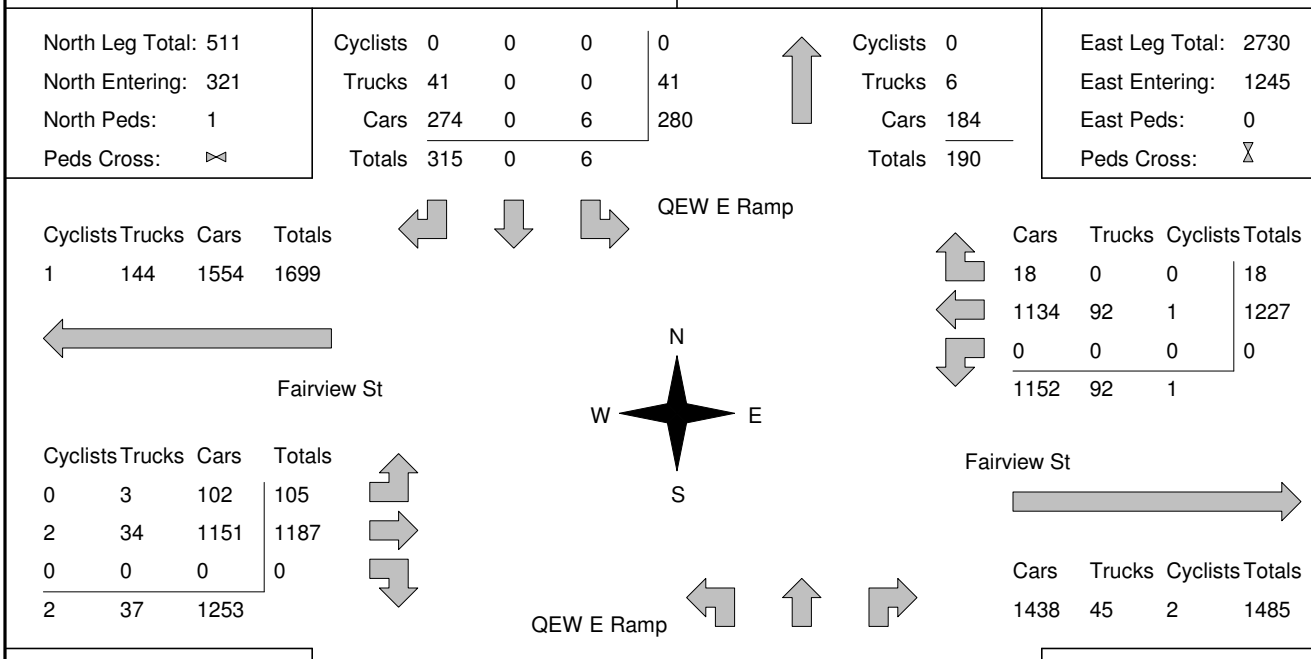
Municipality: Burlington
Site #: 0000201936
Intersection: Fairview St & QEW E Ramp
TFR File #: 1
Count date: 15-Nov-2017

Weather conditions:
Cloudy

Person(s) who counted:
Nikola
Mike

**** Signalized Intersection ****

Major Road: Fairview St runs W/E



Comments

Fairview St & QEW E Ramp

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Burlington
Site #: 0000201936
Intersection: Fairview St & QEW E Ramp
TFR File #: 1
Count date: 15-Nov-2017

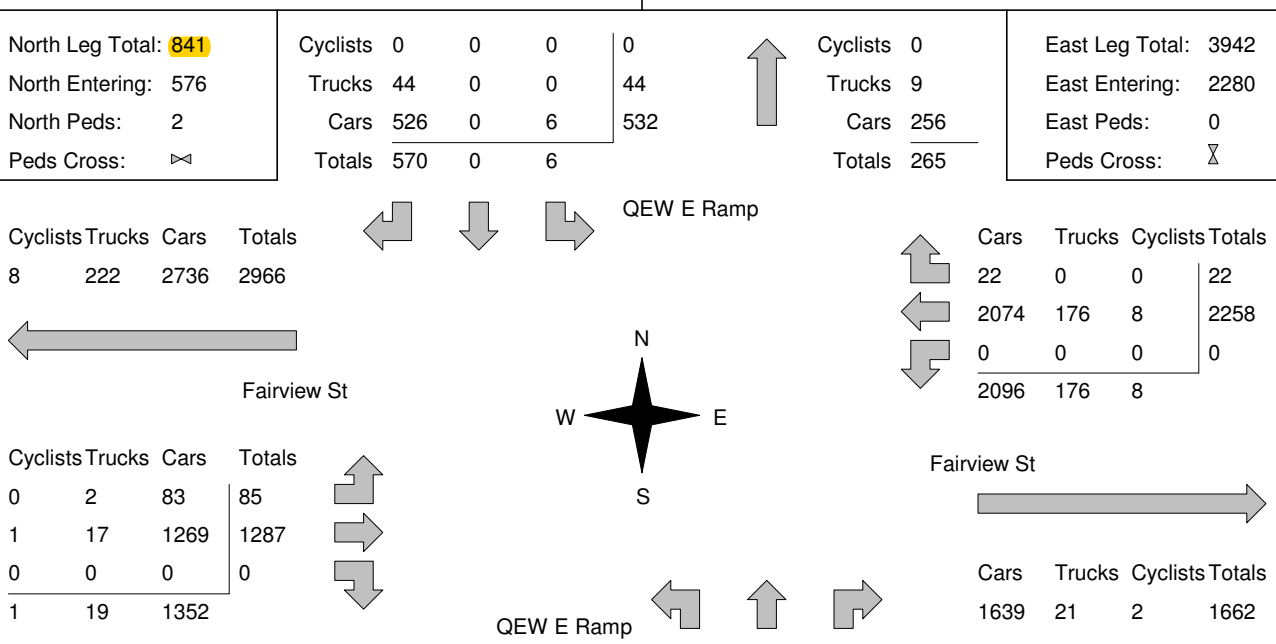
Weather conditions:
Cloudy

Person(s) who counted:
Nikola
Mike

** Signalized Intersection **

(44+9)/841 = 6.3%

Major Road: Fairview St runs W/E



(222+19)/4338 = 5.6%

Comments

Fairview St & QEW E Ramp

Total Count Diagram

Municipality: Burlington
Site #: 0000201936
Intersection: Fairview St & QEW E Ramp
TFR File #: 1
Count date: 15-Nov-2017

Weather conditions:
Cloudy

Person(s) who counted:
Nikola
Mike

**** Signalized Intersection ****

Major Road: Fairview St runs W/E

North Leg Total:	4957			
North Entering:	2978			
North Peds:	28			
Peds Cross:	⋈			
Cyclists	0	0	0	0
Trucks	268	0	3	271
Cars	2648	0	59	2707
Totals	2916	0	62	
Cyclists	1			
Trucks	74			
Cars	1904			
Totals	1979			
East Leg Total:	23269			
East Entering:	11059			
East Peds:	8			
Peds Cross:	⧖			

QEW E Ramp

Cyclists	Trucks	Cars	Totals
22	1218	13844	15084

Cars	Trucks	Cyclists	Totals
116	4	0	120
10036	881	22	10939
0	0	0	0
10152	885	22	

Fairview St

N
W E
S

Cyclists	Trucks	Cars	Totals
1	30	766	797
31	234	8868	9133
0	0	0	0
32	264	9634	

Fairview St

Cars	Trucks	Cyclists	Totals
11870	308	32	12210

QEW E Ramp

Peds Cross:	⧖			
West Peds:	0			
West Entering:	9930			
West Leg Total:	25014			
Cars	0			
Trucks	0			
Cyclists	0			
Totals	0			
Cars	1160	1022	2943	5125
Trucks	69	40	71	180
Cyclists	0	0	1	1
Totals	1229	1062	3015	
Peds Cross:	⋈			
South Peds:	61			
South Entering:	5306			
South Leg Total:	5306			

Comments

Fairview St & QEW E Ramp
Traffic Count Summary

Intersection: Fairview St & QEW E Ramp | **Count Date:** 15-Nov-2017 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	10	0	187	197	0	1298
9:00:00	9	0	257	266	4	1088
11:00:00	0	0	0	0	0	0
12:00:00	4	0	284	288	9	824
13:00:00	12	0	311	323	1	890
14:00:00	7	0	318	325	3	841
15:00:00	0	0	0	0	0	0
16:00:00	6	0	440	446	5	929
17:00:00	9	0	562	571	5	1218
18:00:00	5	0	557	562	1	1196
Totals:	62	0	2916	2978	28	8284

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	155	276	670	1101	2
9:00:00	176	177	469	822	2
11:00:00	0	0	0	0	0
12:00:00	138	68	330	536	5
13:00:00	178	65	324	567	13
14:00:00	151	75	290	516	12
15:00:00	0	0	0	0	0
16:00:00	138	101	244	483	10
17:00:00	149	151	347	647	7
18:00:00	144	149	341	634	10
Totals:	1229	1062	3015	5306	61

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	558	6	564	0	1520
9:00:00	0	678	11	689	0	1921
11:00:00	0	0	0	0	0	0
12:00:00	0	1082	8	1090	2	2285
13:00:00	0	1181	18	1199	0	2470
14:00:00	0	1244	18	1262	1	2530
15:00:00	0	0	0	0	0	0
16:00:00	0	1847	20	1867	5	3173
17:00:00	0	2138	18	2156	0	3488
18:00:00	0	2211	21	2232	0	3602
Totals:	0	10939	120	11059	8	20989

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	73	883	0	956	0
9:00:00	112	1120	0	1232	0
11:00:00	0	0	0	0	0
12:00:00	98	1097	0	1195	0
13:00:00	113	1158	0	1271	0
14:00:00	116	1152	0	1268	0
15:00:00	0	0	0	0	0
16:00:00	100	1206	0	1306	0
17:00:00	99	1233	0	1332	0
18:00:00	86	1284	0	1370	0
Totals:	797	9133	0	9930	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	441	362	212	255	234	250	309	298

APPENDIX C

Rail Traffic Data

Victor Garcia

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: March 15, 2019 10:32 AM
To: Victor Garcia
Cc: Brandon Gaffoor
Subject: RE: Rail Traffic Data Verification

Good Morning Victor,

I apologize for the delay in our response.

Further to your request dated December 19, 2018 (attached below), the subject site (1335 Plains Road East, Burlington) is located within 300 metres of CNR's Halton Subdivision which carries Lakeshore West GO Train service.

It's anticipated that GO service on this line will be comprised of a mix of both diesel and electric trains within (at least) a 10-year time horizon. The combined preliminary midterm weekday train volume forecast at this location, including both revenue and equipment trips is in the order of 238 trains (54 diesel: 45 day, 9 night; 184 electric: 147 day, 37 night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

The current maximum design speed on this corridor is 95 mph (153 km/h).

With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase. Metrolinx has not made a final decision regarding the electric train technology or technologies to be deployed. We can, however, provide the following interim information which may be helpful;

1. At lower speeds, train noise is dominated by the powertrain. At higher speeds, train noise is dominated by the wheel- track interaction. Hence, at higher speeds, the noise level and spectrum of electric trains is expected to be very similar, if not identical, to those of equivalent diesel trains.

2. Along with electrification, Metrolinx will intensify service levels along all of its corridors to deliver the promised GO Expansion service. Everything else being equal, this will likely result in an overall increase in train noise emissions.

Given the above considerations, it would be prudent, for the purposes of acoustical analyses, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability, and passenger demand.

It should be noted that CNR and VIA operate trains in this area and it would be prudent to contact them directly for rail traffic information.

I trust this information is useful. Should you have any questions, please feel free to contact me.

Best Regards,

IVAN CHEUNG, M.Sc, B.URPl
Intern | Third Party Projects Review
Pre-Construction Services | Capital Projects Group
Metrolinx
20 Bay Street, Suite 600 | Toronto | Ontario | M5J 2W3
T: 416-202-5920

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	HGC Engineering 2000 Argentia Rd, Plaza One, Suite 203, Mississauga, ON L5N 1P7	*Project :*	OAK-32.23 - Plains Rd, Burlington, ON
Att'n:	Victor Garcia	*Routing:*	vgarcia@hgcengineering.com
From: *Expéditeur :*	Michael Vallins	*Date:*	02/05/2019
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ■ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Oakville Subdivision near Plains Road in Burlington, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at 905-669-3264.

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager of Public Works
public_works_gld@cn.ca

Date: 2019/01/16 Project Number: OAK-32.23 - Plains Rd, Burlington, ON

Dear Victor:

Re: Train Traffic Data – CN Oakville Subdivision near Plains Road in Burlington, ON

The following is provided in response to Victor's 2018/12/19 request for information regarding rail traffic in the vicinity of Plains Road in Burlington, ON at approximately Mile 32.23 on CN's Oakville Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	4	25	60	4
Passenger	13	10	80	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	2	25	60	4
Passenger	0	10	80	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Oakville Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are no at-grade crossing in the immediate vicinity of the study area at Mile 32.23 (Plains Road). Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The triple mainline track is considered to be continuously welded rail throughout the study area. The presence of eleven (11) switches located at Mile 32.08, 32.15, 32.17,

32.18, 32.25, 32.33, 32.40, 32.48, 33.18, 33.23 and 33.31 may exacerbate the noise and vibration caused by train movements.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Michael Vallins P.Eng
Manager of Public Works
public_works_gld@cn.ca

APPENDIX D

Supporting Drawings

Job #:1572.17 - PHASE 1+2
Date: April 20, 2021
Project Statistics

	Permitted / Required	PHASE 1	PHASE 2	OVERAL T+2
01. Site Area		8019 m2 86310 ft2	7566 m2 81441 ft2	15585 m2 167751 ft2
02. G.C.A(m2)				
Residential		41,834	34,559	76393
Retail		791	207	998
Total		42,625	34,766	77391
03. F.S.I		5.32	4.60	5.0
04. Setbacks (m) *				
Above Grade				
North		7	0.6	
East		3	32	
South		17	16	
West		45	8.65	
Below Grade				
North		0	0	
East		0	0	
South		14	14	
West		15.8	6	
05. Unit Count **				
1 Bedroom		347	219	566
2 Bedroom		213	187	400
3 Bedroom		27	56	83
Total		**587**	**462**	**1049**
06. Barrier Free Unit Count **				
1 Bedroom	15%	42	33	75
2 Bedroom	15%	34	29	63
3 Bedroom	15%	9	9	18
Total				
Total Barrier Free units included in Total unit count above		**85**	**71**	**156**
07. Parking Provided				
Residential	(1.0 per unit)	549	459	1008
Visitor/Retail	(0.2 per unit)	118	93	211
Total		**667**	**552**	**1219**
08. Bike Parking				
Residential		TBA	TBA	TBA
Visitor				
Total				
09. Lockers		TBA		
10. Building Height		30-35 STY	22-30 STY	
11.Amenity Space(m2)				
Indoor		2590	2033	4623
Outdoor		2908	2108	5016
Terraces/Balconies		8846	5810	14656
Total	20m2/ unit	**14344**	**9951**	**24295**

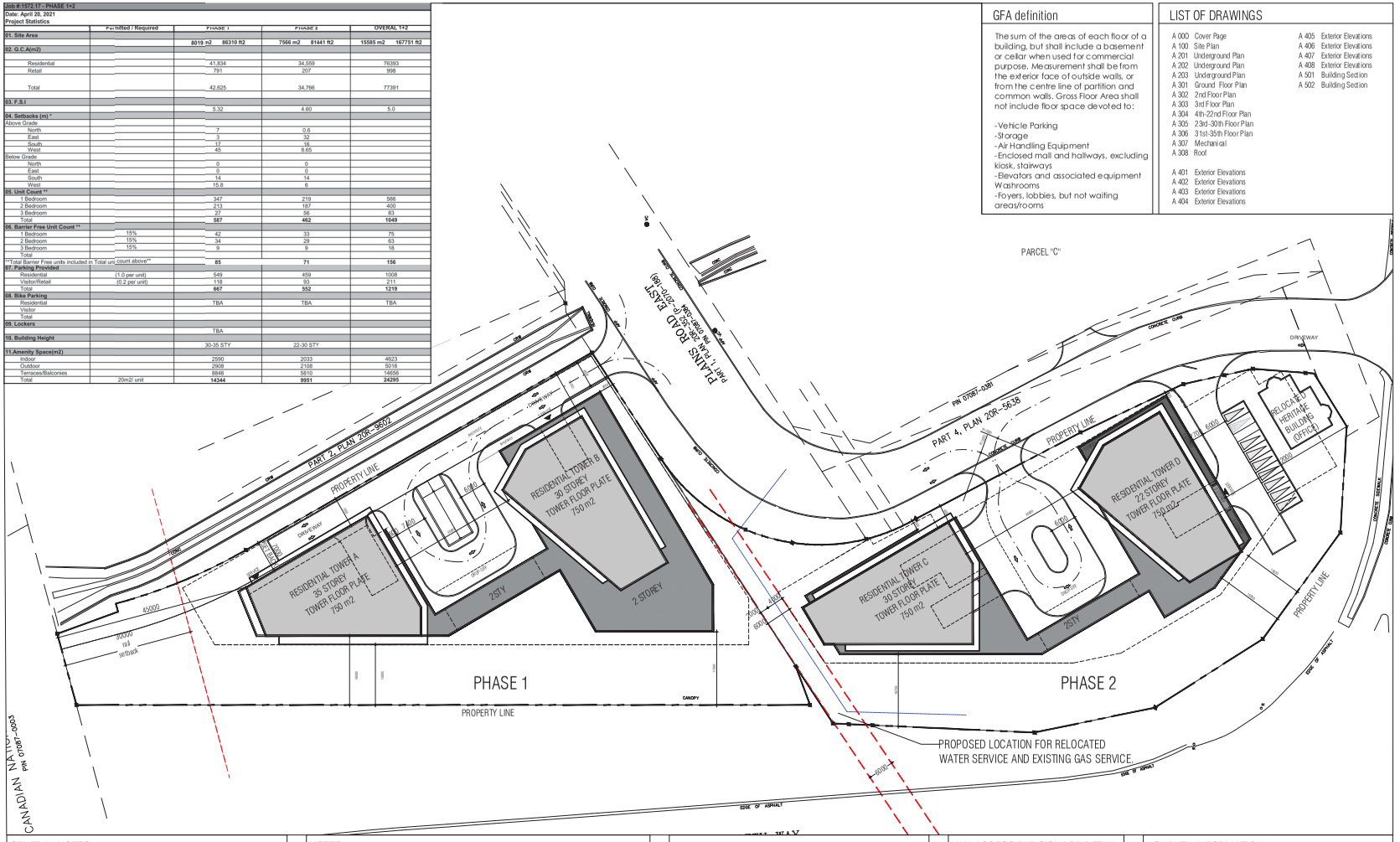
GFA definition

The sum of the areas of each floor of a building, but shall include a basement or cellar when used for commercial purpose. Measurement shall be from the exterior face of outside walls, or from the centre line of partition and common walls. Gross Floor Area shall not include floor space devoted to:

- Vehicle Parking
- Storage
- Air Handling Equipment
- Enclosed mall and hallways, excluding kiosk, stairways
- Elevators and associated equipment
- Washrooms
- Foyers, lobbies, but not waiting areas/rooms

LIST OF DRAWINGS

A 000	Cover Page	A 405	Exterior Elevations
A 100	Site Plan	A 406	Exterior Elevations
A 201	Underground Plan	A 407	Exterior Elevations
A 202	Underground Plan	A 408	Exterior Elevations
A 203	Underground Plan	A 501	Building Section
A 301	Ground Floor Plan	A 502	Building Section
A 302	2nd Floor Plan		
A 303	3rd Floor Plan		
A 304	4th-22nd Floor Plan		
A 305	23rd-30th Floor Plan		
A 306	31st-35th Floor Plan		
A 307	Mechanical		
A 308	Roof		
A 401	Exterior Elevations		
A 402	Exterior Elevations		
A 403	Exterior Elevations		
A 404	Exterior Elevations		



GENERAL NOTES

1. For landscaping, refer to landscape drawings.
2. For proposed grading, refer to landscape drawings and approved grading plan.
3. All perimeter existing information indicated taken from survey.
4. All work to be done in conformance with the 2012 Ontario Building Code (O.B.C., as amended)
5. All driveway with access onto City owned roadway conform to City of Burlington standards.

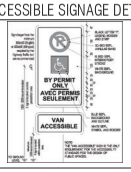
NOTES

1. Fire access route to existing buildings will be maintained during construction.
2. Accessibility for all pathway to Go Station, Wal-Mart during construction will be maintained.
3. The fire access route will be designed to support a load of not less than 11,363 kg per axle and have a change in gradient of not more than 1 in 12.5 over a minimum distance of 15m.
4. Fire Department access route will be constructed of hard surface material such as asphalt, concrete or lockstone.

KEY PLAN



VAN ACCESSIBLE SIGNAGE DETAIL



SURVEY INFORMATION

PLAN OF SURVEY OF
PART OF LOT 14 (REGISTERED PLAN 99
PART OF HAMILTON & NELSON ROAD SHOWN
REGISTERED PLAN 99
IN THE CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

A.T. McLaren LIMITED
69 JOHN STREET SOUTH, SUITE 230
HAMILTON, ONTARIO
L8N 2B9
telephone (905) 527-8559

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Phone 905.795.2601 Fax 905.795.2664 www.gc-architects.com

Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

Project Architect:	B. Graziani
Assistant Designer:	S. Saleri/R. Aloni
Drawn By:	S. Saleri/R. Aloni
Checked By:	D. Biase
Plot Date:	Apr. 13, 2021
Job #	1572.17

SITE PLAN

1:450

A101

TITLEBLOCK SIZE: 610 x 900

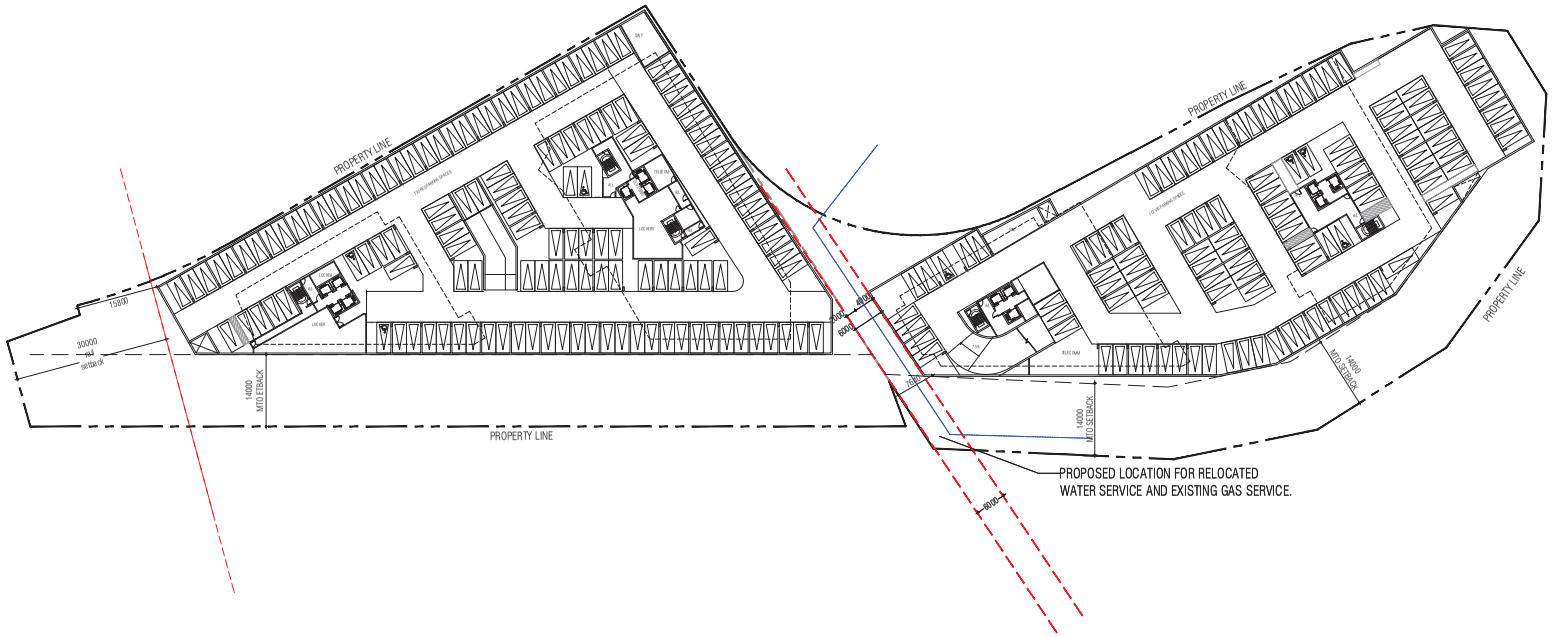
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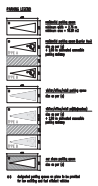
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Residential Development

PLAINS RD
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Burlington, Ontario

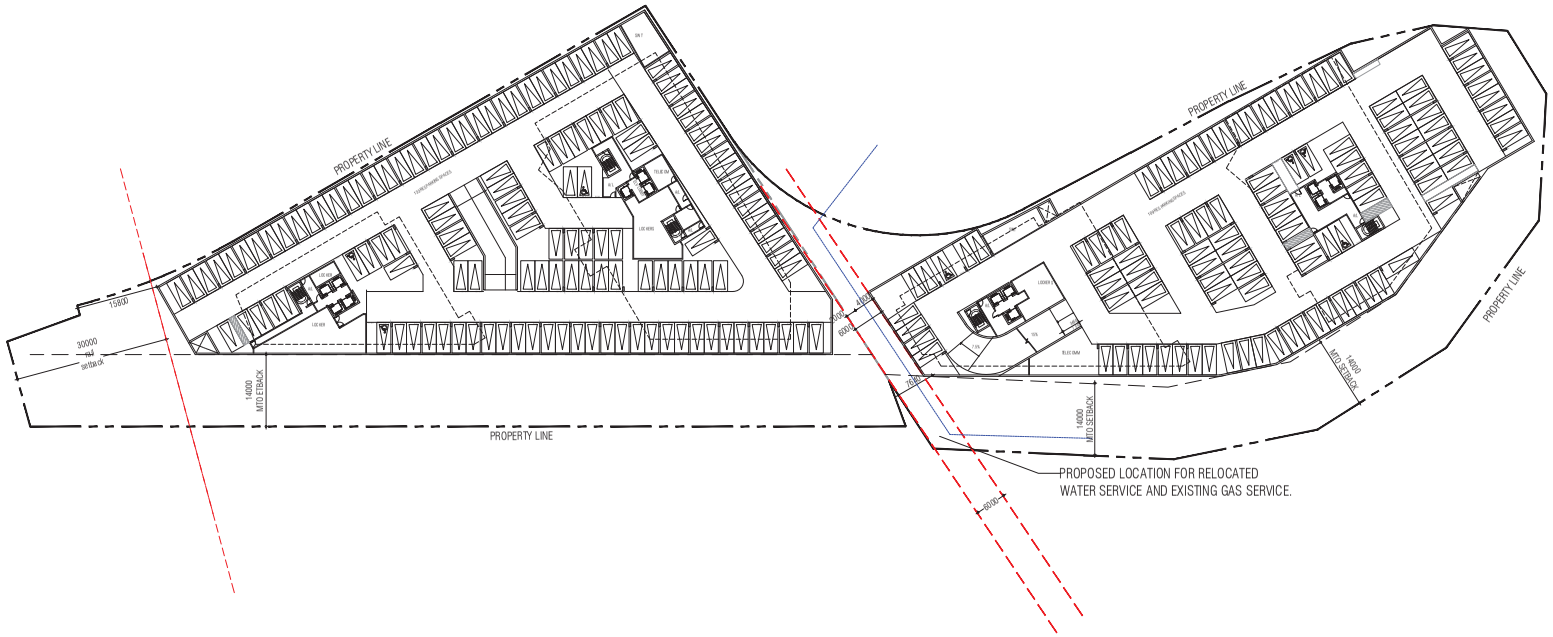
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P5

1:450

A201

TITLEBLOCK SIZE: 610 x 900



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Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

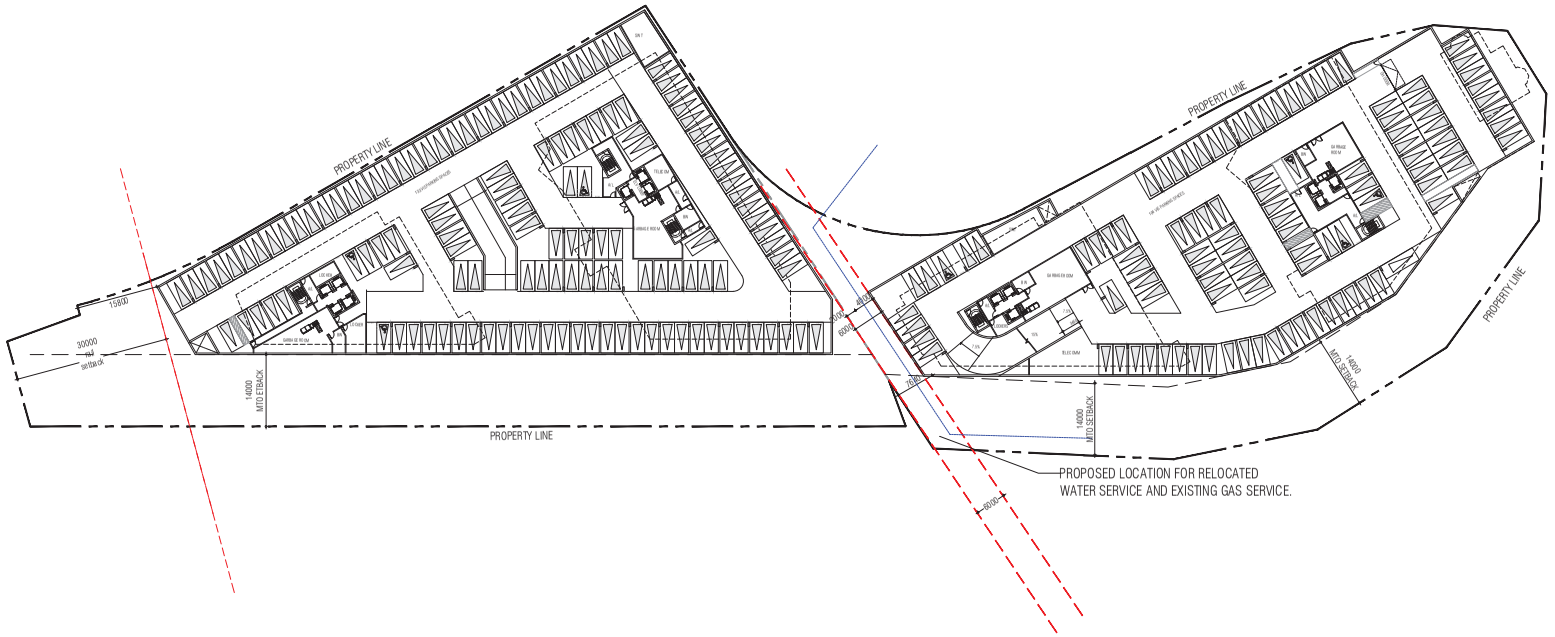
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P2-P4

1:450

A202

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Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

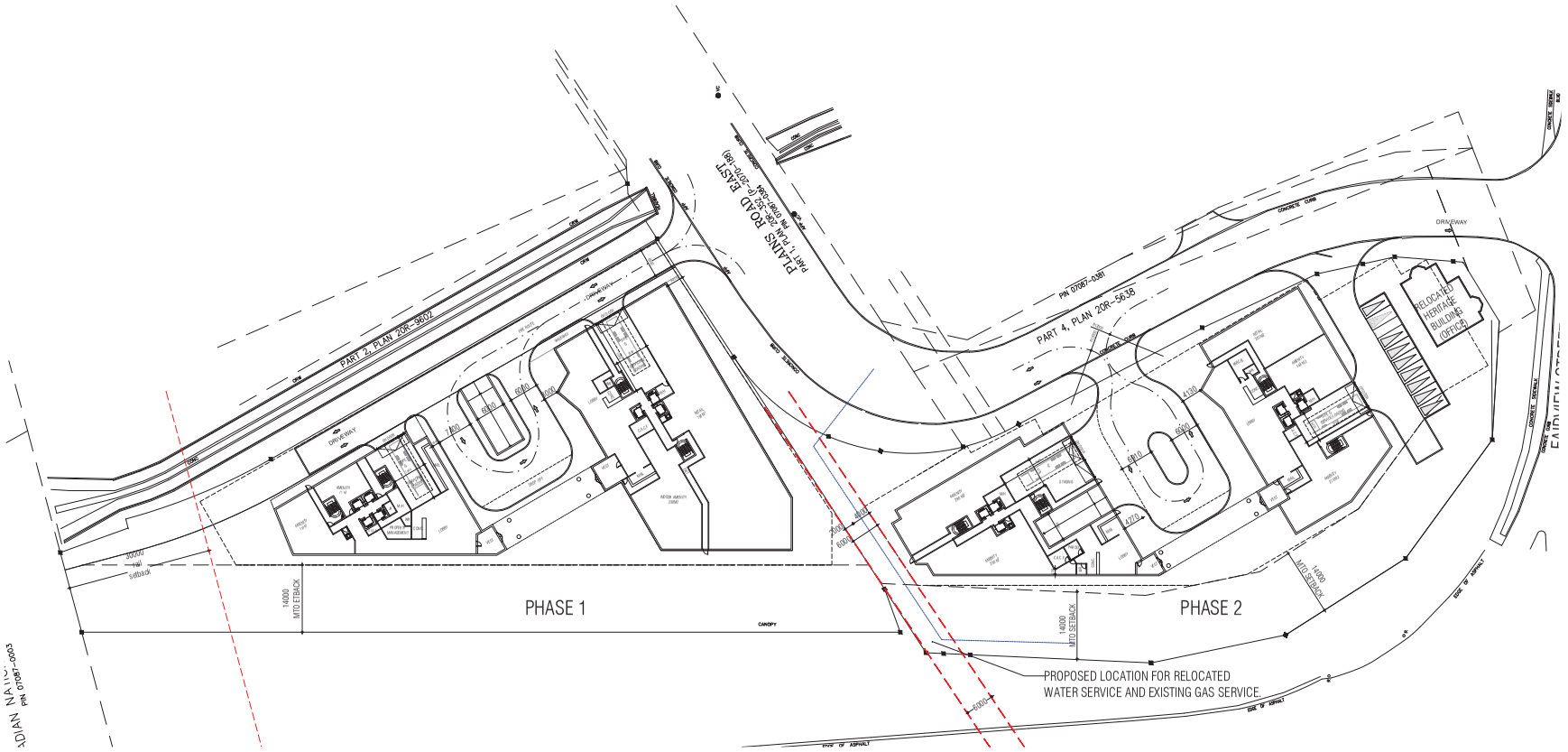
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P1

1:450

A203

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Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

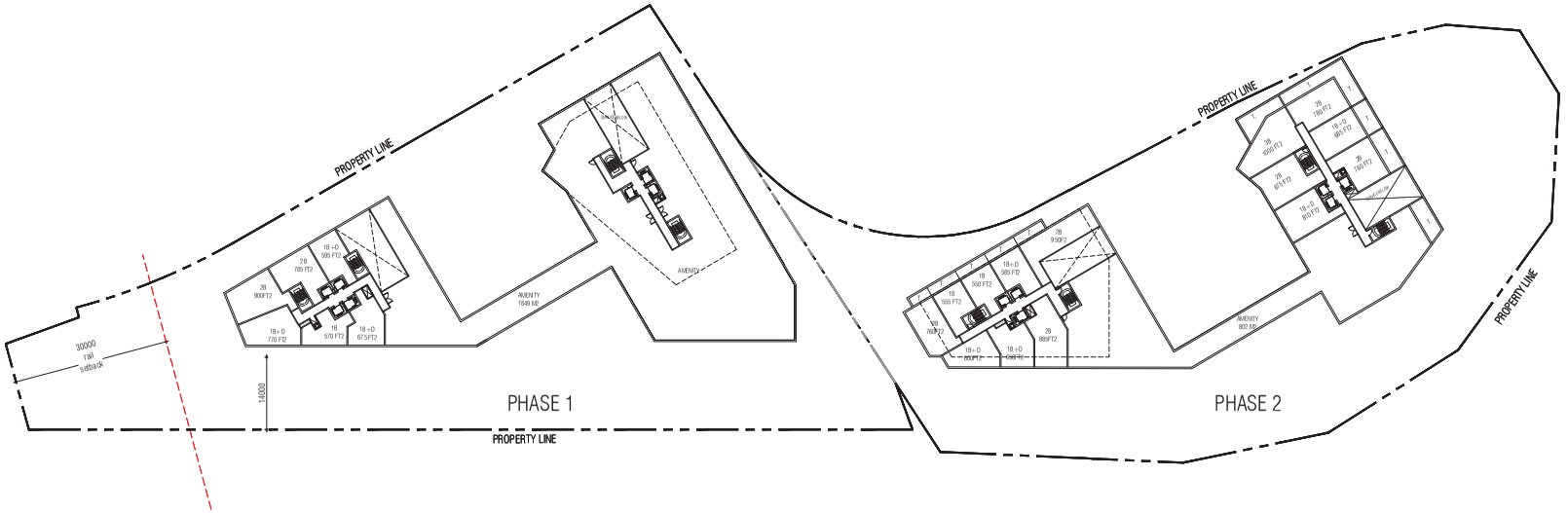
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GROUND FLOOR

1:450

A301

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Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

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2ND FLOOR

1:450

A302

TITLEBLOCK SIZE: 610 x 900

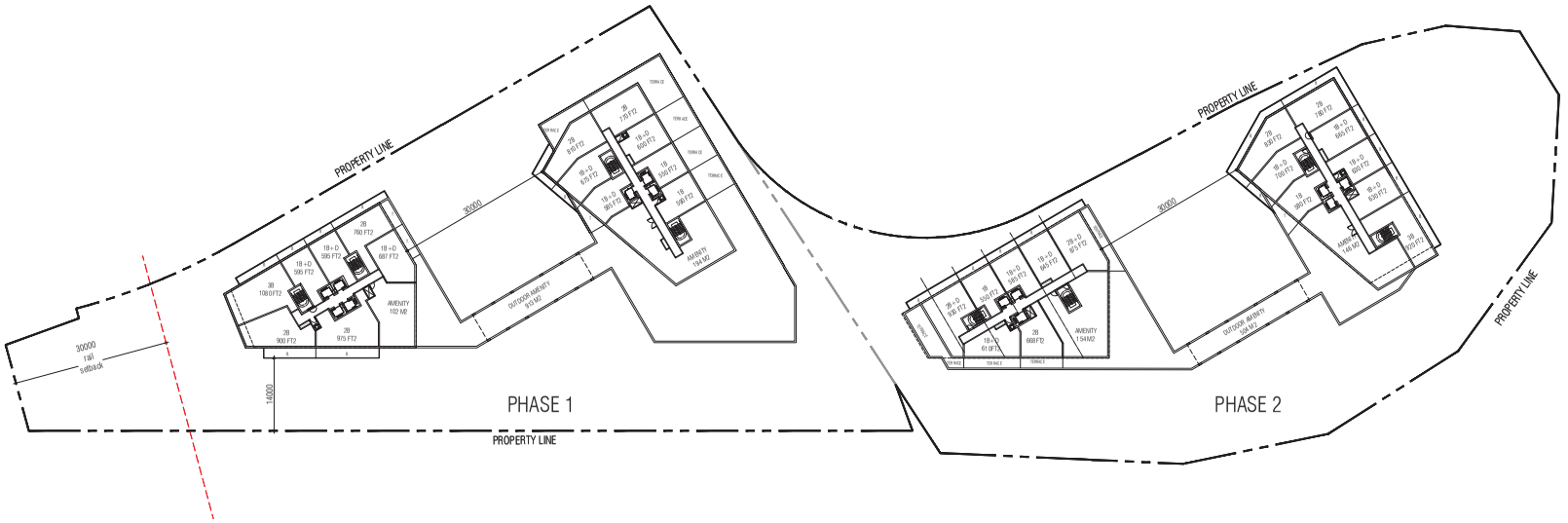
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3RD FLOOR

1:450

A303

TITLEBLOCK SIZE: 610 x 900

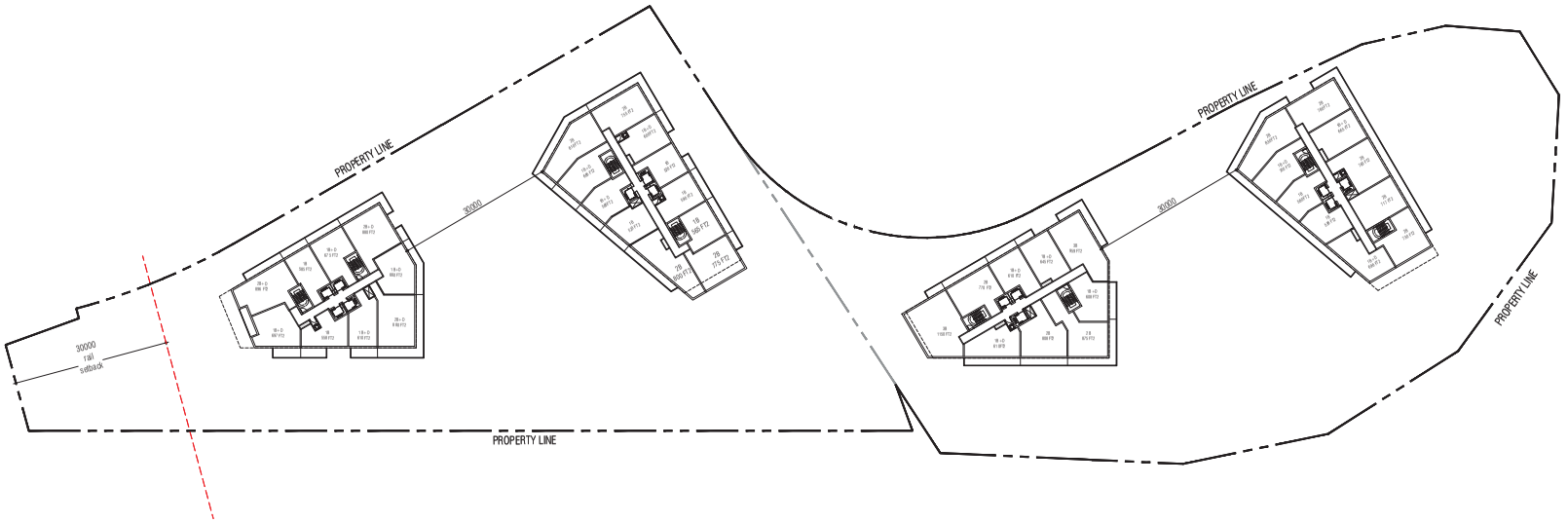
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Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

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4TH- 22ND FLOOR

1:450

A304

TITLEBLOCK SIZE: 610 x 900

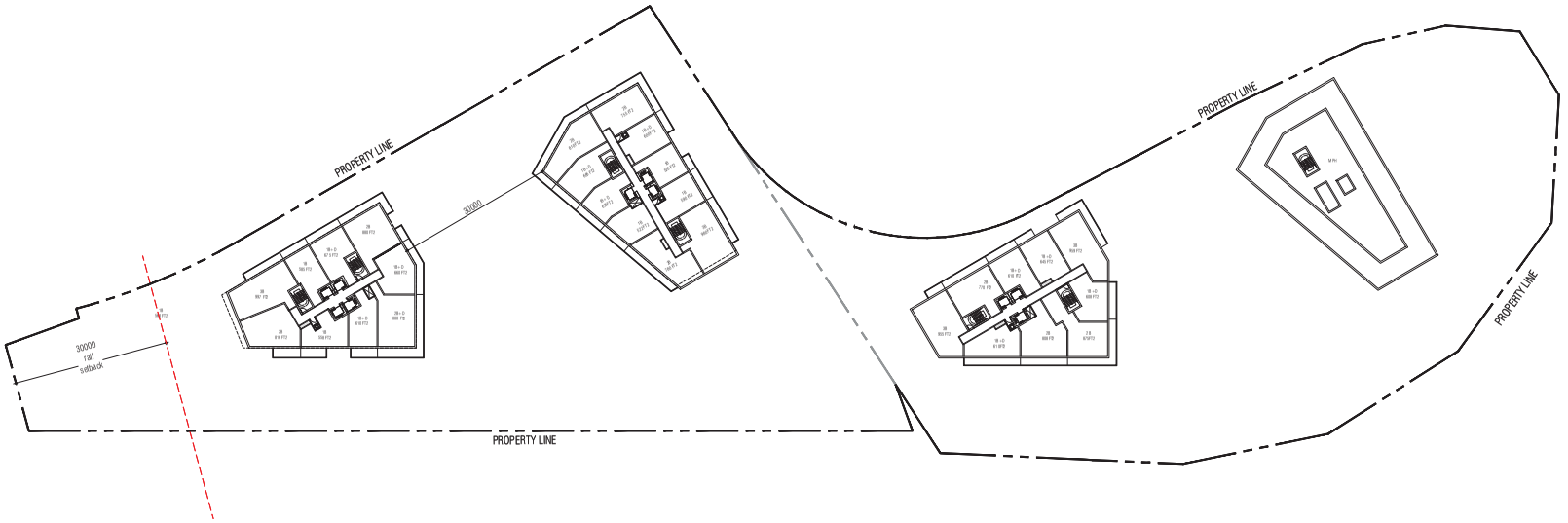
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Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

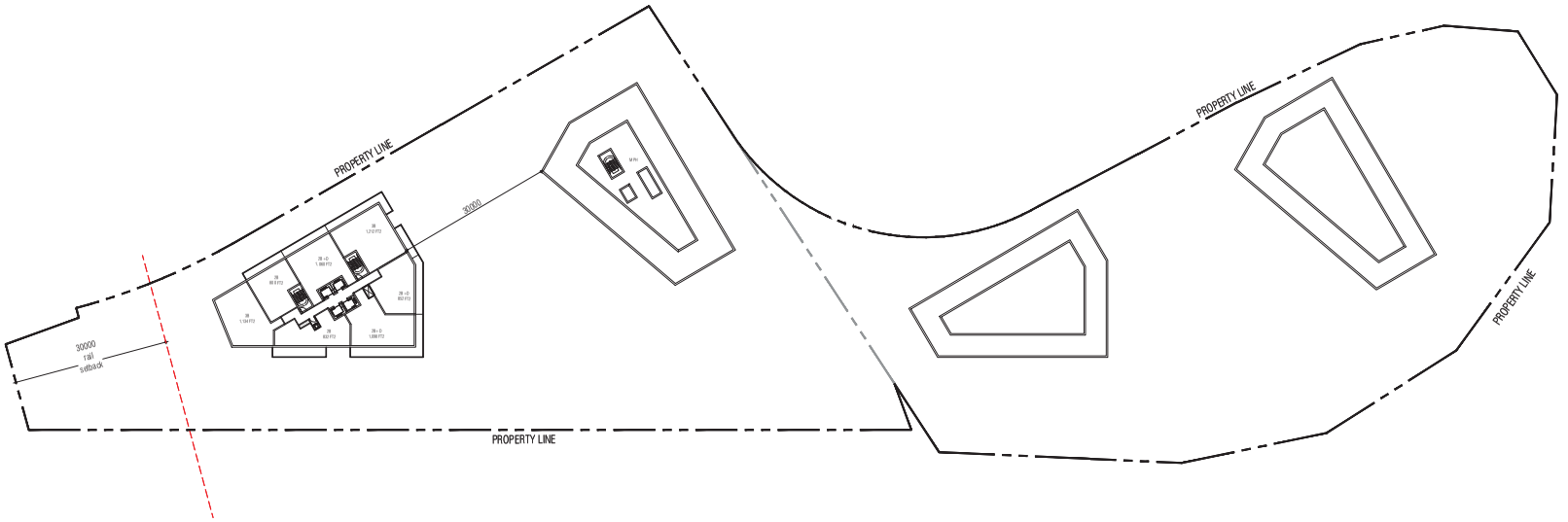
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Job #	1572.17

23RD- 30TH FLOOR

1:450

A305

TITLEBLOCK SIZE: 610 x 900



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1320 Sheldon Drive, Suite 100 - Mississauga Ontario L4W 1C3
Phone: 905.795.2601 Fax 905. 795.2644 www.gc-architects.com

Residential Development

PLAINS RD
MASTER PLAN

Burlington, Ontario

Project Architect:	B. Graziani
Assistant Designer:	S. Salari/R. Alani
Drawn By:	S. Salari/R. Alani
Checked By:	D. Biase
Plot Date:	Apr. 13, 2021
Job #	1572.17

31ST-35TH FLOOR

1:450

A306

TITLEBLOCK SIZE: 610 x 900

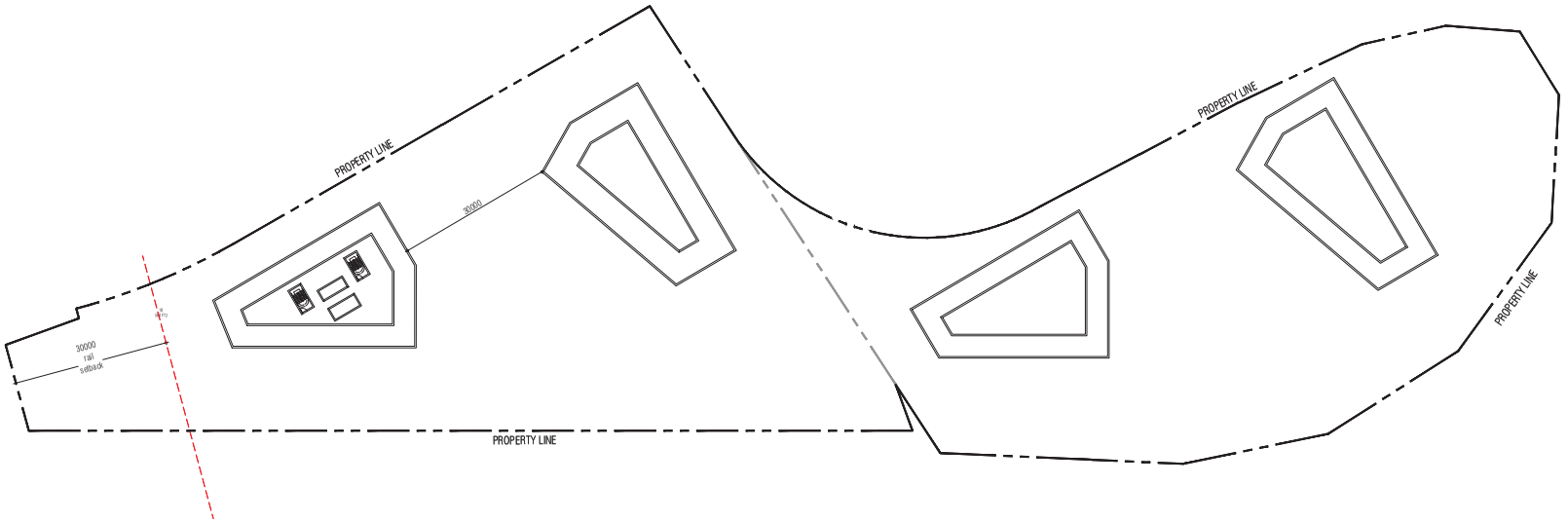
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Checked By:	D. Biase
Plot Date:	Apr. 13, 2021
Job #	1572.17

MECHANICAL FLOOR

1:450

A307

TITLEBLOCK SIZE: 610 x 900

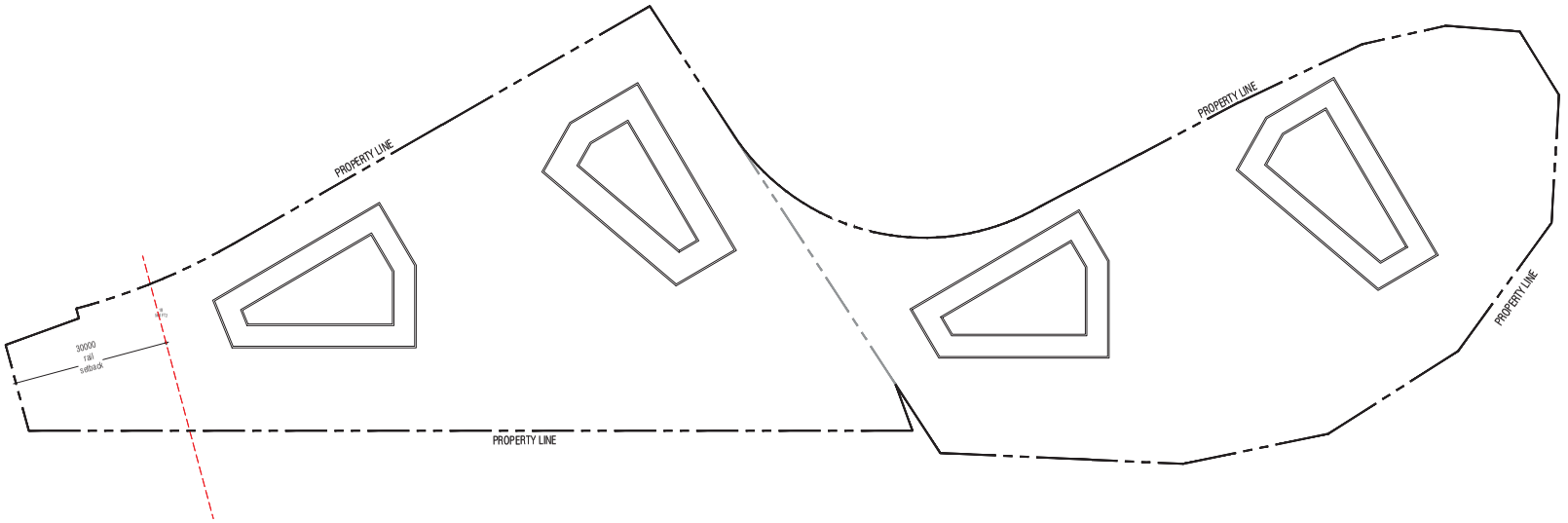
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ROOF

1:450

A308

TITLEBLOCK SIZE: 610 x 900