1 Rosetta Street

Environmental Noise and Vibration Study
Georgetown, ON

SLR Project No: 241.20210.00000

April 2022

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ENVIRONMENTAL NOISE AND VIBRATION STUDY
1 Rosetta Street
Georgetown, Ontario
SLR Project No: 241.20210.00000

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1. INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR), was retained by Byron Equities to conduct an Environmental Noise and Vibration Study for their proposed residential development, to be located at 1 Rosetta Street in Georgetown, Ontario ("the Project"). This assessment has been completed in support of the zoning by-law amendment (ZBA) application to be filed with Town of Halton Hills.

1.1 FOCUS OF REPORT

In keeping with the Region of Halton and Ministry of Environment, Conservation and Parks (MECP) requirements, this report examines the potential for:

- Impacts of the environment on the proposed development;
- Impacts of the proposed development on the environment; and
- Impacts of the proposed development on itself.

1.2 NATURE OF THE SUBJECT LANDS

The subject property is located at 1 Rosetta Street in Georgetown, Ontario. The development lands are currently occupied by a multi-tenant industrial building. It is located directly north of the Canadian National (CN) Halton Subdivision and Metrolinx rail corridor.

The proposed development includes three condominium buildings:

- Building 01: 12-storey residential;
- Building 02: 12-storey residential (attached to Building 01);
- Building 03: 8-storey residential; and,
- 2 levels of underground parking.

Buildings 01 and 02 will be connected via a single corridor through the centre of the buildings. Figures presented throughout this report for descriptive purposes that show a dotted line approximating the location where Building 01 and Building 02 are split.

Common outdoor amenity spaces within the development will include elevated rooftop terraces on the second level of Buildings 01 and 02, facing south, and a rooftop outdoor terrace atop Building 03. The terrace on the second level of Buildings 01 and 02 will be surrounded by a 2.95 m high sound barrier wall. The site plan and architectural drawings (including building sections) of the proposed development are provided for reference in Appendix A.

1.3 NATURE OF THE SURROUNDINGS

The Project site is bounded by existing residential homes in all directions. A moving and storage services facility (A-Plus Canada Inc. Self Storage) is located to the east of the site at 7 River Drive. The GO/CN rail corridor and Georgetown Station including the GO Train Layover Yard is located to the south of the site. A brewery and other single family residential dwellings are located on the south side of the rail corridor.

The rail corridor currently consists of two tracks that are used by CN and GO Metrolinx, plus the Georgetown GO Layover Yard with tracks available where diesel trains idle during the start-up process.

SLR understands a new Metrolinx Heritage Layover Yard is proposed at a location approximately 4 km east of the development. Based on information provided by Metrolinx, the Heritage Road Layover Yard is expected to replace the existing Georgetown Layover Yard, which is approaching the end of its serviceable life. This construction is tentatively scheduled to begin in spring 2023 and be completed in fall 2025.

A context plan is included as **Figure 1.**

PART 1: IMPACTS OF THE ENVIRONMENT ON THE DEVELOPMENT

In assessing potential impacts of the environment on the proposed development, the focus of this report is to assess the potential for:

- Transportation noise impacts from the GO, Freight and Passenger trains along the railway line south of the site.
- Stationary source noise impacts from the surrounding industries on the development.

2. TRANSPORTATION NOISE IMPACTS

2.1 TRANSPORTATION NOISE SOURCES

Transportation noise sources that have the potential to impact the proposed development include railway noise (Freight, VIA and GO) along the Halton Subdivision/Metrolinx rail corridor.

Roadway traffic volumes from Rosetta Street, Caroline Street, St. Michaels Street and River Drive around the development are not considered to be significant, and therefore have not been considered further in the analysis.

Daytime and night-time levels due to rail traffic at the Project have been predicted, and this information has been used to identify façade, ventilation and warning clause requirements.

2.2 SURFACE TRANSPORTATION NOISE CRITERIA

2.2.1 MINISTRY OF THE ENVIRONMENT PUBLICATION NPC-300

Noise Sensitive Developments

Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300 provides sound level criteria for noise sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. Tables 1 to 4 summarize the applicable surface transportation (road and rail) criteria limits.

Location Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound exposure (L_{eq}) levels for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, sleeping quarter have more stringent criteria than living/dining room spaces.

Outdoor Amenity Areas

Table 2 summarizes the noise mitigation requirements for communal outdoor amenity areas ("Outdoor Living Areas" or "OLAs").

For the assessment of outdoor sound levels, the surface transportation noise impact is determined by combining road and rail traffic sound levels. Whistle noise due to railway trains is not included in the determination of levels.

Table 1: MECP Publication NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Equivalent Sound Exposure Level L_{eq} (dBA)		Assessment Location
		Road	Rail [1]	
Outdoor Living Area (OLA)	Daytime (0700-2300h)	55	55	Outdoors [2]
Living / Dining Room	Daytime (0700-2300h)	45	40	Indoors [3]
	Night-time (2300-0700h)	45	40	Indoors [3]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors [3]
	Night-time (2300-0700h)	40	35	Indoors [3]

Notes: [1] Whistle noise is excluded for OLA noise assessments and included for Living / Dining Room and Sleeping Quarter assessments.
[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.
[3] An assessment of indoor noise levels is required only if the criteria in **Table 4** are exceeded.

Table 2: MECP Publication NPC-300 Outdoor Living Area Mitigation Requirements

Time Period	Equivalent Sound Level in Outdoor Living Area (dBA)	Ventilation Requirements
Daytime (0700-2300h)	≤ 55	• None
	56 to 60 incl.	• Noise barrier **OR** Warning Clause A
	> 60	• Noise barrier to reduce noise to 55 dBA **OR** • Noise barrier to reduce noise to 60 dBA and Warning Clause B

Ventilation and Warning Clauses

Table 3 summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite implementation of ventilation measures where required, if sound exposure levels exceed the guideline limits in Table 1, warning clauses advising future occupants of the potential excesses are required. Warning clauses also apply to OLAs.

Table 3: MECP Publication NPC-300 Ventilation & Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Ventilation and Warning Claus Requirements [2]
		Road	Rail [1]	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating /provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Night-time (2300-0700h)	51 to 60 incl.		Forced Air Heating/ provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause

Notes: [1] Rail whistle noise is excluded.
[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

Table 4 provides sound level thresholds which, if exceeded require the building shell and components (i.e., wall, windows) to be designed to ensure that the Table 1 indoor sound criteria are met.

Table 4: MECP Publication NPC-300 Building Component Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA))		Component Requirements
		Road	Rail [1]	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements [2]
	Night-time (2300-0700h)	> 60	> 55	

Notes: [1] Including whistle noise.
[2] Building component requirements are assessed separately for road and rail noise. The resultant sound isolation parameter is required to be combined to determine and overall acoustic parameter.

In addition to the building component criteria outlined in Table 4, NPC-300 also includes a façade construction requirement for rail noise only, outlined in Table 5. The façade construction requirements are necessary only if the proposed development is located in the first row of dwellings adjacent to the rail corridor.

Table 5: MECP Publication NPC-300 Rail Noise Façade Requirements

Assessment Location	Distance to Railway	L_{eq} (24hr) [1], [2] (dBA)	Noise Control Requirements
Plane of Bedroom Window	Less than 100m	≤ 60	No additional requirement
		> 60	Brick Veneer or Acoustic Equivalent Required
	Greater than 100m	≤ 60	No additional requirement
		> 60	No additional requirement

Notes: [1] Assessed for proposed developments located within the first row of dwellings adjacent to the rail corridor.
[2] Assessment including whistle noise.

2.3 TRAFFIC DATA AND FUTURE PROJECTIONS

2.3.1 RAILWAY TRAFFIC DATA

GO train volumes were obtained directly from Metrolinx in the form of ultimate forecasted volumes. A copy of the traffic data correspondence is included in Appendix B. CN Rail train data for this track segment was grown to the future 2037 year assuming the typical growth rate of 2.5% per annum. A copy of applicable traffic data and calculations can be found in Appendix B. Table 6 summarizes the railway traffic volumes used in the analysis.

Table 6: Summary of Railway Traffic Data Used in the Transportation Analysis

Rail	Train Type	No. of Locomotives/ Cars per Train	No. of Trains		Modelled Speed (km/h)
			Daytime (0700-2300h)	Night-time (2300 0700h)	
CN Halton Subdivision	Passenger	2/10	0	7	80
CN Halton Subdivision	Freight	4/140	10	14	80
Metrolinx Halton Subdivision	GO (diesel)	1/12	23	7	80
Metrolinx Halton Subdivision	GO (diesel)	2/12	15	0	80

2.4 PREDICTED SOUND LEVELS

Future rail operation sound levels at the proposed development were predicted using the U.S. Department of Transportation Federal Transit Administration ("FTA") and Federal Railway Administration ("FRA") rail noise modelling algorithms included in the Cadna/A software. FTA reference sound levels were applied to passenger train (GO and VIA) diesel locomotives and rail cars, with FRA reference sound levels for Freight Train locomotives. The FTA/FRA algorithms are the replacement models for the former MECP "STEAM" model and are written into the current draft version of MECP Publication NPC-306, which will replace the current NPC-206 guideline on transportation noise prediction. The FTA/FRA algorithms have been used in numerous Environmental Assessments ("EAs") for Metrolinx and CN railway projects, as well as in numerous land use planning projects across the province.

Facades considered to be non-noise sensitive (e.g., enclosed noise buffers recommended, ENBs) were excluded from the analysis. Refer to Section 4.5.3 of the report for further information regarding ENBs.

Ground absorption considered reflective (i.e., G = 0), as the majority of the intervening ground is asphalt or concrete.

2.4.1 NOISE CONTROLS INCLUDED WITH THE DESIGN

The terrace on the second level of Buildings 01 and 02 will be surrounded by a 2.95 m high sound barrier wall, included with the building design. The barrier was included in the analysis of predicted sound levels. The extent of the barrier wall is shown in the results figures and in section drawings provided in Appendix A. The barrier must be constructed of material with a minimum surface density of 20 kg/m^2, and without any cracks or gaps (except for small, localized gaps under the barrier if required for drainage purposes). A range of materials can be used to construct the barrier, including plexiglass, provided the surface density requirements are met.

2.4.2 FAÇADE SOUND LEVELS – DAYTIME/NIGHT-TIME IMPACTS

Predicted worse-case façade sound levels are presented in Table 7. The transportation façade sound levels are shown in Figure 2 and Figure 3 for daytime and night-time periods, respectively.

The façade railway sound levels are predicted to be above 60 dBA (daytime) and/or 55 dBA (night-time) along portions of facades for Building 02 and Building 03. Therefore, an assessment of building components is required. Refer to Section 2.5.

Table 7: Summary of Transportation Facade Sound Levels

	East[4]	---	---
	West[2],[3]	---	---
Building 02			
	East	52	54
	West[3]	61	64
	East	55	58
	West	53	56

Notes: [1] Façade locations are shown in **Figure 2** and **Figure 3.** The sound levels presented are for the worst-case on the entire façade.
[2] No south façade (Building 02) or west façade (Building 01) has been considered as Building 01 connects to Building 02.
[3] Only a portion of the west façade (West-1) is considered noise sensitive as shown in **Figure 2** and **Figure 3**.
[4] The east façade and south façade are not considered noise-sensitive due to the use of ENBBs. Refer to **Section 4.5.3**.

2.4.3 FAÇADE SOUND LEVELS – 24-HOUR IMPACTS

An assessment of 24-hour L_{eq} sound levels is required providing the setback distance between the closest façade to the rail track is less than 100 m. The predicted façade sound levels are presented in **Table 8** showing highest levels for each façade, with complete results shown in **Figure 4**.

Table 8: Summary of Railway 24-hr Façade Sound Levels

	North	50
	South[4]	---
Building 02	North	57
	South[2]	---
	West[3]	62
Building 03	North	55
	East	57
	South	56
	West	54

Notes: [1] Façade locations are shown in **Figure 2** and **Figure 3.** The sound levels presented are for the worst-case on the entire façade.
[2] No south façade (Building 02) or west façade (Building 01) has been considered as Building 01 connects to Building 02.
[3] Only a portion of the west façade (West-1) is considered noise sensitive as shown in **Figure 2** and **Figure 3**.
[4] The east façade and south façade are not considered noise-sensitive due to the use of ENBBs. Refer to **Section 4.5.3**.

As the highest predicted 24-hour sound levels exceed 60 dBA for a portion of Building 02, that portion of the façade should be constructed with brick veneer or masonry equivalent, with a rating of STC 54. However, as high-rise buildings are typically constructed with spandrel panels, an STC 54 rating panel is not considered to be readily available or feasible. Therefore, a typical STC 45 rating for spandrel panel was applied in the assessment of building component requirements.

2.4.4 OUTDOOR AMENITY AREAS

Common outdoor amenity spaces within the development will include an elevated terrace on the second level of Buildings 01 and 02, facing south, and a rooftop outdoor terrace atop Building 03. These are both greater than 4.0 m in depth and therefore have been considered in the assessment.

As the development includes a common amenity space for all occupants, the private terraces are not considered to be the only outdoor amenity space available. Therefore, an assessment of private terraces was excluded based on the definitions outlined in NPC-300.

The predicted OLA transportation noise impacts are shown in Figure 5 and summarized in Table 9.

Table 9: Summary of Transportation Noise Impacts – OLAs

ID	Location	Predicted Railway Sound Level L_{eq} Day (dBA)
OLA 1	Building 01/02 2nd Floor Elevated Terrace	51
OLA 2	Building 03 Rooftop Elevated Terrace	54

Predicted sound levels are less than 55 dBA; therefore, additional mitigation is not required for the outdoor living areas.

2.5 FAÇADE ASSESSMENT

The façade railway sound levels are predicted to be above 60 dBA (daytime) and/or 55 dBA (night-time) along portions of facades for Building 02 and Building 03. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in Table 1.

Indoor sound levels and required facade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note BPN-56.

Calculated window STC ratings are the combined acoustical parameter determined from the individual locomotive, and wheel noise impacts. The highest daytime and night-time period impacts along the facade were considered in this assessment, resulting in the highest STC requirements calculated for each façade location.

Detailed floor plans were not available at the time of the assessment. For the analysis in the towers, generic bedrooms and living/dining rooms have been considered based on the following assumptions:

- Window wall construction with glazing and glass spandrel panel elements;
- For living/dining rooms, 70% of the exterior wall is vision glass/patio doors;
- For bedrooms, 50% of the exterior wall is vision glass;
- Non-glazing portions of the wall (i.e., glass spandrel panel) has an assumed STC rating of 45;
- Living rooms were assumed to be 3 m x 6 m in size;

- Bedrooms were assumed to be 3 m x 3 m in size.

Facade requirements are provided in Table 10. The presented values are the composite STC ratings taking into consideration railway noise and the assumptions and recommendations listed above. Detailed Façade Calculations are included in Appendix C.

The combined glazing and frame assembly must be designed to ensure the overall sound isolation performance for the entire window unit meets the sound isolation requirements. It is recommended window manufacturers test data be reviewed to confirm acoustical performance is met.

Table 10: Summary of Building Component Requirements

Building	Façade	Non-Glazing Component	Glazing Requirements [2]	
			Living Room	Bedroom
Building 02	North Facade	45	OBC	OBC
	Northwest Corner	45	31	35
	West Façade (West-1)	45	OBC	34
Building 03	South Façade	45	OBC	OBC
	Southeast Corner	45	OBC	31
	East Façade	45	OBC	OBC
	Northeast Corner	45	OBC	30
	North Façade	45	OBC	OBC
	Northwest Corner	45	OBC	OBC
	West Façade	45	OBC	OBC
	Southwest Corner	45	OBC	30

Notes: OBC = Ontario Building Code, meeting a minimum rating of STC 29

Once detailed floor plans and façade plans become available, the glazing requirements should be re-assessed and reviewed by a qualified acoustical consultant.

2.6 VENTILATION AND WARNING CLAUSE REQUIREMENTS

2.6.1 RESIDENTIAL UNITS

The guidelines that trigger requirements for warning clauses are summarized in Table 2. Where required, the warning clauses should be included in agreements registered on Title for the residential units and included in all agreements of purchase and sale or lease, and all rental agreements. Warning clauses are summarized in Appendix D.

Based on the predicted façade noise levels, forced air heating with provisions for future installation of central air conditioning, and an MECP Type C warning clause, is recommended for all affected units with façade sound levels from road and rail traffic that are between 56 and 65 dBA during the daytime, or between 51 and 60 dBA during night-time hours. This affects:

- Building 01 – units along the north façade;
- Building 02 – units along the north and east façade; and
- Building 03 – all units

Central air conditioning, and an MECP Type D warning clause, is recommended for all affected units with façade sound levels from road and rail traffic that exceed 65 dBA during the daytime or exceed 60 dBA during night-time hours. This affects Building 02 units along the west façade.

Due to the proximity of the proposed development to the railway lines, CN and Metrolinx Warning Clauses are also required to be included for all units. See Appendix D for all warning clause details.

2.6.2 OUTDOOR LIVING AREAS

As the predicted OLA sound levels are below 55 dBA, physical noise mitigation is not required in addition to the 2.95 m barrier included with the building design. OLA-related warning clauses are not required.

3. TRANSPORTATION VIBRATION IMPACTS

There is no specific MECP guideline with respect to railway vibration for land use approvals. Both CN and Metrolinx/GO Transit have published their own criteria, and both require that vibration impact assessments be conducted to ensure that adverse vibration impacts do not occur. The document entitled 'Guidelines for New Development in Proximity to Railway Operations' prepared by the Federation of Canadian Municipalities (FCM) and the Railway Association of Canada (RAC) is also applicable for rail-generated vibration, and therefore used as a reference tool of best practices for rail-adjacent developments. Both CN and Metrolinx/GO endorse the FCM/RAC guidelines.

Both CN and Metrolinx/GO require the following with respect to rail vibration:

- 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 Root Mean Square (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, vibration 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.

3.1 VIBRATION MEASUREMENT PROGRAM

Measurements of ground-induced vibration due to rail traffic were made at the existing site, conducted during three consecutive days from October 14-16, 2020. The measurements were conducted at one (1) location which was the closest foundation setback to the track centreline. The vibration measurement location is shown in Figure 6.

The closest building foundation based on the current design is approximately 35 m to the track centreline, and residential units are located further back beginning on the 2nd floor of Buildings 01 and 02. Buildings 01, 02 and part of Building 03 will be within or at a 75 m setback distance from the rail right-of-way. If the vibration criteria are met at the measurement location, it is expected they will be met at locations further from the railway line.

Measurements were conducted using a Syscom MR3000C vibration monitor, coupled to a tri-axial velocity transducer for recording velocity amplitude versus time. Data from the vibration monitor was post-processed using MATLAB to determine overall RMS vertical vibration levels.

The measured data were post-processed per the FCM/RAC guideline to compute the 1-second sliding window RMS amplitudes of the vibration velocity in units of mm/s.

A coupling loss/attenuation due to the proposed building's structure was applied to the measured train passby events to correct the measured levels. Coupling losses were specified according to recommendations published by the FTA and account for the attenuation effects of the building foundation due to structural mass and stiffness, as well as reflections that occur due to the transfer from soil to concrete transmission media. The values suggested by the FTA are consistent with coupling losses SLR staff have measured at other developments.

A total of 33 train events were recorded by the Syscom system during the three days of measurements, and the measurements included both freight and GO trains.

3.2 VIBRATION MEASUREMENT RESULTS

Measured vibration levels are shown in Table 11. Five (5) representative train pass-by events are shown which represent the highest recorded velocities during the measurement program.

All measured vibration levels meet the CN / GO vibration criteria.

Table 11: Measured Rail Vibration Levels

Measurement Location	Setback Distance (m)	Train Type	RMS Vibration Level [1]		CN/GO Criteria (mm/s / VdB)	Meets Guideline Limits? (Y/N)
			(mm/s)	(VdB re 1µin)		
1	35	GO	0.053	66	0.14/75	Y
		Freight	0.075	69		Y
		GO	0.061	68		Y
		GO	0.032	62		Y
		Freight	0.048	65		Y

Notes: [1] Measured values are root-mean-square vibration velocity.

3.3 VIBRATION CONTROL RECOMMENDATIONS

Maximum ground-borne vibration levels at all parcel locations within the proposed development are expected to meet the CN/ GO vibration criteria. Therefore, no additional vibration mitigation or isolation measures are required for the proposed development.

4. STATIONARY SOURCE NOISE IMPACTS

A review has been conducted for the potential impacts on the proposed development from nearby "stationary" industrial and commercial noise sources.

SLR staff completed a site visit on October 14th, 2020 to survey the surrounding area for potential stationary noise sources. An aerial imagery review was also conducted of the development lands and surrounding area. Impulsive noise sources were not observed by SLR staff during the site visit.

During the site visit, the Georgetown GO Layover Yard (located at the southside of the development) was identified as stationary source with potential to impact the proposed development. SLR understands a new Metrolinx Heritage Layover Yard is proposed at a location approximately 4 km east of the development. Based on information provided by Metrolinx, the Heritage Road Layover Yard is expected to replace the existing Georgetown Layover Yard, which is approaching the end of its serviceable life. This construction is tentatively scheduled to begin in spring 2023 and be completed in fall 2025. Once the Heritage Road Layover Yard is built and fully operational, the Georgetown GO Layover Yard is not expected to be a significant noise source within the surrounding area.

As the scheduling of constructing the Heritage Road GO Layover Yard is tentative and the Georgetown GO Layover Yard is currently operational, an assessment of its stationary noise impacts was completed due to its proximity to the proposed development.

4.1 STATIONARY SOURCE NOISE GUIDELINES

4.1.1 MECP PUBLICATION NPC-300 GUIDELINES FOR STATIONARY SOURCE NOISE

The applicable MECP noise guidelines for new sensitive land uses adjacent to existing industrial commercial uses are provided in MECP Publication NPC-300. NPC-300 revokes and replaces the previous noise assessment guideline, Publication LU-131 and Publication NPC-205, which was previously used for assessing noise impacts as part of Certificates of Approval / Environmental Compliance Approvals granted by the MECP for industries.

The new guideline sets out noise limits for two main types of noise sources:

- Non-impulsive, "continuous" noise sources such as ventilation fans, mechanical equipment, and vehicles while moving within the property boundary of an industry. Continuous noise is measured using 1-hour average sound exposures (L_{eq} (1-hr) values), in dBA; and
- Impulsive noise, which is a "banging" type noise characterized by rapid rise time and decay. Impulsive noise is measured using a logarithmic mean (average) level (L_{LM}) of the impulses in a one-hour period, in dBAI.

Furthermore, the guideline requires an assessment at, and provides separate guideline limits for:

- Outdoor points of reception (e.g., back yards, communal outdoor amenity areas); and
- Façade points of reception such as the plane of windows on the outdoor façade which connect onto noise sensitive spaces, such as living rooms, dens, eat-in kitchens, dining rooms and bedrooms.

The applicable noise limits at a point of reception are the higher of:

- The existing ambient sound level due to road traffic, or
- The exclusion limits set out in the guideline.

Table 12 sets out the exclusion limits from the guideline for continuous noise.

4.1.2 LAYOVER YARDS

Section C4.5.4 of NPC-300 defines the sound level limit for noise from a layover site such as the Georgetown GO Layover Yard, expressed in terms of the One-Hour Equivalent Sound Level (L_{eq}(1-hr), in dBA). The limit is the higher of either 55 dBA or the background sound level, during any hour of the day.

The layover yard criteria are also shown in Table 12 for reference.

Table 12: NPC-300 Exclusion Limits for Non-Impulsive Sounds (L_{eq} (1-hr), dBA)

Time of Day	Class 1 Area		Class 4 Area		Layover Yards
	Planes of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	Planes of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	Planes of Windows of Noise Sensitive Spaces
7 am to 7 pm	50	50	60	55	55
7 pm to 11 pm	50	50	60	55	55
11 pm to 7 am	45	n/a	55	n/a	55

4.1.3 APPLICATION OF THE NPC-300 GUIDELINES

The stationary noise guidelines apply only to residential land uses and to noise-sensitive commercial and institutional uses, as defined in NPC-300 (e.g., schools, daycares, hotels). For the Project, the stationary noise guidelines only apply to the residential portions of the development, including:

- Individual residences;
- Communal indoor amenity areas; and
- Communal outdoor amenity areas.

All the above have been considered as noise-sensitive points of reception in the analysis.

4.1.4 PROPOSED AREA CLASSIFICATION

Under Ministry of the Environment, Conservation & Parks (MECP) Publication NPC-300 noise guidelines, noise sensitive receptors are defined using area classifications. The receptor areas are classified as either:

- Class 1 – Urban areas
- Class 2 – Suburban / semi-rural areas
- Class 3 – Rural areas
- Class 4 – Infill areas

In addition, layover yards, as noted previously, are considered separately and are assessed against relaxed guideline limits.

Depending on the receptor area classification, different guideline limits apply. Classes 1, 2 and 3 were included in the predecessor guidelines to NPC-300, namely MECP Publications NPC-205, NPC-232, and LU-131. The Class 4 designation is a new designation, intended to allow for infill and redevelopment, whilst still protecting residences from undue noise.

The area is urban in nature and dominated by man-made sounds, including road traffic noise and an "urban hum", including idling train noise during the overnight period. The acoustic environment is considered to be a Class 1 area. As the project site meets the definition and requirements for a Class 4 area, it would be recommended and appropriate to issue a Class 4 designation for the development lands.

In NPC-300, a "Class 4" area is defined as:

> An area or specific site that would otherwise be defined as Class 1 or 2 and which:
>
> - is an area intended for development with new noise sensitive land use(s) that are not yet built;
> - is in proximity to existing, lawfully established stationary source(s);
> - has formal confirmation from the land use planning authority with the Class 4 area classification which is determined during the land use planning process; and

Section C4.4.2 of Publication NPC-300 further discusses the use of Class 4 areas:

> "Class 4 area classification is based on the principle of formal confirmation of the classification by the land use planning authority. Such confirmation would be issued at the discretion of the land use planning authority and under the procedures developed by the land use planning authority, in the exercise of its responsibility and authority under the Planning Act.
>
> The following considerations apply to new noise sensitive land uses proposed in a Class 4 area:
>
> - an appropriate noise impact assessment should be conducted for the land use planning authority as early as possible in the land use planning process that verifies that the applicable sound level limits will be met;
> - noise control measures may be required to ensure the stationary source complies with the applicable sound level limits at the new noise sensitive land use;
> - noise control measures may include receptor-based noise control measures and/or source-based noise control measures;
> - source based noise control measures may require an MECP approval;
> - receptor based noise control measures may require agreements for noise mitigation, as described in Part A of this guideline;
> - prospective purchasers should be informed that this dwelling is in a Class 4 area through appropriate means and informed of the agreements for noise mitigation. Registration on title of the agreements for noise mitigation is recommended. Additionally, registration on title of an appropriate warning clause to notify purchasers that the applicable Class 4 area sound level limits for this dwelling are protective of indoor areas and assume of closed windows, such as warning clause F in Section C8.3 is also recommended; and
> - any final agreements for noise mitigation as described in Part A of this guideline and all other relevant documentation are to be submitted to the MECP by the stationary source owner(s) when applying for an MECP approval. These agreements will be assessed during the review of the application for MECP approvals."

The Project meets the definitions and requirements for a Class 4 area listed in Publication NPC-300:

- the Project site is close proximity to an area that contains existing and proposed mixed-use developments and is intended for new high-intensity developments.
- the Project site is in proximity to existing lawfully established noise generating sources.
- the Project site does not contain existing noise-sensitive land-uses.
- An appropriate, detailed noise impact assessment will be conducted as part of the zoning by-law amendment application (i.e., this study and report).

It is therefore appropriate for the Town of Halton Hills to declare the development property as a Class 4 area, under their role as the land use planning authority, in the exercise of its responsibility and authority under the Planning Act. For reference, The City of Toronto and other municipalities have issued a Class 4 designation for other similar developments, including but not limited to:

- Judson Street, west of Royal York, in Etobicoke
- Lower Yonge Precinct, in Toronto;
- Highway 7, east of Keele Street, in Vaughan;
- Milton Meadows Precinct, in Milton
- West Harbour District, in Hamilton
- Masonry Court, east of Waterdown Road, in Burlington

It is important to note that the Class 4 designation only applies to the development lands. Existing noise-sensitive receptors in the area will remain as Class 1 areas and subject to the Layover Yard requirements in NPC-300. Therefore, the designation will not allow for industries to increase their noise impacts at existing residences.

The proposed development meets the general requirements of obtaining a Class 4 area designation under NPC-300: that is to say, the development is in an area intended for future residences (new noise sensitive land uses) that are not yet built; and it is in proximity to existing, lawfully established stationary sources.

For this assessment, both the Layover Yard and Class 4 limits have been investigated in this study.

4.2 STATIONARY NOISE MODELLING

Idling locomotives operating at the Georgetown GO Layover Yard were assessed in this study based on observed locations of 2 locomotives by SLR staff. The 2 idling locomotives were modelled based on historical sound level data and idling times (15 minutes), in which the layover yard guideline limits are met at existing homes. Both trains were included in the daytime, evening and night-time 1-hour periods based on a predictable worst-case assessment of noise impacts.

Noise impacts from stationary sources were modelled using Cadna/A, a software implementation of the internationally recognized ISO-9613-2 environmental noise propagation algorithms. Cadna/A / ISO-9613 is the preferred noise model of the MECP. The ISO 9613 equations account for:

- Source to receiver geometry;
- Distance attenuation;
- Atmospheric absorption;
- Reflections off of the ground and ground absorption;

- Reflections off of vertical walls; and
- Screening effects of buildings, terrain, and purpose-built noise barriers (noise walls, berms, etc.).

The following additional parameters were used in the modelling, which are consistent with providing a conservative (worst-case assessment of noise levels):

- Temperature: 10°C;
- Relative Humidity: 70%;
- Ground Absorption G: G = 0.0 (reflective) as default global parameter;
- Reflection: An order of reflection of 2 was used (accounts for noise reflecting from walls);
- Wall Absorption Coefficients: A CadnaA default coefficient for Structured Facades was applied in the modelling for buildings, and for the 2nd floor amenity terrace barrier, a Smooth Façade was applied; and
- Terrain: Relatively flat near the Project site.

SLR historical sound level data was applied in the stationary noise modelling. A summary of the sound levels used in the analysis and equipment operating conditions is included in Appendix E. All stationary sources modelled are shown in Figure 7.

The "building evaluation" feature of the Cadna/A was used to assess noise impacts on the residential portions of the towers and podium. This feature allows for noise levels to be predicted across the entire façade of a structure.

4.3 PREDICTED FAÇADE SOUND LEVELS

A summary of the predicted noise impacts from the GO Layover Yard on each façade are shown in Figure 8 and summarized in Table 13.

The predicted façade sound levels along a portion of the Building 02 west façade (West-2), the south façade of Building 01, and the east façade of Building 01 exceed the applicable layover yard guideline limits during all hours. Furthermore, the Class 4 limits are predicted to be exceeded during all hours along the south façade of Building 01, and during night-time hours along the Building 02 west façade (West-2), and the Building 01 east façade. Therefore, an assessment of mitigation measures is required.

Table 13: Summary of Stationary Façade Sound Levels – Unmitigated

Building	Façade [1]	Stationary Sound Levels (D/E/N) [2]	Applicable Layover Yard Guideline Limit [3]	Meets Layover Guideline Limits? (Y/N)	Applicable Class 4 Guideline Limits (D/E/N)	Meets Class 4 Guideline Limits (D/E/N)? (Y/N)
Building 01 Building 02	North	44	55	Y	60/60/55	Y/Y/Y
	East	58		N		Y/Y/N
	South	64		N		N/N/N
	West[3]	---		---		---
	North	38		Y		Y/Y/Y
Building 02	East	35		Y		Y/Y/Y
	South[3]	---		---		---
	West-1[4]	49		Y		Y/Y/Y
	West-2[4]	61		N		N/N/N

Building	Façade [1]	Stationary Sound Levels (D/E/N) [2]	Applicable Layover Yard Guideline Limit [3]	Meets Layover Guideline Limits? (Y/N)	Applicable Class 4 Guideline Limits (D/E/N)	Meets Class 4 Guideline Limits (D/E/N)? (Y/N)
Building 03	North	30		Y		Y/Y/Y
	East	44		Y		Y/Y/Y
	South	42		Y		Y/Y/Y
	West	31		Y		Y/Y/Y

Notes: [1] Façade locations are shown in **Figure 8**.
[2] The sound levels presented are for the worst-case on the entire façade for D (Day), E (Evening), and N (Night-time) hours.
[3] No south façade (Building 02) or west façade (Building 01) has been considered as Building 01 connects to Building 02 at this juncture in the building design.
[4] The Building 02 west façade is split into West-1 and West 2, which have different compliance status based on modelling. Refer to **Figure 8**.

4.4 PREDICTED OUTDOOR SOUND LEVELS

The predicted outdoor stationary source noise impacts from the GO Layover Yard are shown in **Figure 8** and summarized in **Table 14**. The layover criteria of 55 dBA are met at all locations, provided the 2.95 m high sound barrier is constructed as previously discussed and required for transportation rail noise (refer to **Section 2.6.2** for details).

Table 14: Summary of Transportation Noise Impacts – OLAs

ID	Location	Transportation Impacts L_{eq} Day (dBA)
OPOR 1A	Building 01/02 2nd Floor Elevated Terrace – Centre	52
OPOR 1B	Building 01/02 2nd Floor Elevated Terrace – West	55
OPOR 1C	Building 01/02 2nd Floor Elevated Terrace – East	53
OPOR 2	Building 03 Rooftop Elevated Terrace	34

4.5 MITIGATION REQUIREMENTS

4.5.1 PRELIMINARY MITIGATION REVIEW

As shown above, Layover Yard and Class 4 guideline limit excesses were predicted to range from 2 to 9 dBA along the proposed development's Building 01 south and east facades, and the Building 02 west façade. As the 9 dBA excess is driven by a single idling locomotive, the preliminary mitigation review was based on an overall reduction of 7 dBA requirement for the locomotive.

The following is general discussion of possible mitigation options considered for the development.

4.5.1.1 Source-Based Noise Controls

A discussion of the possible noise controls measures for achieving a 7 dBA reduction on the GO Train locomotive is provided below:

- *Installation of an acoustical barrier* – Given the height requirements needed to screen elevated receptors (eg. 12th floor units) and the multiple locations for the idling locomotives, the extent and height of the barrier would be impractical. Preliminary noise modelling was not able achieve

the required reduction along all façades of the development with either a traditional barrier or a cantilevered barrier.

- *Physical mitigation measures to the locomotive* – Installing permanent mitigation on the locomotives themselves would be impractical due to need to treat the fleet of GO Trains in service.
- *Physical mitigation measures for the locomotive in the form of a temporary hood, applied as needed* – This option would be considered impractical due to the daily use and movement of the trains. In addition, this would be excessively costly for a 7 dBA reduction in noise, and administratively difficult given the space constraints of the layover yard and the number of locomotives on site.
- *Construction of an extension/enclosure over the loading dock* – Construction of a canopy/enclosure over the loading dock would likely provide sufficient reductions in noise. However, significant effort and cost would be required to include a structure over the entire layover yard with sufficient density to effectively reduce noise. Additionally, high volume ventilation fans would be required to address diesel fumes within the building during engine warm up, which would also need to be mitigated. This option is considered excessively costly and complex for a 7 dBA reduction in noise.

4.5.1.2 Development Noise Controls

The following is summary of the possible development noise controls considered to addresses excesses from idling locomotives.

Site Configuration

- *Change Tower A from residential to a Commercial/Office building* – The inclusion of a non-noise sensitive building will provide additional screening from the industries to the south. This is not considered a feasible option, as commercial/office space would not be attractive from a business perspective for this location in Georgetown.
- *Increase set back distances from the layover yard* – Given the size of the development site, any increase in distance would reduce the total number of units and the development would not be economically justifiable.

Blank Facades

- A blank façade or corridor along the south and east sides of Building 01 and the west side of Building 02 would require a single-load design for the building. This would reduce the total number of units and the development would not be economically justifiable.

Enclosed Noise Buffers

The NPC-300 guideline allows for the use of additional mitigation in the form of "Enclosed Noise Buffers" (ENBs) on high-rise, multi-unit buildings, in which a Class 4 area designation is required for the development.

ENBs overlap sensitive windows and essentially act as a "secondary skin facade", providing an initial reduction in noise prior to impacting the window on the sensitive space, thus ensuring that the noise guidelines are met at the exterior plane of windows next to noise sensitive spaces. The exterior plane of the window next to the noise sensitive space is defined as a sensitive point of reception (POR) in NPC-300. Figures summarizing the ENBs are included in Appendix D.

4.5.1.3 Noise Review Summary

Based on a review of the above, physical noise mitigation measures and development noise controls, such as site configuration and blank facades, are generally not considered to be practical, may not be feasible, would be excessively costly to meet the Layover Yard limits at the proposed development, and/or not economically justifiable for the development.

However, the consideration for a Class 4 Area Designation and application of ENBs is a feasible consideration for the development.

4.5.2 CLASS 4 AREA DESIGNATION

Class 4 area designation is considered appropriate for the proposed development and should be sought from the town of Halton Hills to allow for the application of ENBs. This is based on:

- the development lands being located in a Class 1 urban area;
- the lands are intended for development of new residential lands; and
- the surrounding stationary sources are lawfully established, where MECP permitting is not required for the layover site.

As mentioned above, typical mitigation measures for idling locomotives are considered to be excessively costly, infeasible and/or impractical. The exception are ENBs, in which a Class 4 Area Designation is required for the development lands.

With the approval of a Class 4 designation, the application of receptor-based ENB mitigation would be possible as a noise control option for the development and is recommended for the development.

4.5.3 APPLICATION OF ENCLOSED NOISE BUFFER (ENB)

With the application of the Class 4 guideline limits, the guideline limits are exceeded along the south and east facades of Building 01, and the west façade of Building 02 (refer to Table 13), and shown in Figure 8. For these facades, application of ENB is recommended.

The following is a summary of the requirements for the application of ENBB as a noise mitigation measures:

1) A “Class 4” area designation must be obtained from the land use planning authority.
2) Noise-sensitive windows of all residential units must be located behind an ENB, as defined under Publication NPC-300 (see Appendix D for concept details). The characteristics of an enclosed noise buffer are listed below:
   - Not less than one metre and not more than two metres in depth;
   - Fully enclosed with floor to ceiling glazing or a combination of solid parapet plus glazing above
   - Glazing can potentially be operable to the maximum permitted by the Ontario Building Code;
   - Separated from interior space with a weatherproof boundary of exterior grade wall, exterior grade window, exterior grade door, or any combination, in compliance with exterior envelope requirements of the Ontario Building Code;
   - Of sufficient horizontal extent to protect windows of noise sensitive spaces; and
   - The architectural design is not amenable to converting the enclosed space to being noise-sensitive.

The ENBs must extend to cover windows and patio doors connected to noise sensitive spaces such as living rooms, kitchens, bedrooms, and dens. Non-noise sensitive spaces such as corridors, bathrooms, or laundry rooms do not need to be enclosed.

3) Noise Warning Clauses – In addition to the NPC-300 **Type E** warning clause, a warning clause is required for notification the proposed development is located within an MECP NPC-300 Class 4 Area. An MECP NPC-300 **Type F** warning clause is required for all units within the building. The **Type F** warning clause is included in **Appendix D**.

4) Under the Class 4 designation, when receptor-based noise mitigation measures are used, such as enclosed noise buffer balconies, then a legally-binding "Agreement for Noise Mitigation" must be entered into, between the land use planning authority, the developer and the affected industries (e.g., Metrolinx). The purpose of such an agreement is to ensure that any receptor-based noise mitigation measures are implemented and maintained.

With the inclusion of ENBs meeting the requirements noted above, the applicable guideline limits are considered to be met at the proposed development on all facades from Layover Yard idling train noise. The facades recommended for ENBs are shown in **Figure 9** and **Figure D1, Appendix D**.

Figure 9 and **Table 15** show the evaluation of stationary source noise impacts indicating compliance with applicable Class 4 limits at all other potentially noise-sensitive locations within the proposed development.

Table 15: Summary of Stationary Façade Sound Levels - Mitigated

Building	Façade [1]	Stationary Sound Levels (D/E/N) [2]	Applicable Layover Yard Guideline Limit [3]	Meets Layover Guideline Limits? (Y/N)	Applicable Class 4 Guideline Limits (D/E/N)	Meets Class 4 Guideline Limits (D/E/N)? (Y/N)
Building 01 Building 01	North	44	55	Y	60/60/55	Y/Y/Y
	East[5]	---		Y		Y/Y/N
	South[5]	---		Y		Y/Y/Y
	West[3]	---		---		---
	North	38		Y		Y/Y/Y
Building 02	East	35		Y		Y/Y/Y
	South[3]	---		---		---
	West-1[4]	49		Y		Y/Y/Y
	West-2[5]	---		Y		Y/Y/Y
Building 03	North	30		Y		Y/Y/Y
	East	44		Y		Y/Y/Y
	South	42		Y		Y/Y/Y
	West	31		Y		Y/Y/Y

Notes:
[1] Façade locations are shown in **Figure 9**.
[2] The sound levels presented are for the worst-case on the entire façade for D (Day), E (Evening), and N (Night-time) hours.
[3] No south façade (Building 02) or west façade (Building 01) has been considered as Building 01 connects to Building 02 at this juncture in the building design.
[4] The Building 02 west façade is split into West-1 and West 2. Refer to **Figure 9**.
[5] With the applicable of ENBBs, the applicable limits are expected to be met on the inner glazing plane of window within the ENBBs as required by NPC-300.

4.6 VENTILATION AND WARNING CLAUSE REQUIREMENTS

As the GO Layover Yard has the potential to be audible at times, a warning clause should be included in the Agreement of Purchase and Sale or Lease and in the relevant Development Agreements. An MECP NPC-300 Type E warning clause is recommended for all suites within the development. Refer to Appendix D for warning clause details.

In addition, central air conditioning and a Type F Warning Clause is recommended as a component of the Class 4 Area designation. See Appendix D for warning clause details.

PART 2: IMPACTS OF THE DEVELOPMENT ON THE SURROUNDING AREA

5. STATIONARY SOURCE NOISE IMPACTS ON THE SURROUNDING AREA

In terms of the noise environment of the area, it is expected that the project will have a negligible effect on the neighbouring properties.

The traffic related to the proposed development will be small relative to the existing traffic volumes within the area and is expected to be negligible with respect to noise impacts.

Other possible development noise sources with possible adverse impacts on the surrounding neighbourhood are mechanical equipment associated with the buildings, such as make up air units, cooling units, and parking garage vents. Noise from mechanical equipment is required to meet MECP Publication NPC-300 requirements at the worst-case off-site noise sensitive receptors.

Off-site impacts are not anticipated given the high ambient sound levels in the area, and the fact that the systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.

Regardless, potential impacts will be assessed as part of the final building design to ensure compliance. The criteria can be met at all surrounding and on-site receptors though the use of routine mitigation measures, including the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design.

PART 3: IMPACTS OF THE DEVELOPMENT ON ITSELF

6. STATIONARY SOURCE NOISE IMPACTS ON THE DEVELOPMENT ITSELF

The building mechanical systems (e.g., make-up air units, cooling units, and parking garage vents) have not been designed in detail at this stage. Although no adverse impacts are expected, such equipment has the potential to result in noise impacts on the noise sensitive spaces within the development itself.

Therefore, the potential impacts should be assessed as part of the final building design. The criteria are expected to be met at all on-site receptors with the appropriate selection of mechanical equipment, by locating equipment to minimize noise impacts within the development, and by incorporating control measures (e.g., silencers, barriers) into the design.

It is recommended that the mechanical systems be reviewed by a qualified acoustical consultant prior to final selection of equipment.

7. CONCLUSIONS AND RECOMMENDATIONS

The potential for noise impacts on and from the proposed development have been assessed. Impacts of the environment on the development, the development on the surrounding area and the development on itself have been considered. Based on the results of the studies, the following conclusions have been reached:

7.1 TRANSPORTATION NOISE

- An assessment of transportation noise impacts has been completed.
- Based on transportation façade sound levels upgraded glazing is required within the development, as outlined in outlined in Section 2.5.
- Ventilation requirements include a combination of Mandatory AC and Provision for Future Installation of AC, as outlined in Section 2.6.
- and Appendix D. Warning Clauses requirements include those for CN and Metrolinx, for all units.
- Warning Clauses should be included in agreements registered on Title for the residential units and included in agreements of purchase and sale/rental agreements, and include a combination of MECP Type C and Type D. In addition, the CN and Metrolinx warning clauses are recommended for all units. A summary of the warning clauses recommendations is included in Appendix D.

7.2 TRANSPORTATION VIBRATION

- Transportation vibration have been assessed, as outlined in Section 3 of this report.
- Rail vibration levels were measured at the existing site in the approximate area of the closest residential buildings. The maximum vibration levels measured were found to meet the CN/GO criteria.

7.3 STATIONARY NOISE

- A site visit was completed by SLR personnel to review the surrounding area. Stationary noise with the potential to impact the development includes the Georgetown GO Train Layover Yard to the south.
- It is recommended that the site be designated as Class 4 by the land-use planning authority, due to the predicted impacts of the Georgetown GO Train Layover Yard on the proposed residential development.
- In addition to Class 4 designation, enclosed noise buffers (ENBs) are required along a portion of the south and east facades of Building 01 and west façade of Building 02, where residential units are planned, as outlined in Section 4.5.
- Warning Clauses should be included in agreements registered on Title for the residential units and included in agreements of purchase and sale/rental agreements. MECP Type E and Type F warning clauses are required for all units. A summary of the warning clauses recommendations is included in Appendix D.

- Mandatory AC is required for all units within the development as a component of the Class 4 designation, as summarized in Appendix D.
- The proposed Heritage Road Layover Yard is scheduled for construction between spring 2023 and fall 2025. SLR understands the Georgetown Layover Yard is reaching the end of it's serviceable life, and it will be replaced with the proposed Heritage Road Layover Yard. Once the Heritage Road Layover Yard is fully operational, the Georgetown GO Layover Yard is not expected to be a stationary source with the potential to impact the Project, and the above noted noise controls (ENBs, Type F warning clause, and mandatory AC) will no longer be required.

7.4 OVERALL ASSESSMENT

- Impacts of the environment on the proposed development can be adequately controlled through the feasible mitigation measures, current development design features, ventilation requirements and warning clauses detailed in Part 1 of this report.
- Impacts of the proposed development on the surrounding area are anticipated to be adequately controlled by following the design guidance outlined in Part 2 of this report.
- Impacts of the proposed development on itself are anticipated to be adequately controlled by following the design guidance outlined in Part 3 of this report.
- As the glazing analysis was completed based on generic room and window dimensions, the analysis should be revised once detailed floor and façade plans are available.
- As the mechanical systems for the proposed development have not been designed at the time of this assessment, the acoustical requirements above should be confirmed by a qualified acoustical consultant as part of the final building design.
- As the Heritage Road Layover Yard is currently proposed, a re-assessment of noise control measures (transportation and stationary noise) should be completed once the Heritage Road Layover is confirmed to proceed and the anticipated schedule for completion is available.

8. REFERENCES

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U.S. Department of Transportation - Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06

9. STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for 1 Rosetta Street Inc., hereafter referred to as the "Client". It is intended for the sole and exclusive use of the Client. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

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FIGURES

Environmental Noise and Vibration Study

1 Rosetta Street Inc.

Georgetown, ON

SLR Project No.: 241.20210.00000

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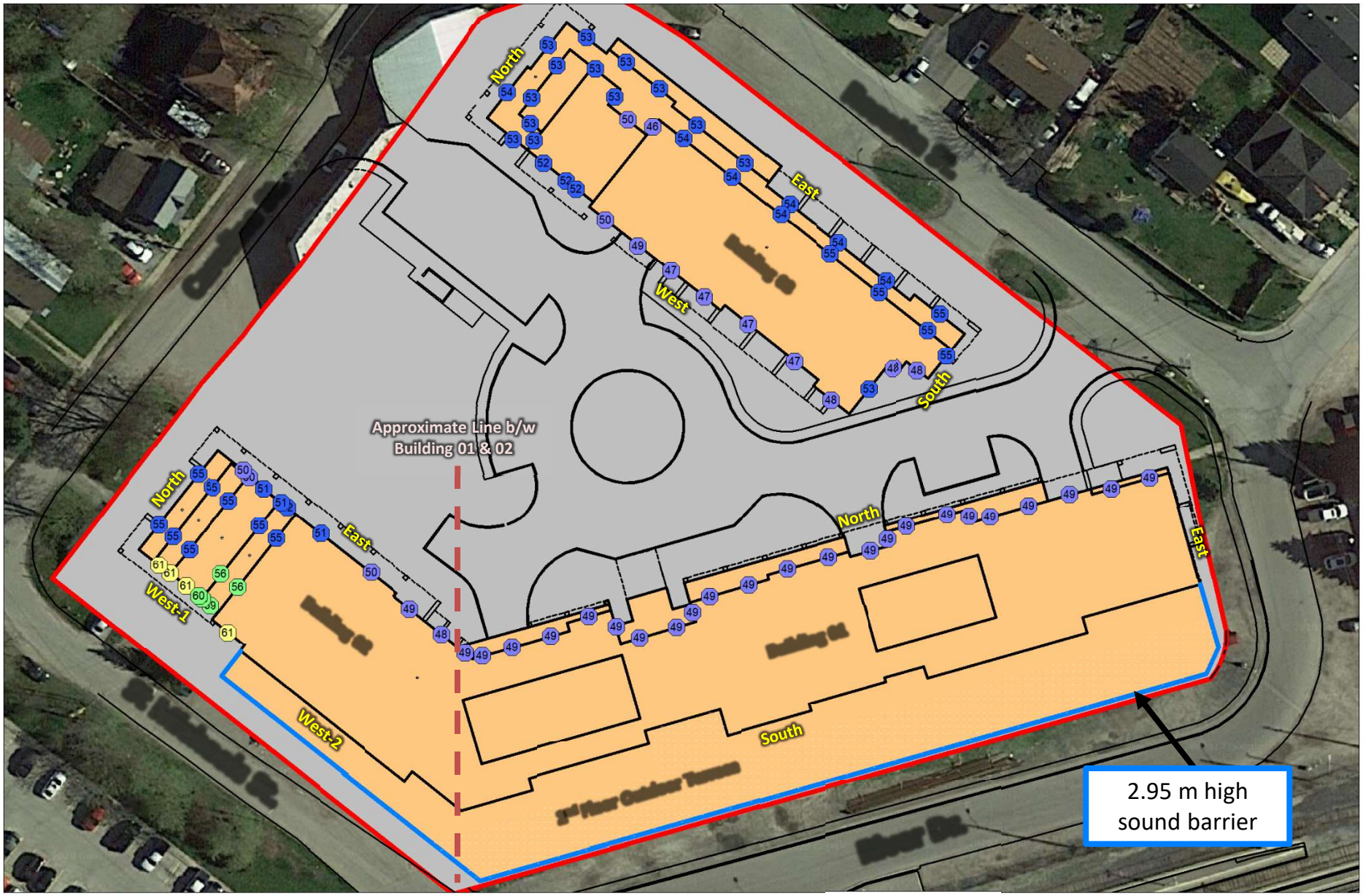
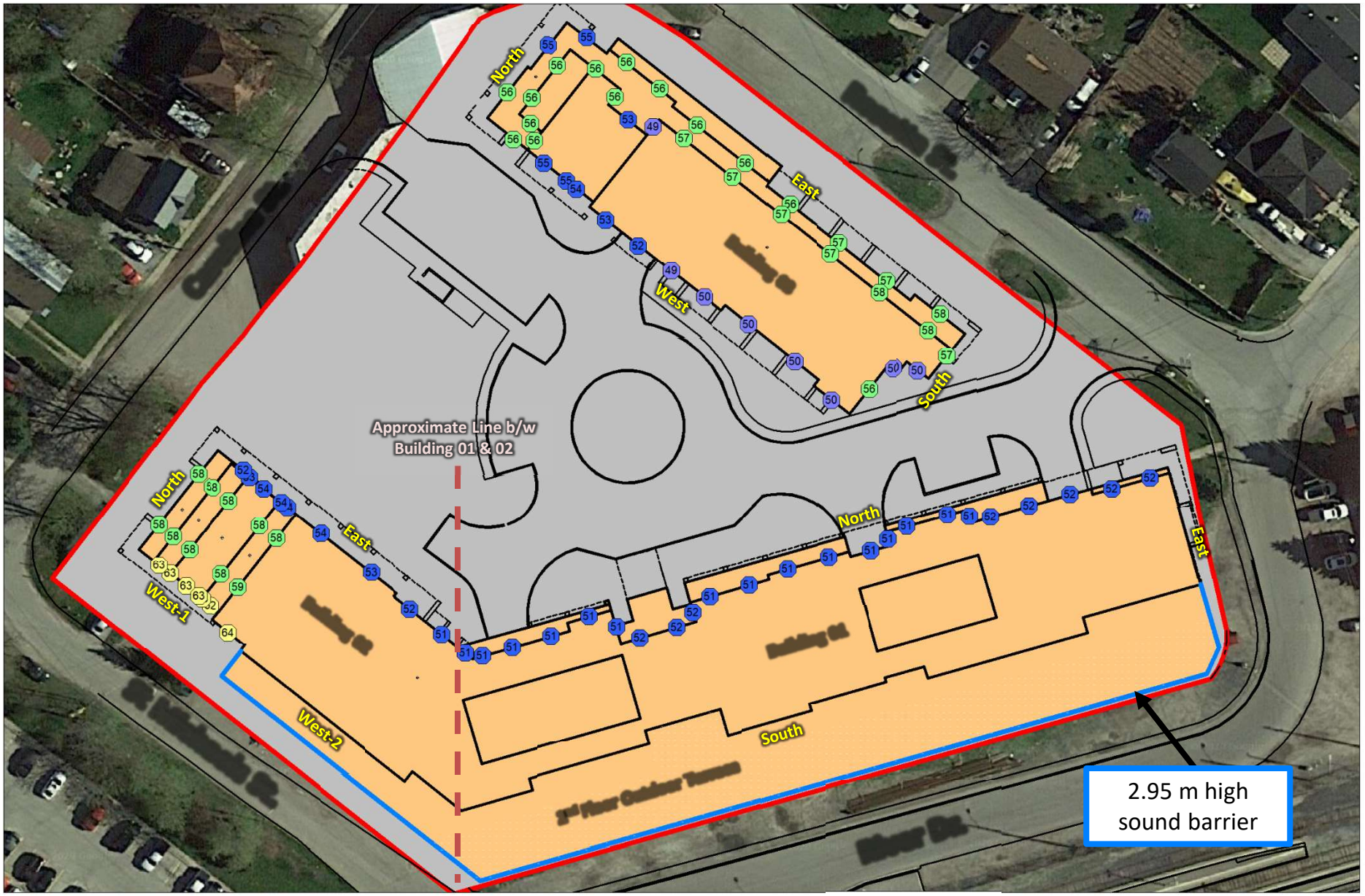
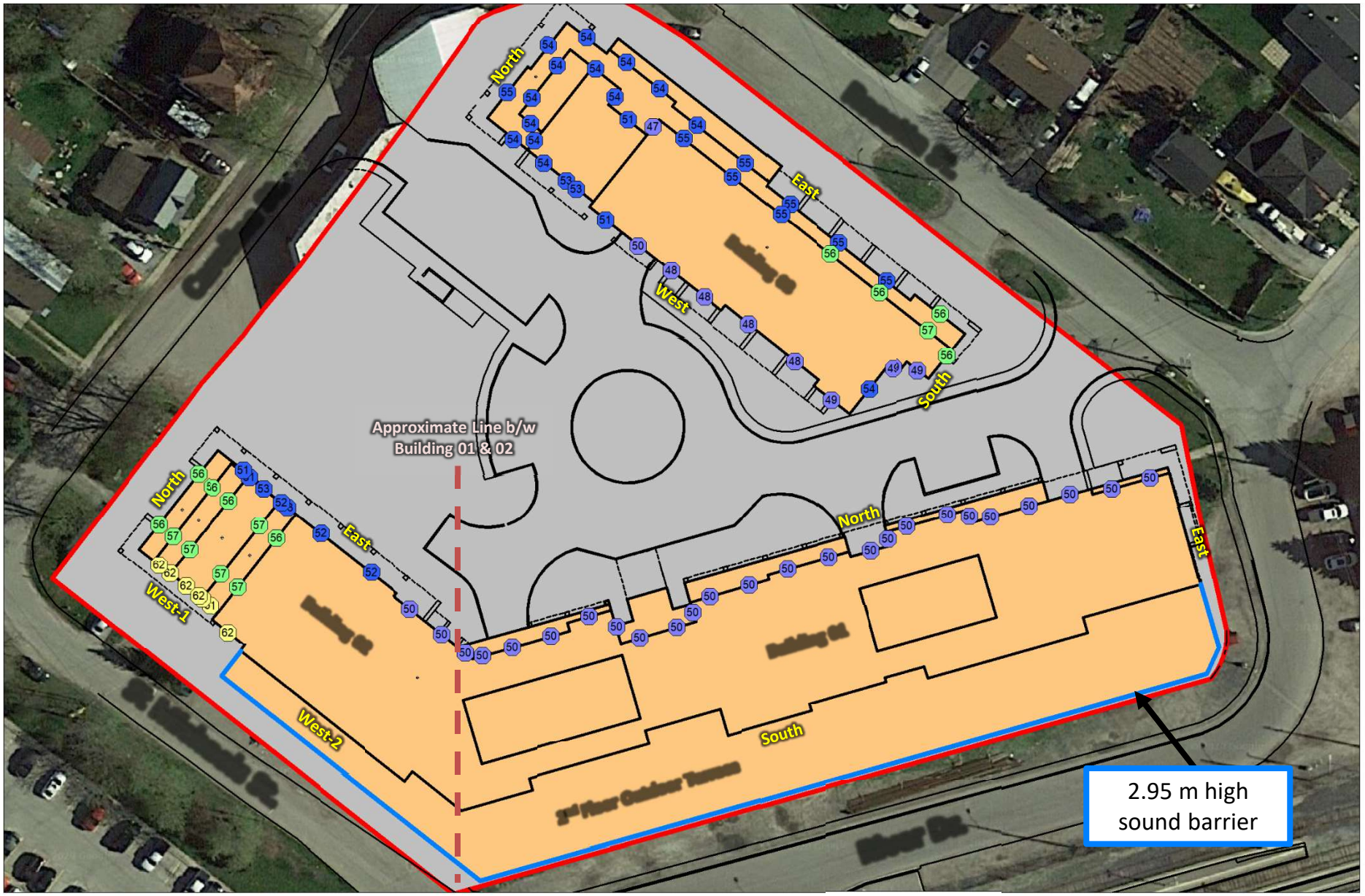
BYRON EQUITIES	True North	Scale: 1:8000	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. 1	
CONTEXT PLAN		Project No. 241.20210.00000		



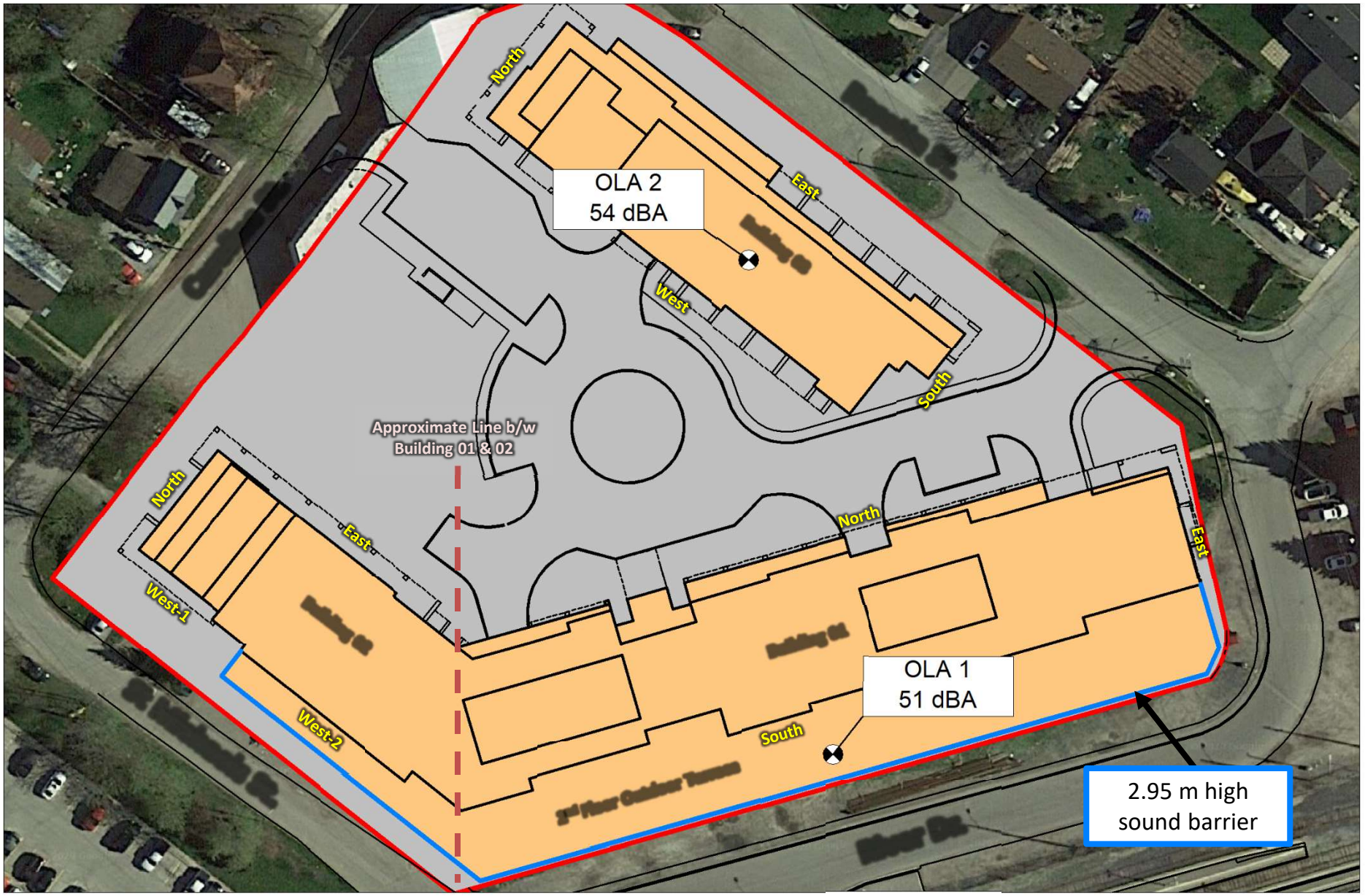
BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **2**	
PREDICTED FAÇADE SOUND LEVELS – RAIL - DAYTIME		Project No. 241.20210.00000		



BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **3**	
PREDICTED FAÇADE SOUND LEVELS – RAIL – NIGHT-TIME		Project No. 241.20210.00000		

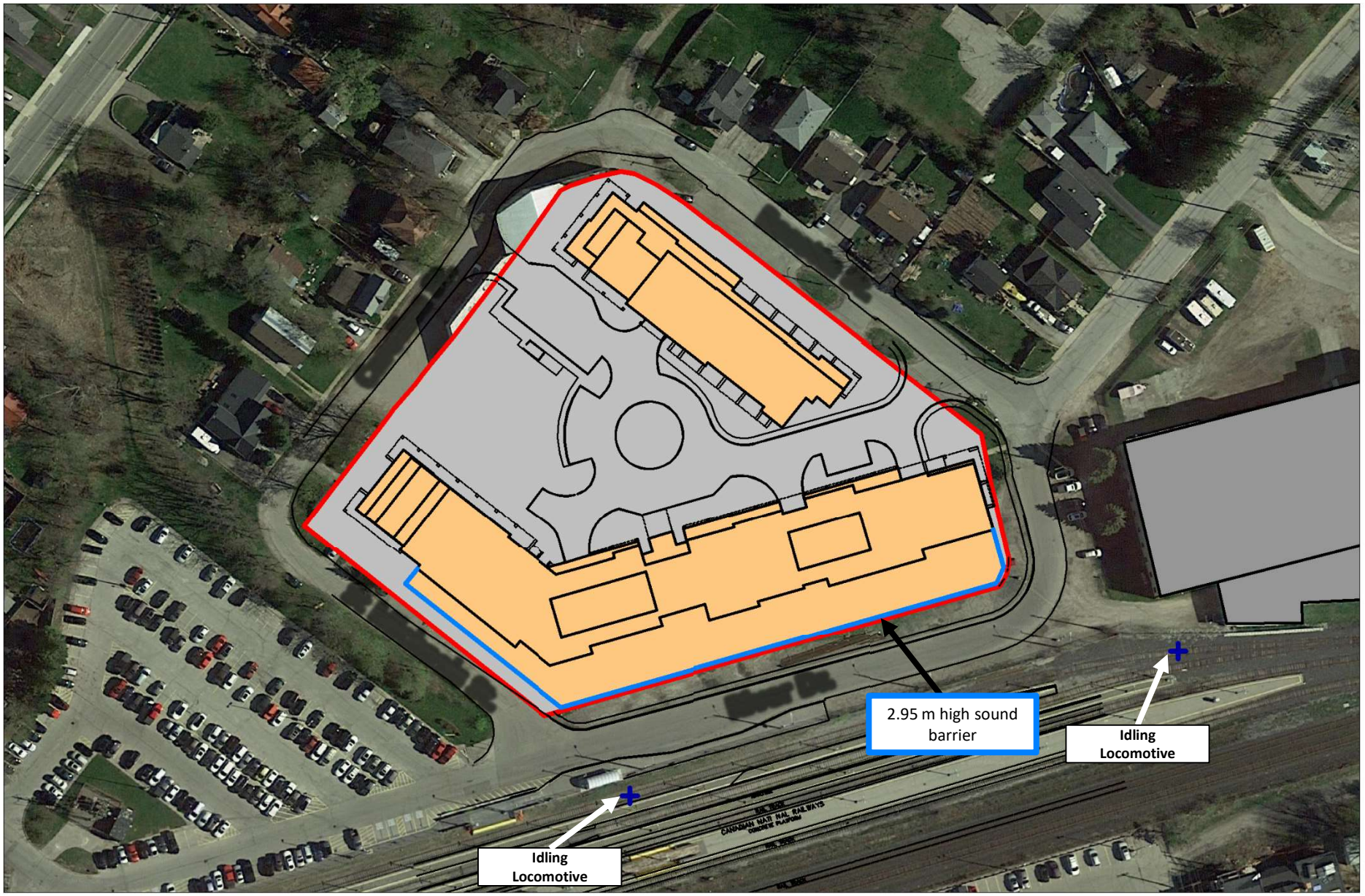


BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **4**	
PREDICTED FAÇADE SOUND LEVELS – RAIL – 24-HOUR		Project No. 241.20210.00000		



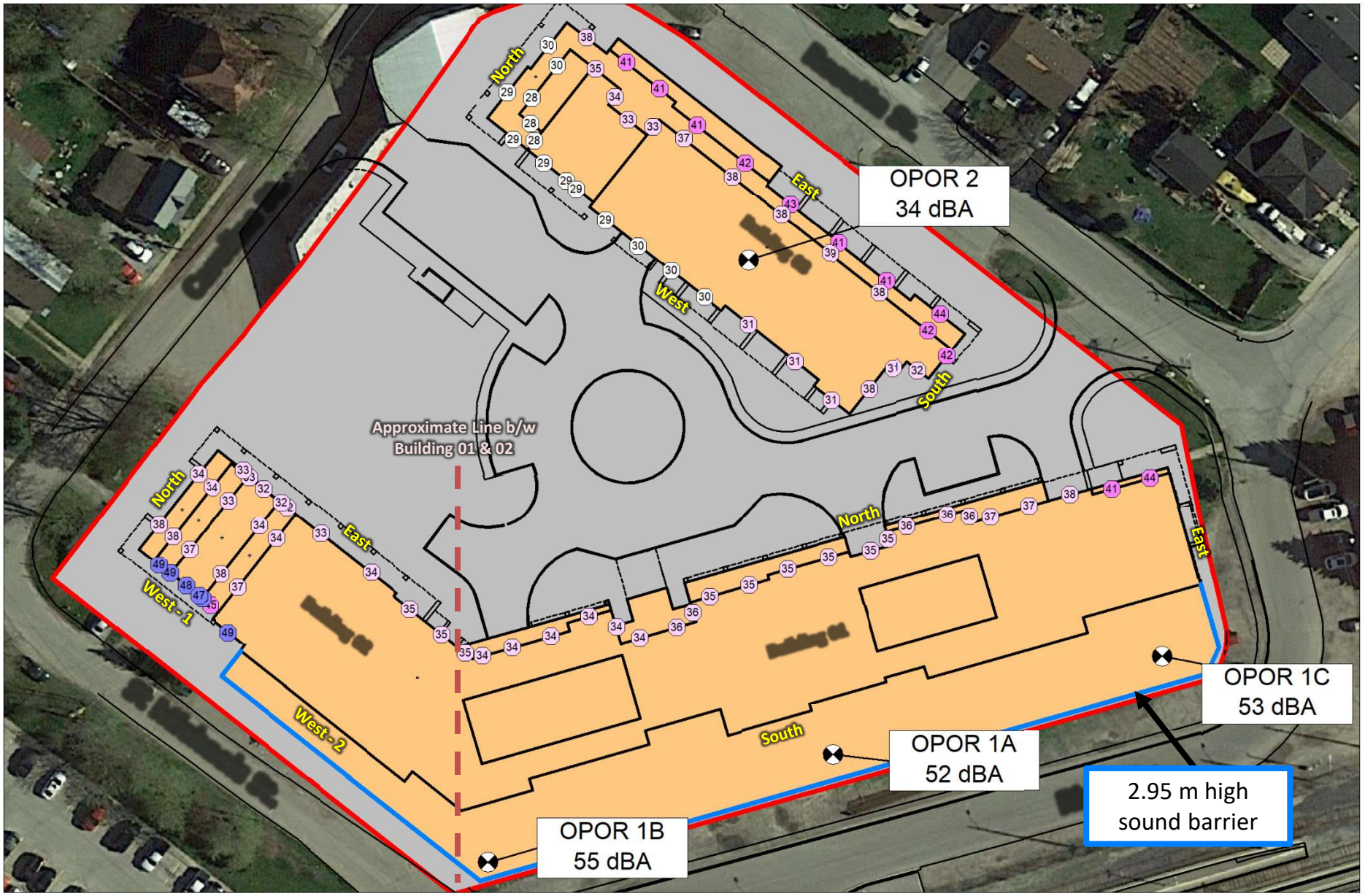
BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **5**	
PREDICTED OUTDOOR LIVING AREA SOUND LEVELS – RAIL – DAYTIME		Project No. 241.20210.00000		

BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **6**	
VIBRATION MEASUREMENT LOCATION		Project No. 241.20210.00000		



BYRON EQUITIES	True North	Scale: 1:1250	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **7**	
STATIONARY SOURCE LOCATIONS		Project No. 241.20210.00000		

BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **8**	
PREDICTED STATIONARY SOURCE NOISE IMPACTS (1-HR) – DAYTIME/EVENING/NIGHT-TIME - UNMITIGATED		Project No. 241.20210.00000		



BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **9**	
PREDICTED STATIONARY SOURCE NOISE IMPACTS (1-HR) – DAYTIME/EVENING/NIGHT-TIME - MITIGATED		Project No. 241.20210.00000		

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Appendix A

Development Drawings

Environmental Noise and Vibration Study

1 Rosetta Street Inc.

Georgetown, ON

SLR Project No.: 241.20210.00000

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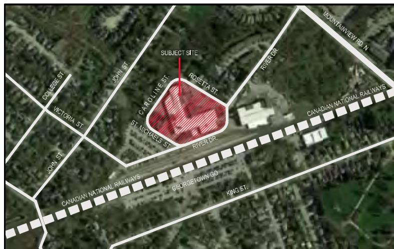
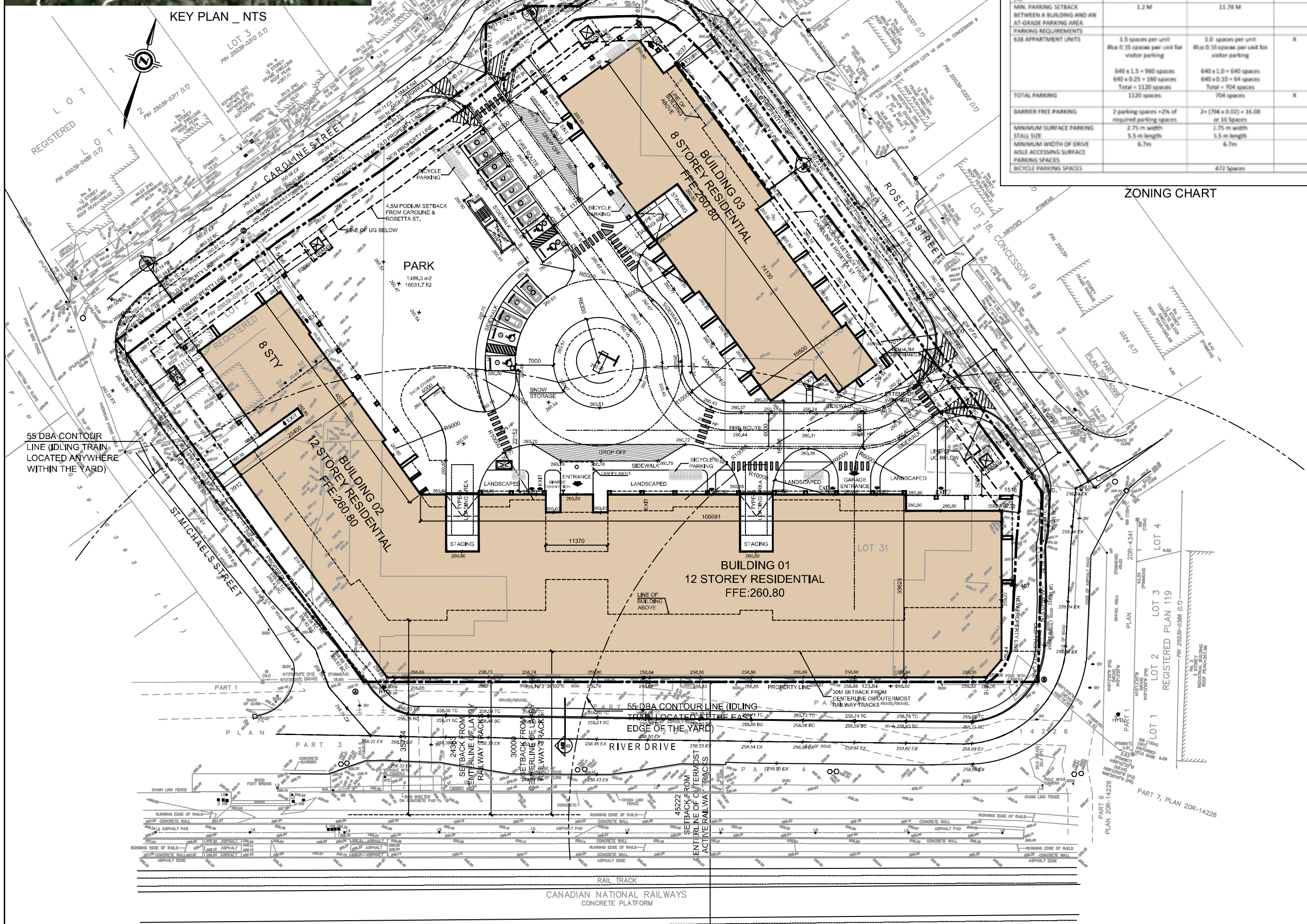


KEY PLAN _ NTS



SITE PLAN _ SCALE: 1/400

ZONING CHART

DEVELOPMENT DETAILS HIGH DENSITY RESIDENTIAL ZONE (HDR) - EXCEPTION	Required	Proposed	Amendment Needed
MINIMUM LOT FRONTAGE (Rosetta Street)	11.0 m	117.60	
MIN. FRONT YARD (Rosetta Street)	4.5 m	0.93 m	X
MIN. REAR YARD (St. Michael's Street)	7.5 m	3.91 m	X
MIN. INTERIOR SIDE YARD (River Street)	7.5 m	0.81 m	X
MIN. SETBACK FROM A RAILWAY	30.0 m	30 m Measured from the building face to the centerline of the active layby line	X
MAX. BUILDING HEIGHT	25.0 m	Building 1 = 39.79M Building 2 = 39.79M Building 3 = 27.63M	X
MAX. LOT COVERAGE		52%	
OUTDOOR AMENITY AREA INCLUDING PRIVATE TERRACES AND BALCONIES		7006.30 sq.m	
MIN. OUTDOOR AMENITY AREA (PARK)		1,489.30 sq.m	
MIN. LANDSCAPE OPENSPACE (%)		32.70 %	
MIN. PARKING SETBACK BETWEEN A BUILDING AND AN AT-GRADE PARKING AREA	1.2 M	11.78 M	
PARKING REQUIREMENTS			
638 APPARTMENT UNITS	1.5 spaces per unit Plus 0.35 spaces per unit for visitor parking 640 x 1.5 = 960 spaces 640 x 0.25 = 160 spaces Total = 1120 spaces	1.0 spaces per unit Plus 0.10 spaces per unit for visitor parking 640 x 1.0 = 640 spaces 640 x 0.10 = 64 spaces Total = 704 spaces	X
TOTAL PARKING	1120 spaces	704 spaces	X
BARRIER FREE PARKING	2 parking spaces +2% of required parking spaces	2+ (704 x 0.02) = 16.08 or 16 Spaces	
MINIMUM SURFACE PARKING STALL SIZE	2.75 m width 5.5 m length	2.75 m width 5.5 m length	
MINIMUM WIDTH OF DRIVE AISLE ACCESSING SURFACE PARKING SPACES	6.7m	6.7m	
BICYCLE PARKING SPACES		472 Spaces	

PROJECT STATISTICS

1 ROSETTA STREET

PRELIMINARY STATS

		m2	ft2	hectare
Gross Site Area		14355.50	154,521.2	1.44
Net Site Area		13,424.80	144,503.2	1.34
Total GFA		48,276.00	519,638.0	
FSI (based on Gross Site Area)	3.36			
Density (units/hectare)	476.73			
Total Units	640			
Lot Coverage	52%			
Landscape Area	32.7%	4,388.60	47,238.5	

BUILDING - 01									
Floors	GFA m2	GFA ft2	Units 1B	1B+D+1BTH	1B+D+2BTH	2B+2BTH	2B+D+2BTH	3B	Total
UG2	484.00	5,209.7							
UG1	516.20	5,556.3							
GROUND FLOOR	1,151.20	12,391.4							
2ND FLOOR	1,464.70	15,765.9	5	6	4	2	2	1	20
3RD FLOOR	1,608.20	17,310.5	5	8	4	3	2	1	23
4TH FLOOR	1,608.20	17,310.5	5	8	4	3	2	1	23
5TH FLOOR	1,608.20	17,310.5	5	8	4	3	2	1	23
6TH FLOOR	1,608.20	17,310.5	5	8	4	3	2	1	23
7TH FLOOR	1,608.20	17,310.5	5	8	4	3	2	1	23
8TH FLOOR	1,614.10	17,374.0	4	9	4	3	2	1	23
9TH FLOOR	1,614.10	17,374.0	4	9	4	3	2	1	23
10TH FLOOR	1,614.10	17,374.0	4	9	4	3	2	1	23
11TH FLOOR	1,614.10	17,374.0	4	9	4	3	2	1	23
12TH FLOOR	1,614.10	17,374.0	4	9	4	3	2	1	23
Total	19,727.60	212,345.9	50	91	44	32	22	11	250

BUILDING - 02									
Floors	GFA m2	GFA ft2	Units 1B	1B+D+1BTH	1B+D+2BTH	2B+2BTH	2B+D+2BTH	3B	Total
UG2	331.70	3,570.4							
UG1	372.70	4,011.7							
GROUND FLOOR	1,002.30	10,788.7							
2ND FLOOR	1,491.90	16,058.7	6	7	4	1	2	2	22
3RD FLOOR	1,540.00	16,576.4	6	8	4	1	2	2	23
4TH FLOOR	1,540.00	16,576.4	6	8	4	1	2	2	23
5TH FLOOR	1,540.00	16,576.4	6	8	4	1	2	2	23
6TH FLOOR	1,540.00	16,576.4	6	8	4	1	2	2	23
7TH FLOOR	1,540.00	16,576.4	6	8	4	1	2	2	23
8TH FLOOR	1,488.30	16,019.9	7	9	4	1	2	0	23
9TH FLOOR	1,438.80	15,487.1	4	9	4	2	2	0	21
10TH FLOOR	1,333.50	14,353.7	3	7	4	2	3	0	19
11TH FLOOR	1,333.50	14,353.7	3	7	4	2	3	0	19
12TH FLOOR	1,278.90	13,766.0	4	8	4	1	2	0	19
Total	17,771.60	191,291.7	57	87	44	14	24	12	238

BUILDING - 03									
Floors	GFA m2	GFA ft2	Units 1B	1B+D+1BTH	1B+D+2BTH	2B+2BTH	2B+D+2BTH	3B	Total
UG2	174.90	1,882.6							
UG1	466.90	5,025.7							
GROUND FLOOR	1,336.30	14,383.8	4	3	2	0	1	1	11
2ND FLOOR	1,248.60	13,439.8	5	8	2	2	2	1	20
3RD FLOOR	1,304.40	14,040.4	5	8	3	2	2	1	21
4TH FLOOR	1,304.40	14,040.4	5	8	3	2	2	1	21
5TH FLOOR	1,304.40	14,040.4	5	8	3	2	2	1	21
6TH FLOOR	1,304.40	14,040.4	5	8	3	2	2	1	21
7TH FLOOR	1,304.40	14,040.4	5	8	3	2	2	1	21
8TH FLOOR	1,028.10	11,066.4	3	7	3	2	1	0	16
Total	10,776.80	116,000.4	37	58	22	14	14	7	152

ALL BUILDINGS COMBINED								
Floors	BUILDING 1 m2	BUILDING 1 ft2	BUILDING 2 m2	BUILDING 2 ft2	BUILDING 3 m2	BUILDING 3 ft2	TOTAL GFA m2	TOTAL GFA ft2
UG2	484.00	5,209.7	331.70	3,570.4	174.90	1,882.6	990.60	10,662.7
UG1	516.20	5,556.3	372.70	4,011.7	466.90	5,025.7	1,355.80	14,593.7
GROUND FLOOR	1,151.20	12,391.4	1,002.30	10,788.7	1,336.30	14,383.8	3,489.80	37,563.9
2ND FLOOR	1,464.70	15,765.9	1,491.90	16,058.7	1,248.60	13,439.8	4,205.20	45,264.4
3RD FLOOR	1,608.20	17,310.5	1,540.00	16,576.4	1,304.40	14,040.4	4,452.60	47,927.3
4TH FLOOR	1,608.20	17,310.5	1,540.00	16,576.4	1,304.40	14,040.4	4,452.60	47,927.3
5TH FLOOR	1,608.20	17,310.5	1,540.00	16,576.4	1,304.40	14,040.4	4,452.60	47,927.3
6TH FLOOR	1,608.20	17,310.5	1,540.00	16,576.4	1,304.40	14,040.4	4,452.60	47,927.3
7TH FLOOR	1,608.20	17,310.5	1,540.00	16,576.4	1,304.40	14,040.4	4,452.60	47,927.3
8TH FLOOR	1,614.10	17,374.0	1,488.30	16,019.9	1,028.10	11,066.4	4,130.50	44,460.3
9TH FLOOR	1,614.10	17,374.0	1,438.80	15,487.1			3,052.90	32,861.1
10TH FLOOR	1,614.10	17,374.0	1,333.50	14,353.7			2,947.60	31,727.7
11TH FLOOR	1,614.10	17,374.0	1,333.50	14,353.7			2,947.60	31,727.7
12TH FLOOR	1,614.10	17,374.0	1,278.90	13,766.0			2,893.00	31,140.0
Total GFA							48,276.00	519,638.0

PARKING REQUIRED

	Units	Ratio	Required
Residential	640	1.0	640
Visitor	640	0.1	64
TOTAL			704

PARKING PROVIDED

	Visitors	Residents
Grade	64	22
UG1	0	329
UG2	0	292
	64	643
TOTAL	707	

ACCESSIBLE PARKING AS PER AODA

RATIO	REQUIRED PARKING	REQUIRED ACCESSIBLE PARKING	PROVIDED ACCESSIBLE PARKING
2 PARKING SPACES + 2% OF REQUIRED PARKING SPACES	704	16	16
TOTAL			16

FLOOR AREA, GROSS

The aggregate of the areas of each floor of a building or structure above or below established grade, measured between the exterior faces of the exterior walls of the building or structure excluding the sum of the areas of each floor used, or designed or intended for use for the parking of motor vehicles, unless the parking of motor vehicles is the principle use of the building or structure.

FLOOR AREA, NET

The aggregate of the floor areas of a building above or below established grade, but excluding car parking areas within the building, stairways, elevator shafts, service or mechanical rooms and penthouses, washrooms, garbage or recycling rooms, staff locker and lunch rooms, loading areas, any space with a floor to ceiling height of less than 1.8 metres and any part of a basement that is unfinished, is used solely for storage purposes and is not accessible to the public.

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
SITE PLAN & PROJECT STATS

Scale: 1/400
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A101

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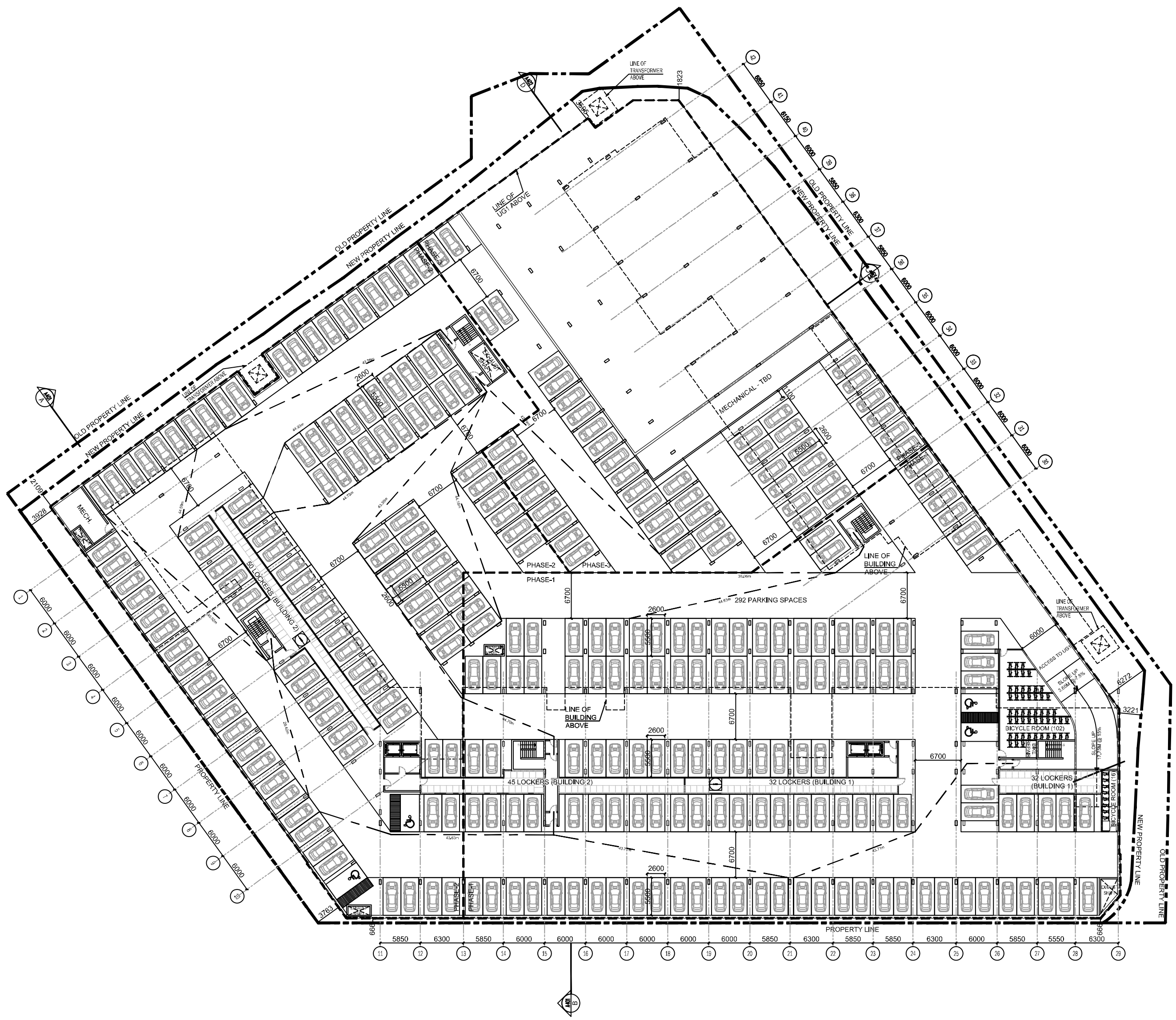

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1 ROSETTA STREET
GEORGETOWN, ON

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UG2 FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127
Drawn by: RK
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Drawing No. A201

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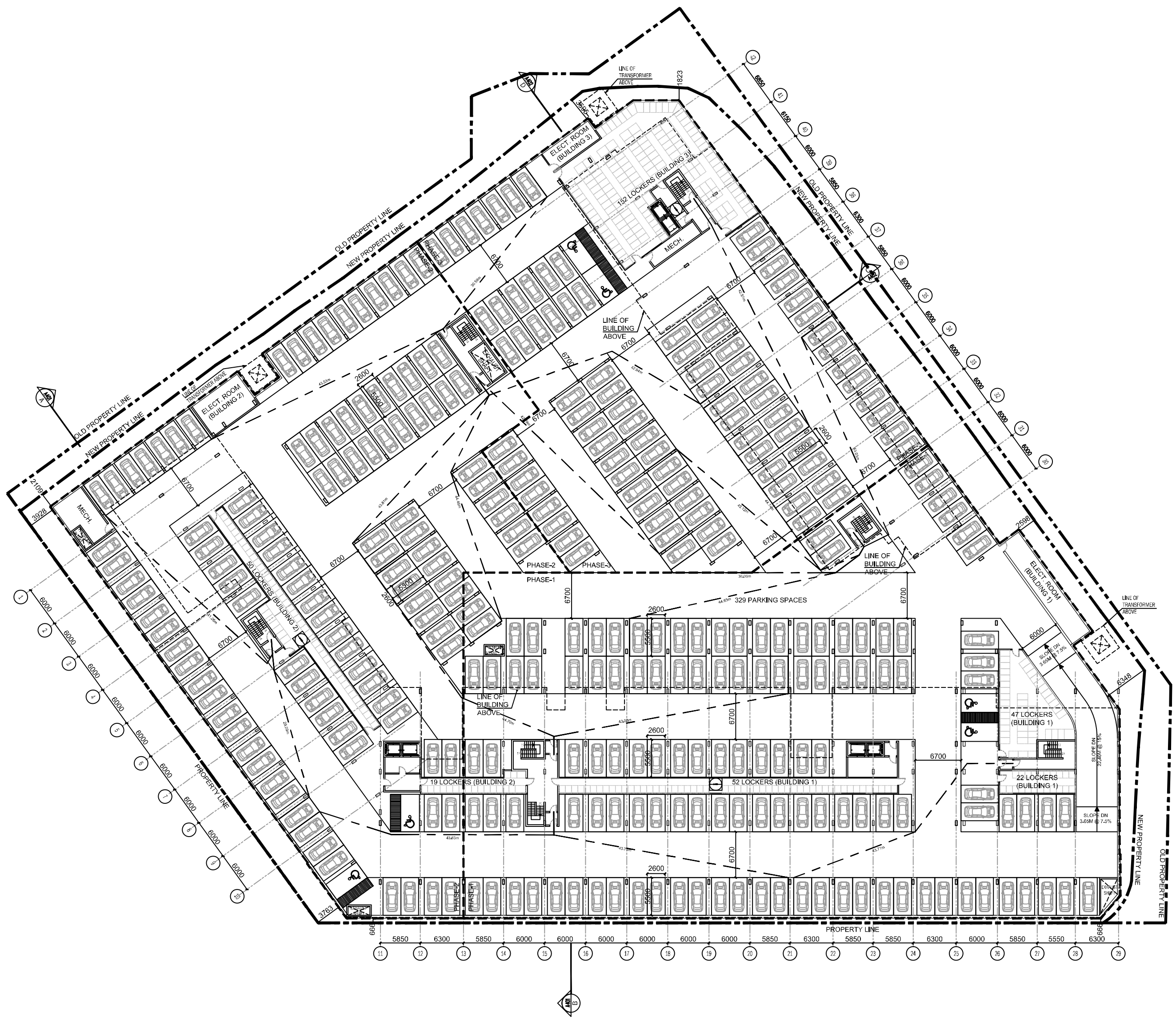

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GEORGETOWN, ON

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UG1 FLOOR PLAN

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Project No. 17127

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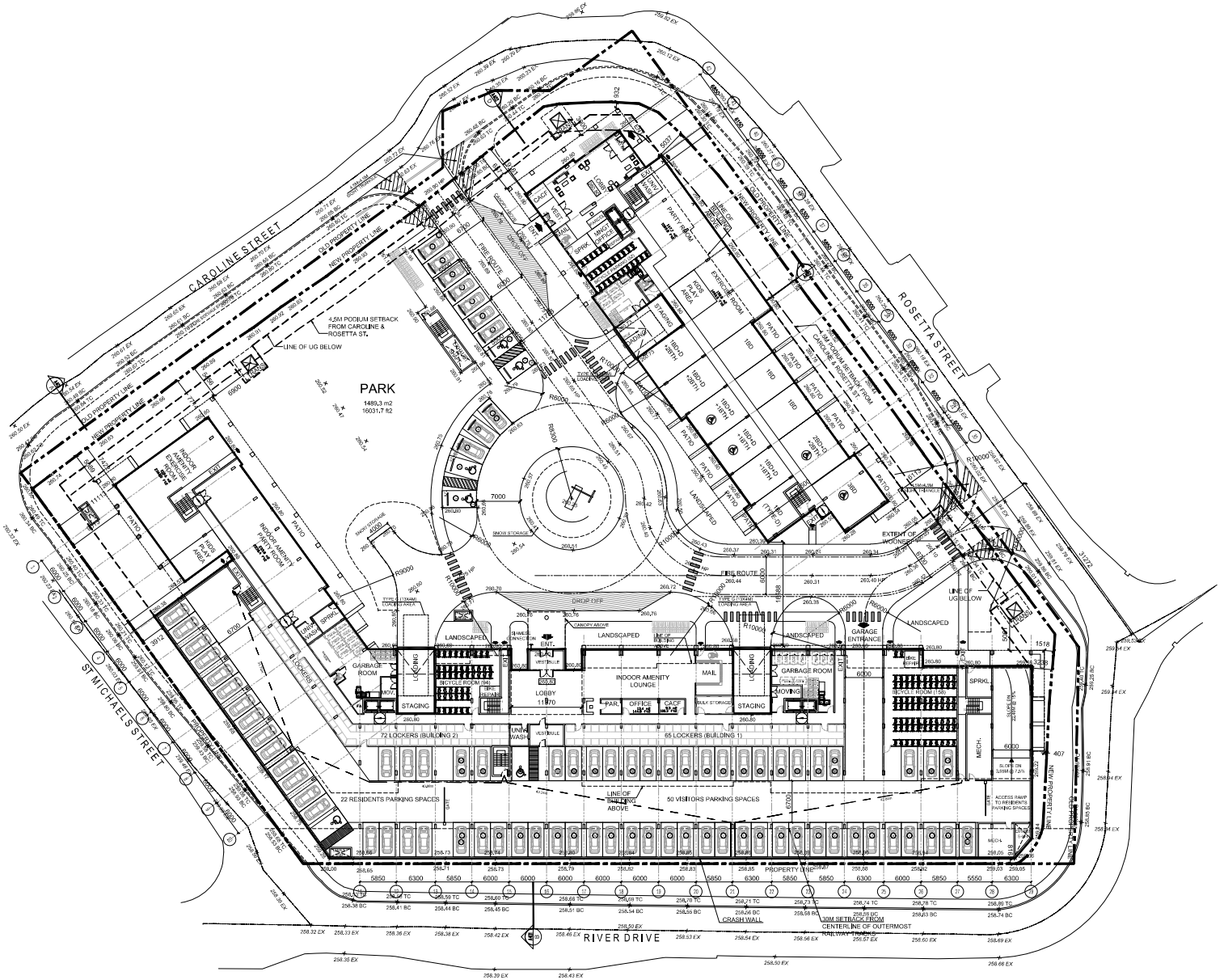

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
GROUND FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A203

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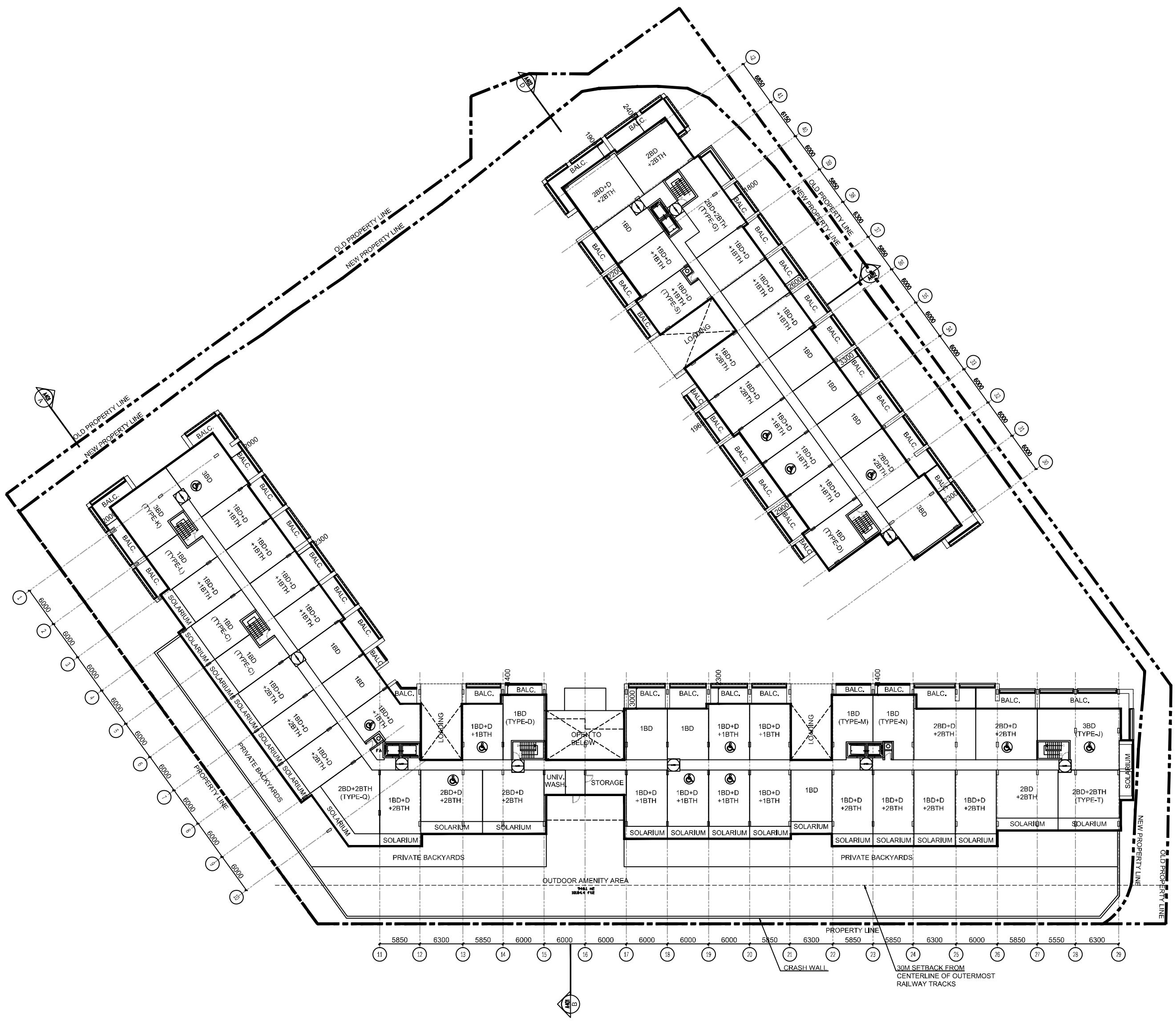

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1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
2ND FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A204

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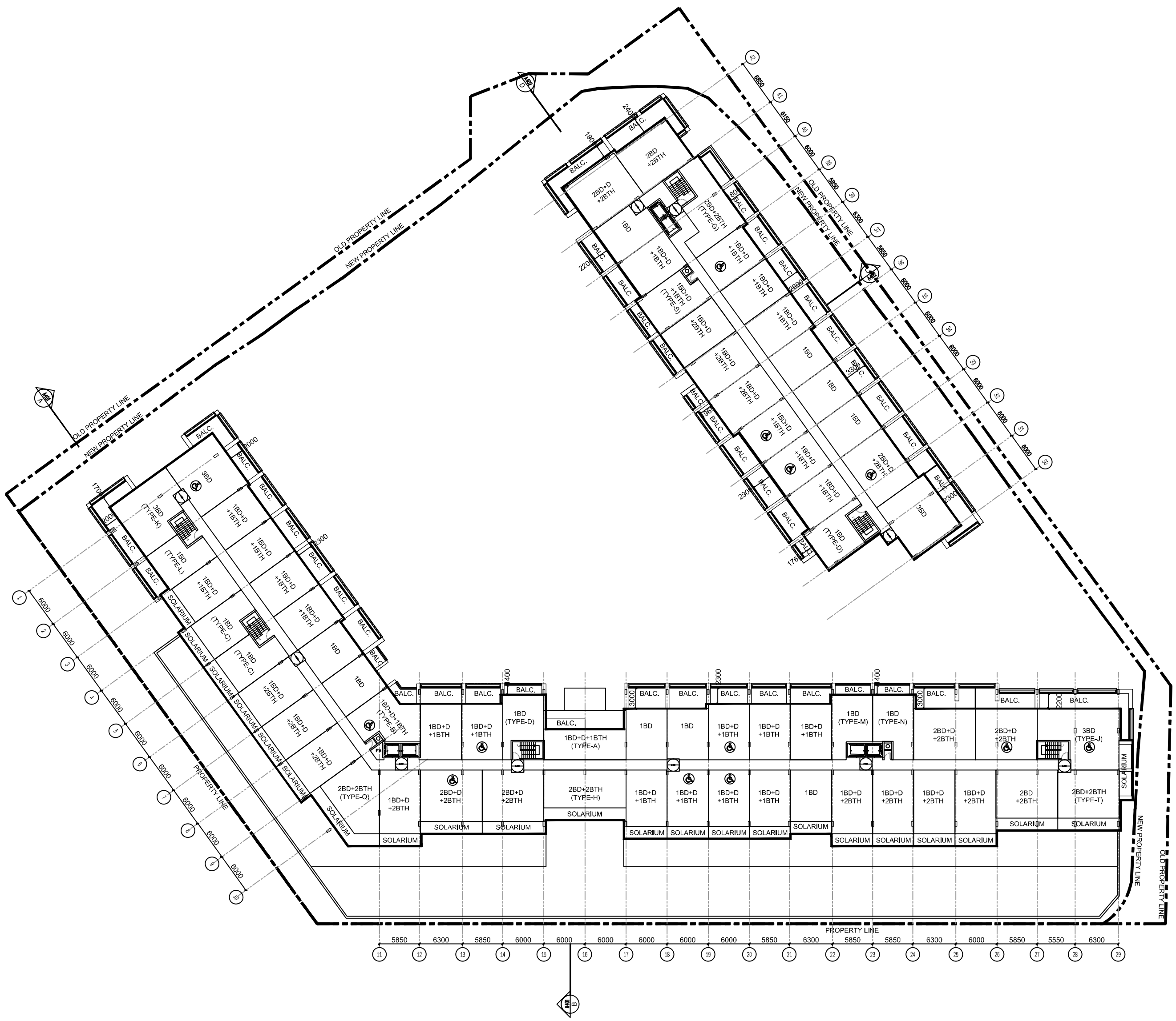

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
3RD FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127
Drawn by: RK
Checked by: RE
Drawing No. A205

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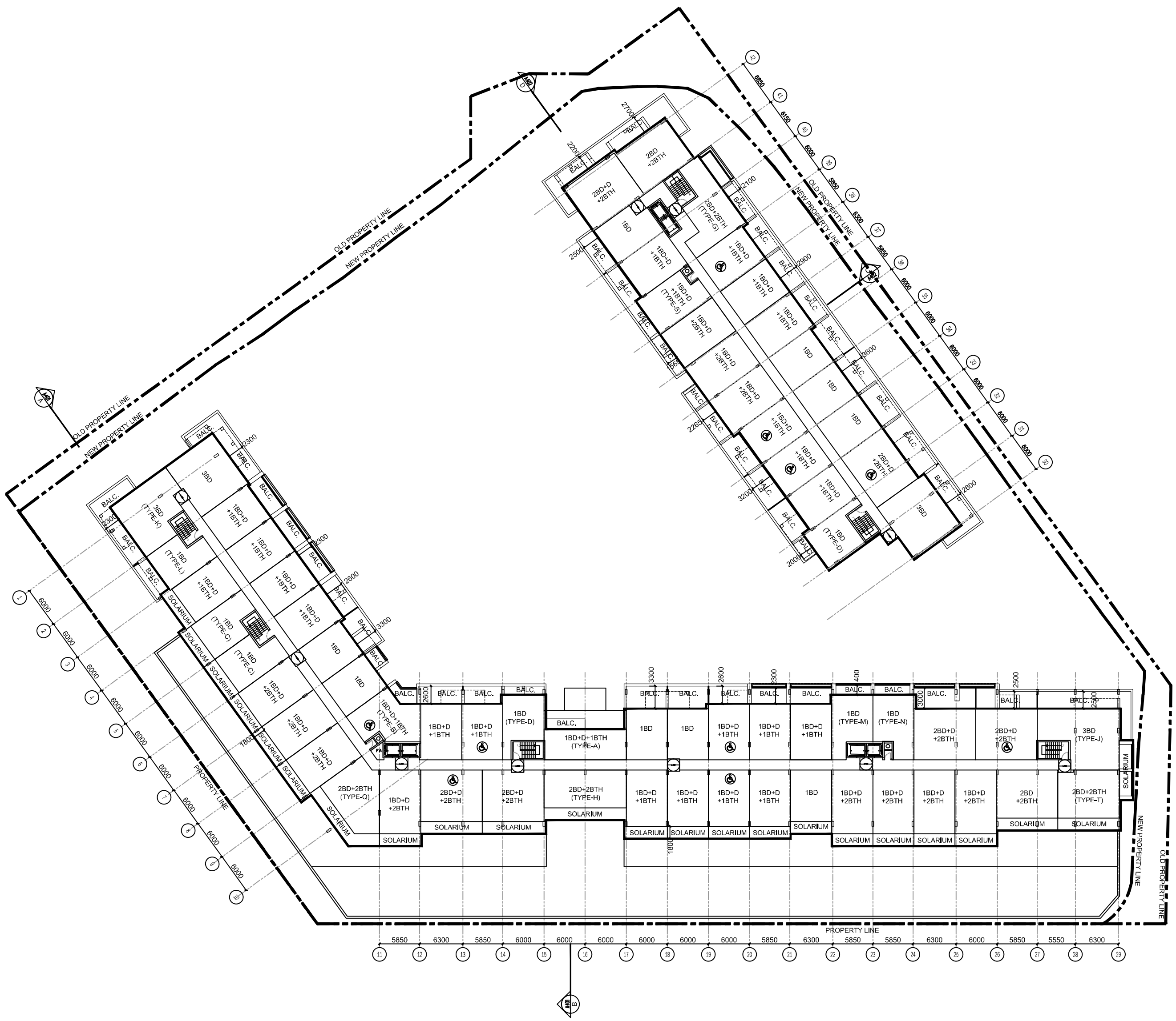

NORTH

CONS. TRUE

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE

4TH FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A206

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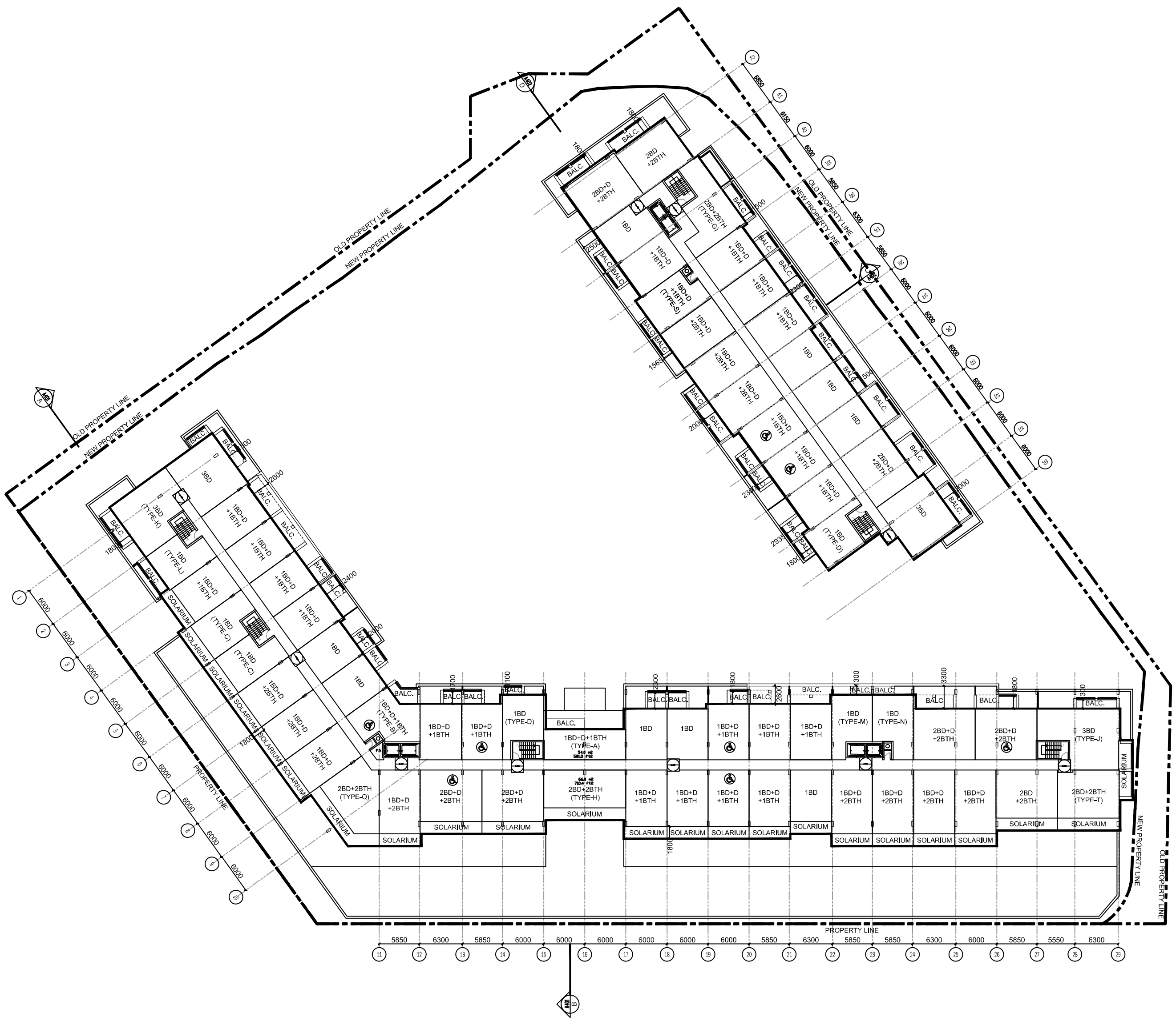

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
5TH FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A207

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M2N 0G3 ICONARCHITECTS.CA
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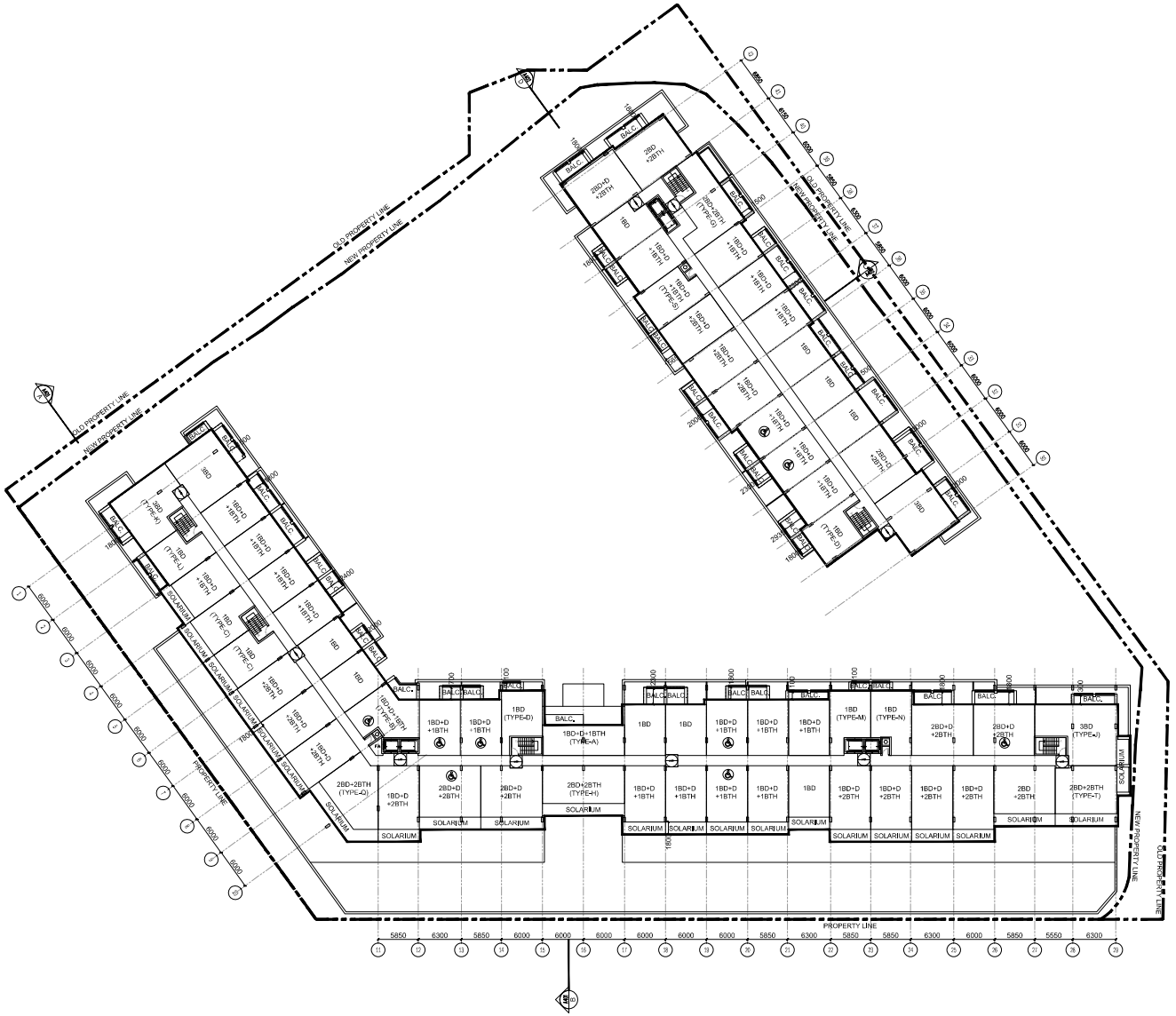

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
6TH & 7TH FLOOR PLANS

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A208

ICON ARCHITECTS
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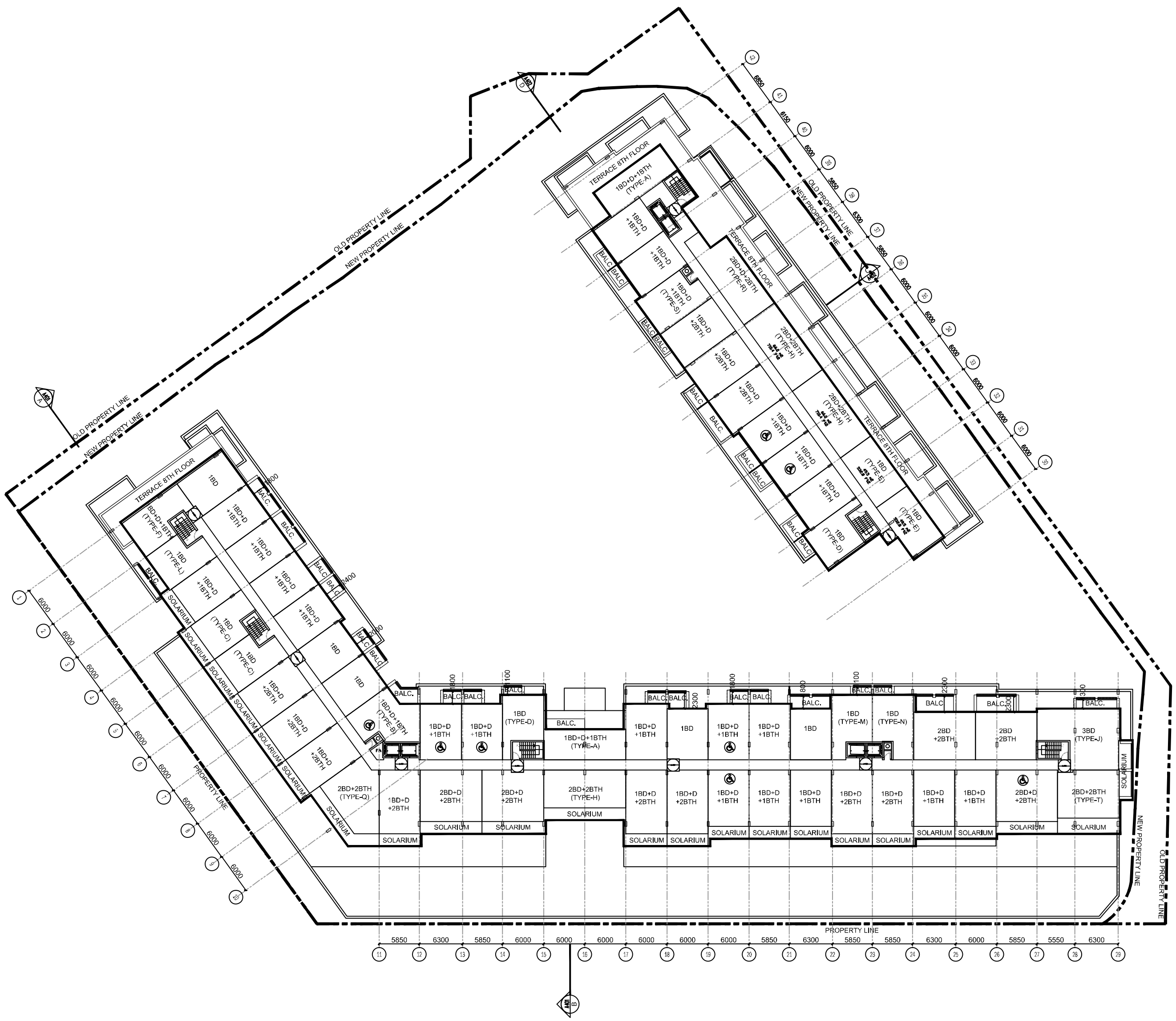

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
8TH FLOOR PLAN

Scale:
1/300
Date:
MAR.08, 2022
Project No.
17127

Drawn by:
RK
Checked by:
RE
Drawing No.
A209

813 - 4789 YONGE ST. TORONTO
M2N 0G3 ICONARCHITECTS.CA
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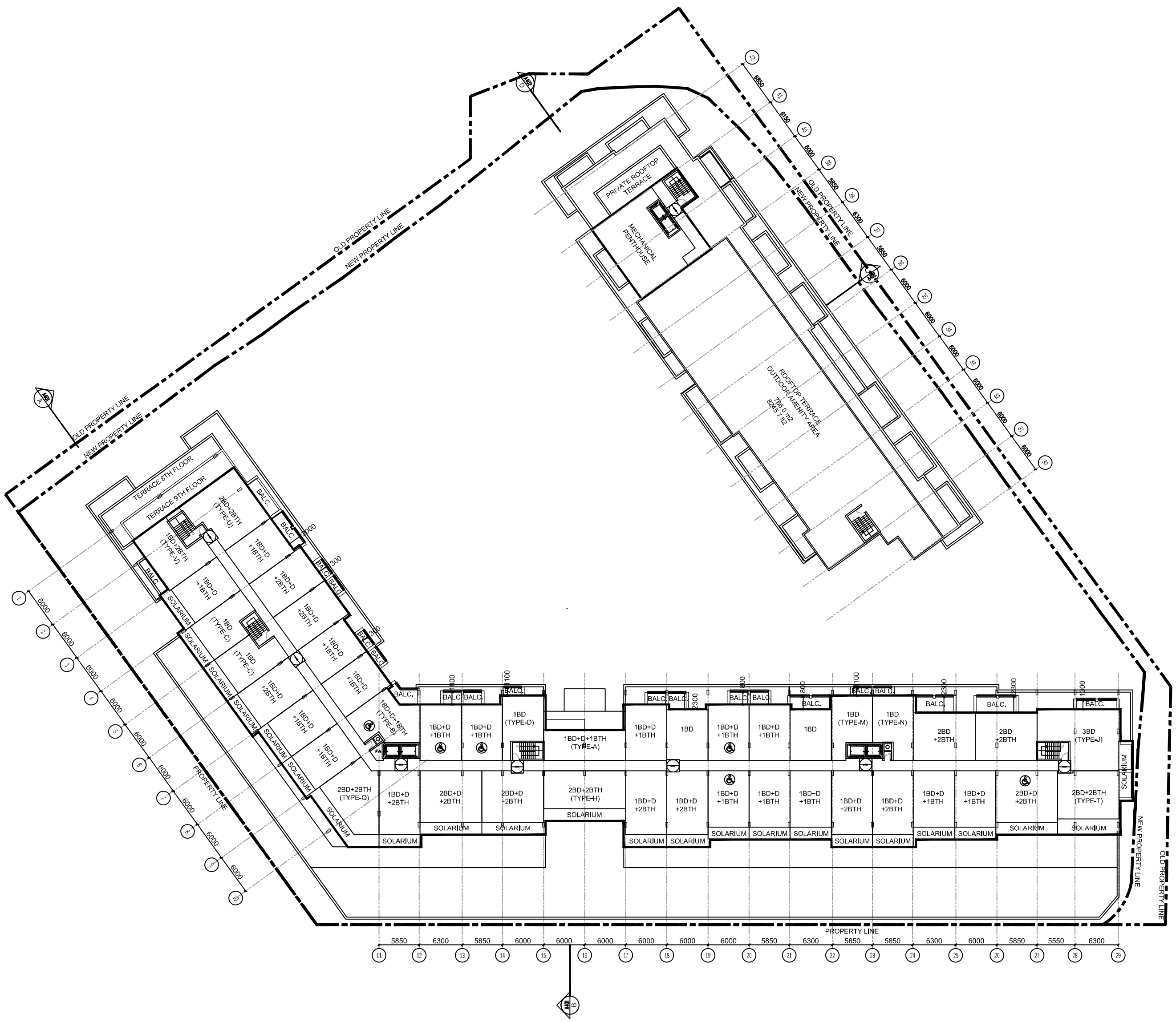

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
9TH FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127
Drawn by: RK
Checked by: RE
Drawing No. A210

ICON ARCHITECTS
813 - 4789 YONGE ST, TORONTO M2N 0G3 ICONARCHITECTS.CA
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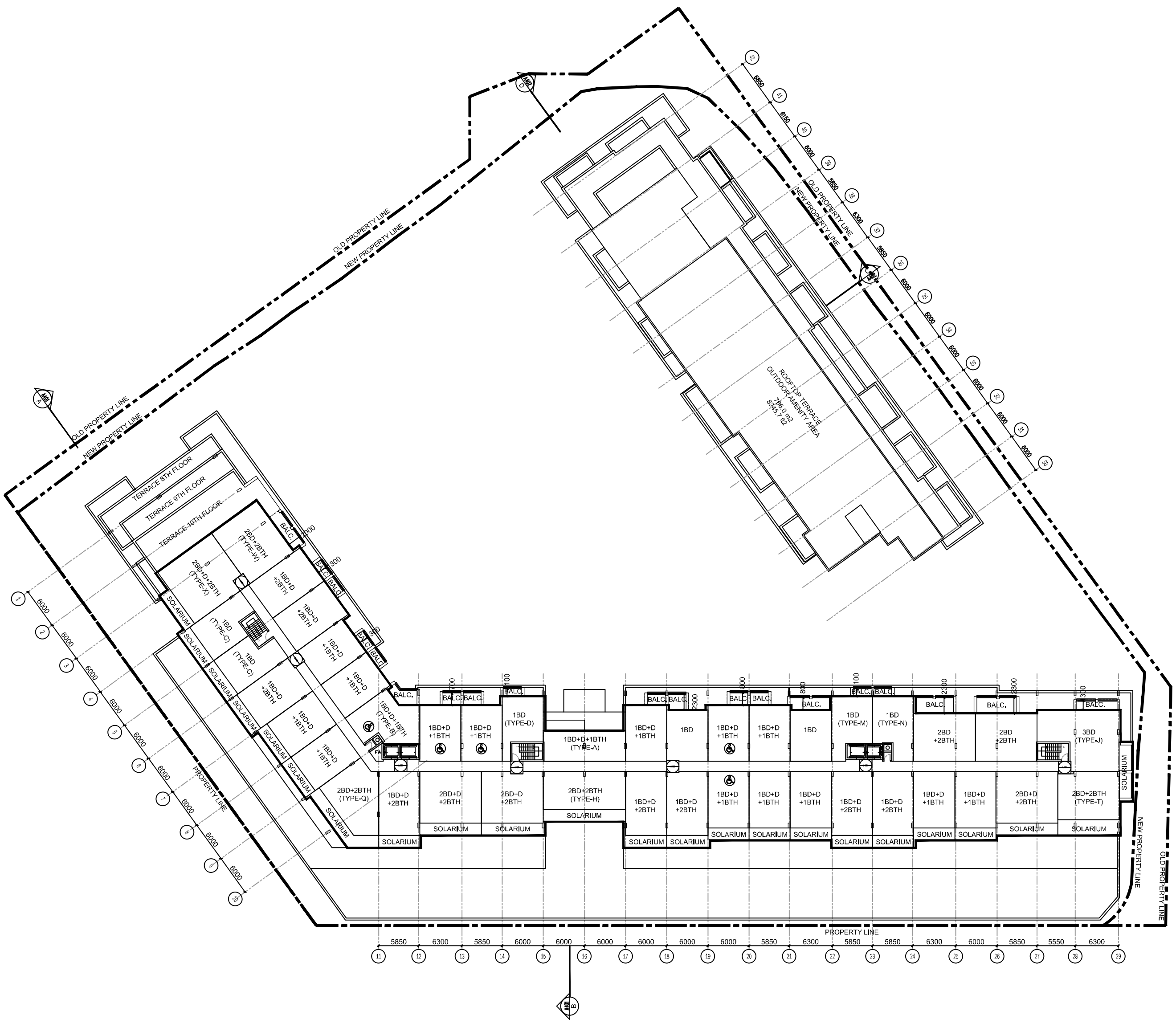

NORTH

TRUE
CONS.

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
10TH-11TH TYPICAL FLOOR PLAN

Scale:
1/300
Date:
MAR.08, 2022
Project No.
17127

Drawn by:
RK
Checked by:
RE
Drawing No.
A211

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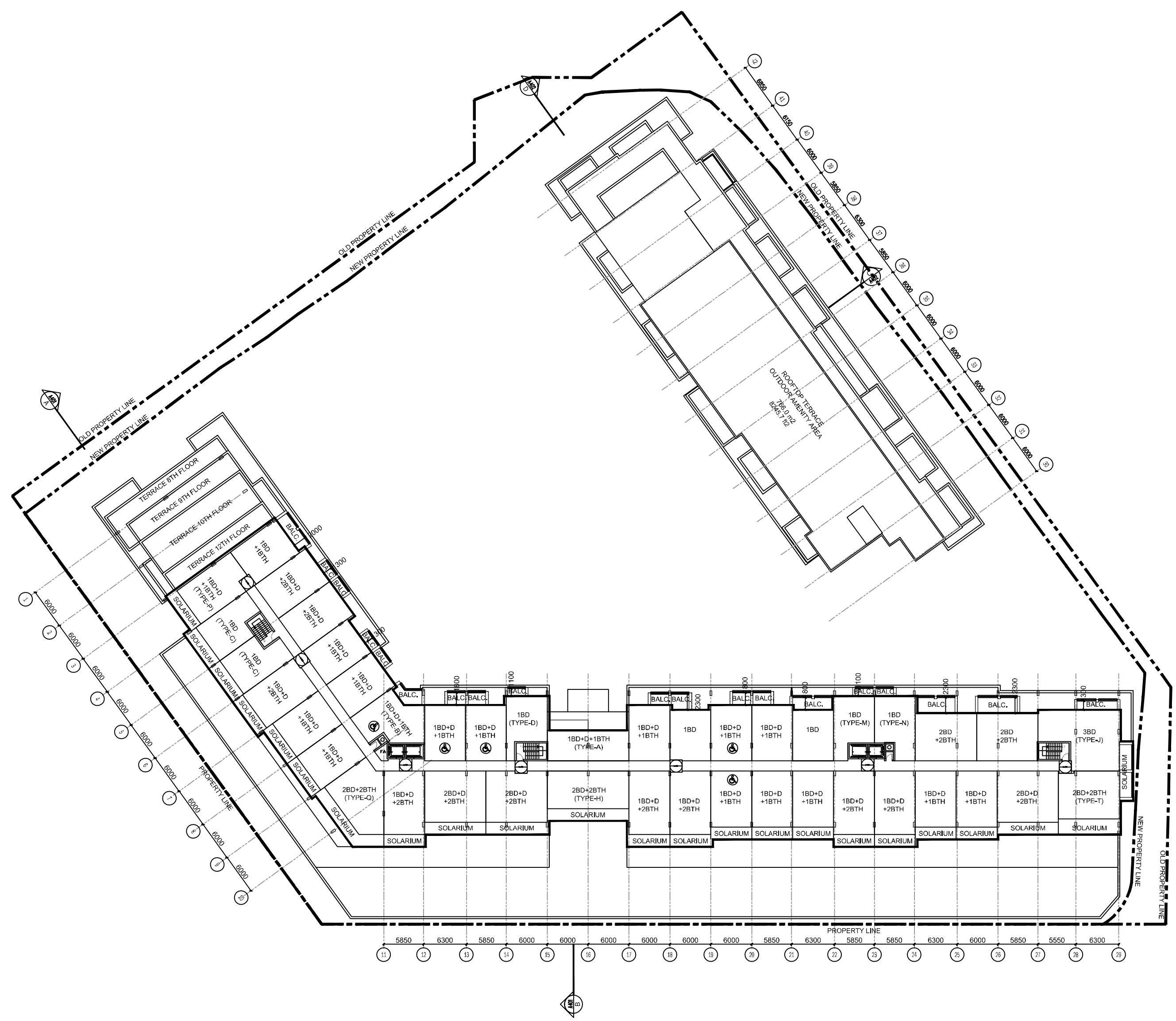
T:416-224-0505 F:416-224-0504

ICON ARCHITECTS



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NORTH

1 ROSETTA STREET
GEORGETOWN, ON

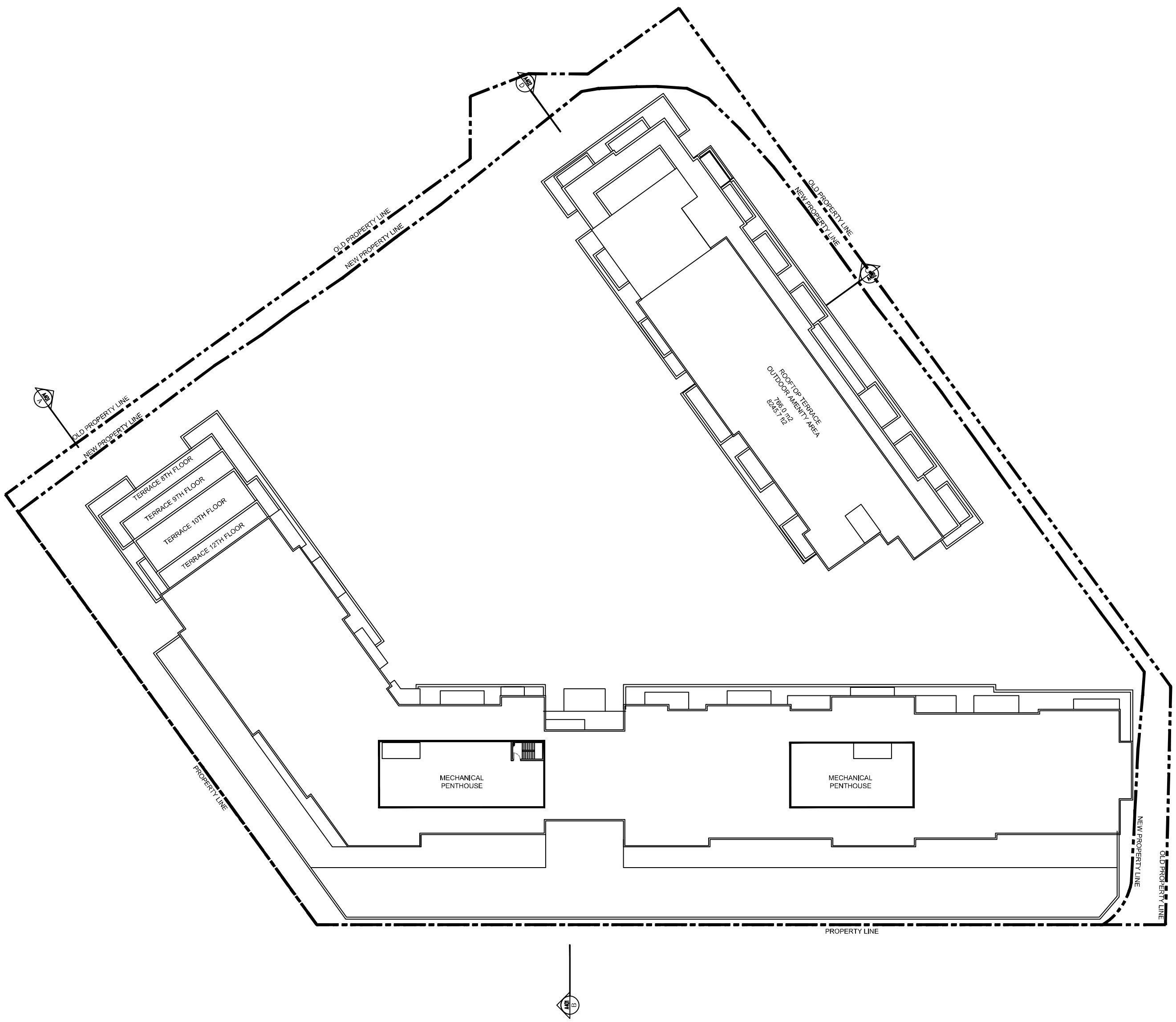
DRAWING TITLE
12TH FLOOR PLAN

Scale: 1/300
Date: MAR.08, 2022
Project No. 17127

Drawn by: RK
Checked by: RE
Drawing No. A212

813 - 4789 YONGE ST, TORONTO
M2N 0G3 ICONARCHITECTS.CA
T:416-224-0505 F:416-224-0504

ICON ARCHITECTS



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NORTH

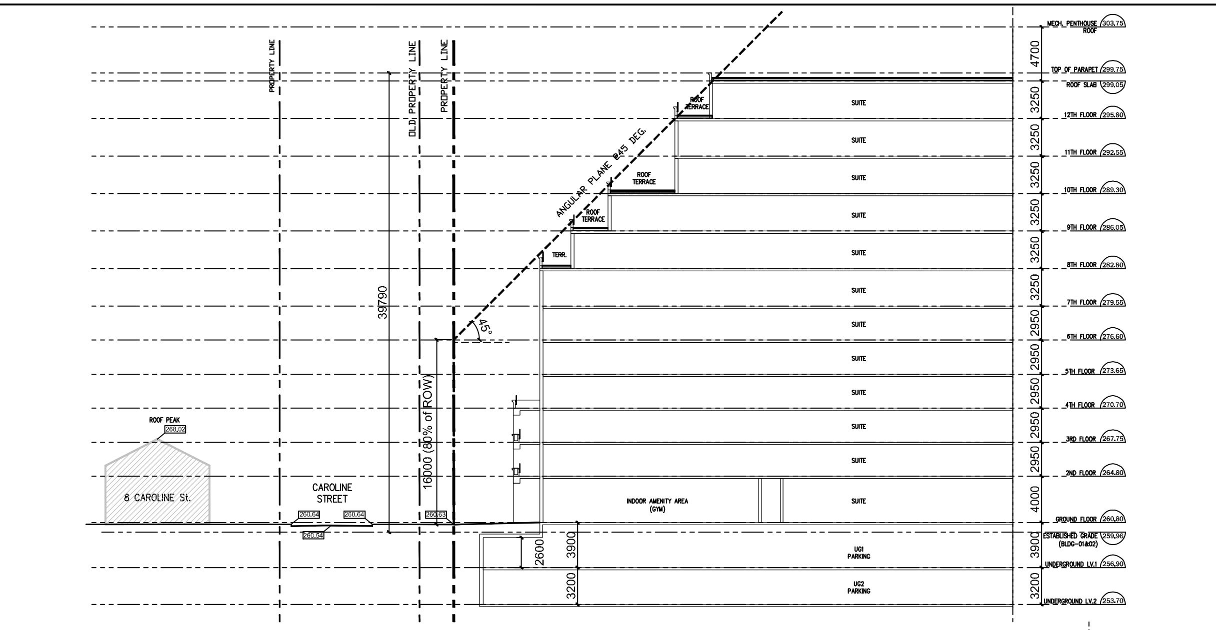
1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
ROOF FLOOR PLAN

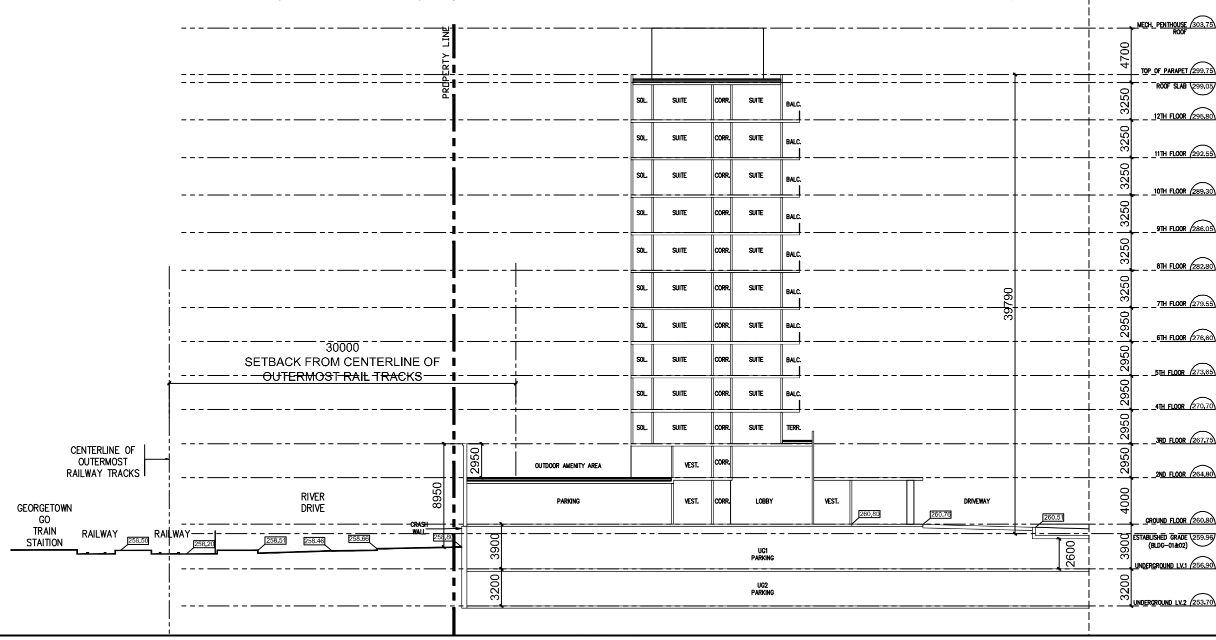
Scale: 1/300
Date: MAR.08, 2022
Project No. 17127
Drawn by: RK
Checked by: RE
Drawing No. A213

813 - 4789 YONGE ST. TORONTO
M2N 0G3 ICONARCHITECTS.CA
T.416-224-0505 F.416-224-0504

ICON ARCHITECTS



SECTION A _ SCALE 1:200



SECTION B _ SCALE 1:200

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NORTH

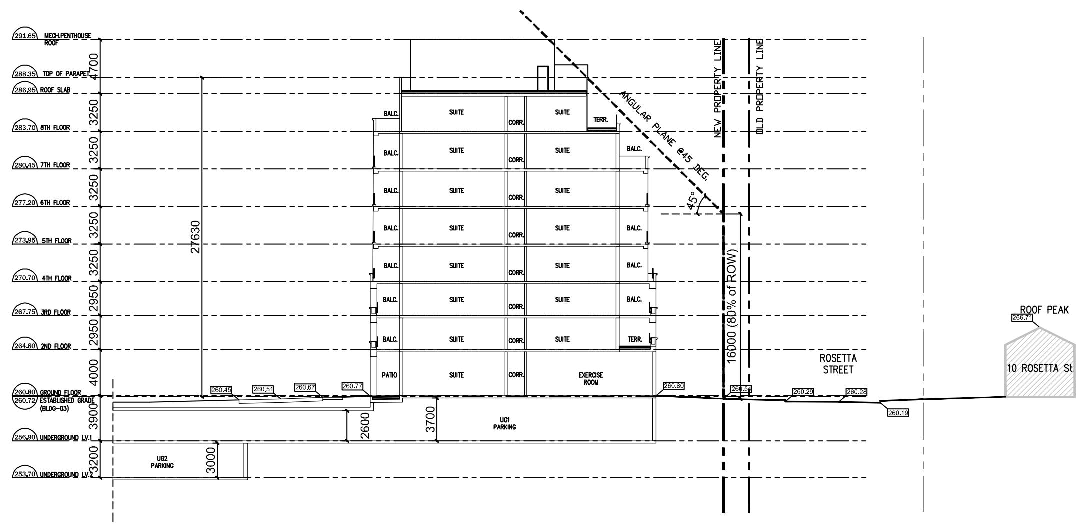
1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
SECTIONS

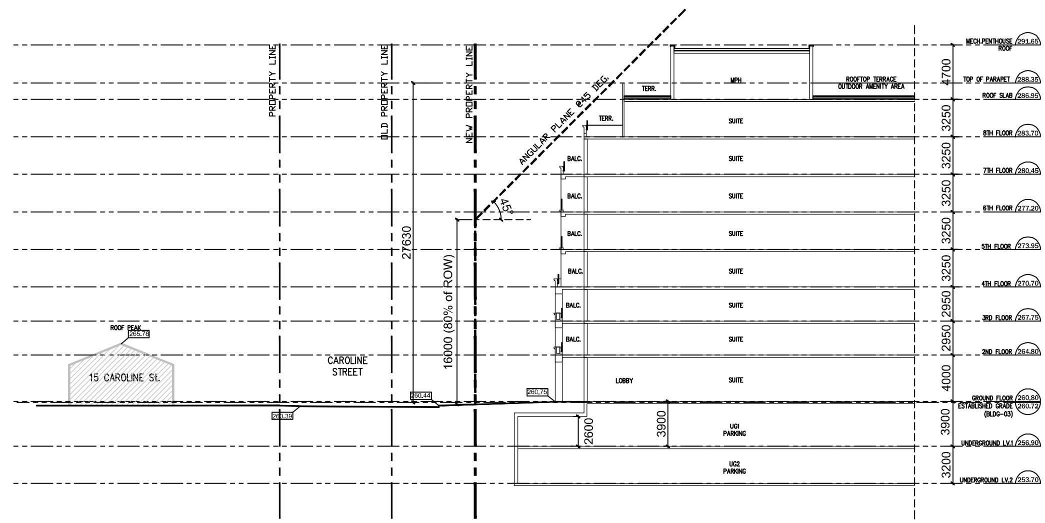
Scale: 1/200
Date: MAR.08, 2022
Project No. 17127
Drawn by: RK
Checked by: RE
Drawing No. A401

813 - 4789 YONGE ST. TORONTO M2N 0G3 ICONARCHITECTS.CA T:416-224-0505 F:416-224-0504

ICON ARCHITECTS



SECTION C _ SCALE 1:200



SECTION D _ SCALE 1:200

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
SECTIONS

Scale: 1/200
Date: MAR.08, 2022
Project No. 17127
Drawn by: RK
Checked by: RE
Drawing No. A402

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T.416-224-0505 F.416-224-0504
ICON ARCHITECTS

Appendix B

Traffic Data and Calculations

Environmental Noise and Vibration Study

1 Rosetta Street Inc.

Georgetown, ON

SLR Project No.: 241.20210.00000

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for 2-sided printing purposes

From: Rail Data Requests
To: Jason Dorssers
Cc: Brandon Gaffoor; Marcus Li
Subject: RE: 18-24 Elizabeth St. N, Brampton - Info Request for Novus
Date: January 24, 2019 8:40:29 AM
Attachments: image001.png

Good Morning Jason,

Further to your request dated January 17, 2019, the subject site (18-24 Elizabeth Street North, Brampton) is located within 300 metres of GO Transit's Brampton GO Station and CNR's Halton Subdivision (which carries Kitchener GO Train service). We note that we do not maintain information pertaining to the idling activities at stations – that would be up to the consultant to collect that information for a typical weekday period.

It's anticipated that GO service on this line will be comprised of diesel 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 20 trains (19 day, 1 night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

The maximum design speed on this corridor is 50 mph (80 km/h).

An anti-whistle by-law is in effect at Mill Street.

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 operates 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 do not hesitate to contact me.

Best Regards,

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

METROLINX

From: Jason Dorssers [mailto:jasond@novusenv.com]
Sent: January-17-19 2:46 PM
To: Rail Data Requests
Cc: Brandon Gaffoor; Marcus Li
Subject: 18-24 Elizabeth St. N, Brampton - Info Request for Novus

Hello Brandon,

Novus is working on a Noise and Vibration Study for the 18-24 Elizabeth St. N. development in Brampton, ON. The project is located close to the Brampton GO Station highlighted in the image below.
We require forecasted rail traffic data to use in our assessment. I have attached an image of the area being developed.

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 :*	SLR 150 Research Lane Suite 105 Limited	*Project :*	HAL – 23.5 Georgetown Go Station, Georgetown ON
Att'n:	Marcus Li	*Routing:*	mli@slrconsulting.com
From: *Expéditeur :*	Michael Vallins	*Date:*	2020/12/18
Cc:	Adjacent Development CN via e-mail		

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

Re: Train Traffic Data – CN Halton Subdivision near Georgetown Go Station in Georgetown, 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 permits.gld@cn.ca

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager, Public Works-Eastern Canada
Permits.gld@cn.ca

Date: 2020/12/18 Project Number: HAL – 23.5 – Georgetown Go station, Georgetown ON

Dear Marcus:

Re: Train Traffic Data – CN Halton Subdivision near 11611 Trafalgar in Georgetown, ON

The following is provided in response to Marcus's 2020/09/08 request for information regarding rail traffic in the vicinity of Georgetown Go station in Georgetown at approximately Mile 23.5 on CN's Halton 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	6	140	50	4
Way Freight	0	25	50	4
Passenger	0	10	50	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	9	140	50	4
Way Freight	0	25	50	4
Passenger	4	10	50	2

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

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is no at-grade crossing in the immediate vicinity of the study area. 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 double mainline track is considered to be continuously welded rail throughout the study area.

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, Public Works-Eastern Canada
Permits.gld@cn.ca

Keni Mallinen

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: January 07, 2022 1:53 PM
To: Keni Mallinen
Cc: Marcus Li
Subject: RE: Confirm Rail Traffic Data Up-to-Date: 18 Mill St., Georgetown (from May 19, 2021)

Good afternoon Keni,

Yes, the train data is still valid. I would like to make the following clarifications:

- The locomotives running past 18 Mill Street will be diesel only
- The subdivision is titled Halton Subdivision not Georgetown Subdivision.
- The rail data for the layover facility is for the proposed Heritage Road Layover in Brampton (I am not sure if you had previously asked for the layover info on Heritage Road Layover). However, Metrolinx does not maintain information pertaining to idling and stationary activities at Georgetown GO Station. It would be up to consultant to collect that information for a typical weekday period.

If you have any further questions, please do not hesitate to contact me.

Best regards,
Harrison Rong
Project Coordinator, Third Party Projects Review
Metrolinx
20 Bay Street | Suite 600 | Toronto | Ontario | M5J 2W3
T: 416.202.7517 C: 647.328.4891

From: Keni Mallinen <kmallinen@slrconsulting.com>
Sent: December 22, 2021 8:53 AM
To: Rail Data Requests <RailDataRequests@metrolinx.com>
Cc: Marcus Li <mli@slrconsulting.com>
Subject: RE: Confirm Rail Traffic Data Up-to-Date: 18 Mill St., Georgetown (from May 19, 2021)

Good day,

We previously requested rail traffic data from Metrolinx for the Georgetown subdivision, per the attached email. Can you please let us know if these traffic counts are still up-to-date, or whether we should be using new volumes? I have pasted the excerpt of traffic data for the Georgetown Subdivision previously provided below, which was provided on May 19, 2021.

Thank you and have a happy holiday,
Keni

Sorry for the delay. Further to your request dated March 28, 2021, the subject lands (18 Mill St., Georgetown) are located within 300 metres of the CN Georgetown Subdivision (which carries Kitchener GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 2 locomotives and 12 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 45 trains. These trains shall be modelled as pass-by trips for the subject application. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	2 Diesel Locomotives		1 Diesel Locomotive	2 Diesel Locomotives
Day (0700-2300)	23	15	Night (2300-0700)	7	0

The current track design speed near the subject lands is 50 mph (80 km/h).

The typical GO rail weekday train volume forecast at the layover facility is in the order of 61 trains. These trains shall be modelled as stationary noise for the subject application. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive		1 Diesel Locomotive
Day (0700-2300)	50	Night (2300-0700)	11

There are no *anti-whistling by-laws* in affect near the subject lands.

SLR

Keni Mallinen
Acoustic Engineer

O +1 226 706 8080
C +1 226 203 7385
E kmallinen@slrconsulting.com

SLR Consulting (Canada) Ltd.
100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

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100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

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RAILWAY SOURCES

Description	Name	M.	ID	Lw' Day (dBA)	Night (dBA)	Train Class	Correct. Track (dB)	Vmax (km(km/h)	Height A (m)	E (m)	A_att	E_Att	Length (m)	Train Type 1 Type	No. Day	Night	Speed (km/h)	Throttle (1 to 8)
GO Train - Locomotive	GO		Go_loco	67.6	61.8	(local)	0		0.6		r		2639	FTA_COMM_LOC_DE	53	7	80	8
GO Train - Wheel	GO		Go_wheel	60.9	56.6	(local)	0		0.6		r			FTA_COMM_CAR	456	84	80	0
Freight Train - Locomotive	Freight		freight_loco	66	70.7	(local)	0		0.6		r			FRA_CONV_FRE_LOC	37	55	80	0
Freight Train - Wheel	Freight		freight_wheel	65.4	70.1	(local)	0		0.6		r			FTA_COMM_CAR	1279	1918	80	0
Passenger Train - Locomotive	Passenger		pass_loco	-81	64.5	(local)	0		0.6		r	2655		FTA_COMM_LOC_DE	0	13	80	8
Passenger Train - Wheel	Passenger		pass_wheel	-81	55.2	(local)	0		0.6		r	2648		FTA_COMM_CAR	0	61	80	0
GO Train - 24-hour Locomotive	GO		Go_loco_24Loco	66.4	-81	(local)	0		0.6		r	2655		FTA_COMM_LOC_DE	60	0	80	8
GO Train - 24-hour Wheel	GO		Go_wheel_24wheel	59.9	-81	(local)	0		0.6		r	2659		FTA_COMM_CAR	540	0	80	0
Freight Train - 24-hour Locomotive	Freight		FR_D_24Loco	68.2	-81	(local)	0		0.6		r	2662		FRA_CONV_FRE_LOC	92	0	80	0
Freight Train - 24-hour Wheel	Freight		FR_D_24Wheel	67.6	-81	(local)	0		0.6		r	2639		FTA_COMM_CAR	3197	0	80	0
Passenger Train - 24-hour Locomotive	Passenger		P_D_24Loco	59.8	-81	(local)	0		0.6		r	2655		FTA_COMM_LOC_DE	13	0	80	8
Passenger Train - 24-hour Wheel	Passenger		P_D_24Wheel	50.4	-81	(local)	0		0.6		r	2648		FTA_COMM_CAR	61	0	80	0
												2655						
												2659						
												2662						

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Appendix C

Detailed Façade Calculations

Environmental Noise and Vibration Study

1 Rosetta Street Inc.

Georgetown, ON

SLR Project No.: 241.20210.0000

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BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL LOCOMOTIVE

Receptor ID	Receptor Description	Sound Levels				Room / Façade Inputs					Source Inputs			Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level: (dBA)	Free - field Corr: (dBA)	Req'd Indoor Sound Level: (dBA)	Req'd Noise Red: (dBA)	Glazing as % of Wall Area	Exp Wall Ht (m)	Exp Wall Length (m)	Room Depth (m)	Room Absorption:	Incident Sound Angle: (deg)	Angle Corr Factor:	Spectrum type:	Veneer STC (STC)	Component Category:	Component Category:	Req'd Glazing STC (STC)
DAYTIME																	
B03_SF_LR	Building 03 - South Façade - Living Room	53	3	40	16	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**18**
B03_SF_BR	Building 03 - South Façade - Bedroom	53	3	40	16	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**20**
B03_EF_LR	Building 03 - East Façade - Living Room	54	3	40	17	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**19**
B03_EF_BR	Building 03 - East Façade - Bedroom	54	3	40	17	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**21**
B03_NF_LR	Building 03 - North Façade - Living Room	52	3	40	15	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**17**
B03_NF_BR	Building 03 - North Façade - Bedroom	52	3	40	15	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**19**
B03_WF_LR	Building 03- West Façade - Living Room	51	3	40	14	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**16**
B03_WF_BR	Building 03 - West Façade - Bedroom	51	3	40	14	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**18**
B01_NF_LR	Building 02 - North Façade - Living Room	54	3	40	17	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**19**
B01_NF_BR	Building 02 - North Façade - Bedroom	54	3	40	17	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**21**
B01_WF_LR	Building 02- West Façade Portion - Living Room	59	3	40	22	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**24**
B01_WF_BR	Building 02 - West Façade Portion - Bedroom	59	3	40	22	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**26**
NIGHT-TIME																	
B03_SF_LR	Building 03 - South Façade - Living Room	56	3	40	19	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**21**
B03_SF_BR	Building 03 - South Façade - Bedroom	56	3	35	24	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**28**
B03_EF_LR	Building 03 - East Façade - Living Room	56	3	40	19	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**21**
B03_EF_BR	Building 03 - East Façade - Bedroom	56	3	35	24	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**28**
B03_NF_LR	Building 03 - North Façade - Living Room	54	3	40	17	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**19**
B03_NF_BR	Building 03 - North Façade - Bedroom	54	3	35	22	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**26**
B03_WF_LR	Building 03- West Façade - Living Room	54	3	40	17	70%	3.0	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**19**
B03_WF_BR	Building 03 - West Façade - Bedroom	54	3	35	22	50%	3.0	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**26**
B01_NF_LR	Building 02 - North Façade - Living Room	56	3	40	19	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**21**
B01_NF_BR	Building 02 - North Façade - Bedroom	56	3	35	24	50%	3.0	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**28**
B01_WF_LR	Building 02- West Façade Portion - Living Room	61	3	40	24	70%	3.0	3.0	6.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**26**
B01_WF_BR	Building 02 - West Façade Portion - Bedroom	61	3	35	29	50%	3.0	3.0	3.0	Intermediate	0 - 90	0	F. diesel railway locomotive	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**34**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL WHEEL

Receptor ID	Receptor Description	Sound Levels				Room / Façade Inputs					Source Inputs			Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level: (dBA)	Free - field Corr: (dBA)	Req'd Indoor Sound Level: (dBA)	Req'd Noise Red: (dBA)	Glazing as % of Wall Area	Exp Wall Ht (m)	Exp Wall Length (m)	Room Depth (m)	Room Absorption:	Incident Sound Angle: (deg)	Angle Corr Factor:	Spectrum type:	Veneer STC (STC)	Component Category:	Component Category:	Req'd Glazing STC (STC)
DAYTIME																	
B03_SF_LR	Building 03 - South Façade - Living Room	49	3	40	12	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**9**
B03_SF_BR	Building 03 - South Façade - Bedroom	49	3	40	12	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**11**
B03_EF_LR	Building 03 - East Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**10**
B03_EF_BR	Building 03 - East Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**12**
B03_NF_LR	Building 03 - North Façade - Living Room	48	3	40	11	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**8**
B03_NF_BR	Building 03 - North Façade - Bedroom	48	3	40	11	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**10**
B03_WF_LR	Building 03- West Façade - Living Room	48	3	40	11	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**8**
B03_WF_BR	Building 03 - West Façade - Bedroom	48	3	40	11	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**10**
B01_NF_LR	Building 02 - North Façade - Living Room	51	3	40	14	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**11**
B01_NF_BR	Building 02 - North Façade - Bedroom	51	3	40	14	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**13**
B01_WF_LR	Building 02- West Façade Portion - Living Room	56	3	40	19	70%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**16**
B01_WF_BR	Building 02 - West Façade Portion - Bedroom	56	3	40	19	50%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**18**
NIGHT-TIME																	
B03_SF_LR	Building 03 - South Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**16**
B03_SF_BR	Building 03 - South Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**17**
B03_EF_LR	Building 03 - East Façade - Living Room	54	3	40	17	70%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**17**
B03_EF_BR	Building 03 - East Façade - Bedroom	54	3	35	22	50%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**18**
B03_NF_LR	Building 03 - North Façade - Living Room	52	3	40	15	70%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**15**
B03_NF_BR	Building 03 - North Façade - Bedroom	52	3	35	20	50%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**16**
B03_WF_LR	Building 03- West Façade - Living Room	52	3	40	15	70%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**15**
B03_WF_BR	Building 03 - West Façade - Bedroom	52	3	35	20	50%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**16**
B01_NF_LR	Building 02 - North Façade - Living Room	55	3	40	18	70%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**18**
B01_NF_BR	Building 02 - North Façade - Bedroom	55	3	35	23	50%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**19**
B01_WF_LR	Building 02- West Façade Portion - Living Room	60	3	40	23	70%	2.8	3.0	3.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**23**
B01_WF_BR	Building 02 - West Façade Portion - Bedroom	60	3	35	28	50%	2.8	3.0	6.0	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	43	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	**24**

Appendix D

Ventilation, Warning Clause and Barrier Summary

Environmental Noise and Vibration Study

1 Rosetta Street Inc.

Georgetown, ON

SLR Project No.: 241.20210.00000

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Ventilation, Warning Clause and Barrier Summary

The following Warning Clauses are recommended for inclusion in agreements registered on Title for the residential units, and included in all agreements of purchase and sale or lease, and all rental agreements.

A summary of the Warning Clause and Ventilation Requirements is included in Table D1.

MECP Type A: "Purchasers/tenants are advised that sound levels due to increasing road traffic and rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

MECP Type C: "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

MECP Type D: "Purchasers are advised that the dwelling unit has been or will be fitted with a central air conditioning system which will enable occupants to keep windows closed if road and or rail traffic noise interferes with the indoor activities."

MECP Type E: "Purchasers/tenants are advised that due to the proximity of the adjacent industry (Layover Yard), noise from the facility may at times be audible."

MECP Type F: "Purchasers/tenants are advised that sound levels due to the adjacent industry are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

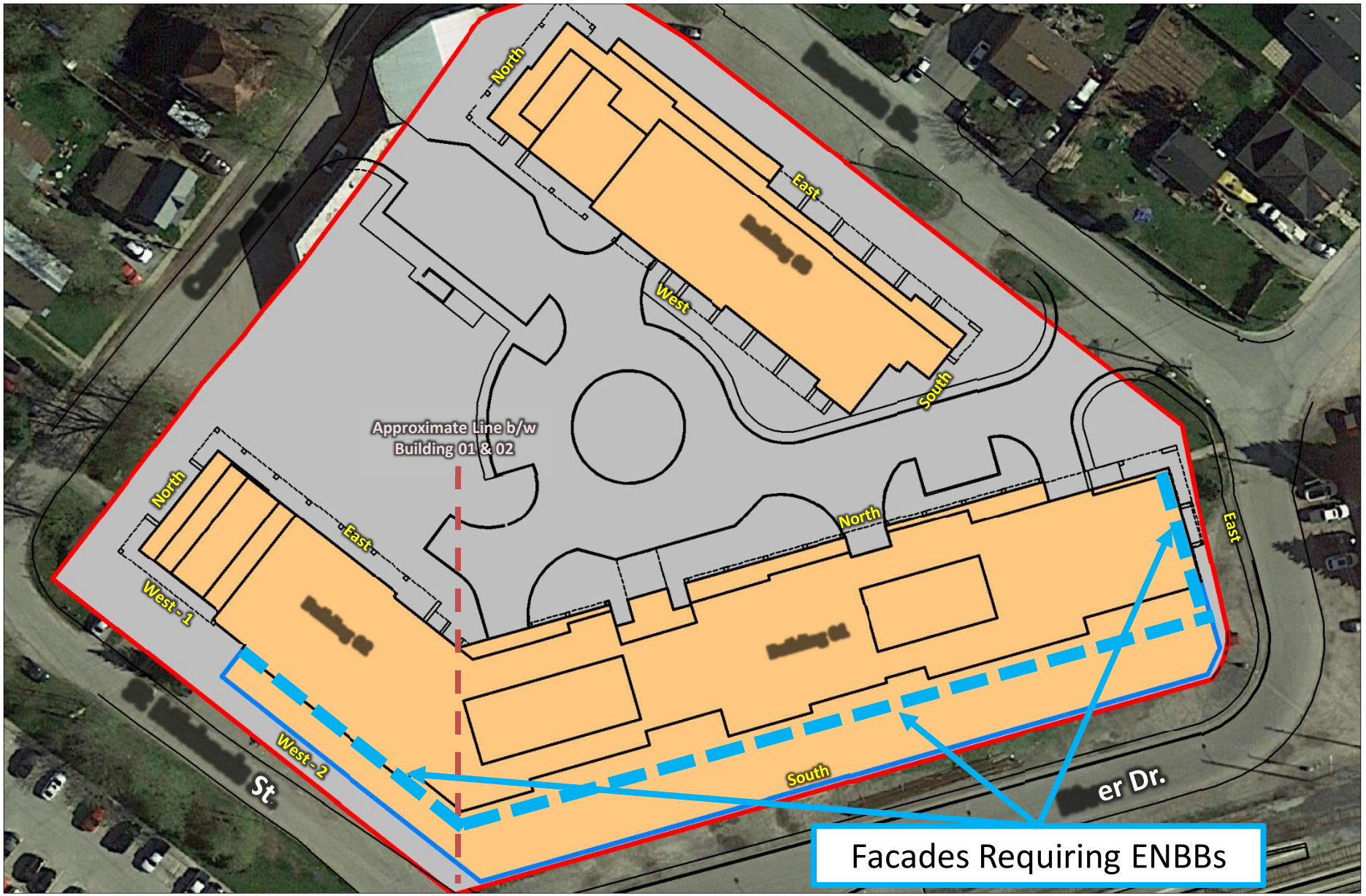
Metrolinx: "Purchasers are advised that Metrolinx (Formerly GO Transit) or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject thereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future, including 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). 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."

CN: "Purchasers are advised that Canadian National Railway Company or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject thereof. There may be alterations to or expansions of the rail facilities on such right-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 right-of-way."

Table D1: Summary of Ventilation and Warning Clause Requirements

Residential Units	Barrier Required	Air Conditioning Requirement [1]	Warning Clause
Building 01 – residential units along south and east facades	-	Mandatory	Type A, Type D, Type E, Type F, Metrolinx, CN
Building 01 – all other residential units	-	Mandatory	Type A, Type D, Type E, Metrolinx, CN
Building 02 – residential units along portion of west facade	-	Mandatory	Type A, Type D, Type E, Type F, Metrolinx, CN
Building 02 – all other residential units	-	Mandatory	Type A, Type D, Type E, Metrolinx, CN
Building 03 – all residential units	-	Mandatory	Type A, Type D, Type E, Metrolinx, CN
Building 01 and 02 – 2nd Floor Outdoor Amenity Terrace	2.95 m high	-	-
Building 03 – Rooftop Outdoor Amenity Terrace	No	-	-

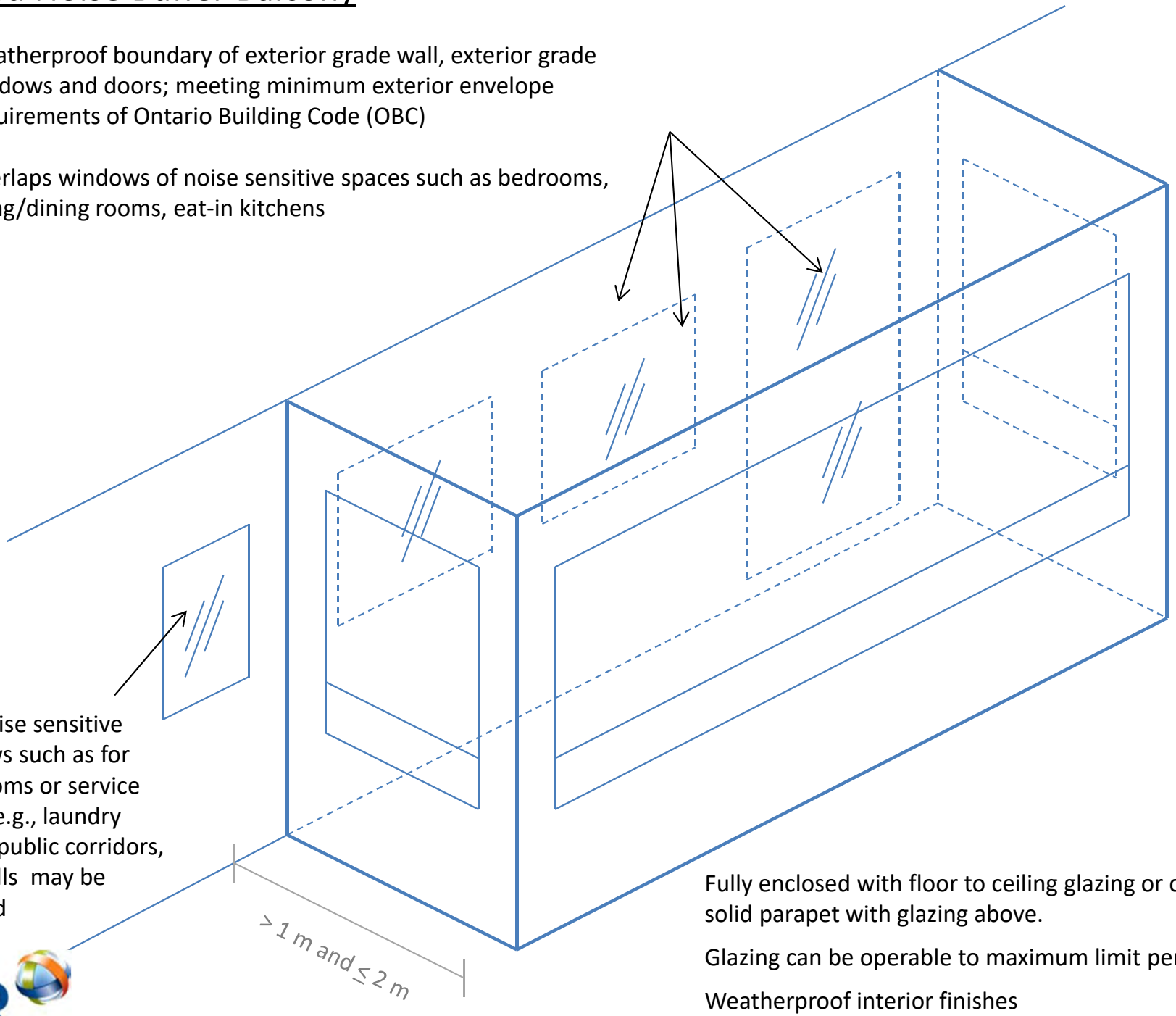


BYRON EQUITIES	True North	Scale: 1:750	METRES	SLR global environmental solutions
1 ROSETTA STREET, GEORGETOWN		Date: Mar. 11, 2022 Rev 1.0	Figure No. **D1**	
FACADES REQUIRING ENCLOSED NOISE BUFFERS		Project No. 241.20210.00000		

Enclosed Noise Buffer Balcony

Weatherproof boundary of exterior grade wall, exterior grade windows and doors; meeting minimum exterior envelope requirements of Ontario Building Code (OBC)

Overlaps windows of noise sensitive spaces such as bedrooms, living/dining rooms, eat-in kitchens



Non-noise sensitive windows such as for bathrooms or service Areas (e.g., laundry room), public corridors, stairwells may be exposed

Fully enclosed with floor to ceiling glazing or combination of solid parapet with glazing above.

Glazing can be operable to maximum limit permitted by OBC.

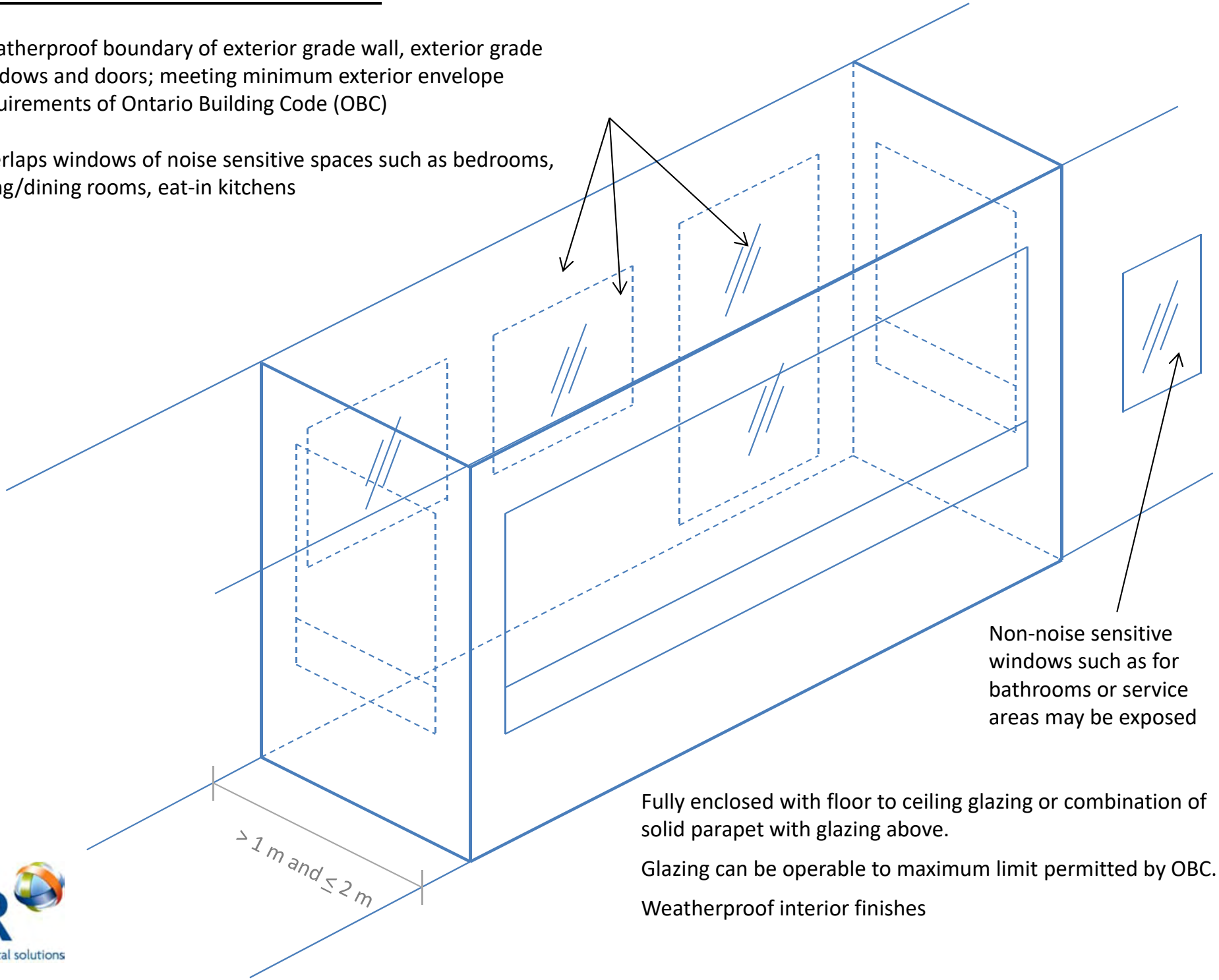
Weatherproof interior finishes

SLR
global environmental solutions

Enclosed Noise Buffer within Suite

Weatherproof boundary of exterior grade wall, exterior grade windows and doors; meeting minimum exterior envelope requirements of Ontario Building Code (OBC)

Overlaps windows of noise sensitive spaces such as bedrooms, living/dining rooms, eat-in kitchens



Non-noise sensitive windows such as for bathrooms or service areas may be exposed

Fully enclosed with floor to ceiling glazing or combination of solid parapet with glazing above.

Glazing can be operable to maximum limit permitted by OBC.

Weatherproof interior finishes

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Appendix E

Stationary Source Modelling Data

Environmental Noise and Vibration Study

1 Rosetta Street Inc.

Georgetown, ON

SLR Project No.: 241.20210.0000

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Modelling Information Summary

Source Description	Maximum Sound Power Levels (1/1 Octave Band Levels)									Modelled Sound Power Level (dBA)	Notes
	32	63	125	250	500	1000	2000	4000	8000		
Loblaws											
Idling Train	117	127	114	110	103	98	97	95	90	108	- Based on historical SLR data. - Train Idling 15 during daytime and 15 min during nighttime

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