Environmental Noise & Vibration Assessment

130 Mountainview Road North, Georgetown

Whitestone (Georgetown Developments) General Partnership

3000 Langstaff Road, Unit 9, Vaughan, ON L4R 4R7

Prepared by:

SLR Consulting (Canada) Ltd.

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

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Making Sustainability Happen

Revision Record

Revision	Date	Prepared by	Checked by	Authorized by
0	December 6, 2024	Sabah Ersum	Scott Penton	Keni Mallinen

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Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
BPN	National Research Council Building Practice Note 56
CN	Canadian National Railway
dBA	Decibels (A-weighted)
FCM	Federation of Canadian Municipalities
FTA	Federal Transit Administration
FRA	Federal Railroad Association
HVAC	Heating Ventilation and Air Conditioning
ISO	International Organization for Standardization
ITE	Institute of Transportation Engineers
L_{eq}	Energy Equivalent Sound Level
MECP	Ministry of the Environment, Conservation and Parks
NPC-300	MECP Publication NPC-300
OBC	Ontario Building Code
OLA	Outdoor Living Area
OPOR	Outdoor Point of Reception
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
POR	Point of Reception
PWL	Sound Power Level
RAC	Railway Association of Canada
SPL	Sound Pressure Level
TMC	Turning Movement Count
ToR	Terms of Reference
ZBA	Zoning By-law Amendment

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR), was retained by Whitestone (Georgetown Developments) General Partnership to conduct an Environmental Noise and Vibration Assessment for their proposed residential/mixed-us development, to be located at 130 Mountainview Road North in Georgetown, Ontario (the Project site). 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 Halton Region, Town of Halton Hills 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.

Mechanical systems associated with the development (e.g., cooling and ventilation equipment) have not been sufficiently designed at this stage and should be assessed at a future date, such as part of the final building design. A general discussion has been included in this report to address the impacts of the proposed development on the environment and on itself.

1.2 Nature of the Surroundings

The Project site is surrounded by the following:

- Residential dwellings along River Drive to the north;
- A communications and electronics medical equipment manufacturing facility (Communications & Power Industries Canada Inc.), and residential dwellings, along and beyond Mountainview Road North to the east;
- A Metrolinx/Canadian National (CN) railway rail corridor, office building and residential dwellings beyond to the south; and
- A moving and storage services facility (A-Plus Canada Inc. Self Storage), Georgetown GO Station (including the Metrolinx Georgetown Layover Yard) and residential dwellings beyond to the west.

The rail corridor currently consists of three tracks that are used by CN and GO/Metrolinx, plus the Layover Yard, with tracks available where trains may idle.

SLR understands a new Metrolinx Heritage Layover Yard is proposed at a location approximately 4 km east of the Project site. 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 be completed in 2026/2027.

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

1.3 Description of Proposed Development

The Project site is located at southwest intersection of Mountainview Road North and River Drive. It is located directly north of the CN Halton Subdivision and Metrolinx rail corridor. The proposed development lands are currently vacant.

The proposed development includes three parcels to accommodate residential buildings (and ground-floor retail), privately-owned publicly accessible space and roadways to provide principal residential entrances as follows:

- Parcel A – 4 & 6-storey lower & upper podium, respectively, with two 17-level towers (Tower A and C) and a 22-level tower (Tower B);
- Parcel B – 4 & 6-storey lower & upper podium, respectively with a 17-level tower (Tower D) and a 20-level tower (Tower E);
- Parcel C – 4 & 6-storey lower & upper podium, respectively with a 12-level building (Building G) and a 22-level tower (Tower F);

Parcel A will have three levels of underground parking, while Parcels B and C will have one level of underground parking. Vehicle site access will be from the north and east via River Drive and Mountainview Road North, respectively.

Development drawings are provided for reference in **Appendix A**.

Part 1: Impacts of the Environment on the Development

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

- Transportation noise from surrounding roadways;
- Transportation noise from the GO, Freight and Passenger trains along the Halton Subdivision south of the Project site; and
- Stationary source noise from the surrounding sources.

2.0 Transportation Noise Assessment

2.1 Transportation Noise Sources

The transportation noise sources with potential to impact the proposed development roadways (Mountainview Road North, River Drive, Maple Avenue) and railway noise (freight and passenger trains) along the Halton Subdivision/Metrolinx rail corridor.

Sound levels at the proposed development have been predicted, and this information has been used to identify façade, ventilation, and warning clause recommendations/requirements for the proposed development.

2.2 Surface Transportation Noise Criteria

Noise-Sensitive Development

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.

Location-Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound exposure levels (L_{eq}) 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 Quarters have more stringent criteria than Living/Dining Room spaces.

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

Type of Space	Time Period	Energy Equivalent Sound Level L_{eq} [5] (dBA)		Assessment Location
		Road	Rail [1]	
Outdoor Amenity Area	Daytime (0700-2300h)	55	55	Outdoors [2]
Living/Dining Room [3]	Daytime (0700-2300h)	45	40	Indoors [4]
	Nighttime (2300-0700h)	45	40	Indoors [4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors [4]
	Nighttime (2300-0700h)	40	35	Indoors [4]

Notes: [1] Whistle noise is excluded for OLA noise assessments and included for Living/Dining Room and Sleeping Quarter assessments, where applicable.
[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.
[3] Residence area Dens, Hospitals, Nursing Homes, Schools, Daycares are also included. During the nighttime period, Schools and Daycares are excluded.
[4] An assessment of indoor noise levels is required only if the criteria in **Table 4** are exceeded.
[5] L_{eq} – the energy equivalent sound level, integrated over the time period shown.

Outdoor Living Areas

Table 2 summarizes the noise mitigation and warning clause requirements for outdoor amenity areas (“Outdoor Living Areas” or “OLAs”).

For the assessment of OLA sound levels, total surface transportation noise is determined by combining road and rail traffic sound levels. Whistle noise from trains is not included in the determination of outdoor sound levels.

Table 2: NPC-300 OLA Sound Level Criteria for Road and Rail Noise

Time Period	OLA Energy Equivalent Sound Level L_{eq} (dBA)	Mitigation/Warning Clause Requirements
Daytime (0700-2300h)	≤ 55	• None
	56 to 60 inc.	• Noise barrier OR Type A warning clause
	> 60	• Noise barrier to reduce noise to 55 dBA OR • Noise barrier to reduce noise to 60 dBA and Type B warning clause

Ventilation and Warning Clauses

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

Table 3: NPC-300 Ventilation and Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Level – L_{eq} (dBA)		Ventilation and Warning Clause 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 with provision to add air conditioning + Type C warning clause
		> 65		Central Air Conditioning + Type D warning clause
	Nighttime (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause
Notes:	[1] Whistle noise is excluded from assessment. [2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements			

Building Component Requirements

Table 4 provides sound level thresholds which, if exceeded, trigger a requirement for the building shell components (i.e., exterior walls, windows) to be designed accordingly to meet the applicable indoor sound criteria.

Table 4: NPC-300 Building Component Assessment Requirements

Assessment Location	Time Period	Energy Equivalent Sound 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] Whistle noise is included in assessment.
[2] Building component requirements are assessed separately for Road and Rail, and then combined for a resultant sound isolation 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: NPC-300 Rail Noise Façade Component Requirements

Assessment Location	Distance to Railway	24-hour Energy Equivalent Sound Level – Rail L_{eq} (24-hr) (dBA) [1],[2]	Component Requirements
Plane of Window	Within 100 m[3]	< 60	No Additional Requirement
		> 60	Brick Veneer or Masonry Equivalent
	Beyond 100 m	< 60	No Additional Requirement
		> 60	No Additional Requirement

Notes: [1] Assessed for proposed developments located within the first row of dwellings adjacent to rail corridor.
[2] Whistle noise is included in the assessment, if sounded.

2.3 Traffic Data and Future Projections

2.3.1 Road Traffic Data

Turning movement count (TMCs) data from year 2024 and growth rates for Mountainview Road North and River Drive were obtained from project transportation consultant (GHD). Peak hour TMCs were used to calculate the 2024 annual average daily traffic (AADT) volumes and commercial vehicle (truck) percentages for both roadways. The 2024 AADT was projected to year 2037 based on growth rate of 2.0% per year (refer to **Appendix B**).

Future year 2037 average annual daily traffic (AADT) volumes for Maple Avenue were calculated based on traffic count information obtained from the Town of Halton Hills Transportation and Public Works department. The weekday average from five days of collected 24-hour traffic counts along Maple Avenue between Mountainview Road North and Guelph Street was considered as the existing AADT (2017). The 2017 volume was projected to future year 2037 at an annual growth rate of 2.0%, which aligns with the growth rate provided by project transportation consultant for Mountainview Road North and River Drive. The percentage of commercial traffic (6.6%) was also obtained from data provided by the Town of Halton Hills. For all roadways, a medium-to-heavy truck ratio of 50%/50% was assumed.

Daytime/nighttime splits of 90%/10% were applied for all roadways, based on default MECP distribution. Copies of traffic data and calculations are provided for reference in **Appendix B**. **Table 6** summarizes the road traffic data used in the transportation noise assessment.

Table 6: Summary of Road Traffic Data Used in Transportation Noise Assessment

Roadway	Future Year Traffic Volume (AADT)	% Day/Night Volume Split		Commercial Vehicle Breakdown		Vehicle Speed (km/hr)
		Daytime	Night-time	% Medium Trucks	% Heavy Trucks	
Mountainview Road North [1]	11,284	90	10	5.3	5.3	50
River Drive [1]	3,714	90	10	10.6	10.6	50
Maple Avenue [2]	5,893	90	10	3.3	3.3	50

Notes: [1] Year 2024 traffic volume and vehicle breakdowns were provided by project transportation consultant.
[2] Based on year 2017 data provided by Township of Halton Hills.

2.3.2 Railway Traffic Data

Metrolinx/GO train volumes were obtained directly from Metrolinx in the form of future forecasted volumes. A copy of the most recent traffic data correspondence is included in **Appendix B**.

CN rail data for this track segment from year 2020 was grown to the future 2037 year assuming the typical growth rate of 2.5% per annum. CN traffic data are provided in **Appendix B** for reference.

Table 7 summarizes the rail traffic data used in the analysis.

Table 7: Summary of Rail Traffic Data Used in Transportation Noise Assessment

Railway Source	Train Type	Max. Locomotives per Train	Max. Cars per Train	Forecasted Train Volumes		Train Speed (km/hr)
				Daytime	Nighttime	
CN Trains Halton Subdivision	CN Passenger (diesel)[1]	2	10	0	7[3]	80
	CN Freight (diesel) [1]	4	140	10[3]	14[3]	80
Metrolinx GO Trains Halton Subdivision	Metrolinx/GO (diesel) [2]	1	8	56	12	80
	Metrolinx/GO (diesel) [2]	2	8	8	0	80

Notes: [1] Rail traffic data provided by CN for year 2020 was projected to year 2037 at 2.5% annual growth rate.
[2] Metrolinx data represents forecasted future volumes
[3] Volumes are rounded up to the nearest whole number.

2.4 Predicted Sound Levels

Future road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software package and implementation of ISO 9613. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MECP. These predictions were validated and are equivalent to those made using the MECP's ORNAMENT or STAMSON v5.04 road traffic noise models. A STAMSON validation file and output are included for reference in **Appendix C**.

Portions of River Drive and Mountainview Road North were modelled considering changes in grade of 4.6 % and 6.2%, respectively.

Rail traffic 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 Cadna/A software. 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, and in numerous land use planning projects across the province. As there are no at-grade crossings in the area, whistle noise from trains was not considered in the assessment.

Sound levels were predicted along the facades of the proposed development using the "building evaluation" feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure. OLA sound levels were assessed at discrete points at the centre of terraces, 1.5 m atop the podium structures.

The elevation drawings show that the southern podiums have a 1.1 m high perimeter parapet walls. Barrier effects from these parapet walls have been considered in the assessment. The parapet walls must be constructed to meet the barrier requirements noted in **Section 2.5.2**.

Ground absorption was modelled considering a value of G = 0.0 (reflective).

Topographic contours at a resolution of 1.0 m were obtained from the Ontario GeoHub (based on the Ontario Digital Terrain Model) and used in the assessment. This assessment should be reviewed and revised if necessary, as detailed grading for the Project site is developed, to confirm the proceeding conclusions and recommendations.

2.4.1 Façade Sound Levels

Predicted worst-case façade sound levels are presented in **Table 8**, considering road traffic, rail traffic, and combined road + rail traffic.

The transportation façade sound levels are shown in **Figure 2**/ **Figure 3** (road daytime/nighttime), **Figure 4/Figure 5** (rail daytime/nighttime), and **Figure 6/Figure 7** (road + rail, daytime/nighttime).

The façade rail traffic sound levels at some locations are predicted to be above the thresholds in **Table 4**; therefore, an assessment of building components is required. Refer to **Section 2.5.1**.

Table 8: Summary of Predicted Transportation Façade Sound Levels

Project Building	Maximum Predicted Transportation Façade Sound Level[2]						
	Road Traffic		Rail Traffic [3]		Combined Road + Rail Traffic		
	Day	Night	Day	Night	Day	Night	Façade Location(s) of Combined Maximum Sound Level [1]
Lower North Podium Structure – Parcel A (P1 to 4th Floor)	66	59	57	60	66	62	East
Upper North Podium Structure – Parcel A (5th and 6th Floor)	64	58	58	62	65	63	East
Tower A (17 Storeys) – Parcel A	64	57	58	62	64	62	East
Tower B (22 Storeys) – Parcel A	63	57	58	62	64	62	East
Tower C (17 Storeys) – Parcel A	64	57	60	64	65	64	East
Lower Southeast Podium Structure – Parcel B (1st to 4th Floor)	65	59	61	65	67	66	East
Upper Southeast Podium Structure – Parcel B (5th and 6th Floor)	64	57	66	70	67	70	South
Tower D (17 Storeys) – Parcel B	63	57	71	74	71	74	South

Project Building	Maximum Predicted Transportation Façade Sound Level[2]						
	Road Traffic		Rail Traffic [3]		Combined Road + Rail Traffic		
	Day	Night	Day	Night	Day	Night	Façade Location(s) of Combined Maximum Sound Level [1]
Tower E (20 Storeys) – Parcel B	56	50	68	72	69	72	South
Lower Southwest Podium Structure – Parcel C (1st to 4th Floor)	58	52	53	56	59	57	Northeast
Upper Southwest Podium Structure – Parcel C (5th and 6th Floor)	59	52	67	70	67	70	South
Building G – Parcel C (7th to 12th Floor)	58	52	71	74	71	74	South
Tower F (22 Storeys) – Parcel C	54	48	70	73	70	73	South

Notes: [1] Façade locations are shown in **Figure 2** through **Figure 7**. The sound levels presented are the highest on the entire façade. Façade locations of highest road and rail sound levels may differ for the respective project buildings.

2.4.2 Façade Sound Levels – 24-hour Period

An assessment of 24-hour sound levels (L_{eq}(24-hr)) was completed as the setback distance between the closest façade to the rail track is less than 100 m, and the south parcels are the first row of dwellings next to the rail corridor. The predicted façade sound levels are presented in **Table 9** showing highest levels for each façade, with complete results shown in **Figure 8**.

Table 9: Summary of Predicted Rail Traffic Sound Levels – 24-hour Period

Building	Façade Location of Maximum 24-Hour Sound Level[1]	Predicted Rail Traffic Sound Level[2] L_{eq}(24hr) (dBA)
Lower North Podium Structure – Parcel A (P1 to 4th Floor)	East, South	58
Upper North Podium Structure – Parcel A (5th and 6th Floor)	East	60
Tower A (17 Storeys) – Parcel A	South	60
Tower B (22 Storeys) – Parcel A	East, South, West	59
Tower C (17 Storeys) – Parcel A	South	62

Building	Façade Location of Maximum 24-Hour Sound Level[1]	Predicted Rail Traffic Sound Level[2] L_{eq}(24hr) (dBA)
Lower Southeast Podium Structure – Parcel B (1st to 4th Floor)	East	63
Upper Southeast Podium Structure – Parcel B (5th and 6th Floor)	South	68
Tower D (17 Storeys) – Parcel B	South	72
Tower E (20 Storeys) – Parcel B	South	70
Lower Southwest Podium Structure – Parcel C (1st to 4th Floor)	Northeast	54
Upper Southwest Podium Structure – Parcel C (5th and 6th Floor)	South	68
Building G – Parcel C (7th to 12th Floor)	South	72
Tower F (22 Storeys) – Parcel C	South	71
Notes: [1] Façade locations are shown in **Figure 8**. The sound levels presented are the highest on the entire façade.		

24-hour rail sound levels exceed 60 dBA at several project locations. Brick veneer or masonry equivalent construction is required in accordance with **Table 5**. Refer to **Section 2.5.1**.

2.4.3 OLA Sound Levels

The OLAs requiring assessment for the proposed development are the elevated common amenity terrace areas atop the Parcel A, B and C podium structures. The OLA assessment locations are shown in **Figure 9**.

As the proposed development includes common amenity spaces 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 unmitigated OLA transportation sound levels are shown in **Figure 9** and summarized below in **Table 10**.

Table 10: Summary of Predicted OLA Sound Levels – Unmitigated

Assessment Location	Description	Predicted Transportation Sound Level[1] L_{eq} (16-hr), dBA
OLA01	Rooftop Terraces – North Podium, Parcel A	56
OLA02		53
OLA03	Rooftop Terraces – South Podium, Parcel C	61
OLA04		59

Assessment Location	Description	Predicted Transportation Sound Level[1] L_{eq} (16-hr), dBA
OLA05	Rooftop Terraces – South Podium, Parcel B	57
OLA06		61

Predicted OLA sound levels at OLA 03, OLA 04 and OLA 06 exceed the criteria outlined in **Table 2**; therefore, mitigation and warning clauses are required. For OLA 01 and OLA 05, the sound level exceeds 55 dBA but is below 60 dBA; therefore, warning clauses or mitigation are required. Refer to **Section 2.5.2**.

2.5 Noise Control Measures

2.5.1 Façade Assessment

2.5.1.1 Building Components

The façade sound levels due to rail noise are predicted to be above 60 dBA (daytime) and/or 55 dBA (nighttime) along portions of Parcel A, B and C podium structures and towers. 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 road, locomotive, and wheel noise impacts. The highest daytime and nighttime 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, generic bedrooms and living/dining rooms have been considered based on the following assumptions:

- For living/dining rooms, 70% of the exterior wall is vision glass/patio doors and for bedrooms, 50% of the exterior wall is vision glass;
- Non-glazing portions of walls in Parcels B and C (first row of dwellings) have an assumed minimum rating of STC 54 (brick veneer/masonry equivalent);
- Non-glazing portions of walls in Parcel A have an assumed minimum rating of STC 45 (typical spandrel panel);
- Living rooms were assumed to be 3 m x 6 m in size with intermediate absorption; and
- Bedrooms were assumed to be 3 m x 3 m in size and considered very absorptive.

Facade requirements are provided in **Table 11** for units with one exposed façade, and **Table 12** for corner units. The presented values are the composite STC ratings taking into consideration railway noise and the assumptions and recommendations listed above.

Table 11: Summary of Façade Glazing Requirements for Proposed Development – Single Exposed Façade

Building	Applicable Façade [1]	Non-Glazing Components [2]	Glazing STC Requirements [3]	
			Living/Dining Room	Bedroom
North Podium – Parcel A	North	45	OBC	OBC
	East	45	OBC	32
	South	45	OBC	31
	West	45	OBC	OBC
Tower A – Parcel A	North	45	OBC	OBC
	East	45	OBC	30
	South	45	OBC	31
	West	45	OBC	31
Tower B – Parcel A	North	45	OBC	OBC
	East	45	OBC	31
	South	45	OBC	31
	West	45	OBC	31
Tower C – Parcel A	North	45	OBC	30
	East	45	OBC	33
	South	45	OBC	34
	West	45	OBC	31
South Podium, East – Parcel B	North	54	OBC	OBC
	East	54	OBC	36
	South	54	31	39
	West	54	OBC	34
Tower D – Parcel B	North	54	OBC	OBC
	East	54	32	40
	South	54	35	44
	West	54	32	40
Tower E – Parcel B	North	54	OBC	OBC
	East	54	OBC	37
	South	54	33	42
	West	54	30	38

Building	Applicable Façade [1]	Non-Glazing Components [2]	Glazing STC Requirements [3]	
			Living/Dining Room	Bedroom
South Podium, West – Parcel C	North	54	OBC	31
	Northeast	54	OBC	OBC
	East	54	OBC	36
	South	54	32	40
	West	54	OBC	36
Building G – Parcel C (Floor 7 to 12)	North	54	OBC	31
	Northeast	54	OBC	OBC
	East	54	32	40
	South	54	35	44
	West	54	32	40
Tower F – Parcel C	North	54	OBC	OBC
	East	54	31	39
	South	54	34	43
	West	54	31	39

Notes: [1] Refer to **Figure 2 through Figure 7** for façade location identification.
[2] Minimum STC rating of the exterior façade.
[3] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).

Table 12: Summary of Façade Glazing Requirements for Proposed Development – Corner Units

Building	Applicable Corner [1]	Non-Glazing Components [2]	Glazing STC Requirements [3]	
			Living/Dining Room	Bedroom
North Podium – Parcel A	NE	45	OBC	34
	SE	45	OBC	35
	SW	45	OBC	34
	NW	45	OBC	32
Tower A – Parcel A	NE	45	OBC	32
	SE	45	OBC	34
	SW	45	OBC	34
	NW	45	OBC	33
Tower B – Parcel A	NE	45	OBC	33
	SE	45	OBC	34
	SW	45	OBC	34
	NW	45	OBC	33

Building	Applicable Corner [1]	Non-Glazing Components [2]	Glazing STC Requirements [3]	
			Living/Dining Room	Bedroom
Tower C – Parcel A	NE	45	OBC	35
	SE	45	OBC	37
	SW	45	OBC	36
	NW	45	OBC	33
South Podium, East – Parcel B	NE	54	OBC	37
	SE	54	33	41
	SW	54	32	40
	NW	54	OBC	35
Tower D – Parcel B	NE	54	32	40
	SE	54	37	46
	SW	54	37	46
	NW	54	32	40
Tower E – Parcel B	NE	54	30	38
	SE	54	35	43
	SW	54	35	43
	NW	54	30	38
South Podium, West – Parcel C	NNE	54	OBC	33
	NE	54	OBC	37
	SE	54	34	42
	SW	54	34	42
	NW	54	OBC	37
Building G – Parcel C (Floor 7 to 12)	NNE	54	OBC	33
	NE	54	33	41
	SE	54	37	46
	SW	54	37	46
	NW	54	33	41
Tower F – Parcel C	NE	54	31	39
	SE	54	36	45
	SW	54	36	45
	NW	54	31	39

Notes: [1] Refer to **Figure 2 through Figure 7** for façade location identification.
[2] Minimum STC rating of the exterior façade.
[3] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).

The window STC requirements for some locations are high, particularly along the south façades of Parcels B and C, and corner units with a south-facing component in these parcels. The high STC requirements are primarily due to the elevated sound levels caused by rail traffic noise on the adjacent rail line.

Design measures can be used to reduce the STC requirements and should be considered as early in the design process as possible. Some measures may include:

- Reducing the size of the windows or ensuring that the exterior window area is small relative to floor area of the associated space. That is, do not use floor-to-floor windows or curtain walls.
- Designing spaces such that the rooms at the corners of the buildings have windows on only one facade.
- Having non-noise sensitive spaces, such as walk-in closets or washrooms, at the corners of the towers.
- Using a further upgraded exterior wall assembly (i.e., higher than STC 54).

The above-noted measures should be considered as suite layouts and elevations are developed.

The building façade requirements should be reviewed by an Acoustical Consultant when detailed suite layouts and elevations are available.

Where upgraded glazing is required, the combined glazing and frame assembly must be constructed to ensure the overall sound isolation performance of the entire window unit meets the specified STC rating. It is recommended that test data from the window manufacturer be reviewed to confirm the required acoustical performance is achieved.

2.5.1.2 Ventilation and Warning Clause Requirements

The guidelines that trigger recommendations for warning clauses are summarized in **Table 3**. Where recommended, 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.

Based on the predicted façade sound levels, central air conditioning and an MECP Type D warning clause are recommended for all residential units in the proposed development.

Due to the proximity of the proposed development to the railway corridor, standard CN and Metrolinx proximity warning clauses are also required for all residential units.

Refer to **Appendix D** for all warning clause details and requirements.

2.5.2 OLA Assessment

2.5.2.1 OLA Mitigation Recommendations

Predicted overall sound levels at OLA 03, OLA 04 and OLA06 are predicted to exceed 60 dBA, as shown in **Figure 9** and **Table 10**. Barrier heights required to achieve sound levels from 60 dBA to 55 dBA (in 1 dB increments) were determined. **Table 13** show the predicted sound levels at OLA 03, OLA 04 and OLA06 with the inclusion of barriers at various heights. **Figure 10** shows the locations and extents of the barriers.

Table 13: Summary of OLA Sound Levels with Mitigation

Assessment Location	Predicted Sound Level (dBA)	Barrier Height (m) to Achieve Predicted Sound Level (dBA)					
		60 dBA	59 dBA	58 dBA	57 dBA	56 dBA	55 dBA
OLA01	56	-	-	-	-	-	1.1
OLA02	53	-	-	-	-	-	-
OLA03	61	1.4	1.45	1.5	1.6	**1.8**	2.3
OLA04	59	-	-	1.4	**1.8**	n/a[1]	n/a[1]
OLA05	57	-	-	-	-	**1.4**	n/a[1]
OLA06	61	1.3	1.5	**1.7**	2.2	n/a[1]	n/a[1]
Notes: [1] It is not possible to achieve OLA sound level by further increasing acoustic barrier height.							

Based on the results presented in **Table 13**, the recommended barrier heights are:

- OLA01 – 1.1 m high barrier/parapet wall around a portion of the terrace.
- OLA03/OLA04 – 1.8 m high barrier around the terrace area. Increasing the height to 2.3 m will be costly, for minimum benefit (i.e., no further reduction for OLA 04, only 1 dB reduction for OLA 03).
- OLA05 – 1.4 m high barrier around the terrace area.
- OLA06 – 1.7 m high barrier around the terrace area. Increasing the height to 2.2 m will be costly, for minimum benefit (i.e., 1 dB reduction).

In addition to the above-noted barriers, and MECP Type B warning clause is required for all residential units within the proposed development. Refer to Appendix D.

Acoustic barriers should be free of gaps and cracks, should have a minimum surface density (mass per unit area) of 20 kg/m2 (4 lbs per sq. ft.). Any gaps which may be required at the base of the barriers for drainage should be small and localized (i.e., not continuous along the length of the wall). There are several products available meeting these requirements, including glass and plexiglass panels.

The OLA assessment should be reviewed by an Acoustical Consultant when Project site grading is further developed, to confirm the heights of the above-noted barriers. The OLA assessment should also be revised are the terrace areas and programming become further developed, to confirm barrier height and extent requirements.

3.0 Transportation Vibration Assessment

3.1 Transportation Vibration Guidelines

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 typically 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 such that vibration levels in living areas do not exceed 0.14 mm/s RMS.

3.2 Transportation Vibration Sources

The CN/Metrolinx Halton Subdivision is the rail source of vibration located south of the proposed development, immediately adjacent to the Project site.

Ground-borne vibration due to freight and passenger rail traffic along this railway is the focus of this assessment.

3.3 Vibration Measurement Program

Measurements of ground-induced vibration due to rail traffic along the CN/Metrolinx Halton Subdivision were made at the Project site. Measurements were conducted on September 5, 2024, and September 12, 2024, and were performed at three locations:

- Location L1 – closest building portion to the rail corridor at the Parcel B podium structure footprint;
- Location L2 – the nearest portion of the Tower D footprint to the rail corridor; and
- Location L3 – the nearest portion of the Tower F footprint to the rail corridor; and

The vibration measurement locations are shown in **Figure 11**, along with approximate distances to the nearest track along the CN/Metrolinx Halton Subdivision. The same monitoring locations were used on both measurement days.

Rail traffic was determined to pass by the Project site primarily on north track (GO passenger trains), and middle and south track (CN freight trains). At least five (5) rail pass by events of both CN Freight and Metrolinx/GO Passenger trains were measured.

Vibration velocity amplitudes were collected with two SVAN 803 units (Locations L1 and L2) and one Syscom MR3000C (Location L3) unit, sampling at rates of 1000 Hz and 1024 Hz, respectively.

3.4 Vibration Measurement Data Processing

Vibration data collected using the Syscom MR3000C unit was reviewed and post-processed using MATLAB to compute 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. Using the SVAN 803 units, time series data of the 1-second sliding window overall RMS vertical vibration levels in the units of mm/s were obtained directly from the instruments. In both cases, maximum RMS vertical vibration levels for every measured train pass-by events were determined.

Building foundation coupling losses/attenuation due to the proposed Parcel B and C podium structures were also applied to the measured vibration levels. Vibration levels are attenuated as they travel from the ground and enter building structures, due to coupling losses between the ground and building foundation. In general, the larger (more massive) the structure, the greater the coupling losses, and correspondingly the lower the vibration levels in the structure. The U.S. Federal Transit Administration ("FTA") Transit Noise and Vibration Impact Assessment Manual, which is a widely used reference in rail vibration analysis, provides a method for assessing the impacts of building structures on interior vibration levels, where impacts (if any) could be experienced. The adjustments are in units of VdB.

In this assessment, the adjusted vibration levels were calculated using the method outlined in the FTA manual to account for what vibration levels would be experienced at the closest residential vibration-sensitive point of reception. The adjustment was applied to the measured vibration levels as follows:

Foundation Coupling, Large Building on Piles -10 VdB FTA Manual Table 6-12

The residential units at the Tower D and Tower F footprints will be located several floors (more than 4) above grade, and floor-to-floor attenuation is also expected. To be conservative, these losses were not considered in the assessment.

3.5 Vibration Assessment Results

Table 14 summarizes measured and calculated vibration levels due to all rail pass by events.

Table 14: Summary of Rail Vibration Levels – Existing Rail Traffic Pass-By Events

Train Pass-By	Description	Time	RMS Vibration Level (mm/s)						Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data			Calculated Data[1]				
			L1	L2	L3	L1	L2	L3		
September 5, 2024										
1	Freight Train - South Track - Westbound	2:18 PM	0.13	0.06	0.07	0.04	0.02	0.02	0.14	Y
2	Go Train - North Track - Eastbound	3:32 PM	0.12	0.04	0.08	0.04	0.01	0.02	0.14	Y

Train Pass-By	Description	Time	RMS Vibration Level (mm/s)						Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data			Calculated Data[1]				
			L1	L2	L3	L1	L2	L3		
3	Go Train - North Track - Westbound	4:36 PM	0.16	0.06	0.04	0.05	0.02	0.01	0.14	Y
4	Freight Train - Middle Track - Westbound	4:41 PM	0.15	0.08	0.06	0.05	0.03	0.02	0.14	Y
5	Freight Train - South Track - Eastbound	5:03 PM	0.15	0.06	0.12	0.05	0.02	0.04	0.14	Y
6	Go Train - North Track - Westbound	5:10 PM	0.18	0.07	0.05	0.06	0.02	0.02	0.14	Y
7	Go Train - North Track - Westbound	5:48 PM	0.14	0.06	0.04	0.04	0.02	0.01	0.14	Y
8	Go Train - North Track - Westbound	6:10 PM	0.10	0.05	0.03	0.03	0.02	0.01	0.14	Y
9	VIA Train - South Track - Westbound	6:23 PM	0.16	0.07	0.05	0.05	0.02	0.02	0.14	Y
10	Go Train - North Track - Westbound	6:42 PM	0.15	0.06	0.04	0.05	0.02	0.01	0.14	Y
11	Freight Train - Middle Track - Westbound	6:48 PM	0.26	0.13	0.19	0.08	0.04	0.06	0.14	Y
12[1]	Go Train - North Track - Westbound	7:01 PM	0.14	0.06	0.04	0.04	0.02	0.01	0.14	Y

Train Pass-By	Description	Time	RMS Vibration Level (mm/s)						Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data			Calculated Data[1]				
			L1	L2	L3	L1	L2	L3		
September 12, 2024										
13	Freight Train - Middle Track - Westbound	2:56 PM	0.19	0.14	0.10	0.06	0.04	0.03	0.14	Y

Notes: [1] Values have been calculated to account for foundation coupling losses/attenuation as outlined in **Section 3.4**.
[2] Assessment of compliance refers to comparison of Calculated Data vibration level to the 0.14 mm/s criterion.

Vibration measurements and analysis indicate that the 0.14 mm/s criterion is expected to be achieved at all vibration sensitive locations within the proposed development.

Based on the results of the vibration measurement program, mitigation is not required for the proposed development.

4.0 Stationary Source Noise Assessment

4.1 Site Visit and Area Review

A review has been conducted to assess potential impacts on the proposed development from nearby stationary noise sources, in consideration of MECP Publication NPC-300 guidelines and MECP Guideline D-6.

SLR staff completed a site visit on September 5, 2024, and September 12, 2024, to survey the surrounding area. Desktop review of aerial imagery and the MECP Access environment was also completed. During the site visit, the Metrolinx (GO) Georgetown Layover Yard and Communications & Power Industries Canada Inc. (45 River Drive) were identified as stationary sources with potential to impact the proposed development.

Communications & Power Industries Canada Inc. currently holds an Environmental Compliance Approval (ECA Number 8860-ADKLHS, issued September 29, 2016) issued by the MECP, and provided for reference in **Appendix E**. SLR acoustic staff approached the industry and provided a Request Form on September 5, 2024, to obtain information about the facility relevant to assessment of stationary noise impacts. No response was received as of the date of this report.

An aerial map showing the proposed development and the MECP D-6 guideline Area of Influence setback distances for Class I and Class II facilities is provided as **Figure 12**. The Georgetown Layover Yard and Communications & Power Industries Canada Inc. facilities are also identified on **Figure 12**. No other stationary sources were identified as requiring assessment as part of the site visit or desktop review. No Class III industries were located within 1 km of the proposed development without significantly closer and more exposed points of receptions at which guidelines limits must be met.

SLR also understands the 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. The completion timeframe is understood to be 2026/2027 based on correspondence from Metrolinx. Once the Heritage Road Layover Yard is built and fully operational, the Georgetown Layover Yard is not expected to be a noise source in proximity to the proposed development. As the scheduling of constructing the Heritage Road Layover Yard is tentative and the Georgetown Layover Yard is currently operational, an assessment of its stationary noise impacts was completed due to its proximity to the proposed development.

4.2 Stationary Source Noise Criteria

4.2.1 MECP Publication NPC-300

MECP guidelines for stationary source noise impacting residential developments are given in MECP Publication NPC-300. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background.

The acoustic environment surrounding the proposed development is generally dominated by roadway noise from Mountainview Road North, River Drive and Maple Avenue during all periods of the day. The proposed development is considered to be located in a Class 1 area.

The sound level limits for steady sound sources are expressed as a 1-hr equivalent sound level (L_{eq} (1 hr) values, in dBA) and is the higher of the NPC-300 exclusionary limits or the existing background sound level. The NPC-300 minimum exclusionary stationary source guidelines for a Class 1 Area are summarized in **Table 15** for continuous, steady sound sources.

Impulsive noise was not audible at the Project site or during the site visits, and therefore has not been considered in the assessment.

Table 15: NPC-300 Class 1 Continuous, Steady Source Sound Level Limits

Point of Reception Category	Time Period	Minimum Exclusionary Sound Level Limit L_{eq}(1-hr), dBA[1]	Layover Yard Sound Level Limit L_{eq}(1-hr), dBA[1]
Outdoor Point of Reception (POR)	Daytime (0700-1900h)	50	55
	Evening (1900-2300h)	50	55
	Nighttime (2300-0700h)	N/A[3]	N/A[3]
Plane of Window [2]	Daytime (0700-1900h)	50	55
	Evening (1900-2300h)	50	55
	Nighttime (2300-0700h)	45	55

Notes: [1] Or minimum hourly L_{eq} of background noise; whichever is higher.
[2] Applicable for windows opening into "noise-sensitive spaces" as defined in NPC-300.
[3] Sound level limits during night-time hours are not applicable at outdoor points of reception.

4.2.2 MECP Publication NPC-300 – Layover Yards

Section C4.5.4 of NPC-300 defines the sound level limit for noise from a layover site such as the Georgetown 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 15** for reference.

4.3 Modelled Stationary Sources

Based on information obtained during the site visit, and a review of aerial photography and the ECA Number 8860-ADKLHS, the sources of noise associated with the Communications & Power Industries Canada and Georgetown Layover Yard facilities were identified. Modelled facility sources of noise included:

- Communications & Power Industries Canada Inc. – 45 River Drive
  - Two rooftop air cooled chillers;
  - Three rooftop exhaust fans;
  - 13 rooftop exhaust stacks (including paint booth exhausts);
  - 22 rooftop air handling/mechanical units (i.e., air intakes), and one ground level air handling unit; and
  - 42 rooftop HVAC units.

Idling locomotives operating at the Georgetown GO Layover Yard were assessed in this study based on observed locations of 2 locomotives by SLR staff during historical site visits to the Project site area. 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 nighttime 1-hour periods based on a predictable worst-case assessment of noise impacts.

All modelled source locations are described and shown in **Figure 12**.

4.4 Stationary Noise Modelling Methods

Sound levels from stationary sources were modelled using Cadna/A, a software implementation of the internationally recognized ISO-9613-2 (1996) 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, with localized areas of absorptive ground (G = 1.0);
- Reflection: An order of reflection of 1 was used (accounts for noise reflecting from walls);
- Wall Absorption Coefficients: A Cadna/A 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: 1.0 m resolution topographic contours from the Ontario Digital Terrain Model included for the Project site and surroundings.

SLR historical sound level data was applied in the stationary noise modelling. For Communications & Power Industries Canada Inc., facility source sound levels and operating conditions were calibrated to align with spot-check measurements conducted by SLR staff on September 5, 2024 and September 12, 2024 during daytime hours, to the north, west, and south of the facility. Modelled sources (sound levels and duty cycles) were also calibrated in consideration of the facility being required to meet applicable NPC-300 guideline limits at all existing surrounding noise sensitive locations, in accordance with its approved ECA.

A summary of the sound levels used in the analysis and source operating conditions is included in **Appendix E**.

The "building evaluation" feature of Cadna/A was used to predict sound levels 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. Outdoor point of reception sound levels were assessed at 1.5 m above the terrace levels, at usable locations within the terraces. The barriers noted in **Section 2.5.2** (parapet walls and additional recommended barriers) were also considered in the assessment of outdoor PORs.

4.5 Predicted Stationary Source Sound Levels

4.5.1 Communications & Power Industries Canada Inc.

A summary of the predicted façade sound levels from Communications and Power Industries Canada Inc. at all building locations is provided in **Table 16**, and shown in **Figure 13** (daytime hours), **Figure 14** (evening hours), and **Figure 15** (nighttime hours). Outdoor POR sound levels are summarized in **Table 17** and shown in the respective Figures for daytime and evening periods.

Table 16: Predicted Stationary Source Façade Sound Levels – Communications and Power Industries Canada Inc.

Project Building	Maximum Predicted Stationary Source Façade Sound Level L_{eq}(1-hr) (dBA)[2]			Applicable Sound Level Limit L_{eq}(1-hr), dBA[1]			Compliance with Limit? (D/E/N) (Y/N)
	Day	Eve	Night	Day	Eve	Night	
Lower North Podium Structure – Parcel A (P1 to 4th Floor)	50	47	44	50	50	45	Y / Y / Y
Upper North Podium Structure – Parcel A (5th and 6th Floor)	50	47	43	50	50	45	Y / Y / Y
Tower A (17 Storeys) – Parcel A	50	47	43	50	50	45	Y / Y / Y
Tower B (22 Storeys) – Parcel A	50	47	43	50	50	45	Y / Y / Y
Tower C (17 Storeys) – Parcel A	49	46	42	50	50	45	Y / Y / Y
Lower Southeast Podium Structure – Parcel B (1st to 4th Floor)	46	43	39	50	50	45	Y / Y / Y
Upper Southeast Podium Structure – Parcel B (5th and 6th Floor)	46	43	39	50	50	45	Y / Y / Y
Tower D (17 Storeys) – Parcel B	46	43	39	50	50	45	Y / Y / Y
Tower E (20 Storeys) – Parcel B	44	41	37	50	50	45	Y / Y / Y
Lower Southwest Podium Structure – Parcel C (1st to 4th Floor)	25	21	17	50	50	45	Y / Y / Y
Upper Southwest Podium Structure – Parcel C (5th and 6th Floor)	27	24	20	50	50	45	Y / Y / Y
Building G – Parcel C (7th to 12th Floor)	39	36	31	50	50	45	Y / Y / Y
Tower F (22 Storeys) – Parcel C	42	38	34	50	50	45	Y / Y / Y

Notes: [1] Façade locations are shown in **Figure 13** through **Figure 15**. The sound levels presented are the highest on the entire façade.

Table 17: Predicted Stationary Source OPOR Sound Levels – Communications and Power Industries Canada Inc.

Assessment Location	Description	Max Predicted Sound Level L_{eq}(1-hr) (dBA) [1] (Day/Evening)	Class 1 Sound Level Limit (dBA) (Day/Evening)	Meets Class 1 Guideline Limit? (Y/N) (Day/Evening)
OPOR 01	Rooftop Terraces – North Podium, Parcel A	25 / 21	50 / 50	Y / Y
OPOR 02		27 / 22	50 / 50	Y / Y
OPOR 03	Rooftop Terraces – South Podium, Parcel C	16 / 12	50 / 50	Y / Y
OPOR 04		18 / 15	50 / 50	Y / Y
OPOR 05	Rooftop Terraces – South Podium, Parcel B	17 / 14	50 / 50	Y / Y
OPOR 06		35 / 31	50 / 50	Y / Y
Notes: [1] Assessment locations are shown in **Figure 13** and **Figure 14**.				

Predicted sound levels from Communications & Power Industries Canada Inc. meet Class 1 sound level limits at all project locations. Physical mitigation measures are not predicted to be required. Due to the proximity of the proposed development to the facility, an MECP Type E warning clause is recommended for all residential units. Refer to **Appendix D**.

4.5.2 Georgetown Layover Yard

A summary of the predicted sound levels from Georgetown Layover Yard on each façade are shown in **Figure 16** and summarized in **Table 18**. Outdoor point of reception sound levels also shown in **Figure 16** and summarized in **Table 19**.

Table 18: Predicted Stationary Source Façade Sound Levels – Georgetown Layover Yard

Project Building	Maximum Predicted Stationary Source Façade Sound Level L_{eq}(1-hr) (dBA) (D/E/N) [2]			Layover Yard Guideline Limit (dBA) (D/E/N)			Meets Layover Yard Guideline Limit? (Y/N) (D/E/N)
	Day	Eve	Night	Day	Eve	Night	
Lower North Podium Structure – Parcel A (P1 to 4th Floor)	42	42	42	55	55	55	Y / Y / Y
Upper North Podium Structure – Parcel A (5th and 6th Floor)	43	43	43	55	55	55	Y / Y / Y
Tower A (17 Storeys) – Parcel A	46	46	46	55	55	55	Y / Y / Y
Tower B (22 Storeys) – Parcel A	45	45	45	55	55	55	Y / Y / Y
Tower C (17 Storeys) – Parcel A	42	42	42	55	55	55	Y / Y / Y

Project Building	Maximum Predicted Stationary Source Façade Sound Level L_{eq}(1-hr) (dBA) (D/E/N) [2]			Layover Yard Guideline Limit (dBA) (D/E/N)			Meets Layover Yard Guideline Limit? (Y/N) (D/E/N)
	Day	Eve	Night	Day	Eve	Night	
Lower Southeast Podium Structure – Parcel B (1st to 4th Floor)	24	24	24	55	55	55	Y / Y / Y
Upper Southeast Podium Structure – Parcel B (5th and 6th Floor)	37	37	37	55	55	55	Y / Y / Y
Tower D (17 Storeys) – Parcel B	44	44	44	55	55	55	Y / Y / Y
Tower E (20 Storeys) – Parcel B	38	38	38	55	55	55	Y / Y / Y
Lower Southwest Podium Structure – Parcel C (1st to 4th Floor)	36	36	36	55	55	55	Y / Y / Y
Upper Southwest Podium Structure – Parcel C (5th and 6th Floor)	49	49	49	55	55	55	Y / Y / Y
Building G – Parcel C (7th to 12th Floor)	49	49	49	55	55	55	Y / Y / Y
Tower F (22 Storeys) – Parcel C	49	49	49	55	55	55	Y / Y / Y
Notes: [1] Façade locations are shown in **Figure 16**. The sound levels presented are the highest on the entire façade.							

Table 19: Predicted Stationary Source OPOR Sound Levels

Assessment Location	Description	Max Predicted Sound Level L_{eq}(1hr) (dBA) [1] (D/E)	Layover Yard Limits (dBA) (D/E)	Meets Class 1 Guideline Limit? (Y/N) (D/E)
OPOR 01	Rooftop Terraces – North Podium, Parcel A	38 / 38	55 / 55	Y / Y
OPOR 02		29 / 29	55 / 55	Y / Y
OPOR 03	Rooftop Terraces – South Podium, Parcel C	43 / 43	55 / 55	Y / Y
OPOR 04		40 / 40	55 / 55	Y / Y
OPOR 05	Rooftop Terraces – South Podium, Parcel B	25 / 25	55 / 55	Y / Y
OPOR 06		36 / 36	55 / 55	Y / Y
Notes: [1] Assessment locations are shown in **Figure 16**.				

Predicted sound levels from Georgetown Layover Yard meet the NPC-300 Layover Yard limits at all project locations. Mitigation measures are not predicted to be required. Due to the proximity of the proposed development to the Georgetown Layover Yard, an MECP Type E warning clause is recommended for all residential units. Refer to **Appendix D**.

Part 2: Impacts of the Development on Itself

5.0 Stationary Source Noise from the Development on 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.

The potential noise impacts of sources from the development on itself should be assessed as part of the final building design. The criteria and target sound levels 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.

Part 3: Impacts of the Development on the Surrounding Area

6.0 Stationary Source Noise from the Development on the Surroundings

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

The traffic related to the proposed development will be low 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 should meet MECP Publication NPC 300 requirements at the worst-case off-site points of reception.

Off-site impacts are not anticipated given that the systems will be designed to meet 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.

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

7.0 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 itself, and the development on the surrounding area have been considered. Based on the results of this assessment, the following conclusions have been reached:

Transportation Noise

- An assessment of transportation noise impacts has been completed.
- Based on transportation façade sound levels upgraded exterior wall construction and glazing are required within the development, as outlined in outlined in **Section 2.5.1**.
    - Due to high window STC requirements, design considerations noted in **Section 2.5.1** should be taken into account during the design of suite layouts and elevations.
- Central air conditioning and an MECP Type D warning clause are recommended for all residential units in the proposed development.
- Acoustic barriers for rooftop terraces are recommended, as outlined in **Section 2.5.2**.
    - An MECP Type B warning clause is also recommended for all residential units.
- CN and Metrolinx proximity warning clauses are recommended 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. A summary of the warning clauses recommendations is included in **Appendix D**.

Transportation Vibration

- Transportation (rail) vibration has been assessed, as outlined in Section 3.0 of this report.
- Rail vibration levels were measured at the existing site in the approximate area of the nearest sensitive building footprint locations, and at a location closer to the rail right-of-way representing the closest portion of the building to the rail corridor.
- The maximum vibration levels were found to meet the CN/Metrolinx criteria. No mitigation is predicted to be required.

Stationary Source Noise

- A site visit was completed by SLR personnel to review the surrounding area, and desktop review was completed. Stationary noise sources with the potential to impact the proposed development include Power & Communications & Power Industries Canada Inc. and the Georgetown Layover Yard.
- Predicted sound levels meet applicable stationary source sound level limits from MECP Publication NPC-300.
- An MECP Type E warning clause is recommended for all residential units in the proposed development.

Overall Assessment

- Noise and vibration from the environment on the proposed development can be adequately controlled through the mitigation measures, 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.
- The analysis should be reviewed and revised, if necessary, as grading plans for the Project site are developed, to confirm the conclusions of this assessment.
- 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.

8.0 Closure

Should you have any queries, please contact the undersigned.

Regards,

SLR Consulting (Canada) Ltd.

LICENSED PROFESSIONAL ENGINEER
K. M. MALLINEN
100502565
2024-12-09
PROVINCE OF ONTARIO

Sabah Ersum, M.Eng.
Acoustics Consultant
sersum@slrconsulting.com

Keni Mallinen, M.A.Sc., P.Eng.
Senior Acoustics Engineer
kmallinen@slrconsulting.com

R. L. Scott Penton, P.Eng.
Principal Acoustics Engineer
spenton@slrconsulting.com

9.0 References

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Figures

Environmental Noise & Vibration Assessment

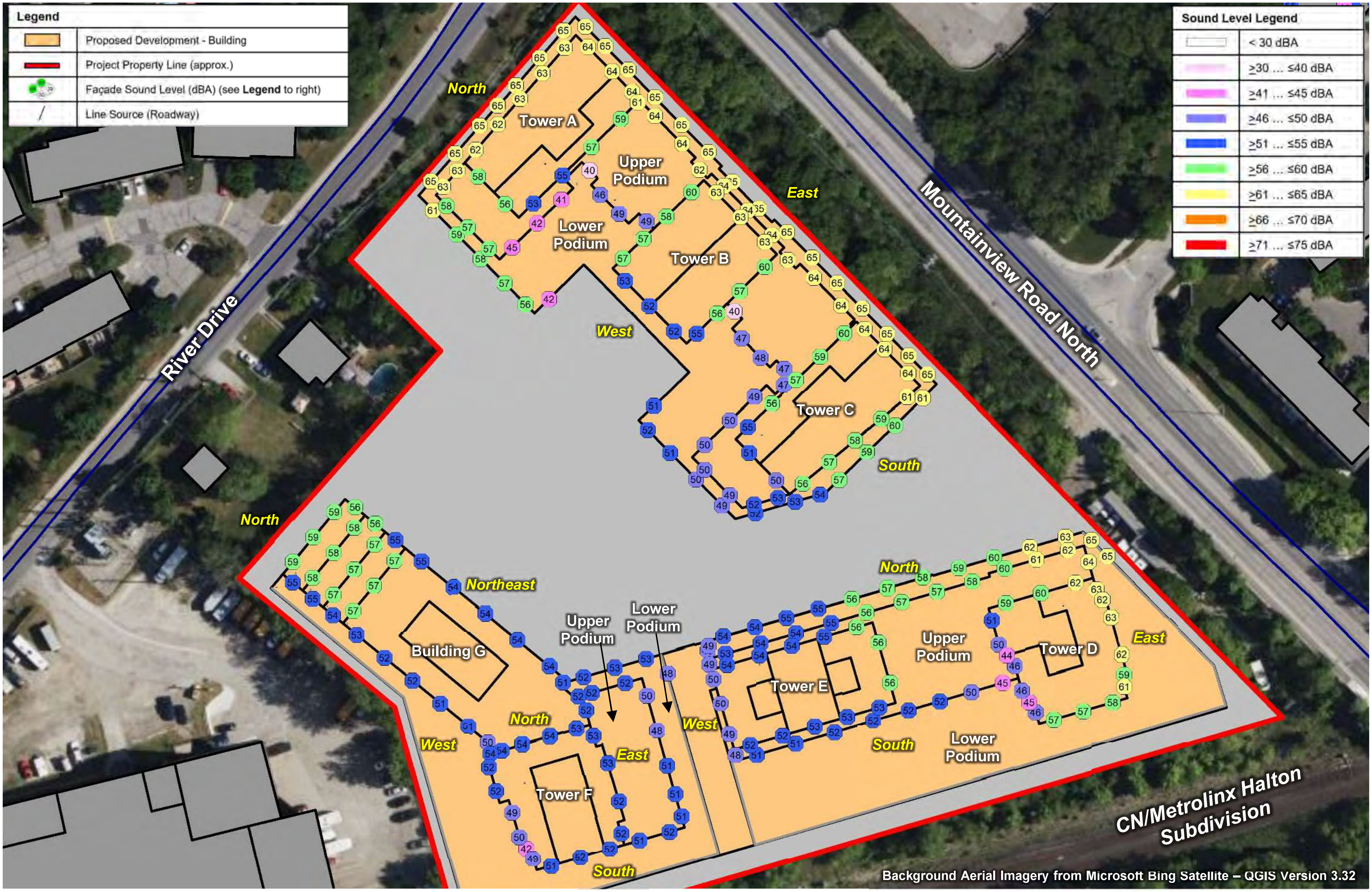
130 Mountainview Road North, Georgetown

Whitestone (Georgetown Developments) General Partnership

SLR Project No.: 241.031484.00001

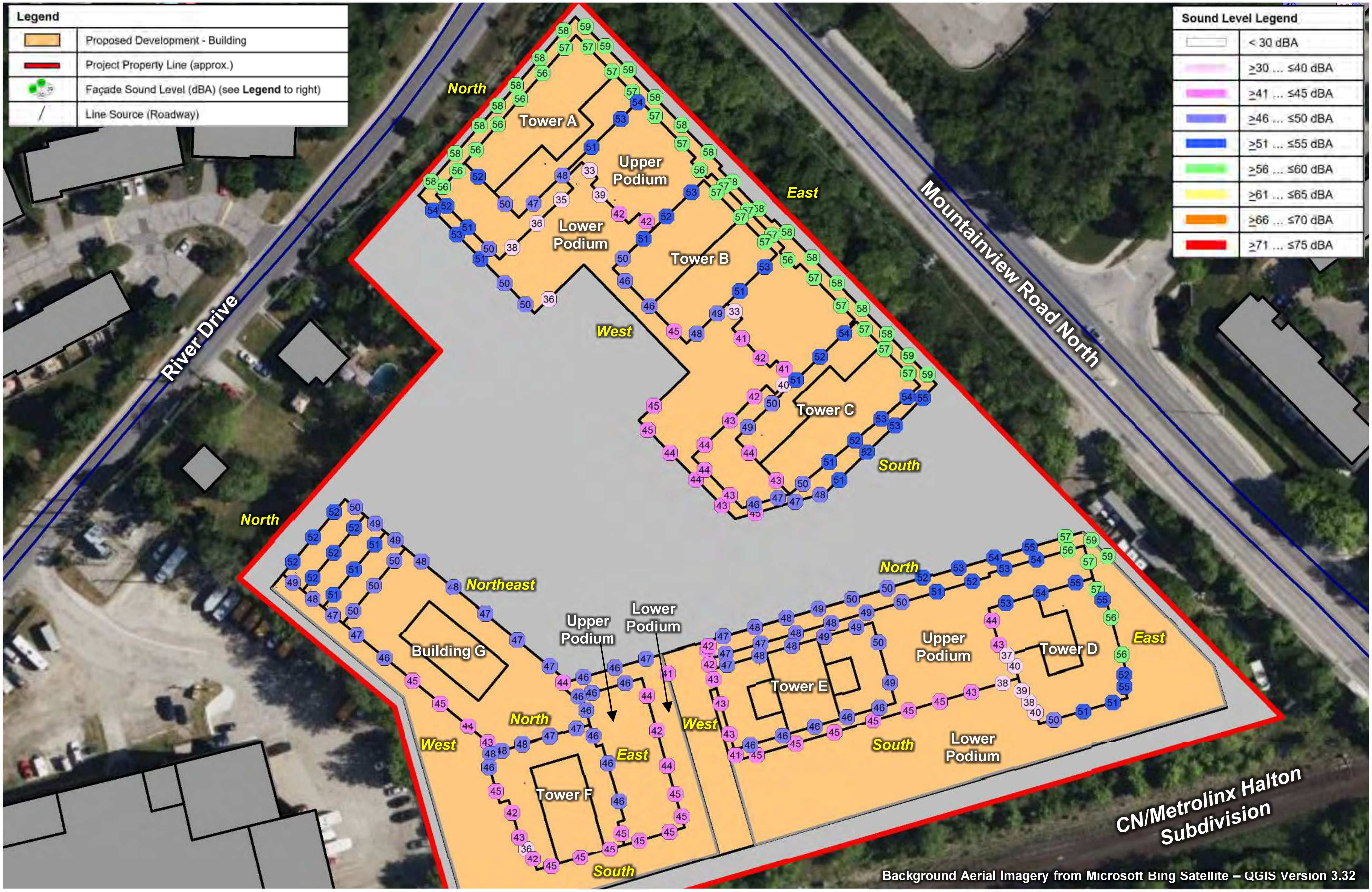
December 6, 2024

WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:6,000		METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024	Rev. 0	Figure No. 1
CONTEXT PLAN		Project No. 241.031484.00001		

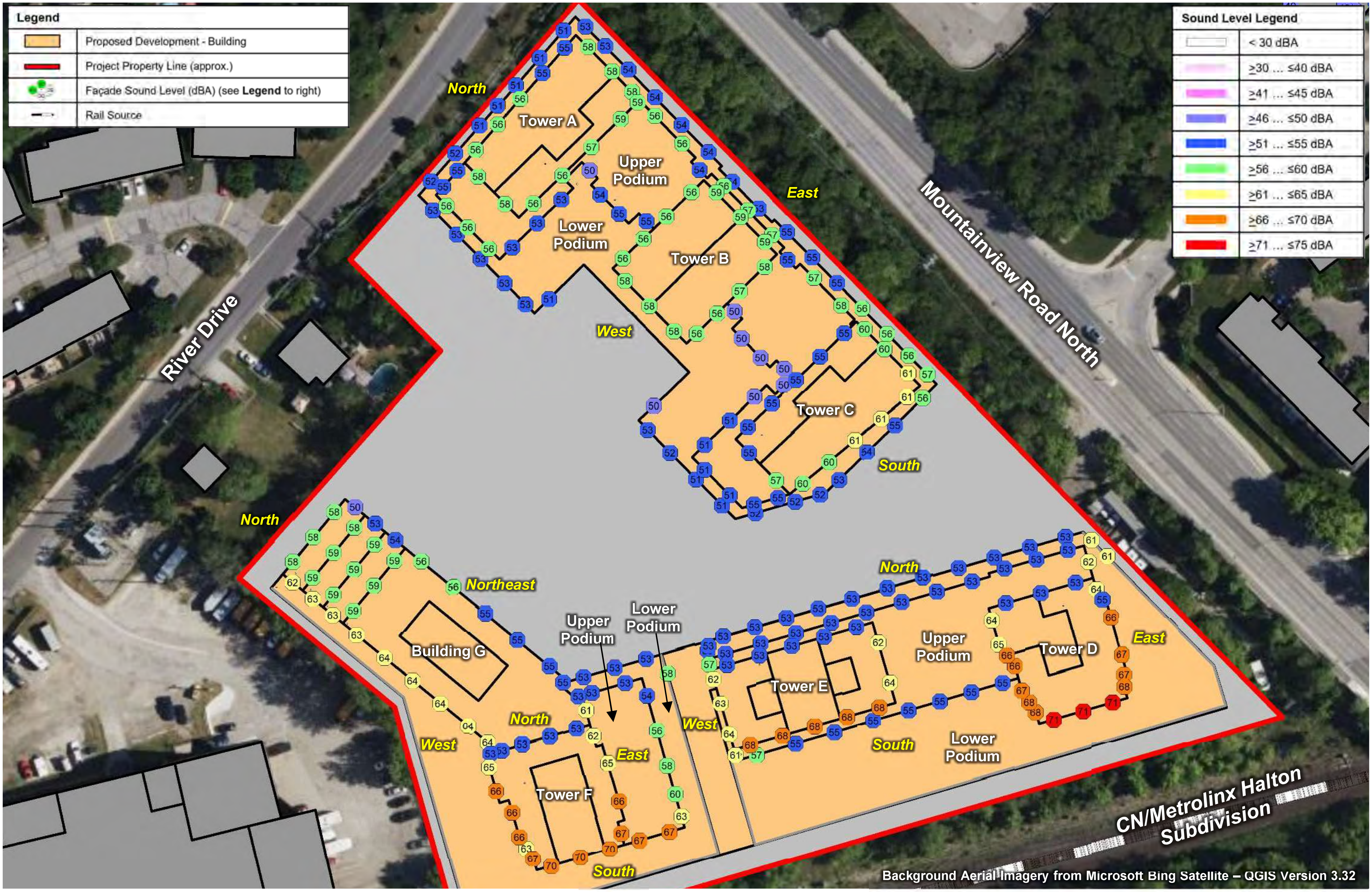


WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. 2
PREDICTED FAÇADE SOUND LEVELS – ROAD TRAFFIC – DAYTIME		Project No. 241.031484.00001	

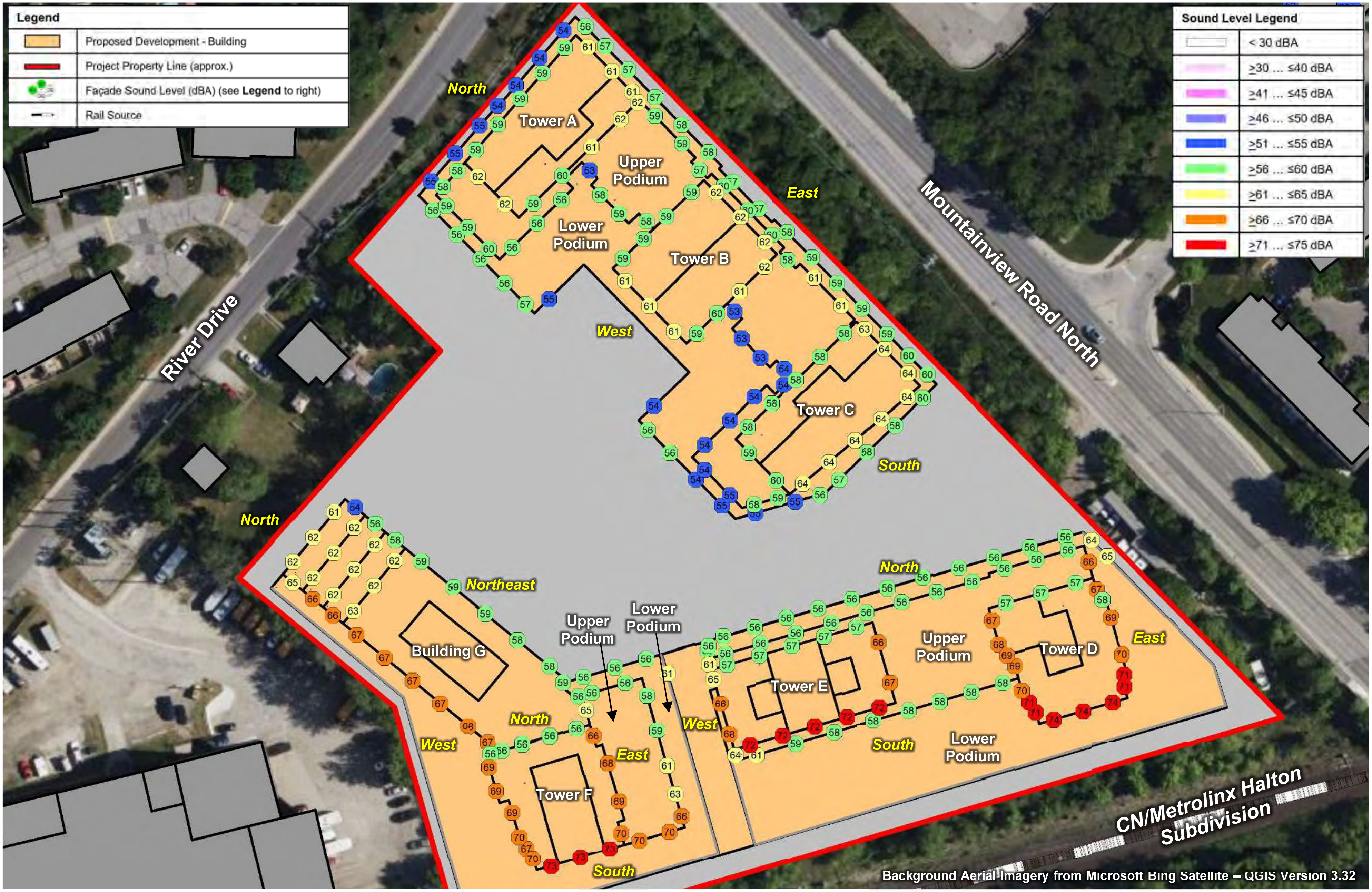
SLR



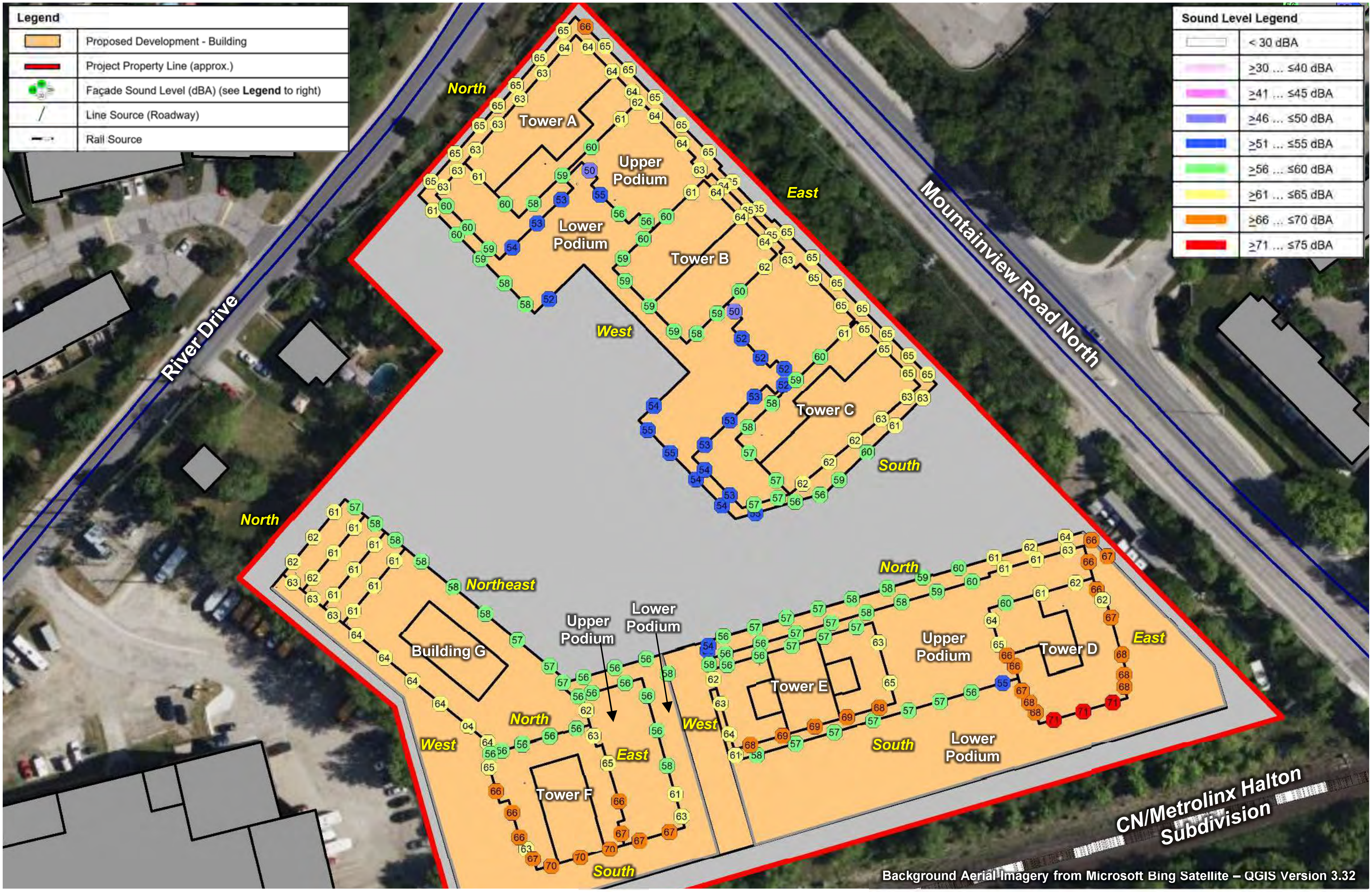
WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024	Rev. 0	Figure No. 3
PREDICTED FAÇADE SOUND LEVELS – ROAD TRAFFIC – NIGHTTIME		Project No. 241.031484.00001		



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024	Rev. 0	Figure No. 4
PREDICTED FAÇADE SOUND LEVELS – RAIL TRAFFIC – DAYTIME		Project No. 241.031484.00001		



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. 5
PREDICTED FAÇADE SOUND LEVELS – RAIL TRAFFIC – NIGHTTIME		Project No. 241.031484.00001	



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP

130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN

PREDICTED FAÇADE SOUND LEVELS – ROAD + RAIL TRAFFIC – DAYTIME

True North

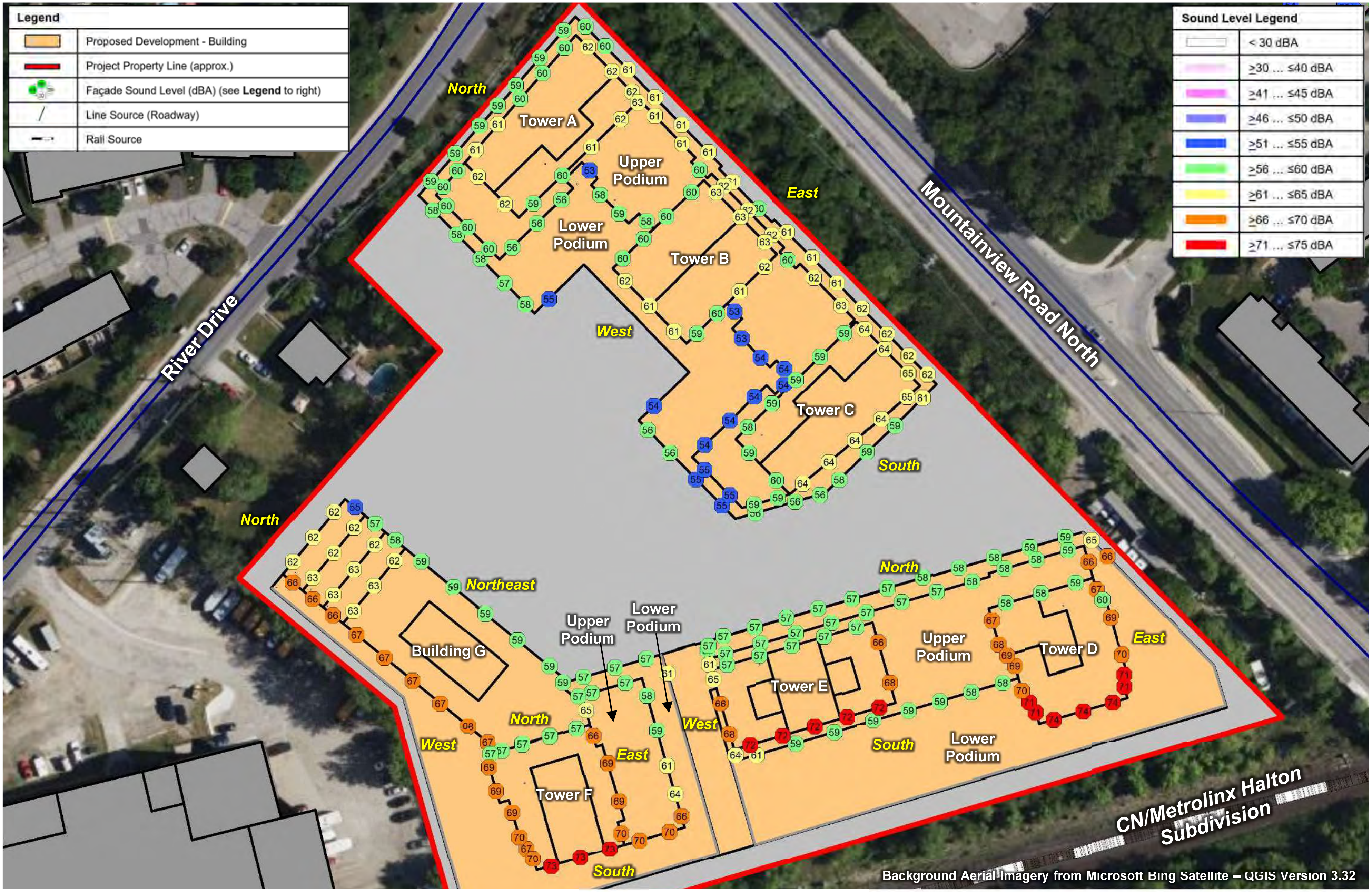
Scale: 1:1,250 METRES

Date: Dec. 6, 2024 Rev. 0

Figure No. 6

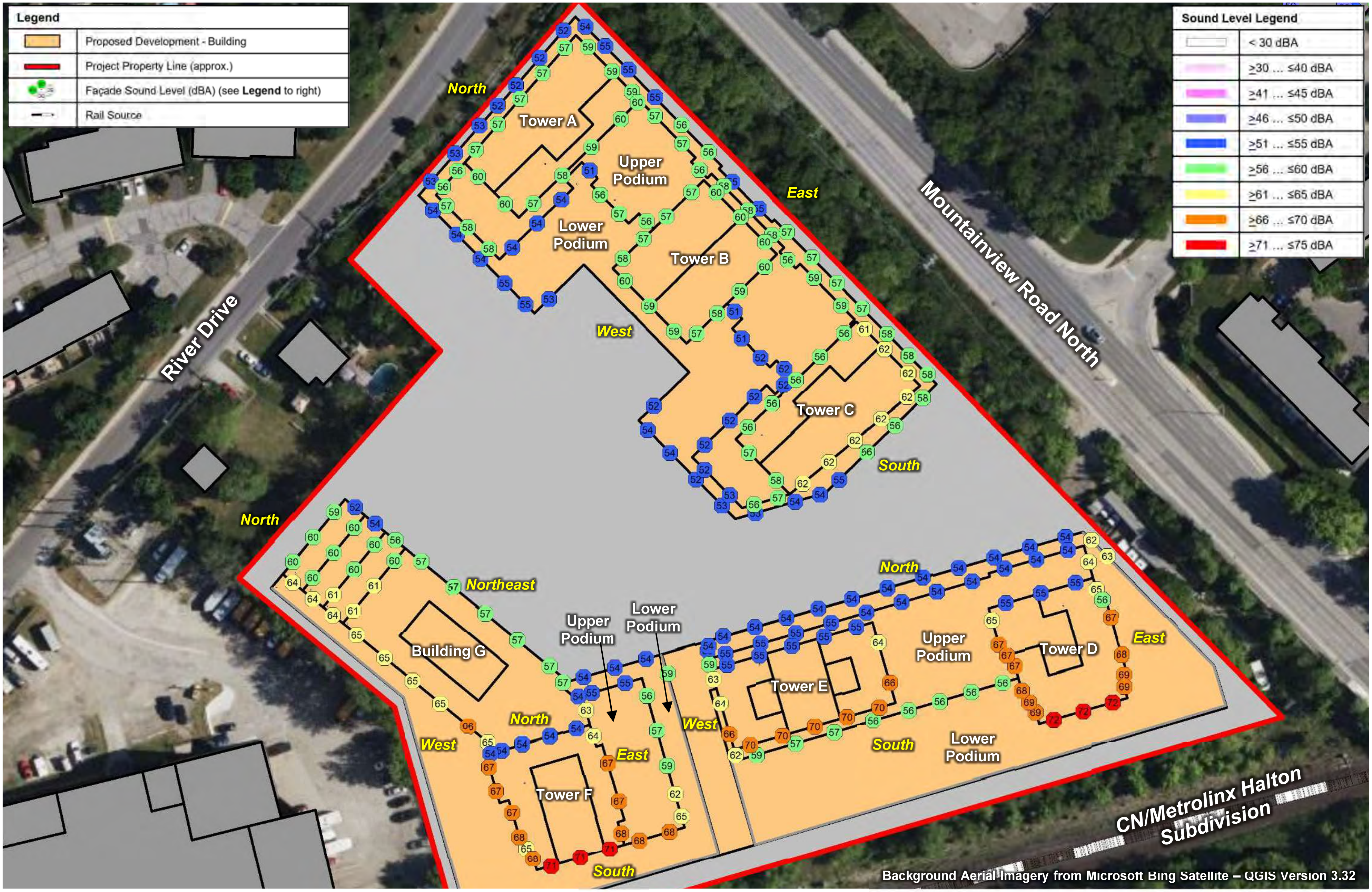
Project No. 241.031484.00001

SLR



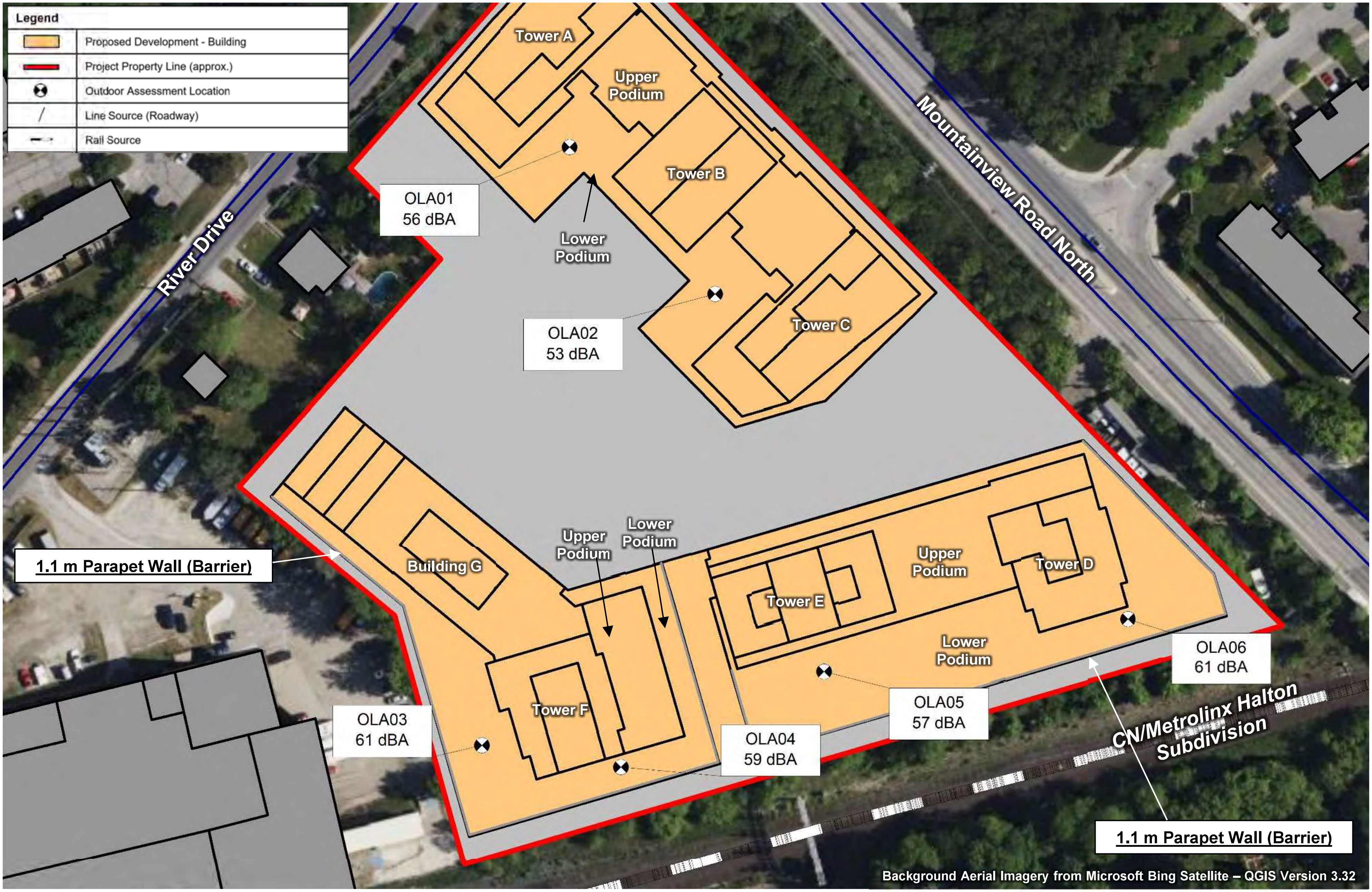
WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250		METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024	Rev. 0	Figure No. **7**
PREDICTED FAÇADE SOUND LEVELS – ROAD + RAIL TRAFFIC – NIGHTTIME		Project No. 241.031484.00001		

SLR

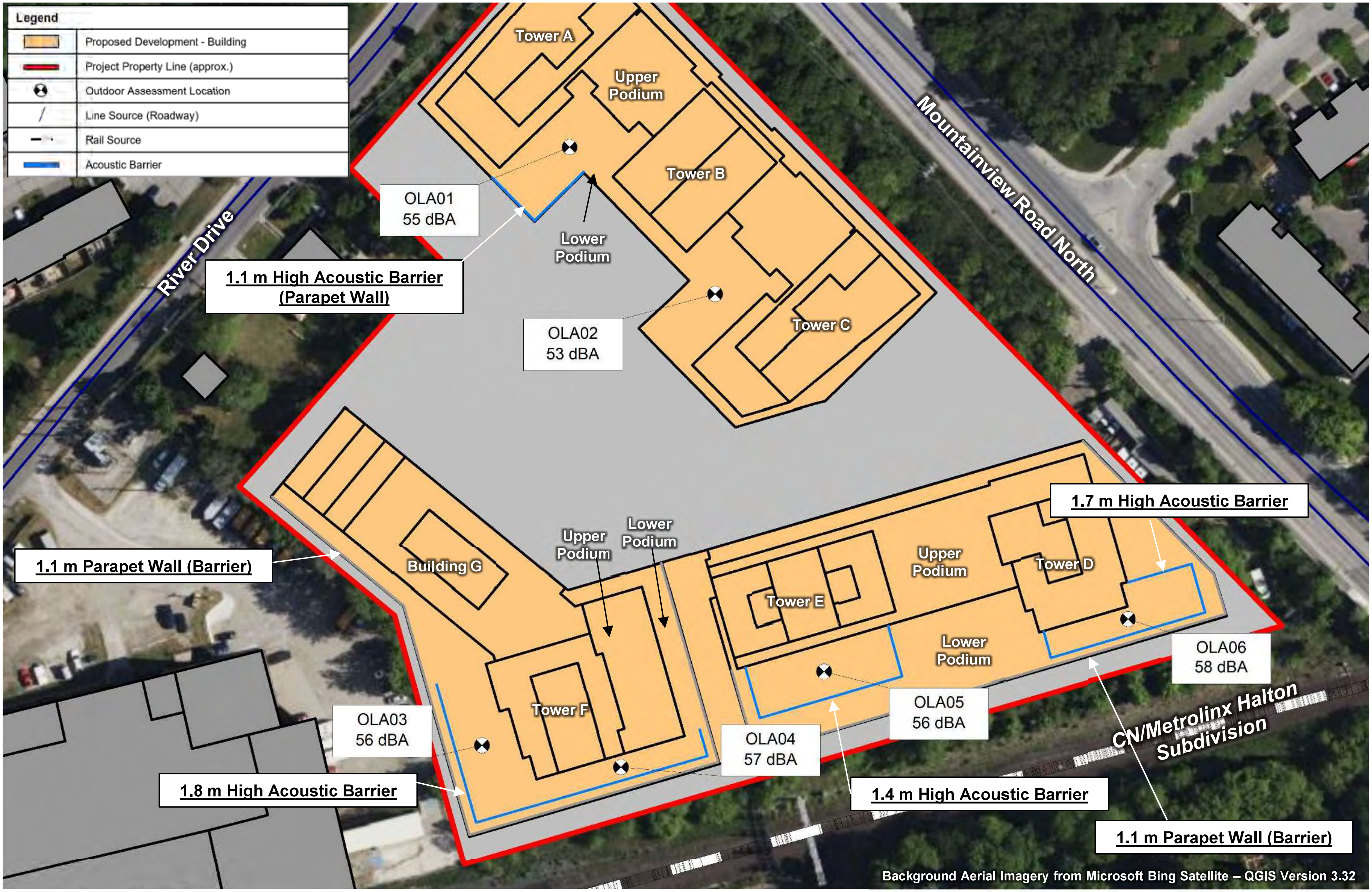


WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. 8
PREDICTED FAÇADE SOUND LEVELS – RAIL TRAFFIC – 24-HOUR PERIOD		Project No. 241.031484.00001	

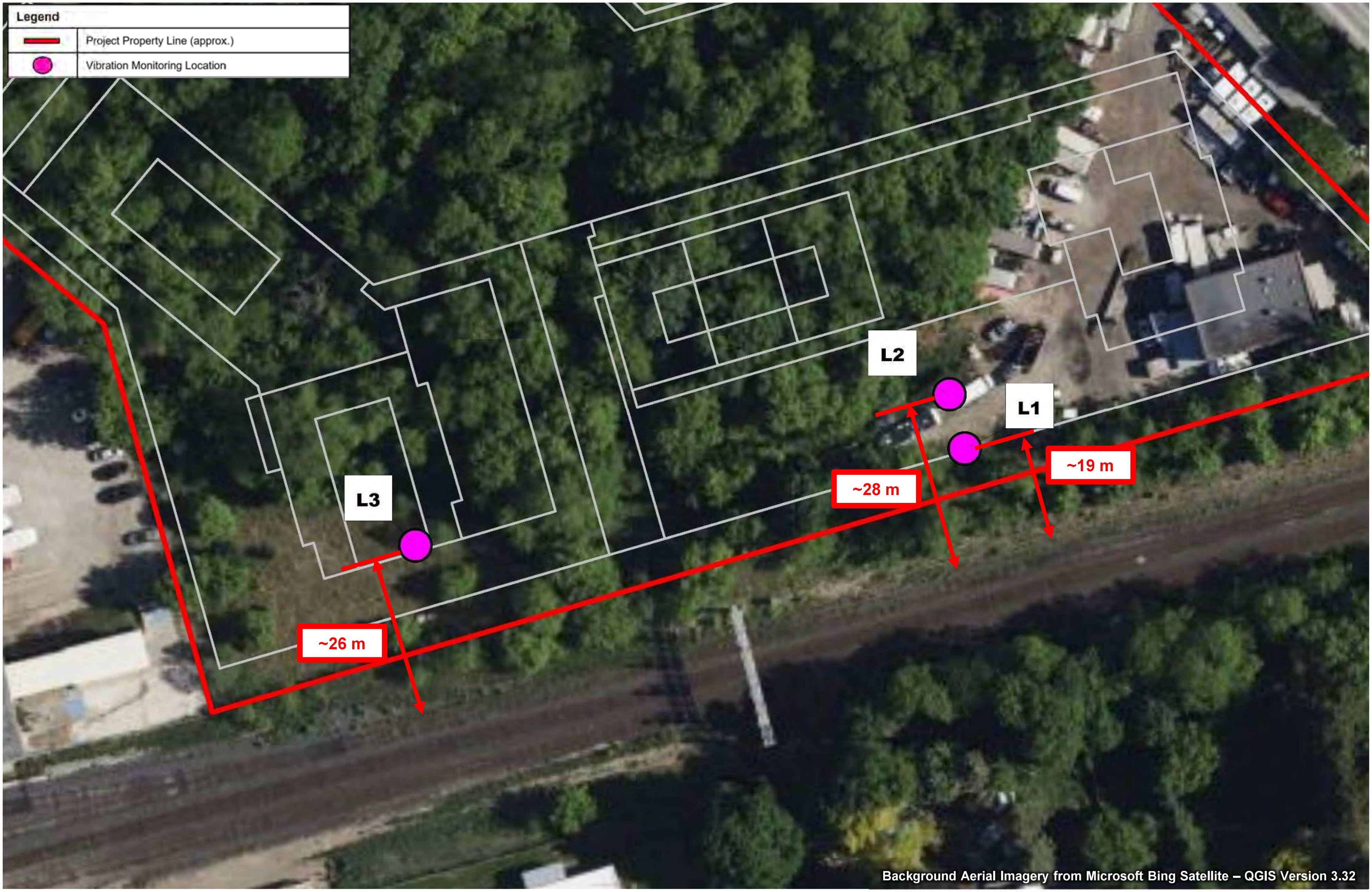
SLR



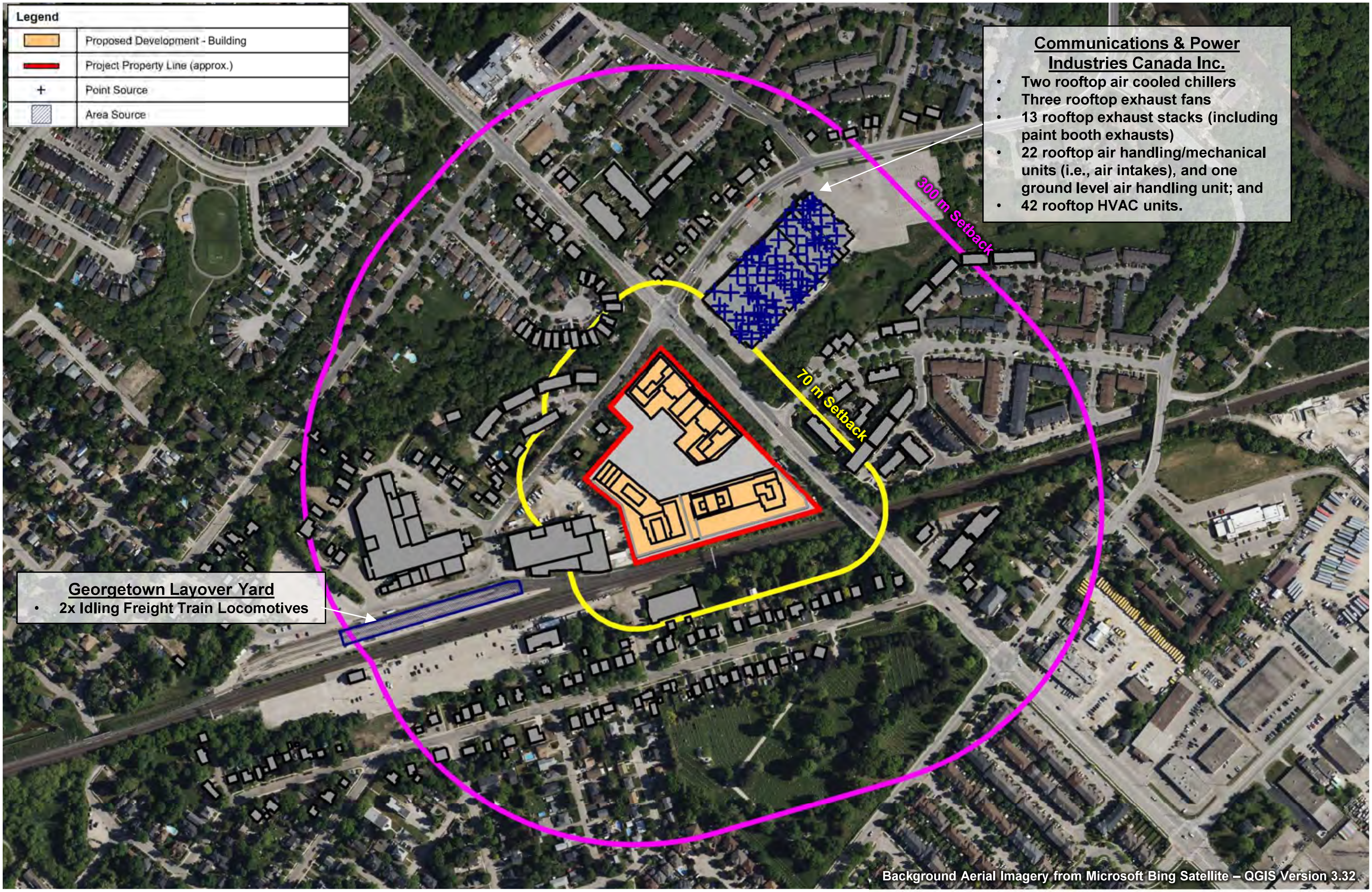
WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024	Rev. 0
PREDICTED OLA SOUND LEVELS – ROAD + RAIL TRAFFIC – DAYTIME, UNMITIGATED		Project No. 241.031484.00001	Figure No. 9



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024	Rev. 0	Figure No. 10
PREDICTED OLA SOUND LEVELS – ROAD + RAIL TRAFFIC – DAYTIME, MITIGATED		Project No. 241.031484.00001		

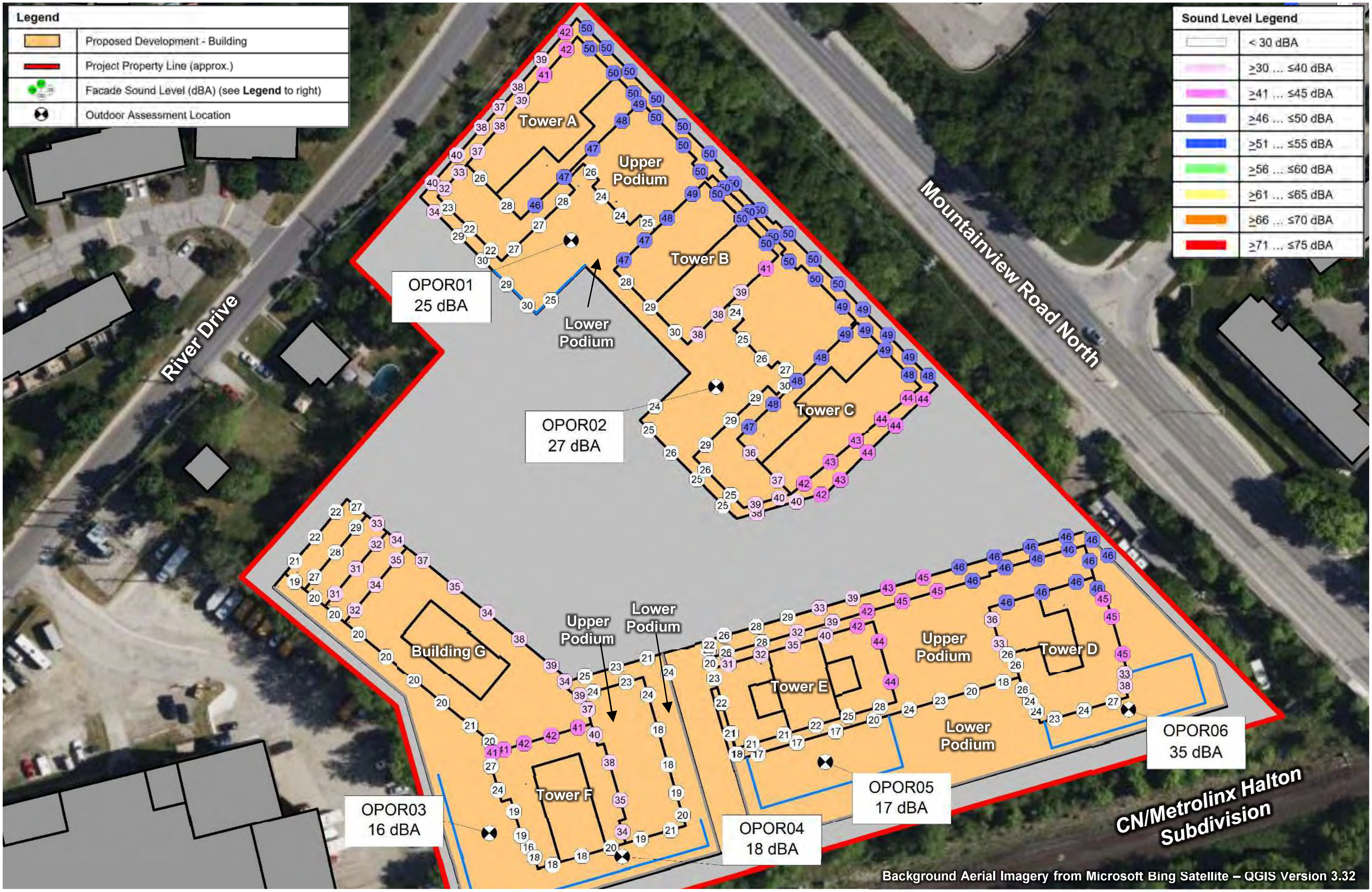


WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:800	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. 11	
VIBRATION MEASUREMENT LOCATIONS AND SETBACK DISTANCES		Project No. 241.031484.00001		

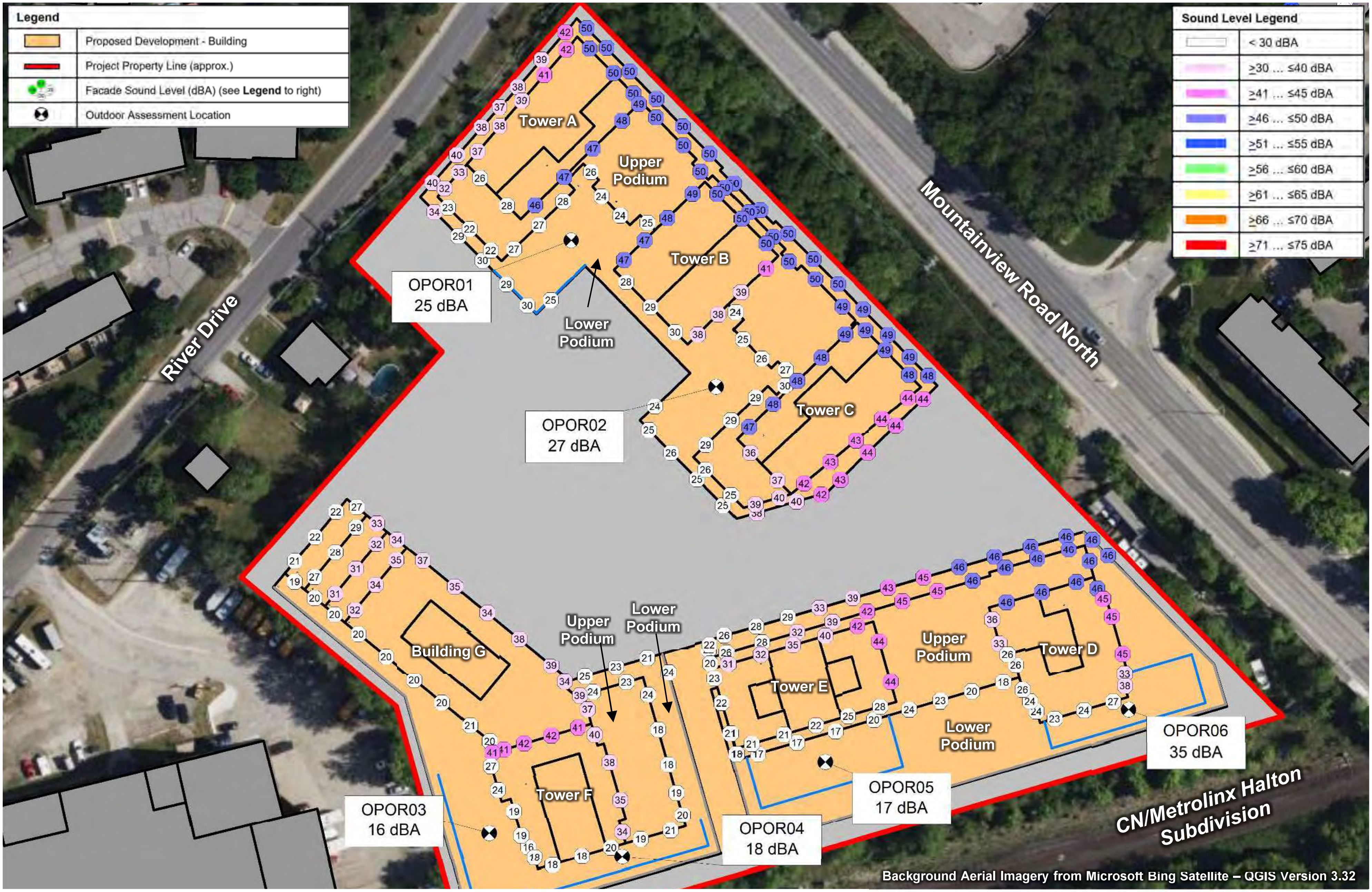


WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:5,550	METRES
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. 12
MODELLED STATIONARY SOURCE LOCATIONS		Project No. 241.031484.00001	

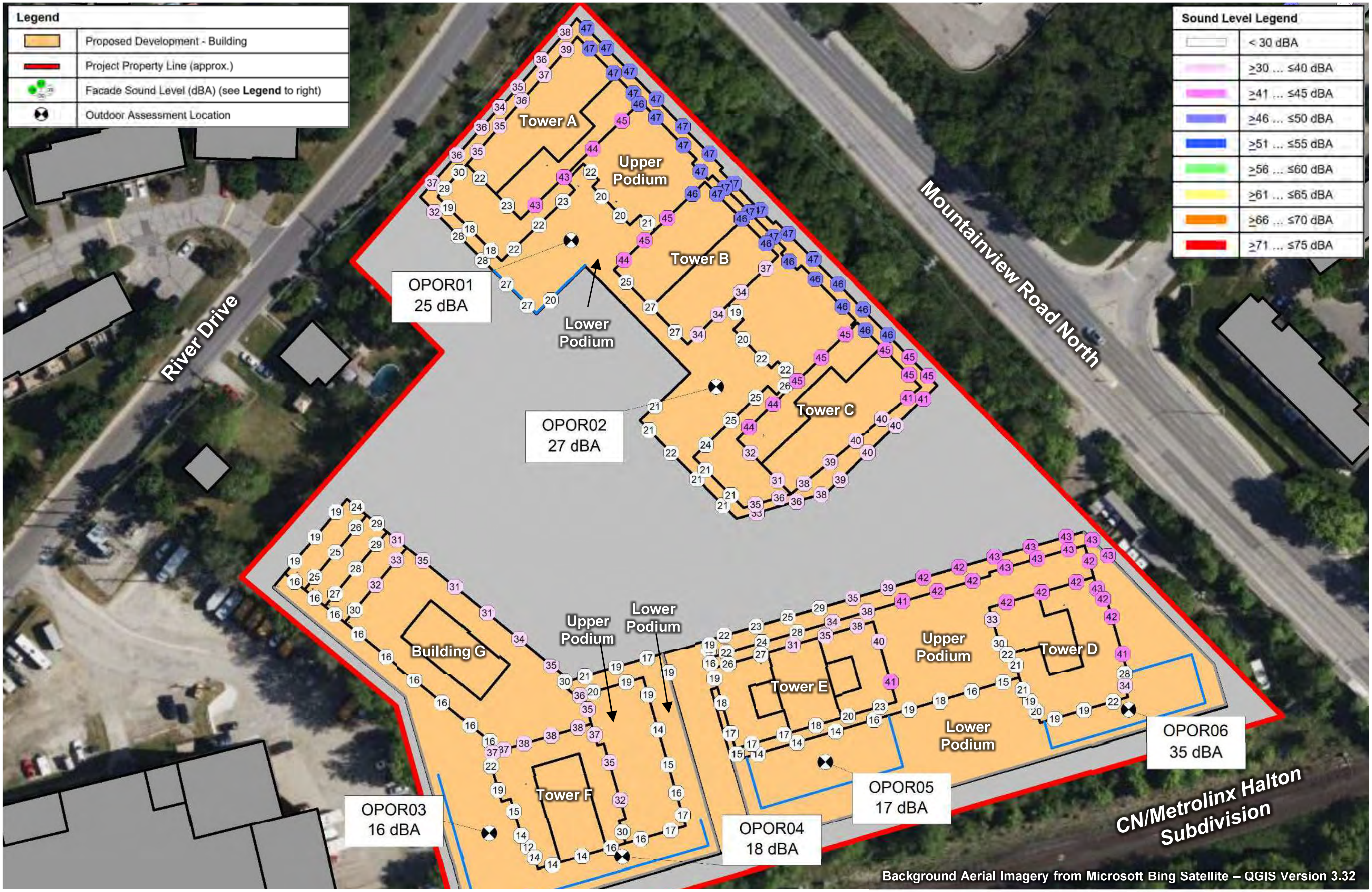
SLR



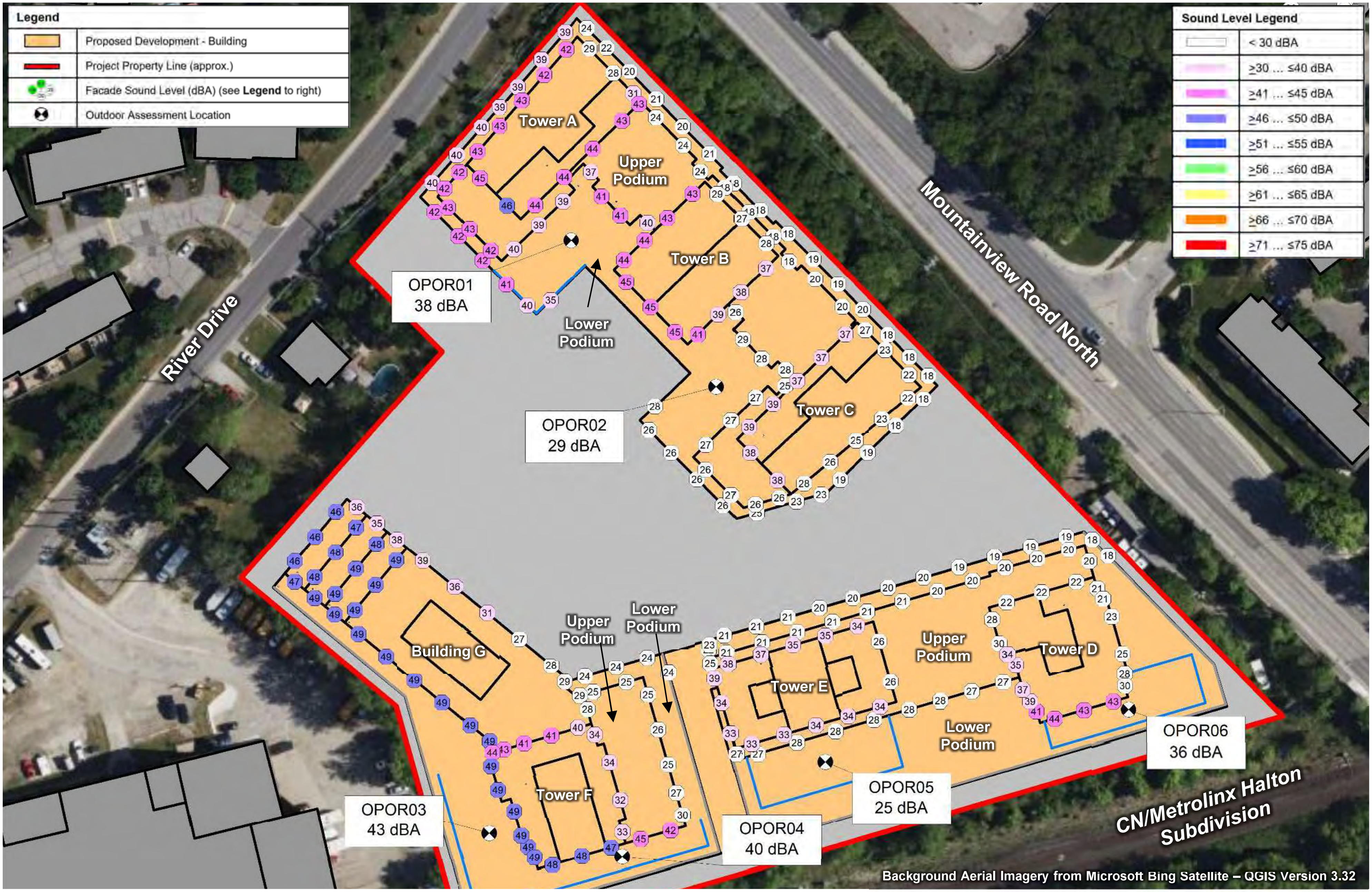
WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 Rev. 0	Figure No. **13**	
PREDICTED STATIONARY SOURCE SOUND LEVELS – COMMUNICATIONS & POWER INDUSTRIES CANADA – DAYTIME PERIOD		Project No. 241.031484.00001		



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. **14**	
PREDICTED STATIONARY SOURCE SOUND LEVELS – COMMUNICATIONS & POWER INDUSTRIES CANADA – EVENING PERIOD		Project No. 241.031484.00001		



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. **15**	
PREDICTED STATIONARY SOURCE SOUND LEVELS – COMMUNICATIONS & POWER INDUSTRIES CANADA – NIGHTTIME PERIOD		Project No. 241.031484.00001		



WHITESTONE (GEORGETOWN DEVELOPMENTS) GENERAL PARTNERSHIP	True North	Scale: 1:1,250	METRES	SLR
130 MOUNTAINVIEW ROAD NORTH, GEORGETOWN		Date: Dec. 6, 2024 / Rev. 0	Figure No. **16**	
PREDICTED STATIONARY SOURCE SOUND LEVELS – GEORGETOWN GO LAYOVER YARD – DAYTIME/EVENING/NIGHTTIME PERIODS		Project No. 241.031484.00001		