

 **Paradise Developments**
Heron's Hill Way

Land Use Compatibility & Mitigation Study
Toronto, ON

SLR Project No: 241.20017.00000
April 2020

SLR 

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Compatibility & Mitigation Study Air Quality, Dust, Odour, Noise And Vibration Toronto, ON

SLR Project No.: 241.20024.00000, Version 1

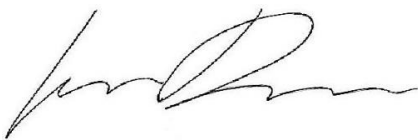
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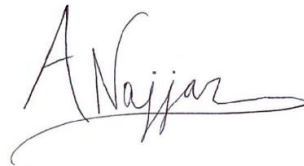


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EXECUTIVE SUMMARY

SLR Consulting (Canada) Ltd. (SLR), was retained by Paradise Developments Heron's Hill Inc. to conduct a land use compatibility assessment of the proposed mixed-use development to be located at 1 Heron's Hill Way in the City of Toronto, Ontario. A review of the adjacent land uses, including the existing industries, was conducted in accordance with the City of Toronto's OPA 231 modification regarding the land use compatibility and mitigation of sensitive land uses adjacent or near employment areas and the Ontario Ministry of Environment, Conservation and Parks' Guideline D-6. Appropriate mitigation has been recommended to attenuate traffic noise, including façade selection and window glazing according to building code requirements and standard warning clauses for selected units. These mitigation features are to be finalized in more detail at the site plan approval stage in the planning process.

The City of Toronto's policy statements have been reviewed in conjunction with our analysis. The following comments have been included in this report to address policy statements relevant to the concerns of compatibility and mitigation:

- As part of the study, industrial activities surrounding the subject property were reviewed, including existing environmental approvals issued by the Ontario Ministry of Environment, Conservation and Parks (MECP). As is reported, no instances of interference with the operations of existing or future industries are anticipated due to the development of the proposed, mixed-use features on the subject lands.
- The appropriate buffering is in place for the proposed development. No adverse impacts are anticipated with the proposed development design and associated recommended mitigation.
- As part of the land use compatibility study conducted, an evaluation of the development was completed, following the appropriate D-Series guidelines, as released by the MECP in 1995. As indicated, the guidelines are addressed with respect to the planned development and the development will be compatible with neighbouring land uses.
- The proposed development was reviewed in consideration of the City's land use compatibility guidelines, as well as the Provincial D-Series guidelines. The D-Series Guidelines specifically consider the need to evaluate the potential for adverse impacts due to noise, vibration, odours and other emissions, such as dust, particularly in the context of nuisance issues. In addition, other emissions, including general air quality contaminants, compliance with noise guidelines for stationary sources, and the potential impacts from transportation sources (including traffic) were also considered. As concluded, with the design features in place for addressing specific noise issues related to transportation sources, adverse effects on the proposed development are not anticipated.

After completing our compatibility assessment of the proposed mixed use development together with the existence of the large residential development on the north side of Heron's Hill Way, the proposed mixed use development will be compatible with the local land uses.

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1. INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR), was retained by Paradise Developments Heron's Hill Inc. to conduct a land use compatibility assessment focusing on air quality and noise issues for the proposed 1 Heron's Hill Way development in the City of Toronto, Ontario. The development plan, local industrial activities and applicable provincial regulations and guidelines have all been considered in this assessment

SLR has reviewed the surrounding land uses in the area with respect to Ministry of the Environment, Conservation and Parks (MECP) Guideline D-6 – *Compatibility Between Industrial Facilities and Sensitive Land Uses* (MECP 1995). In addition, the proposed OPA 231 modification regarding the land use compatibility and mitigation of sensitive land uses adjacent or near employment areas has been applied to this study.

The City of Toronto's Official Plan Amendment No. 231 was approved in May 2018, and from this, a Terms of Reference for compatibility/mitigation studies was developed (OPA 231). The terms of reference details the requirements for a technical report which requires a written description of the land use compatibility between sensitive land-uses (e.g. residential uses) in proximity to Employment Areas. The purpose of the compatibility/mitigation study is to identify any existing and potential land use compatibility issues and identify and evaluate options to achieve appropriate design, including buffering and/or separation distances between land uses.

The compatibility/mitigation study is to provide a written description of:

- Potential land use compatibility impacts by type (traffic, noise, vibration, dust, odour, etc.), including severity, frequency and duration of impacts that may cause an adverse effect on the proposed development;
- Existing approvals from the MECP;
- Within the immediate area of the proposed development, the history of complaints received by the City or MECP;
- Potential intensification or operational changes such as expansion plans for existing major facilities in the area;
- Potential land use compatibility issues that may have a negative impact on nearby employment areas and major facilities

Where a land use compatibility issue is identified, the compatibility/mitigation study should identify options to achieve appropriate design, such as buffering/separation distance, at-source mitigation or at-receptor mitigation. The D-Series of Guidelines (described below) provide recommendations for separation distance between sensitive land uses and employment lands and have been used as a guide in this study. This report is intended to address the City of Toronto's Terms of Reference for evaluating land use compatibility.

2. DESCRIPTION OF DEVELOPMENT AND SURROUNDINGS

2.1 PROPOSED DEVELOPMENT

The proposed development is located at 1 Heron's Hill Way in the City of Toronto and is to be developed on the existing lands owned by Paradise Developments Heron's Hill Inc. which is currently partially occupied by the company's corporate headquarter and Design and Décor Showroom. The proposed development is planned for a 4-storey podium with a high-rise tower which is a total of 39-storeys which will be situated on the west end of the site. Land uses surrounding the proposed development are existing residential high rises, commercial operations, educational facilities, and places of worship. The current context plan is shown in **Figure 1**. A copy of development drawings is provided in **Appendix A**.

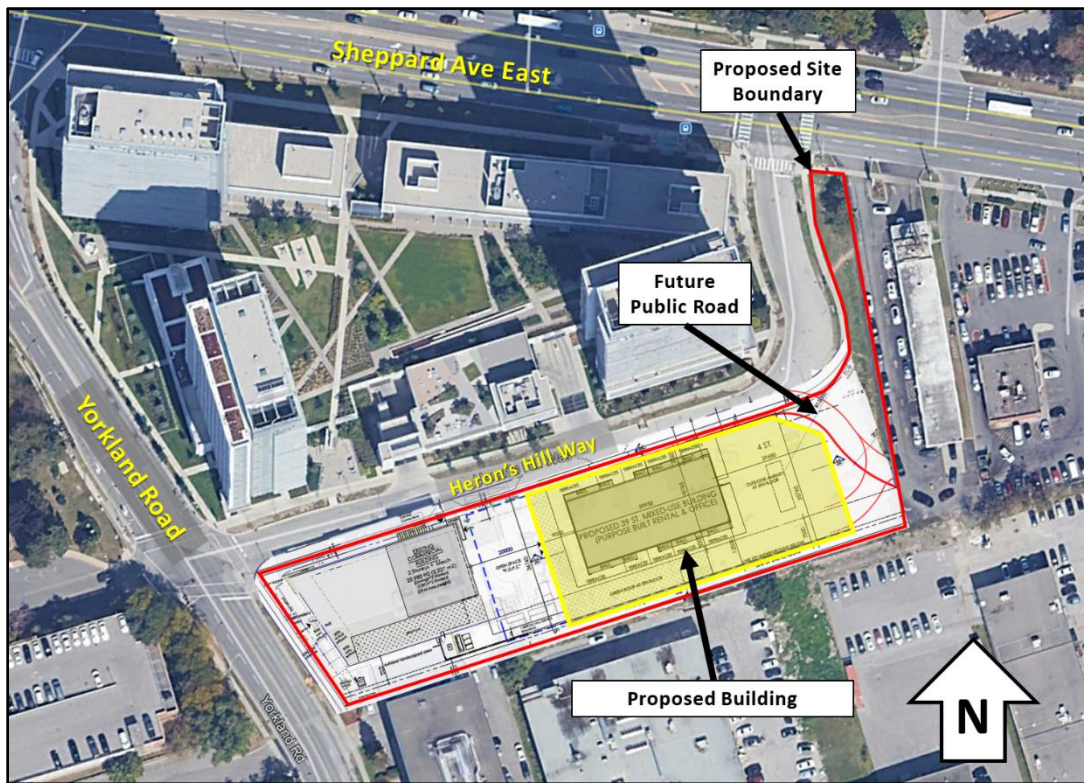


Figure 1: Proposed Development Context Plan

2.2 SURROUNDINGS

Residential, Mixed Use Areas and General Employment Areas surround the proposed development. Directly south of the proposed site is the Cestar Private High School. Neighbouring the site to the east of the property boundary there is a mixed used plaza which includes restaurants and a car wash. North of the proposed development there are three existing residential high-rise buildings.

2.3 LAND USE DESIGNATIONS

Parts of the subject lands are currently designated as ‘General Employment Areas’ and parts are designated as “Mixed Use” in the current Toronto Official Plan. The lands immediately to the north and northeast have recently been re-designated to Mixed Use Areas as a part of OPA 231 and the ConsumersNext Secondary Plan. The ConsumersNext Secondary Plan is the result of an extensive planning study that primarily focused on devising a planning framework in anticipation of the arrival of higher order transit. The purpose of this report is to support the upcoming Official Plan Amendment (OPA) / Zoning By-law Amendment (ZBA) applications. A land use map illustrating land use types in the area is provided in **Figure 2**.

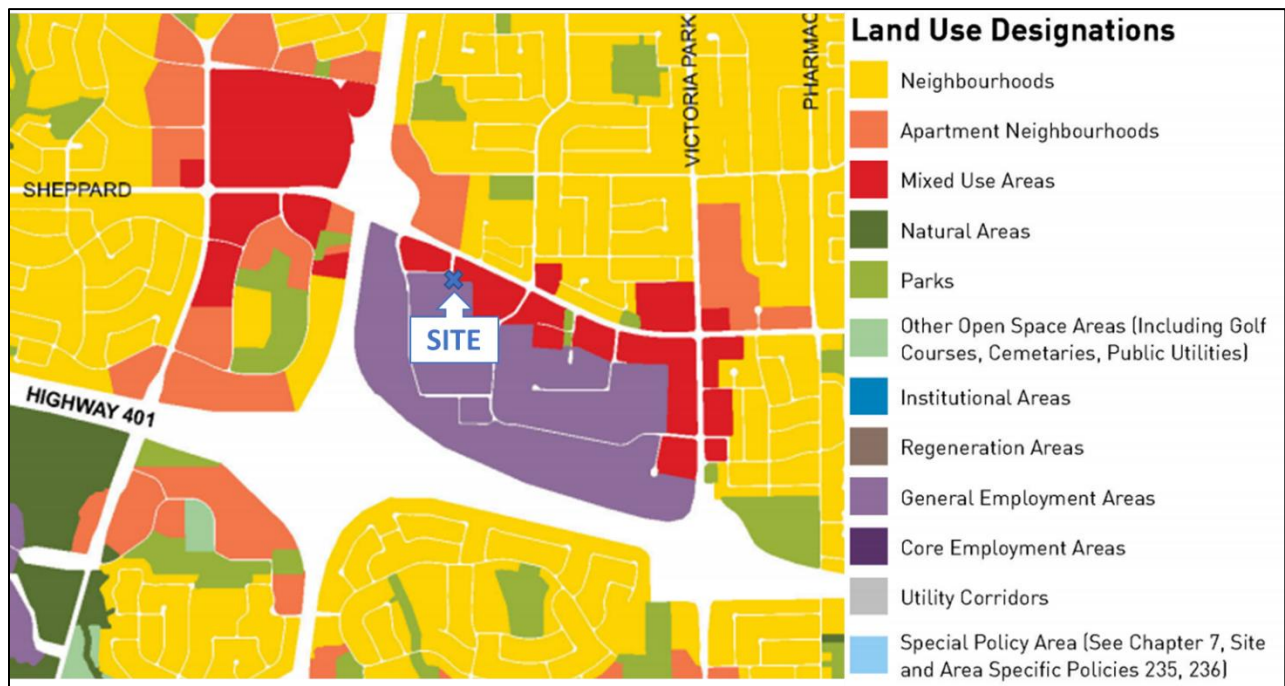


Figure 2: Toronto Official Plan (Map 19 – Land Use Plan, February 2019)

2.4 NEARBY INDUSTRIES

The area surrounding the proposed development site is a mix of commercial and residential properties. There were no facilities of concern surrounding the proposed development from an air quality perspective. This assessment focuses on the facilities surrounding the proposed site which are identified in **Figure 3**. Industrial facilities of interest considered in this assessment include Parkway Car Wash from a noise perspective. In researching current environmental approvals in the area, an Environmental Compliance Approval (ECA) was identified for Cestar High School. Although this is not considered an industry and is an institutional land use, the ECA was reviewed from an air quality perspective.

Existing uses of the immediate surroundings were considered in this study, as any future uses that may be industrial in nature will be limited to meeting air quality standards at the industrial property line and will need to consider nuisance related issues, such as noise, vibration, dust and odour at existing sensitive receptors associated with the number of residential, mixed use features already located in the immediate

area surrounding the proposed development. It is expected the proposed development will be compatible with future land uses, if the proposed development is compatible with the current land uses.

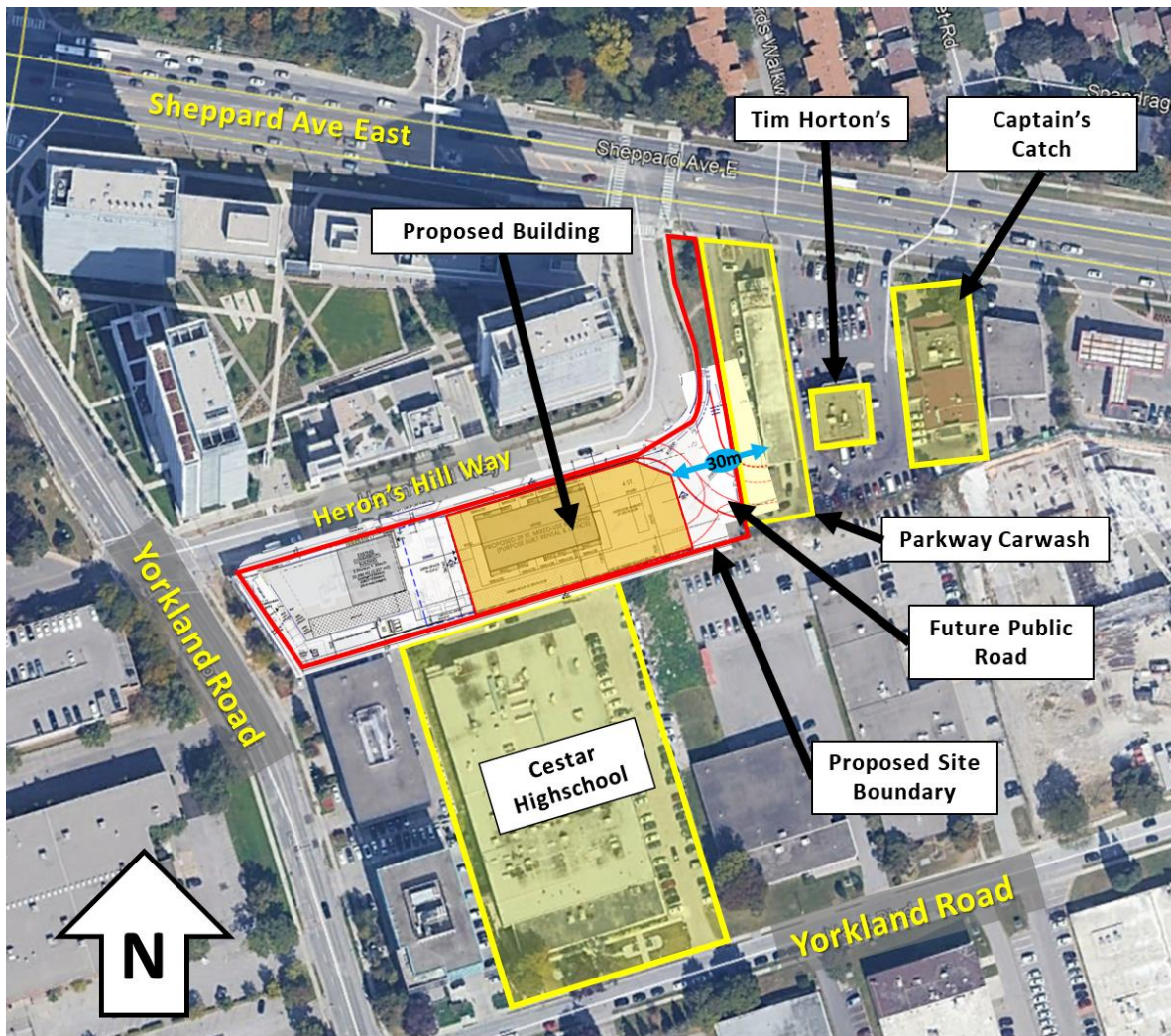


Figure 3: Site and Surrounding Industries

3. PROVINCIAL GUIDELINES AND REGULATIONS

Compatibility assessments in Ontario are typically performed in two stages. In the case of proposed residential uses in proximity to industrial uses, the first step is to determine if there are any potential adverse effects. The City of Toronto's Official Plan Amendment No. 231 (OPA 231) provides a Terms of Reference for compatibility/mitigation studies where sensitive land uses are proposed in proximity to employment lands. The Ministry of the Environment, Conservation and Parks (MECP) D-series of guidelines are meant to identify potential compatibility issues between land uses. Both guidelines have been considered in this assessment and are described further below. Where the potential for compatibility issues is identified a more detailed assessment may be performed.

3.1 CITY OF TORONTO'S OFFICIAL PLAN AMENDMENT NO. 231 (OPA 231)

The City of Toronto's Official Plan Amendment No. 231 regarding the land use compatibility and mitigation of sensitive land uses was considered in the study. As detailed in the introduction, Terms of Reference for compatibility/mitigation studies was developed (OPA 231) from the Official Plan Amendment and this Terms of Reference was followed in preparing this report.

3.2 D-SERIES OF GUIDELINES

The D-series of guidelines were developed by the MECP in 1995 as a means to assess recommended separation distances and other control measures for land use planning proposals in an effort to prevent or minimize 'adverse effects' from the encroachment of incompatible land uses where a facility either exists or is proposed. The guideline specifically addresses issues of odour, dust, noise and litter.

To minimize the potential to cause an adverse effect, areas of influence and recommended minimum setback distances are included within the guidelines.

MECP Guideline D-6 "Compatibility Between Industrial Facilities and Sensitive Land Uses" is specific to industrial uses in proximity to more sensitive land uses such as the proposed residential re-development of the Subject Lands.

The areas of influence and recommended separation distances from the guidelines are provided in the table below.

Table 1: Guideline D-6 - Potential Influence Areas and Recommended Minimum Setback Distances for Industrial Land Uses

Industry Classification	Area of Influence	Recommended Minimum Setback Distance
Class I – Light Industrial	70 m	20 m
Class II – Medium Industrial	300 m	70 m
Class III – Heavy Industrial	1000 m	300 m

Guideline D-6 requires that studies be conducted to assess impacts where sensitive land uses are proposed within the potential area of influence of an industrial facility. This report is intended to fulfill this requirement.

Guideline D-6 also recommends that no sensitive land use be placed within the Recommended Minimum Separation Distance. However, it should be noted that this is a recommendation, only. Section 4.10 of the Guideline allows for development within the separation distance, in cases of redevelopment, infilling, and transitions to mixed use, provided that the appropriate studies are conducted and that the relevant air quality and noise guidelines are met.

Industrial categorization criteria are supplied in Guideline D-6-2, and are shown in the following table:

Table 2: Guideline D-6 - Industrial Categorization Criteria

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class I	<ul style="list-style-type: none"> Noise: Sound not audible off-property Dust: Infrequent and not intense Odour: Infrequent and not intense Vibration: No ground-borne vibration on plant property 	<ul style="list-style-type: none"> No outside storage Small-scale plant or scale is irrelevant in relation to all other criteria for this Class 	<ul style="list-style-type: none"> Self-contained plant or building which produces/stores a packaged product Low probability of fugitive emissions 	<ul style="list-style-type: none"> Daytime operations only Infrequent movement of products and/or heavy trucks 	<ul style="list-style-type: none"> Electronics manufacturing and repair Furniture repair and refinishing Beverage bottling Auto parts supply Packaging and crafting services Distribution of dairy products Laundry and linen supply
Class II	<ul style="list-style-type: none"> Noise: Sound occasionally heard off-property Dust: Frequent and occasionally intense Odour: Frequent and occasionally intense Vibration: Possible ground-borne vibration, but cannot be perceived off-property 	<ul style="list-style-type: none"> Outside storage permitted Medium level of production allowed 	<ul style="list-style-type: none"> Open process Periodic outputs of minor annoyance Low probability of fugitive emissions 	<ul style="list-style-type: none"> Shift operations permitted Frequent movements of products and/or heavy trucks with the majority of movements during daytime hours 	<ul style="list-style-type: none"> Magazine printing Paint spray booths Metal command Electrical production Manufacturing of dairy products Dry cleaning services Feed packing plants

Continued...

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class III	<ul style="list-style-type: none"> Noise: Sound frequently audible off property Dust: Persistent and/ or intense Odour: Persistent and/ or intense Vibration: Ground-borne vibration can frequently be perceived off-property 	<ul style="list-style-type: none"> Outside storage of raw and finished products Large production levels 	<ul style="list-style-type: none"> Open process Frequent outputs of major annoyances High probability of fugitive emissions 	<ul style="list-style-type: none"> Continuous movement of products and employees Daily shift operations permitted 	<ul style="list-style-type: none"> Paint and varnish manufacturing Organic chemical manufacturing Breweries Solvent recovery plants Soaps and detergent manufacturing Metal refining and manufacturing

3.2.1 CLASSIFICATION OF NEARBY INDUSTRIES

The D-6 classifications of the facilities considered are shown in **Table 3**.

Table 3: Industries / Commercial Properties and D-6 Classifications in the Surrounding Area

Facility #	Facility	Address	Type of Operation	ECA/EASR	Industry Class	Within A of I? [1]
1	Parkway Car Wash	2055 Sheppard Avenue E	Carwash	No	Class I	Yes
2	Cestar High School	271 Yorkland Blvd	Education Institution	Yes	Class I	Yes

Notes:

[1] A of I = Area of Influence = Area of Influence; Class I = 70m, Class II = 300m

The area of influence and recommended minimum setbacks from the nearby facilities are shown in **Figure 4**. The figure shows the Class I, Class II, and Class III setback/area of influence distances. The D-6 Guideline recommends that when a development is proposed within an industry’s area of influence or recommended minimum setback distance, an assessment may be performed to determine if compatibility can be achieved. Provided below are preliminary comments and findings with respect to predicted impacts at the proposed development from the identified industrial facilities nearby.

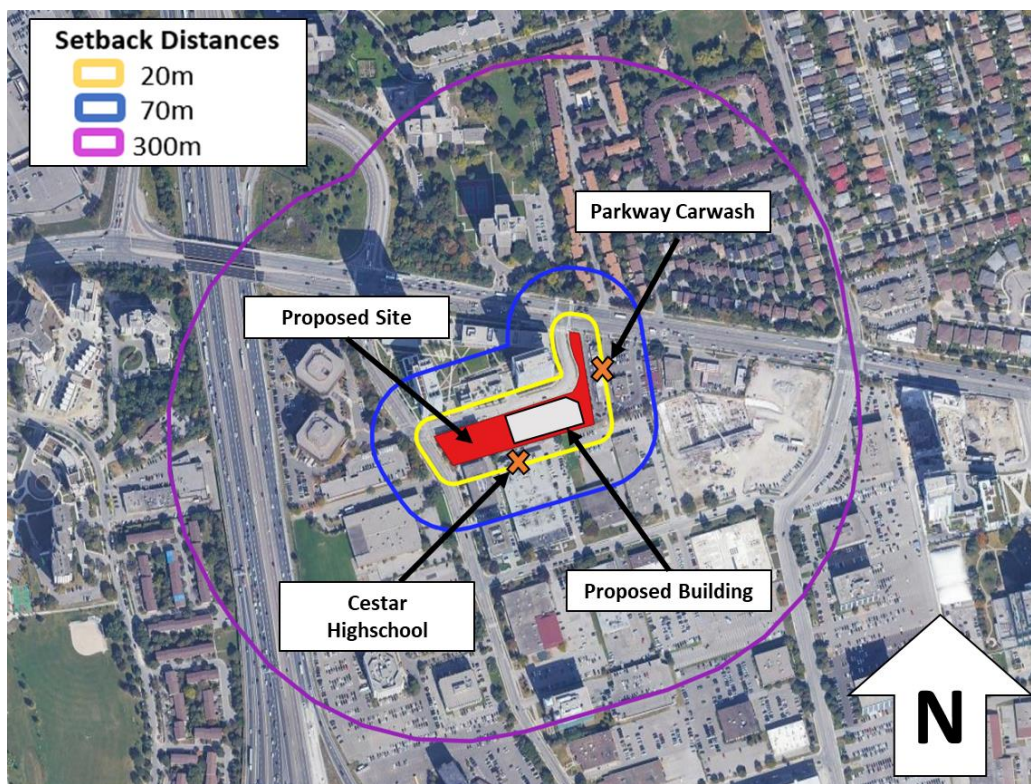


Figure 4: Setback Distances for Proposed Development

3.3 REVIEW OF ENVIRONMENTAL APPROVALS

Within Ontario, facilities which emit significant amounts of contaminants to the environment are required to obtain and maintain an Environmental Compliance Approval (an “ECA”) from the MECP or submit an Environmental Activity and Sector Registry (“EASR”). Parkway Carwash does not have an ECA or EASR. However, Cestar high school has an ECA, as found on the MECP’s Access Environment website.

3.4 AIR QUALITY GUIDELINES AND REGULATIONS

Within Ontario, facilities which emit significant amounts of contaminants to the environment are required to obtain and maintain an Environmental Compliance Approval (an “ECA”) from the MECP or submit an Environmental Activity and Sector Registry (“EASR”).

3.4.1 AIR QUALITY CONTAMINANTS

Under O.Reg. 419/05, a facility is required to meet prescribed standards for general air quality contaminants at their property boundary line and any location off-site, this includes the regulation of particulate matter which when considered a nuisance is referred to as dust. The MECP does not require industries to assess their emissions at elevated points off-site, if a receptor does not exist at that location. While the introduction of mid to high-rise residential properties could trigger a facility to re-assess compliance at new receptor locations, the introduction of new low-rise receptors does not introduce any new receptors, as the facility is already required to be in compliance at grade-level at their property line.

3.4.2 ODOUR

There are a select few compounds that are provincially regulated from an odour perspective; there is no formal regulation with respect to mixed odours.

The MECP has decided to apply odour-based standards to locations “where human activities regularly occur at a time when those activities regularly occur,” which is generally accepted to be places that would be considered sensitive such as residences and public meeting places. Therefore, a new development introduces new sensitive receptors at which odour impacts could potentially occur.

As stated by the Environmental Commissioner of Ontario, impacts from mixed odours produced by industrial facilities are generally only considered and regulated by the MECP in the presence of persistent complaints (ECO 2010).

The potential for industrial emitted odour to impact the proposed development is addressed in sections to follow.

3.5 NOISE GUIDELINES AND REGULATIONS

3.5.1 TRANSPORTATION NOISE SOURCES

3.5.1.1 Indoor Criteria

Table 4 summarizes the criteria in terms of energy equivalent sound exposure (L_{eq}) levels for specific indoor noise-sensitive locations. These indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than Living / Dining room space.

Table 4: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L_{eq} ^[5] (dBA)		Assessment Location
		Road	Rail ^[1]	
Living / Dining Room ^[3]	Daytime (0700-2300h)	45	40	Indoors ^[4]
	Night-time (2300-0700h)	45	40	Indoors ^[4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors ^[4]
	Night-time (2300-0700h)	40	35	Indoors ^[4]

- Notes:
- [1] Whistle/warning bell 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 night-time period, Schools and Daycares are excluded.
 - [4] An assessment of indoor noise levels is required only if the criteria in Table 5 are exceeded.

3.5.1.2 Ventilation and Warning Clauses

Table 5 summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite the implementation of ventilation measures where required, some occupants may choose not to use the ventilation means provided, and as such, warning clauses advising future occupants of the potential excess over the **Table 4** indoor guideline limits are required.

Table 5: NPC-300 Ventilation and Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Ventilation and Warning Clause Requirements ^{[2][3]}
		Road	Rail ^[1]	
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating with provision to add AC + Applicable Warning Clause(s)
		> 65		Central AC + Applicable Warning Clause(s)
	Night-time (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add AC+ Applicable Warning Clause(s)
		> 60		Central AC + Applicable Warning Clause(s)

Notes: [1] Whistle/warning bell noise is excluded.

[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

3.5.1.3 Building Shell Requirements

Table 6 provides sound exposure (L_{eq}) thresholds which if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the **Table 4** indoor location criteria are met.

Table 6: 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/warning bell noise.

[2] The resultant sound isolation parameter from Road and Rail are to be combined for determining the overall acoustic parameter.

3.5.1.4 Indoor Criteria Summary

In summary, transportation noise levels are to be predicted at the plane-of-window for the proposed development. Providing the plane-of-window sound levels exceed the daytime and night-time sound

levels indicated in **Table 6**, the determination of the building façade components is required for meeting the indoor sound level criteria outlined in **Table 4**. In addition, the ventilation requirements and warning clauses were determined, as outlined in **Table 5**, based on the plane-of-window noise levels.

3.5.1.5 Outdoor Sound Level Criteria

Table 7 summarizes criteria in terms of energy equivalent sound exposure (L_{eq}) levels for the outdoor noise-sensitive locations, with a focus of outdoor areas being amenity spaces called Outdoor Living Areas (OLAs) per NPC-300.

Table 7: NPC-300 Outdoor Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L_{eq} ^{[1][2]} (dBA)	Assessment Location
OLA	Daytime (0700-2300h)	55	Outdoors

Notes: [1] Excluding whistle/warning bell noise for OLA noise assessments
 [2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.

3.5.1.6 Mitigation and Warning Clauses

Table 8 summarizes mitigation and warning clause requirements for outdoor amenity spaces.

Table 8: NPC-300 Outdoor Living Area Mitigation & Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} ^{[1][2]} (dBA)	Mitigation and Warning Clause Requirements ^[3]
OLA	Daytime (0700-2300h)	≤ 55	None
		56 to 60 incl.	Noise Control Measures may be applied, and/or Applicable Warning Clause(s)
		> 60	Noise barrier to reduce noise to 55 dBA, or Noise barrier to reduce noise to 60 dBA and Applicable Warning Clause(s)

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

As indicated in NPC-300, noise control measures may be applied to reduce sound levels to 55 dBA. If measures are not provided, potential purchasers/tenants are required to be informed of potential noise problems with the applicable Warning Clause(s).

If noise impacts are predicted to be greater than 60 dBA, noise control measures are required to reduce noise levels to 55 dBA. If noise control measures are not technically feasible for meeting 55 dBA, an excess of up to 5 dBA is allowed, with the inclusion of the applicable Warning Clause(s).

3.6 SITE VISIT OBSERVATIONS

A site visit was conducted on Wednesday January 15, 2020 by SLR staff members. The visit was conducted to identify and observe operations of the facilities in the area surrounding the site from an air, and noise

quality perspective. During the site visit, the staff members observed existing industries from the public sidewalks. Wind conditions during the site visit were noted as 9km/hr. south westerly winds.

During the site visit, the staff members walked along Heron's Hill Way and Yorkland Blvd. The east side of the proposed site was also observed by walking through the mixed-use plaza on Sheppard Avenue East. Faint cleaner-like odours were detected downwind from the carwash that is east of the proposed site. However, odours from the Parkway carwash are not anticipated to have an impact at the proposed development. Odours are local to the carwash and are expected to dissipate on site. No other odours were detected and no visible dust was observed at the proposed development site.

During the site visit, SLR personnel visited Cestar High School with intention to communicate with administration to better understand facility operations. Unfortunately, administration was not present on site. However, the existence of the school was confirmed during the site visit. The school was later contacted to obtain more information regarding the use of the laboratory fume hoods. The administration for the high school were cooperative in providing air quality information for the site including the latest Emission Summary and Dispersion Modelling Report (Prepared by Airzone One Ltd. November 2016). This information was used to evaluate the potential for the reported air quality emission sources to impact the proposed development. This is discussed further in Section 5.

Noise from car wash activity was audible in the south-west corner of the Tim Horton's parking lot. Exhaust fan noise from the Captain's Catch restaurant was also deemed to be audible in the parking lot of the restaurant. A future public road will be located between the proposed building and the sources mentioned. Each source is shown in **Figure 3**. Within the proposed development property line, these sources were deemed to be inaudible over the ambient roadway noise from the DVP/Highway 404 and Sheppard Avenue. Noise from the carwash is not anticipated to impact the proposed development.

The site visit continued into the surrounding areas. No other odours or noise were detected, and no visible dust was observed at the proposed development site.

3.7 HISTORY OF COMPLAINTS

To determine if there is any complaint history with respect to noise associated with Parkway Carwash, a Freedom of Information (FOI) request was submitted to the MECP on February 18, 2020. No information has been received to date, however, if a history of noise complaints is received, a summary of this information will be submitted to the City for review, following submission of this report. Further details regarding noise impacts are discussed in **Section 5.0**.

3.8 LOCAL METEOROLOGY

Surface wind data was obtained to generate a wind rose from data collected at the Pearson International Airport in Toronto from 1986 through 2015. The wind rose, as shown in **Figure 5** below, represents the frequency of winds blowing from various wind directions. As can be seen in the wind rose, predominant winds are from the west and northwestern quadrants, while winds from the northeast and southeast quadrants may be the least frequent.

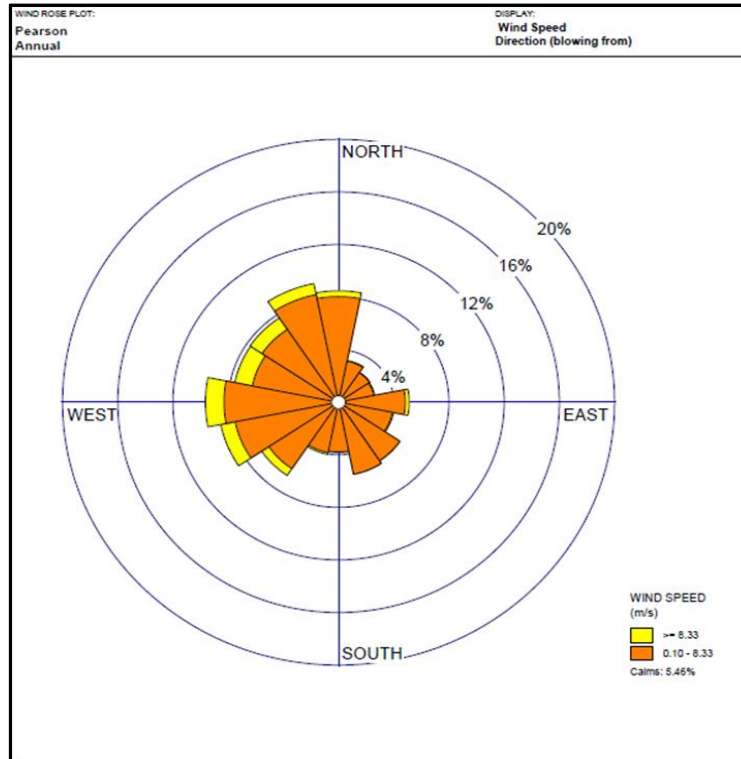


Figure 5: Pearson International Airport Wind Rose; 1986-2015

4. POTENTIAL AIR QUALITY IMPACTS

The Parkway Carwash is within the area of influence but is not expected to make an impact on the proposed site. Although the proposed site is adjacent to the car wash the proposed building is going to be built on the west side of site, east of the existing office building (as shown in *Figure 1: Proposed Development Context Plan*) and therefore will be out of the area of influence.

Cestar High School has an Environmental Compliance Approval (ECA) for their use of two rooftop exhausts serving eight laboratory fume hoods. The proposed development will become the new nearest receptor for those fume hoods. The Emission Summary and Dispersion Modelling (ESDM) report for Cestar High School was completed by AirZone One Ltd. in 2016. SLR followed the required guidance documentation to prepare an air quality assessment, the documents referenced included:

- Guideline A-10: Procedure for Preparing and Emission Summary and Dispersion Modelling Report
- Guideline A-11: Air Dispersion Modelling Guideline for Ontario

The AERMOD modelling system is made up of the AERMOD dispersion model, and the AERMAP terrain pre-processor. The following approved dispersion model and pre-processors were used in the assessment:

- AERMOD dispersion model (v. 16216r);
- AERMAP surface pre-processor (v. 11103); and
- BPIP building downwash pre-processor (v. 04274).

The modelling predicted that Cestar High School's fume hoods will be in compliance with the addition of the proposed development. In addition, Paradise Developments Heron's Hill Inc. has been in contact with Cestar High School administration and it is our understanding that Cestar High School will update the ESDM, as part of the documentation associated with the School's environmental approval.

Additional discussion regarding facility classification and potential air quality impacts is provided below.

5. POTENTIAL NOISE IMPACTS

5.1 TRANSPORTATION SOURCES

Transportation noise sources of interest with the potential to produce roadway noise at the proposed development are:

- Sheppard Avenue East;
- Yorkland Road; and
- Highway 404/Don Valley Parkway.

Sound exposure levels at the development due to these sources have been predicted, and this information has been used to identify potential mitigation measures, façade, ventilation, and warning clause requirements.

5.1.1 ROADWAY TRAFFIC VOLUMES

The projected road traffic volumes for Sheppard Avenue, Yorkland Road and the Highway 404 on-ramp was provided by the project's traffic study conducted by BA Consultants. Truck percentages and the day/night split were assumed based on historical SLR data from road networks in similar areas.

2016 traffic volumes were obtained from the Ministry of Transportation for the segment of Highway 404/Don Valley Parkway. Volumes were forecasted to 2032 based on 0.5% traffic growth per annum. This is consistent with the MTO estimation for future traffic volumes based on correspondences with the MTO. An assumed day/night traffic volume split of 85/15 was used (default based on the MECP *Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT)* document). The commercial vehicle split was calculated based on data provided from the Ministry of Transportation iCorridor website.

Copies of applicable traffic data and calculations can be found in **Appendix B**. The following **Table 9** summarizes the road traffic volumes used in the analysis.

Table 9: Summary of Road Traffic Data Used in the Analysis

Roadway Link	Future 2032 Traffic Volume (AADT) ^[1]	% Day / Night Volume Split		% Commercial Traffic Breakdown		Vehicle Speed (km/h)
		Daytime	Night-time	Medium Trucks	Heavy Trucks	
Sheppard Avenue East	52605	90	10	2.3	2.0	50
Yorkland Road	15947	90	10	2.3	2.0	50
Highway 404 / Don Valley Parkway	355572	85	15	1.1 ^[2]	2.9 ^[2]	100
Highway 404 (on ramp)	23558	90	10	2.3	2.0	50

Notes: [1] All traffic volumes provided by the traffic study were grown to the year 2032.

[2] Calculated based on truck percentages provided from the MTO iCorridor website.

5.2 FAÇADE SOUND LEVELS

5.2.1 ROADWAY TRAFFIC

Road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. 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. Volumes for roadways were calculated based on future projections from the development’s traffic study conducted by BA Consultants, dated January 2020 and through the MTO iCorridor website.

Sound levels were predicted along the façades 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. Ground absorption was assessed as reflective surfaces, as the majority of the intervening ground is pavement/asphalt.

Due to numerous building features, the predicted worst-case roadway facade sound levels have been grouped for each major building component (e.g., for the podium and tower) and are summarized in **Table 10**. Detailed information at all residential façades are provided in **Appendix C**. The façade daytime and night-time roadway sound levels are shown in **Figure 6** and **Figure 7**, respectively.

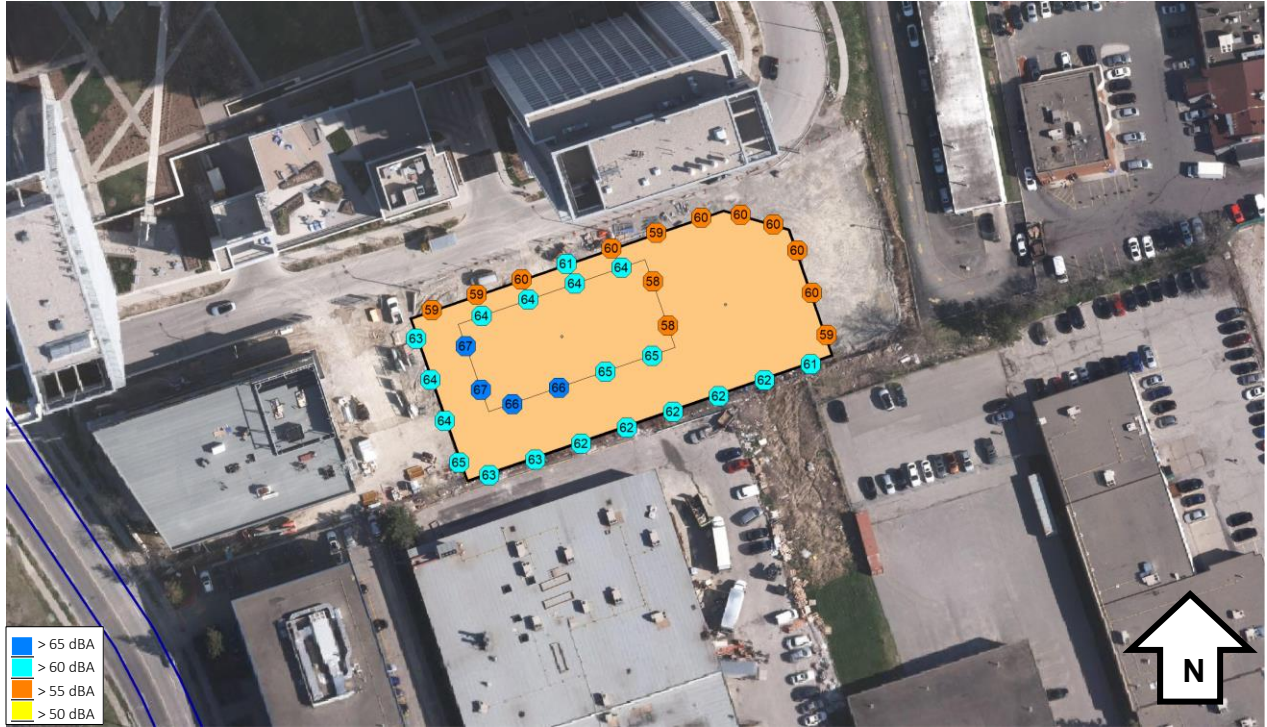


Figure 6: Predicted Facade Sound Levels - Roadway – Daytime

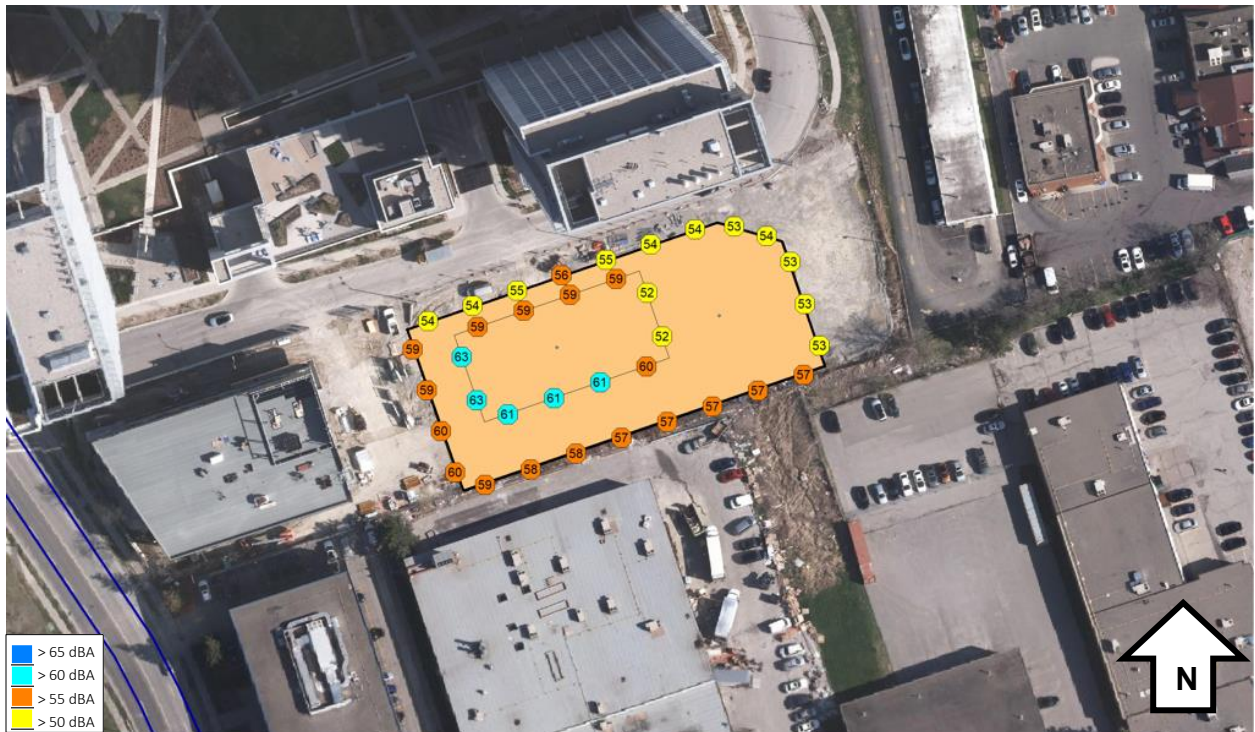


Figure 7: Predicted Facade Sound Levels - Roadway - Night-time

Table 10: Summary of Worst-Case Roadway Sound Levels – Façades

Component	Façade	Roadway ^[1]	
		Leq Day (dBA)	Leq Night (dBA)
Podium ^[2]	North	61	56
	East	60	53
	South	63	59
	West	65	60
Tower	North	64	59
	East	58	52
	South	66	61
	West	67	63

Notes: [1] Unless otherwise noted, day values are 16-hr Leq and night values are 8-hr Leq.

[2] Assessment is required for ground level office and amenity space of podium

5.3 OUTDOOR AMENITY SPACES

Outdoor amenity areas, both private and common, are planned throughout the site. 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/balconies was excluded based on the definitions outlined in NPC-300. Only those meeting the NPC-300 criteria, i.e., common amenity spaces for high-rises, are assessed and mitigation measures defined as applicable.

Outdoor Living Areas (OLAs) for the proposed development include the common outdoor amenity areas located on the 5th floor rooftops of the Podium, and the ground level “P.O.P.S”.

The location of the applicable OLAs are shown in **Figure 8**. Predicted transportation sound levels in the OLAs are summarized in **Table 11**.



Figure 8: Outdoor Living Area Sound Levels - Roadway - Daytime

Table 11: Summary of Surface Transportation Sound Levels - OLAs

Component	Location	Transportation Sound Level	Applicable Guideline Limit	Meets Criteria?
		Leq Day (dBA)	Leq Day (dBA) ^[1]	(Yes/No)
Podium	5 th Floor OLA ^[1]	57	60	Yes
POPS	Ground Level P.O.P.S	56	60	Yes

Notes: [1] Sound levels up to 60 dBA are allowed with the use of the applicable Warning Clause(s).

The projected sound levels at the OLAs meet the NPC-300 criteria. No noise control measures are required surrounding the OLAs. Noise Warning Clauses are predicted to be required for Podium’s 5th floor east rooftop OLA, and the P.O.P.S at ground level as sound levels are between 55 dBA and 60 dBA. Warning Clauses are provided in **Section 5.2**.

5.4 INDOOR LIVING AREAS AND AC/VENTILATION REQUIREMENTS

5.4.1.1 Roadway Traffic

The requirement to include Warning Clauses is summarized in **Table 5**. The roadway façade sound levels, as shown in **Table 9**, are predicted to be greater than or equal to 65 dBA during the daytime and 60 dBA during the night-time for the residential portions of the development. Therefore, provision for central air conditioning and a **Type D** Warning Clause should be included for the following residential units:

- South and west facing units of the building's tower component.

Combined roadway façade sound levels are predicted to be greater than or equal to 55 dBA during the daytime and 50 dBA during the night-time for the majority of residential spaces of the development. Therefore, a Type C Warning Clause with Forced Air Heating and a provision to add air-conditioning should be included for the following units:

- North, and east facing units of the building's tower component.

5.4.2 OUTDOOR AMENITY SPACES

The projected sound levels on the development's OLAs are predicted to meet NPC-300 criteria. No noise control measures are required, provided there is inclusion of a 1.1 m parapet surrounding the building's podium rooftop. A **Type A** warning clause is required for the 5th floor rooftop OLA and ground floor "P.O.P.S" due to sound levels being between 55 and 60 dBA during the daytime period (0700-2300h). Details on Warning Clause text is provided in **Appendix D**.

5.4.3 INDOOR AMENITY SPACES

Sound levels predicted on the development's indoor amenity spaces do not exceed the requirements for a detailed indoor noise assessment. Therefore, the indoor amenity spaces are anticipated to meet the NPC-300 interior sound level limits for supplementary spaces (offices, etc.). These spaces are outlined in detail in **Figure 9**.

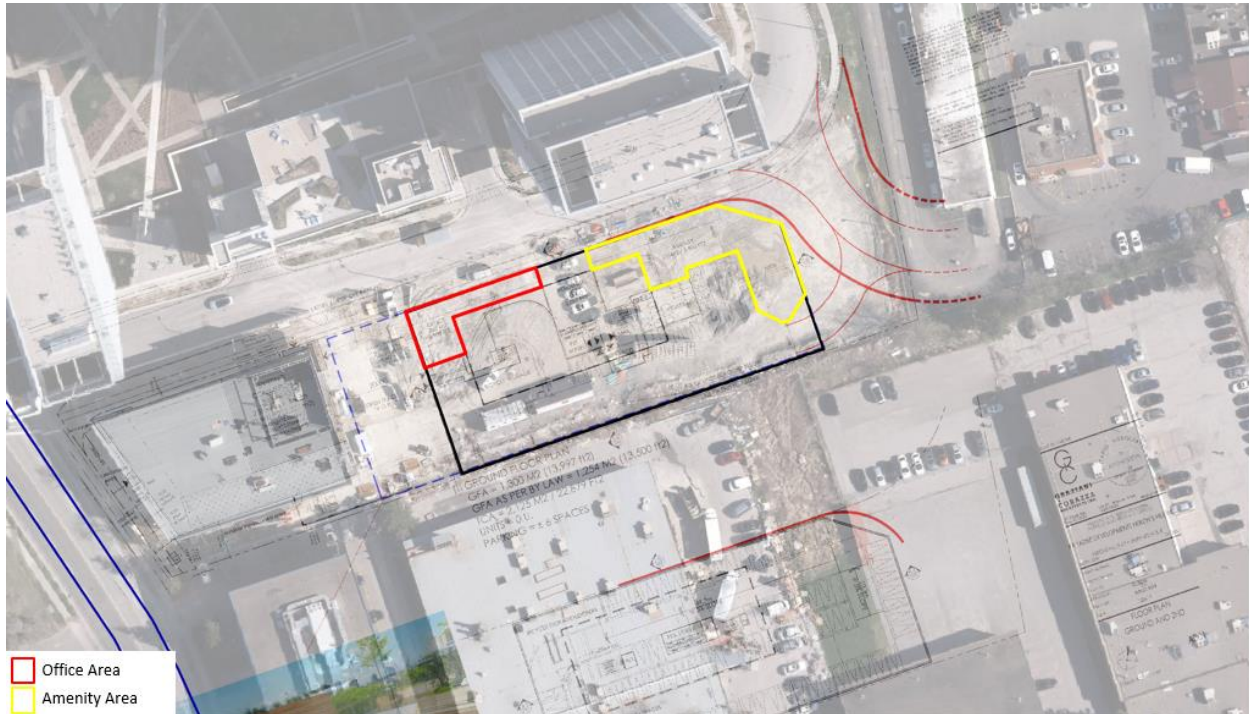


Figure 9: Interior Amenity Spaces

5.4.4 BUILDING FAÇADE CONSTRUCTION

Based on roadway sound levels summarized in **Table 10**, exceedances are predicted on portions of the development. Therefore, a detailed assessment of glazing requirements is necessary to meet indoor noise criteria listed in **Table 4**.

Indoor sound levels and required Sound Transmission Class (STC) ratings for façade components were estimated using the procedures outlined in the National Research Council Building Practice Note BPN-56. This document provides corrections to estimate the STC ratings required based on either the roadway noise.

Detailed floor plates were not available at the time of this assessment. For the analysis, general room dimensions for bedrooms and living/dining rooms have been considered. The following assumptions have been made:

- Window wall construction with glazing and glass spandrel panel elements;
- For kitchen/dining/living rooms 70% of the exterior wall area is vision glass / patio doors;
- For bedrooms 50% of the exterior wall area is vision glass;
- Non-glazing portions of the wall have an assumed STC rating of 45;
- Living/Dining rooms were assumed to be 3 m x 6 m in size and typically have a reflective level of acoustic absorption; and
- Bedrooms were assumed to be 3 m x 3 m in size and are very acoustically absorptive.

Preliminary acoustical requirements for glazing will be met providing windows meet the Ontario Building Code specifications (STC 29). Detailed façade requirements and calculations for each façade are provided in **Appendix C**.

5.5 STATIONARY SOURCES

5.5.1 EXISTING OFF-SITE STATIONARY SOURCES

A review has been conducted for the potential impacts on the development from stationary industrial/commercial noise sources.

SLR staff completed a site visit on January 15, 2020 to the development lands and surrounding area. The general ambient environment surrounding the development lands are dominated by roadway traffic noise from Sheppard Avenue and Highway 404/Don Valley Parkway.

After assessing acoustic environment of the development lands, no significant stationary noise sources identified in **Section 3.2.1** were identified as audible. Therefore, a detailed assessment of stationary noise was deemed to be unnecessary.

5.5.2 FUTURE ON-SITE STATIONARY SOURCES

Possible sources of noise for the development with potentially adverse impacts on itself and the surroundings include mechanical roof-top equipment and emergency generators.

The building mechanical systems 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.

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.

Once data becomes available, it is recommended that the mechanical systems be reviewed by an Acoustical Consultant prior to final selection of equipment.

6. COMMUNICATING WITH INDUSTRY

In accordance with the City of Toronto's Official Plan Amendment No. 231 and the Terms of Reference for compatibility/mitigation studies, the applicant is required to show that they have reached out to facilities within the nearby Employment Area and *"have exchanged relevant information where applicable and to the extent appropriate"*. For the proposed 1 Heron's Hill Way development, we have conducted a site visit and review of the local industries. None of the identified industries have been directly contacted at this time because they are generally outside of the D6 Classification Area of Influence and the majority of the identified industries are greater than 300m from the proposed development site. As discussed above, none of the identified industries are expected to have an impact on the proposed site from an air quality and noise perspective. Similarly, the proposed 39-storey development, adjacent to existing residential properties, is not expected to have an impact on operations and activities of the nearby Employment areas.

7. CITY OF TORONTO OFFICIAL PLAN POLICY STATEMENTS

The following comments are provided to address the City of Toronto's the policy statements relevant to the concern of compatibility with respect to the proposed development.

Policy 2.2.4.17

"During a Municipal Comprehensive Review, the City will assess requests to convert lands within Employment Areas, pursuant to the Provincial Growth Plan Policy 2.2.6.5, both cumulatively and individually, by considering the following matters:

[Item] e) the conversion(s) will not adversely affect the overall viability of the Employment Area and maintenance of a stable operating environment for business and economic activities with regard to the:

i. compatibility of the proposed land use with existing employment uses or employment uses permitted in the zoning by-law in the Employment Area;"

Response with respect to Subject Site:

The proposed mixed development has been considered in the context of the existing employment and permitted employment uses for the neighbouring lands and in reviewing the proposed development, it has been determined the conversion will not adversely affect the viability of the Employment Area, given the existing residential uses and types of industrial activities existing and allowable in the area. More detail of the approach to the compatibility review is provided in responses to the following items; e) ii., iii., iv., and item i).

"ii. interference with the function of existing employment uses by affecting Environmental Compliance Certificates of industries and their renewal, or complaints of adverse effects to the Ontario Ministry of the Environment under the Environmental Protection Act which could require changes to industrial operations or restrict operating hours;"

Response with respect to Subject Site:

The evaluation of the proposed development was prepared in accordance with the Proposed OPA 231 Modification Regarding the Land Use Compatibility and Mitigation of Sensitive Land Uses Adjacent or Near to Employment Areas guidance document released by the City of Toronto. As part of the study, industrial activities surrounding the subject property were reviewed, including existing environmental approvals issued by the Ontario Ministry of Environment, Conservation and Parks (MECP). As is reported, no instances of interference with the operations of existing or future industries are anticipated due to the development of the proposed, mixed-use features on the subject lands.

“iii. ability to provide appropriate buffering of employment uses from sensitive residential and institutional uses;”

Response with respect to Subject Site:

The appropriate buffering is in place for the proposed development. No adverse impacts are anticipated with the proposed development design and associated recommended mitigation.

“iv. implementation of the Ontario Ministry of the Environment D series guidelines for compatibility between industry and sensitive uses or any successor guidelines;”

Response with respect to Subject Site:

As part of the land use compatibility study conducted, an evaluation of the development was completed, following the appropriate D-Series guidelines, as released by the MECP in 1995. As indicated, the guidelines are addressed with respect to the planned development and the development will be compatible with neighbouring land uses.

“i) new residents or institutional users on the lands would be adversely affected by noise, vibration, odours and other air emissions, dust and other particulates or other contaminants;”

Response with respect to Subject Site:

The proposed development was reviewed in consideration of the City’s land use compatibility guidelines, as well as the Provincial D-Series guidelines. The D-Series Guidelines specifically consider the need to evaluate the potential for adverse impacts due to noise, vibration, odours and other emissions, such as dust, particularly in the context of nuisance issues. In addition, other emissions, including general air quality contaminants, compliance with noise guidelines for stationary sources, and the potential impacts from transportation sources (including traffic) were also considered. As concluded, with the design features in place for addressing specific noise issues related to transportation sources, adverse effects on the proposed development are not anticipated.

Furthermore, the proposed mixed-use development is consistent with the large residential development on the north side of Heron’s Hill Way which appears to be compatible with the local land uses.

8. CONCLUSIONS

SLR Consulting (Canada) Ltd. (SLR), was retained by Paradise Developments Heron's Hill Inc. to conduct a land use compatibility assessment of the proposed mixed use development to be located at 1 Heron's Hill Way Toronto, Ontario. A review of the adjacent land uses, including the existing industries, was conducted in accordance with the City of Toronto's OPA 231 modification regarding the land use compatibility and mitigation of sensitive land uses adjacent or near employment areas and the Ontario Ministry of Environment, Conservation and Parks' Guideline D-6.

Appropriate mitigation to attenuate traffic noise, including façade selection and window glazing according to building code requirements and standard warning clauses for selected units. These details are to be finalized in more detail at the site plan approval stage in the planning process.

The City of Toronto's policy statements have been reviewed in conjunction with our analysis. The following comments have been included in this report to address policy statements relevant to the concerns of compatibility and mitigation:

- As part of the study, industrial activities surrounding the subject property were reviewed, including existing environmental approvals issued by the Ontario Ministry of Environment, Conservation and Parks (MECP). As is reported, no instances of interference with the operations of existing or future The appropriate buffering is in place for the proposed development. No adverse impacts are anticipated with the proposed development design and associated recommended mitigation.
- As part of the land use compatibility study conducted, an evaluation of the development was completed, following the appropriate D-Series guidelines, as released by the MECP in 1995. As indicated, the guidelines are addressed with respect to the planned development and the development will be compatible with neighbouring land uses.
- The proposed development was reviewed in consideration of the City's land use compatibility guidelines, as well as the Provincial D-Series guidelines. The D-Series Guidelines specifically consider the need to evaluate the potential for adverse impacts due to noise, vibration, odours and other emissions, such as dust, particularly in the context of nuisance issues. In addition, other emissions, including general air quality contaminants, compliance with noise guidelines for stationary sources, and the potential impacts from transportation sources (including traffic) were also considered. As concluded, with the design features in place for addressing specific noise issues related to transportation sources, adverse effects on the proposed development are not anticipated.

After completing our compatibility assessment of the proposed mixed use development together with the existence of the large residential development on the north side of Heron's Hill Way, the proposed mixed use development will be compatible with the local land uses.

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 Paradise Developments Heron's Hill 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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