

Environmental Noise Feasibility Study

318 Lake Street

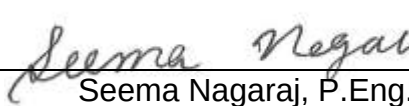
Proposed Residential Development Prince Edward County, Ontario

May 1, 2025
Project: 122-0525-100

Prepared for

Homes First Development Corporation

Prepared by


Seema Nagaraj, P.Eng.



Version History

Version #	Date	Comments
1.0	May 1, 2025	Issued to Client

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION.....	2
1.1 THE SITE AND SURROUNDING AREA.....	2
1.2 THE PROPOSED DEVELOPMENT.....	2
2.0 NOISE SOURCES	3
2.1 TRANSPORTATION NOISE SOURCES	3
2.2 STATIONARY NOISE SOURCES	4
3.0 ENVIRONMENTAL NOISE GUIDELINES	5
3.1 MECP PUBLICATION NPC-300	5
3.1.1 Transportation Noise Sources.....	5
3.1.1.1 Architectural Elements	5
3.1.1.2 Ventilation	5
3.1.1.3 Outdoors	5
4.0 NOISE IMPACT ASSESSMENT – TRANSPORTATION SOURCES.....	6
4.1 ROAD TRAFFIC ASSESSMENT	6
4.2 RESULTS	6
4.3 NOISE ABATEMENT REQUIREMENTS	8
4.3.1 Indoors.....	8
4.3.1.1 Architectural Requirements	8
4.3.1.2 Ventilation Requirements	9
4.3.2 Outdoors.....	9
4.4 WARNING CLAUSES.....	10
5.0 EFFECT OF THE PROJECT ON THE SURROUNDING ENVIRONMENT	12
5.1 MECHANICAL EQUIPMENT	12
6.0 THE EFFECT OF THE PROJECT ON ITSELF	12

.../cont'd

TABLE OF CONTENTS (continued)

6.1	COMMON WALL BOUNDARIES	12
6.2	BUILDING SERVICES	12
7.0	CONCLUSIONS	13
8.0	REFERENCES	13

LIST OF TABLES

TABLE 1	ROAD TRAFFIC DATA	3
TABLE 2	PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS	7
TABLE 3	MINIMUM NOISE ABATEMENT MEASURES	10

LIST OF FIGURES

FIGURE 1	KEY PLAN
FIGURE 2A	DRAFT PLAN OF SUBDIVISION
FIGURE 2B	SITE PLAN

LIST OF APPENDICES

APPENDIX A	ROAD TRAFFIC DATA
APPENDIX B	ENVIRONMENTAL NOISE GUIDELINES
APPENDIX C	SAMPLE SOUND LEVEL CALCULATION – TRANSPORTATION SOURCES

Environmental Noise Feasibility Study

318 Lake Street

Proposed Residential Development Prince Edward County, Ontario

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) was retained to prepare an Environmental Noise Feasibility Study for the proposed residential development in support of the Official Plan Amendment (OPA), Zoning By-law Amendment (ZBA) and Draft Plan of Subdivision (DPS) application submissions to Prince Edward County. The proposed development is located at 318 Lake Street and will consist of link dwellings, single detached dwellings, townhouse blocks and high-density blocks. The development will also have two stormwater management ponds, a pumping station, three park blocks and an open space block with environmentally protected areas.

The significant transportation noise source in the vicinity is road traffic on County Road 10 (CR10 - Lake Street) and County Road 22 (CR22). There are no stationary noise sources in the vicinity that are expected to have a significant impact at the subject site.

The sound levels on site have been determined and compared with the applicable Ministry of the Environment, Conservation and Parks (MECP) noise guideline limits to determine the need for noise mitigation.

To meet the applicable transportation noise guideline limits:

- Mandatory air conditioning is required for the first row of dwellings from CR10 and CR22.
- The provision for adding air conditioning is required at other locations with exposure to CR10 and CR22. See Figures 2A and 2B for specific locations.
- To meet the indoor noise criteria:
 - For the high-rise units, exterior wall construction meeting Sound Transmission Class (STC) 37 and exterior windows meeting STC 33 will be sufficient to meet the indoor noise criteria.
 - For the first row of link, detached and townhouse dwellings from CR10 and CR22, exterior wall construction meeting STC 37 and exterior windows meeting STC 33 will be sufficient to meet the indoor noise criteria. Note that if exterior wall construction with higher STC ratings is used, the window requirements are expected to decrease.

- For all other dwellings, exterior wall and window construction meeting the minimum non-acoustical requirements of the Ontario Building Code (OBC) will be sufficient to meet the indoor noise criteria.

The requirements should be updated once detailed building plans are available.

- Sound barriers are required at the rear yards of dwellings with exposure to CR10 and CR22. See Figures 2A and 2B for specific locations.

1.0 INTRODUCTION

VCL was retained to prepare an Environmental Noise Feasibility Study for the proposed residential development in support of the Official Plan Amendment (OPA), Zoning By-law Amendment (ZBA) and Draft Plan of Subdivision (DPS) application submissions to the County of Prince Edward. The potential sound levels and noise mitigation measures needed for the proposed development to comply with the MECP noise guideline requirements are outlined herein.

1.1 THE SITE AND SURROUNDING AREA

The site is located to the northeast of the intersection of CR10 and CR22 in the County of Prince Edward. The site is bounded by:

- CR10, with existing residential dwellings and a restaurant beyond, to the west;
- Existing residential dwellings to the north;
- Existing woodlands (zoned Environmental Protection) to the east;
- CR22, with existing agricultural land and commercial uses beyond, to the south. There is also an existing auto repair facility and three residential dwellings that are not part of this application located adjacent to the south property line, on the north side of CR22.

A Key Plan is included as Figure 1.

The study was prepared using the:

- Draft Plan of Subdivision prepared by HSPM Holdings Inc., with date printed April 17, 2025; and
- Site Plan prepared by HSPM Holdings Inc., with date printed April 22, 2025.

The Draft Plan is included as Figure 2A. The Site Plan is included as Figure 2B.

1.2 THE PROPOSED DEVELOPMENT

The residential uses in the proposed development will consist of:

- 54 link dwellings (Lots 26 to 43, 69 to 84, 102 to 105, and 109 to 124);
- 53 single detached dwellings (Lots 25, 44 to 68, 85 to 101, 106 to 108, and 125 to 131);
- 86 townhouse dwelling units (Blocks 3, 4, 5, 8, 9, and 11 to 20); and
- Two high rise buildings (Blocks 2 and 10).

The link dwellings detached dwellings and townhouse units will be 2 storeys. The high-rise buildings will be up to 7 storeys.

All low rise dwellings will be provided with private rear yard outdoor amenity areas. Note that the link dwellings will have garages along the rear lanes. For these dwellings, the rear yard amenity space will be located in the space between the dwelling façades and the garages.

The development will also have two stormwater management ponds, a pumping station, three park blocks, and an open space block with environmentally protected areas.

2.0 NOISE SOURCES

2.1 TRANSPORTATION NOISE SOURCES

The transportation noise source with the potential for impact on the proposed development is road traffic on CR10 and CR22. Due to distance separation, traffic on the other surrounding roadways is not expected to have a significant impact at the subject site.

Traffic volumes for CR10 (year 2012) and CR22 (year 2018) were obtained from the County of Prince Edward, in the form of 24-hour hourly counts. To determine future (year 2035) traffic volumes, this data is typically projected with a growth rate of 2%, compounded annually.

Year 2035 traffic volumes for CR10 and CR22 were also provided by Nextrans Consulting Engineers, the traffic consultants for this project. These volumes are higher than projected future volumes calculated using the data from the County. The volumes provided by the traffic consultants were therefore used in this assessment. It is also noted that the traffic study data showed that the traffic volumes on the internal roadways would be minor. Due to the low traffic volumes, these internal roadways were not considered further in this assessment.

Truck percentages were not provided with either data set. Medium and heavy trucks were therefore assumed to be 3% and 2%, respectively, of the total traffic volume.

The day/night split from each roadway was calculated using the 24-hour hourly count data provided by the County.

It is noted that the posted speed limit on CR10 changes from 60 km/h to 80 km/h on the south side of CR22. Traffic on CR10 was therefore modelled at a speed of 80 km/h for calculations done along the south side of the site.

Table 1 summarizes the traffic data used in the assessment. Appendix A contains the traffic data.

TABLE 1 ROAD TRAFFIC DATA

Roadway	Year	24-Hour Volume	% Trucks		Day/Night (%)	Speed Limit (kph)
			Medium	Heavy		
CR10 ⁽¹⁾	2035	23 850	3	2	96/4	60 (north of CR22) 80 (south of CR22)
CR22 ⁽¹⁾	2035	19 810	3	2	96/4	60

Notes:

- (1) Year 2035 traffic volumes were obtained from the traffic consultants for the project. Truck percentages were assumed. The day/night splits were calculated from the 24-hour hourly counts provided by the County of Prince Edward for both roadways.

2.2 STATIONARY NOISE SOURCES

VCL staff completed a visit to the site and surrounding area on March 6, 2025 to assess potential stationary noise sources in the vicinity.

Bailey's Casual Dining is a restaurant located at 314 CR10, to the west of site. During a site visit by VCL staff on March 6, 2025, no noise sources were observed at this restaurant. Thus, this restaurant was not considered further in this assessment.

Shantz Towing, Quinte Home Improvement and Quinte Self Storage are commercial developments located at 167 to 177 CR10, to the north of the subject site. The main noise sources associated with these facilities are expected to be occasional vehicle movements on site. Due to the distance separation (over 200 m) and the presence of existing intervening dwellings, noise from these facilities is not expected to have a significant impact at the subject site.

JCA Automotive is a small auto servicing shop located at 616 CR22, adjacent to the south property line of the subject site. The facility consists of one small building with an overhead door on the south façade (in the direction of CR22). The shop provides basic automotive services, such as tire changes and muffler repair. All work appears to be completed inside the repair shop building. The main noise sources associated with this facility are expected to be the tools used inside the repair shop. It is expected that noise from the tools would not be significant at the adjacent properties, as the doors to the repair shop would generally be kept closed due to the presence of the existing residential dwellings to the immediate east of the shop. Since the proposed dwellings will be located at a similar setback distance to these existing dwellings, significant noise impact from this shop is not expected at the subject site. Thus, the shop has not been considered further in this assessment.

Picton Indoor Storage is a storage facility located on the south side of CR22, approximately 100 m from the southeast corner of the subject site. The facility consists of three buildings with indoor and outdoor storage spaces. The main noise sources at this facility are expected to be occasional vehicle movements in the outdoor storage area. Due to the distance separation, noise from this facility is not expected to have a significant at the subject site. Thus, this facility has not been considered further in this assessment.

The Base31 development area is located approximately 300 m to the east of the subject site, along the ridge of CR22. The website for the Base31 indicates that the former air base site is currently being revitalized and re-developed, with historical buildings that will be preserved and integrated into a new community. The community will consist of residential, commercial and employment uses, together with parks, trails and community programming. The development is largely still in the planning stages, but the site is currently open to the public and hosts concerts and other outdoor events. Any new uses on the site will need to be designed to meet the noise guideline limits at the existing receptors in the vicinity, including any vacant lands zoned as residential. Nevertheless, due to distance and grade separation, it is expected that current activities at Base 31 would not have a significant noise impact at the subject site. Thus, the Base31 development area has not been considered further in this assessment.

3.0 ENVIRONMENTAL NOISE GUIDELINES

3.1 MECP PUBLICATION NPC-300

The applicable noise guidelines for new residential development are those in MECP Publication NPC-300, “*Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning*”.

The environmental noise guidelines of the MECP, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix B.

3.1.1 Transportation Noise Sources

3.1.1.1 Architectural Elements

In the daytime, the indoor criterion for road traffic noise is $L_{eq\ Day}^{(1)}$ of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road traffic noise is $L_{eq\ Night}^{(2)}$ of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms.

The architectural design of the building envelope (walls, windows, etc.) must provide adequate sound isolation to achieve these indoor sound level limits.

3.1.1.2 Ventilation

In accordance with the MECP noise guidelines for road traffic sources, if the daytime sound level, $L_{eq\ Day}$, at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ($L_{eq\ Night}$) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

3.1.1.3 Outdoors

For outdoor living areas (OLA's), the guideline is $L_{eq\ Day}$ (0700 to 2300 hours) of 55 dBA, with an excess not exceeding 5 dBA (i.e. to a maximum of 60 dBA) considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note, a balcony is not considered an OLA, unless it is:

- the only OLA for the occupant;
- at least 4 m in depth; and
- unenclosed.

(1) 16-hour energy equivalent sound level (0700-2300 hours).

(2) 8-hour energy equivalent sound level (2300-0700 hours).

4.0 NOISE IMPACT ASSESSMENT – TRANSPORTATION SOURCES

4.1 ROAD TRAFFIC ASSESSMENT

Using the road traffic data in Table 1, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT, the computerized road traffic noise prediction model of the MECP.

The top floor is considered the worst-case location where the highest sound levels will occur due to loss of ground attenuation and reduced acoustical screening from intervening development. Thus, the daytime and nighttime sound levels at the building facades were assessed at the top floor (worst case) plane of windows, specifically:

- The link dwellings, detached dwellings and townhouse dwellings will be up to 2-storeys in height. The daytime and nighttime sound levels at these dwellings were therefore assessed at a height of 4.5 m above grade.
- The high-rise buildings will be up to 7-storeys in height. The daytime and nighttime sound levels at these buildings were therefore assessed at a height of 19.5 m above grade.

The daytime OLA sound levels at the rear yards of the of the detached dwellings and townhouse units were calculated at a standing height of 1.5 m above grade, 3 m from mid-point of the rear facade. The daytime OLA sound levels at the rear yards of the link dwellings were calculated at the mid-point of the rear yard area, between the rear façade of the dwelling and the garage.

It is expected that all private balconies/terraces will be less than 4 m in depth and therefore would not qualify as OLAs under the MECP guidelines.

Inherent screening of each building face due to its orientation to the noise source, as well as that provided by the subject development itself was included in the calculations. The stormwater management points along the CR10 were modelled as reflective ground.

4.2 RESULTS

The highest daytime/nighttime sound levels of 69 dBA/58 dBA are predicted to occur at the south facade of Lot 131, the detached dwelling adjacent to CR22.

The highest unmitigated daytime OLA sound level of 66 dBA is predicted to occur at the rear yard of the townhouse block siding onto CR10 (Block 3) and the detached dwelling lot siding onto CR22 (Lot 131).

Table 2 summarizes the predicted sound levels outdoors at specific locations. A sample sound level calculation is included in Appendix C.

TABLE 2 PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS

Location ⁽¹⁾		Source	Distance (m) ⁽²⁾	Leq Day (dBA)	Leq Night (dBA)
R1 - Block 2	West Façade	CR10	57	64	53
R2 - Block 3	West Façade	CR10	17	68	57
	Westernmost Rear Yard OLA	CR10	20	66	-
R3 – Block 5	West Façade	CR10	54	58	47
R4 – Lot 26	West Façade	CR10	18	67	57
R5 – Block 8	West Façade	CR10	69	56	45
	Rear Yard OLA	CR10	70	55	-
R6 – Block 9	West Façade	CR10	78	56	45
	Rear Yard OLA	CR10	88	52	-
R7 – Block 10	West Façade	CR10	21	68	57
R8 – Block 13	West Façade	CR10	16	68	57
	Rear Yard OLA	CR10	31	57	-
R9 – Block 14	West Façade	CR10	55	56	46
	Rear Yard OLA	CR10	60	52	-
R10 – Lot 85	West Façade	CR10	84	50	39
R11 – Lot 84	West Façade	CR10	46	68	57
	Rear Yard OLA	CR10	61	60	-
		CR22	65	59	-
		TOTAL	-	63	-
R12 – Lot 109	South Façade	CR10	90	61	50
		CR22	70	57	46
		TOTAL	-	62	52
R13 – Lot 117	South Façade	CR10	84	57	46
		CR22	20	66	55
		TOTAL	-	67	56
	Rear Yard OLA	CR10	88	61	-
R14 – Lot 131	South Façade	CR10	189	51	40
		CR22	14	69	58
		TOTAL	-	69	58
	Rear Yard OLA	CR22	17	66	-

.../cont'd

TABLE 2 PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS (CONTINUED)

Location ⁽¹⁾		Source	Distance (m) ⁽²⁾	Leq Day (dBA)	Leq Night (dBA)
R15 – Lot 130	East Façade	CR22	26	61	51
	Rear Yard OLA	CR22	31	61	-
R16 – Lot 128	East Façade	CR22	53	57	46
	Rear Yard OLA	CR22	58	56	-
R17 – Lot 127	East Façade	CR22	67	55	44

Notes:

- (1) See Figures 2A, 2B and 2C.
(2) Distance indicated is taken from the centreline of the roadway to the point of reception.

4.3 NOISE ABATEMENT REQUIREMENTS

The noise control measures can generally be classified into two categories which are interrelated, but which can be treated separately for the most part:

- Architectural elements to achieve acceptable indoor noise guidelines for transportation sources; and
- Design features to protect the OLA's.

Noise abatement requirements are summarized in Table 3 and the notes to Table 3.

4.3.1 Indoors

4.3.1.1 Architectural Requirements

The indoor noise guidelines for the transportation sources can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements for the link, detached and townhouse block residential units, wall and window areas were assumed to be 80% and 30%, respectively, of the associated floor area on each facade of a corner room with both facades directly exposed to and at an angle to the noise sources, for both living/dining rooms and bedrooms. For the high-rise buildings, wall and window areas were assumed to be 20% and 80%, respectively, of the associated floor area on each facade of a corner room.

The analysis shows that the indoor noise criteria can be met using:

- High-rise buildings – exterior walls meeting STC 37 and exterior windows with ratings up to STC 33.
- Link dwellings, detached dwellings and townhouse blocks adjacent to CR10 and CR22 – exterior walls meeting STC 37 and exterior windows with ratings up to STC 33.
- All other dwellings – exterior wall and window construction minimum non-acoustical requirements of the Ontario Building Code (OBC).

Notes:

- For the low-rise dwellings, exterior wall construction meeting the minimum non-acoustical requirements of the OBC would be expected to achieve an STC rating of 37. Typical high-rise construction generally also achieves this rating.
- If the walls with higher STC ratings are used, the window requirements are expected to decrease. For example, for the low rise dwellings, if exterior walls meeting STC 45 are used, the window requirement would decrease to STC 27. It is expected that windows meeting the minimum non-acoustical requirements of the OBC would be achieve STC 27.
- If the windows are smaller than the assumptions above, the window requirements may decrease. Conversely, if the windows are larger, the requirements may increase. The requirements are expected to be highest on the facades with the greatest exposure the to the roadways.
- The window frames themselves must be designed to ensure that the overall sound isolation performance for the entire window unit meets the sound isolation requirement. This will need to be confirmed by the window manufacturer through the submission of acoustical test data.
- The final sound isolation requirements should be reviewed when architectural plans are finalized. Wall and window constructions should also be reviewed at this point to ensure that they will meet the required sound isolation performance.

4.3.1.2 Ventilation Requirements

The analysis shows that:

- Mandatory air conditioning is required for the first row of dwellings, including the high-rise buildings, from CR10 and CR22.
- The provision for adding air conditioning is required at other locations with exposure to CR10 and CR22. See Figures 2A and 2B for specific locations.

For low-rise dwellings, the provision for providing air conditioning typically takes the form of a ducted, forced air heating system, suitably sized to accommodate air conditioning.

Note that the predicted sound levels at the high-rise building Block 2 is within the range where the provision for adding air conditioning is required. Since it is not possible to implement this in high rise multi-tenant buildings, the requirement for Block 2 has been upgraded to mandatory air conditioning.

There are no ventilation requirements for noise control purposes at the other dwellings.

4.3.2 Outdoors

The unmitigated daytime sound levels at the rear yard OLA's closest to CR10 and CR22 are predicted to exceed the 60 dBA maximum permitted under the MECP guidelines. Thus, sound barriers are required.

The daytime OLA sound levels can be mitigated to 60 dBA or lower using 1.8 m high sound barriers at:

- Block 3 – along the north property line of all units and the west property line of the westernmost unit;
- Lot 84 – along the south property line;
- Lot 117 – along the west property line; and
- Lot 131 – along the south and east property lines.

Notes on the sound barriers:

- The dwelling location at Lot 25 is not defined. The specific sound barrier requirements will depend on the location of the dwelling and rear yard relative to the roadway. The requirements at this location should be determined once a siting plan is available.
- As conceptually shown on Figures 2A and 2B, sound barriers should return to the dwellings such that there are no gaps between the barrier and the facade.
- It is anticipated that all balconies/terraces at the high-rise buildings will be less than 4 m in depth and would not qualify as an OLA under the MECP guidelines. Thus, sound barriers would not be required. If larger balconies/terraces, including common amenity terraces, are included in the site design, sound barriers may be required. The barrier requirements should be reviewed when the architectural plans are developed.
- The sound barriers must be of solid construction with no gaps, cracks or holes and must have a minimum surface weight of 20 kg/m². A variety of materials are available including wood, masonry, metal sandwich panels, high density plastics, specialty composite materials, earth berms or a combination of the above.
- The sound barrier requirements are based on flat topography. The sound barrier requirements should be reviewed once a grading plan is available.

4.4 WARNING CLAUSES

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation.

Table 3 and the notes to Table 3 summarize the warning clauses for the site.

TABLE 3 MINIMUM NOISE ABATEMENT MEASURES

Location	Air Conditioning ⁽¹⁾	Exterior Wall ⁽²⁾	Exterior Window ⁽³⁾	Sound Barrier ⁽⁴⁾	Warning Clauses ⁽⁵⁾
Blocks 2 and 10	Mandatory	STC 37	Up to STC 33	To be determined once final plans are available	A + B
Block 3	Mandatory	STC 37	Up to STC 33	1.8 m high at all units	A + B

.../cont'd

TABLE 3 MINIMUM NOISE ABATEMENT MEASURES (CONTINUED)

Location	Air Conditioning ⁽¹⁾	Exterior Wall ⁽²⁾	Exterior Window ⁽³⁾	Sound Barrier ⁽⁴⁾	Warning Clauses ⁽⁵⁾
Block 13	Mandatory	STC 37	Up to STC 33	None	A + B
Lot 25	Mandatory	STC 37	Up to STC 33	To be determined once siting plans are available	A + B + D
Lots 26 to 35, 69 to 83, and 118 to 124	Mandatory	STC 37	Up to STC 33	None	A + B
Lot 84	Mandatory	STC 37	Up to STC 33	1.8 m high	A + B
Lot 117	Mandatory	STC 37	Up to STC 33	1.8 m high	A + B
Lot 131	Mandatory	STC 37	Up to STC 33	1.8 m high	A + B + D
Blocks 5, 8, 9, 11, 12, and 14 to 17 Lots 36 to 43, 109 to 116	Provision for adding	No special acoustical requirements		None	A + C
Lot 128 to 130	Provision for adding	No special acoustical requirements		None	A + C + D
Lots 125 to 127	None	No special acoustical requirements		None	D
All other dwellings	No special acoustical requirements				

Notes:

- (1) Where means must be provided to allow windows to remain closed for road noise control purposes, a commonly used technique is that of central air conditioning.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413). The requirements are based on the assumed percentages of wall and window area to associated floor area stated in Section 4.3.1.1.
- (3) STC - Sound Transmission Class Rating (Reference ASTM-E413). A sliding glass walkout door should be considered as a window and be included in the percentage of glazing. The requirements are based on the assumed percentages of wall and window area to associated floor area stated in Section 4.3.1.1. The window requirements are expected to decrease if exterior wall construction with higher STC ratings are used.
- (4) Sound barriers must be of solid construction with no gaps, cracks or holes and must meet a minimum surface density of 20 kg/m³. Suitable material can include wood, masonry, metal sandwich panels, high density plastics, specialty composite materials, earth berms or a combination of these.
- (5) The warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:
 - A. "Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasion interfere with some activities of the dwelling occupants."
 - B. This dwelling has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment, Conservation and Parks' road noise criteria."
 - C. "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant will allow windows and doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."
 - D. "Purchasers/tenants are advised that due to the proximity of JCA Automotive, noise from this facility may at times be audible."

5.0 EFFECT OF THE PROJECT ON THE SURROUNDING ENVIRONMENT

5.1 MECHANICAL EQUIPMENT

The main source of noise associated with this development with the potential for significant impact on surrounding buildings, is the mechanical equipment at the high-rise buildings and the pumping station. Detailed plans for these buildings are currently not available. Mechanical equipment selections and layouts have not been developed at this time.

Mechanical equipment interfacing to the outdoors must comply with the MECP noise guideline limits in NPC-300. By proper engineering design all requirements can be met, and no significant noise impact would be created for surrounding uses. Appropriate choice of location, equipment type, and noise control features should be considered during detailed design for items such as rooftop equipment and air intakes and exhausts.

For any emergency generators, appropriate steps should be taken to ensure that the equipment placement, treatment, and the routine testing schedule will not generate adverse noise impact on neighbouring properties. The generator will require silencers on the intake and exhaust cooling air paths, as well as a muffler on the combustion exhaust.

A detailed assessment of the noise impact from the mechanical equipment onto the environment will be completed as part of a future submission once the mechanical plans and unit selections are available.

6.0 THE EFFECT OF THE PROJECT ON ITSELF

Consideration should be given to control of air-borne and/or structure-borne noise generated within the suites themselves. The major items requiring attention are the common wall boundaries between suites and building services, which include air conditioning, etc.

6.1 COMMON WALL BOUNDARIES

The minimum acceptable STC rating for the construction of boundaries of residential spaces is specified by the OBC as STC 50. This is considered to be “good” sound isolation. For modern living conditions, an STC rating greater than 50 for demising boundaries may be desirable but is not considered mandatory. Where suites share a common partition with an elevator shaft or refuse chute, the minimum requirement is STC 55.

6.2 BUILDING SERVICES

Mechanical and electrical equipment services, including noise and vibration of the equipment itself, and any associated ducting or piping, in close proximity to any individual suites may potentially affect the comfort of future building occupants. The isolation of vibration and sound of this aspect will be a matter of design of the mechanical system. With proper design and appropriate sound control measures, a satisfactory acoustical environment is readily achievable.

Refuse chutes/compactors, stairwells, elevator shafts, plumbing systems and transformer vaults are all possible sources of annoyance with respect to both air-borne and structure-borne noise. Similar to mechanical systems, appropriate vibration isolation measures can be designed and implemented to reduce disturbance to occupants.

Noise and vibration from building services, including mechanical and electrical equipment such as air handling units, cooling towers, chillers and pumps, are expected to be considered using guidelines set by various authorities such as ASHRAE, specified in terms of Noise Criteria (NC) curves. These represent maximum desirable sound levels, across various frequency bands, based on the use of the space. These are guidelines only.

7.0 CONCLUSIONS

With the incorporation of the recommended noise mitigation measures and appropriate acoustical design of the development, the applicable MECP noise guidelines can be met and a suitable acoustical environment can be provided for the occupants. The results should be reviewed if the site plan is changed.

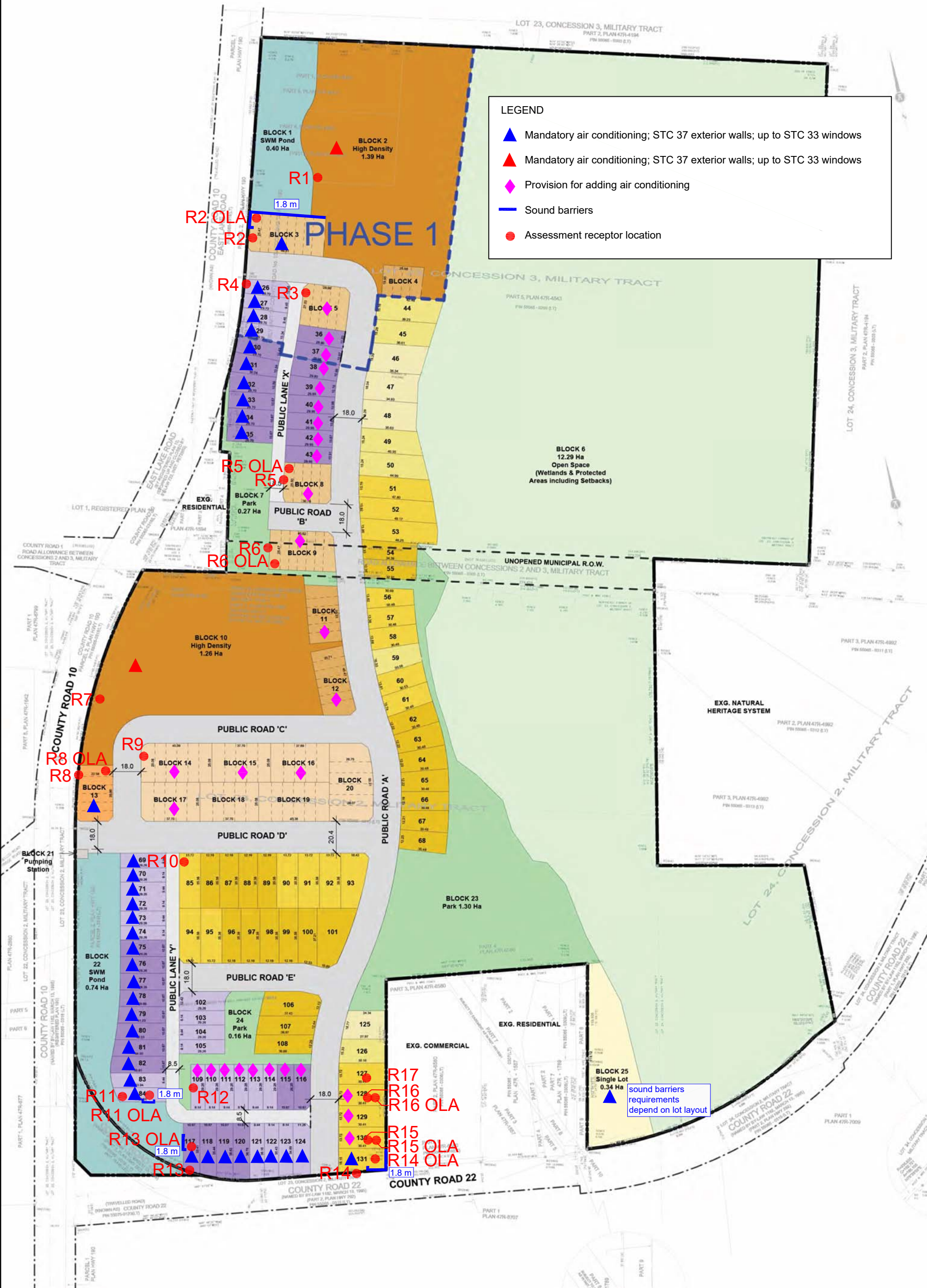
8.0 REFERENCES

1. “Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, August 2013.
2. Road and Rail Noise: Effects on Housing”, Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.
3. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment.
4. Building Practice Note No. 56: “Controlling Sound Transmission into Buildings”, by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.

SNIKK\sk
1-R1 318 Lake St, PEC- Noise V1_0.docx

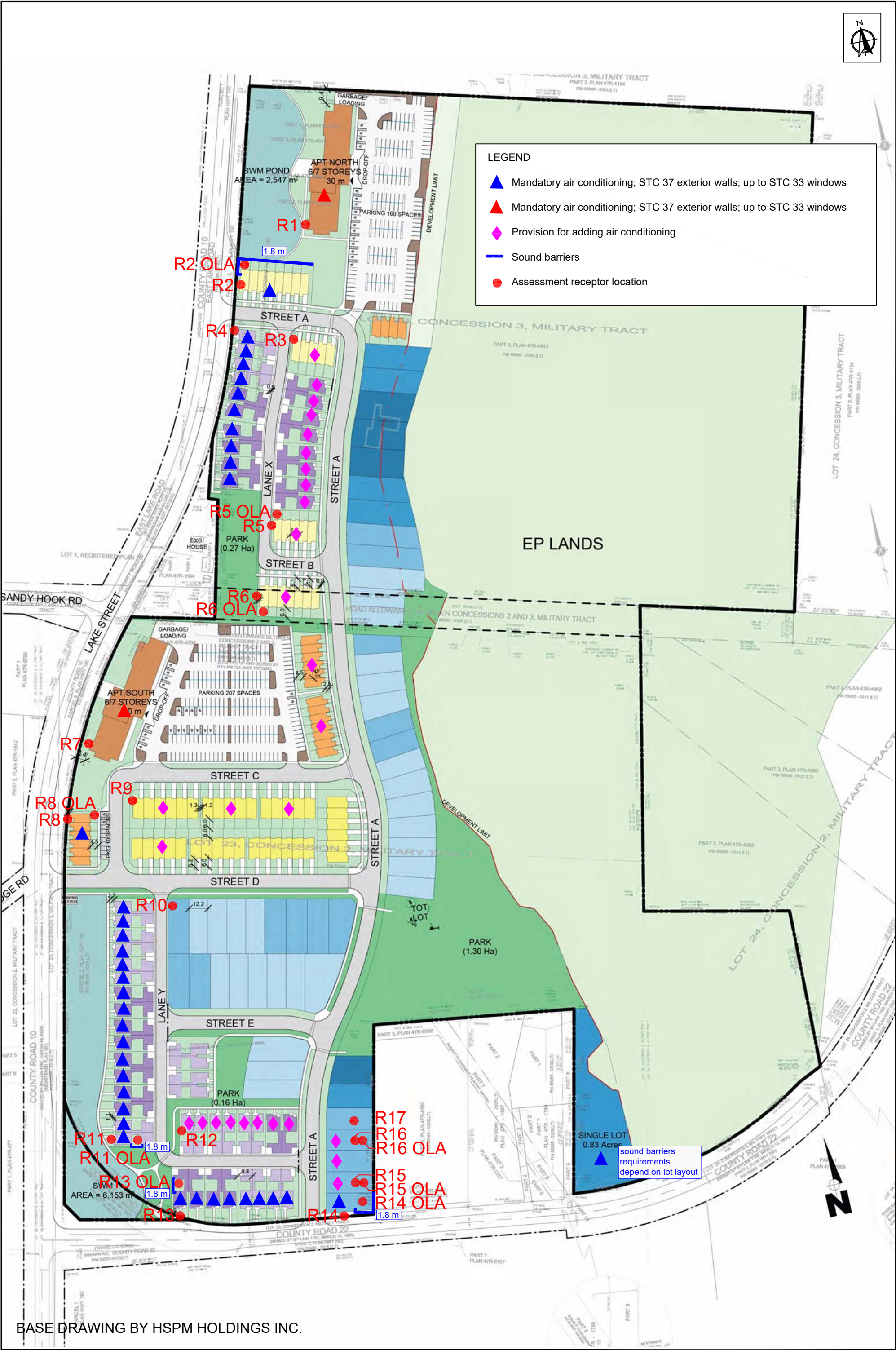


	Title Key Plan	Date Apr. 29, 2025	Figure 1
	Project Name 318 Lake Street, Prince Edward County	Project No. 122-0525-100	



BASE DRAWING BY HSPM HOLDINGS INC.

	Title	Date	Figure 2A
	Project Name	Project No.	
	Draft Plan of Subdivision 318 Lake Street, Prince Edward County	Apr. 29, 2025 122-0525-100	



BASE DRAWING BY HSPM HOLDINGS INC.

APPENDIX A

ROAD TRAFFIC DATA

MetroCount Traffic Executive Vehicle Counts (Virtual Day)

VirtVehicleCount-97 -- English (ENC)

Datasets:

Site: [County Rd 10] 200 meters (south) of County Rd 22 - speed zone 80 - RSU 5
Attribute:
Direction: 5 - South bound A>B, North bound B>A. **Lane:** 0
Survey Duration: 9:20 August 7, 2012 => 13:49 August 8, 2012,
Zone:
File: TC35_County Rd 10.EC0 (Plus)
Identifier: ED56V9CD MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.07)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 9:21 August 7, 2012 => 13:49 August 8, 2012 (1.18666)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (Scheme F3)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 8368 / 8387 (99.77%)

*** Virtual Day - Total=6210, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
19	11	11	8	15	32	99	227	289	337	471	500	496	431	448	515	600	557	414	293	207	141	56	34
4	3	3	2	2	5	18	48	50	75	107	127	131	139	116	121	145	138	127	85	42	40	13	13
4	6	2	1	1	3	22	45	71	58	124	139	128	108	117	130	160	151	103	85	62	36	16	4
7	1	4	4	4	8	27	61	94	90	111	116	120	113	101	132	152	136	97	70	56	36	17	8
4	1	2	1	8	16	32	73	74	114	130	119	118	71	114	132	143	132	87	53	47	29	10	9

AM Peak 1045 - 1145 (511), AM PHF=0.92 PM Peak 1600 - 1700 (600), PM PHF=0.94

Numbers have been rounded to the nearest integer.

MetroCount Traffic Executive Vehicle Counts (Virtual Day)

VirtVehicleCount-114 -- English (ENC)

Datasets:

Site: [County Road 22] 300m South of Kingsley Road
Attribute:
Direction: 7 - North bound A>B, South bound B>A. Lane: 0
Survey Duration: 9:40 July 9, 2018 => 11:59 July 11, 2018,
Zone:
File: TC342_County Road 22.EC0 (Plus)
Identifier: EC94JD23 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.07)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

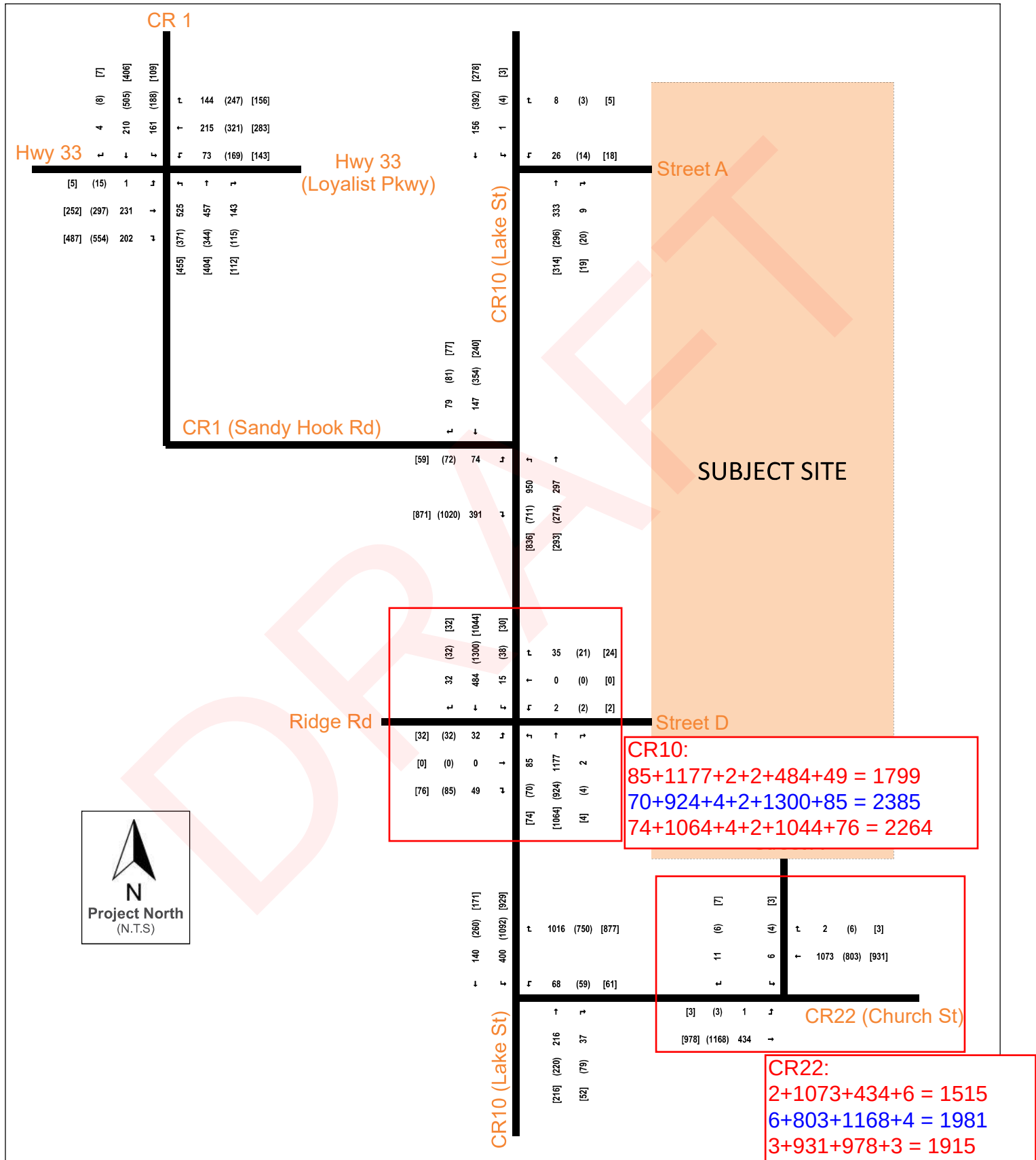
Filter time: 9:41 July 9, 2018 => 11:59 July 11, 2018 (2.09642)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (Scheme F3)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 4601 / 4611 (99.78%)

*** Virtual Day - Total=2201, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
7	5	1	4	2	9	39	105	133	64	69	154	219	208	183	217	253	198	112	74	67	44	26	13
2	1	1	1	2	2	1	25	30	24	10	38	61	43	44	52	64	64	35	17	20	15	6	4
2	3	1	1	0	2	7	26	33	17	15	32	51	58	45	59	58	52	25	19	16	12	7	4
3	0	0	1	0	3	11	29	25	12	17	36	51	56	46	51	67	50	22	19	19	9	8	3
1	1	0	1	1	3	20	26	45	12	27	48	57	52	49	56	65	33	31	19	14	8	6	2

AM Peak 1145 - 1245 (210), AM PHF=0.87 PM Peak 1600 - 1700 (253), PM PHF=0.95

Numbers have been rounded to the nearest integer.



APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX B
ENVIRONMENTAL NOISE GUIDELINES
MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)

Reference: MECP Publication NPC-300, October 2013: *“Environmental Noise Guideline, Stationary and Transportation Source – Approval and Planning”*.

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30 [#]
	Stationary Source		
	Class 1 Area	07:00 to 19:00 ⁽¹⁾	50* dBA
		19:00 to 23:00 ⁽¹⁾	50* dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾	50* dBA
		19:00 to 23:00 ⁽²⁾	45* dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾	45* dBA
		19:00 to 23:00 ⁽³⁾	40* dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾	55* dBA
		19:00 to 23:00 ⁽⁴⁾	55* dBA

..../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source Class 1 Area	07:00 to 19:00 ⁽¹⁾	50* dBA
		19:00 to 23:00 ⁽¹⁾	50* dBA
		23:00 to 07:00 ⁽¹⁾	45* dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾	50* dBA
		19:00 to 23:00 ⁽²⁾	50* dBA
		23:00 to 07:00 ⁽²⁾	45* dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾	45* dBA
		19:00 to 23:00 ⁽³⁾	45* dBA
		23:00 to 07:00 ⁽³⁾	40* dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾	60* dBA
		19:00 to 23:00 ⁽⁴⁾	60* dBA
		23:00 to 07:00 ⁽⁴⁾	55* dBA

- # may not apply to in-fill or re-development.
 * or the minimum hourly background sound exposure $L_{eq(1)}$, due to road traffic, if higher.
 (1) Class 1 Area: Urban.
 (2) Class 2 Area: Urban during day; rural-like evening and night.
 (3) Class 3 Area: Rural.
 (4) Class 4 Area: Subject to land use planning authority's approval.

Reference: MECP Publication ISBN 0-7729-2804-5, 1987: *"Environmental Noise Assessment in Land-Use Planning"*.

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

APPENDIX C

SAMPLE SOUND LEVEL CALCULATION – TRANSPORTATION SOURCES

STAMSON 5.04 NORMAL REPORT Date: 28-04-2025 18:37:48
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r14.te Time Period: Day/Night 16/8 hours
Description: R14 - Lot 131 (South Facade)

Road data, segment # 1: CR10 (day/night)

Car traffic volume : 21751/906 veh/TimePeriod *
Medium truck volume : 687/29 veh/TimePeriod *
Heavy truck volume : 458/19 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 23850
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: CR10 (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 189.00 / 189.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: CR22 (day/night)

Car traffic volume : 18067/753 veh/TimePeriod *
Medium truck volume : 571/24 veh/TimePeriod *
Heavy truck volume : 380/16 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 6 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 19810
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 2: CR22 (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 14.00 / 14.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: CR10 (day)

Source height = 1.19 m

ROAD (0.00 + 50.99 + 0.00) = 50.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.58	72.70	0.00	-17.38	-4.33	0.00	0.00	0.00	50.99

Segment Leq : 50.99 dBA

Results segment # 2: CR22 (day)

Source height = 1.19 m

ROAD (0.00 + 68.74 + 0.00) = 68.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	69.59	0.00	0.47	-1.32	0.00	0.00	0.00	68.74

Segment Leq : 68.74 dBA

Total Leq All Segments: 68.81 dBA

Results segment # 1: CR10 (night)

Source height = 1.19 m

ROAD (0.00 + 40.20 + 0.00) = 40.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.58	61.91	0.00	-17.38	-4.33	0.00	0.00	0.00	40.20

Segment Leq : 40.20 dBA

Results segment # 2: CR22 (night)

Source height = 1.19 m

ROAD (0.00 + 57.98 + 0.00) = 57.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	58.82	0.00	0.47	-1.32	0.00	0.00	0.00	57.98

Segment Leq : 57.98 dBA

Total Leq All Segments: 58.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.81
(NIGHT): 58.05