Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

Materials Testing

Building Science

Archaeological Services

Paterson Group Inc.
Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

patersongroup

Environmental Noise Control Study

Proposed Residential Buildings
530 Tremblay Road, Ottawa

Prepared For

CLV Group

September 30, 2019

Report: PG4861-1 Revision 1

Table of Contents Page

Appendices

1.0 Introduction

Paterson Group (Paterson) was commissioned by CLV Group to conduct an environmental noise control study for the proposed residential buildings to be located at 530 Tremblay Road, in the City of Ottawa.

The objective of the current study is to:

- ❏ Determine the primary noise sources impacting the site and compare the projected sound levels to guidelines set out by the Ministry of Environment and Climate Change (MOECC) and the City of Ottawa.

- ❏ Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes acoustical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

This study has been conducted according to City of Ottawa document - Engineering Noise Control Guidelines (ENCG), dated January 2016, and the Ontario Ministry of the Environment Guideline NPC-300.

2.0 Background

It is understood that the proposed development will consist of two residential buildings with associated parking and landscaped areas. Building A will consist of a five storey residential building with a roof top terrace on the 5th floor. Building B will consist of a 6 storey building with a roof top terrace on the 6th floor. No ground level outdoor living areas are identified on the proposed site plan.

3.0 Methodology and Noise Assessment Criteria

The City of Ottawa outlines three (3) sources of environmental noise that must be analyzed separately:

- Surface Transportation Noise
- Stationary Noise
  - new noise-sensitive development applications (noise receptors) in proximity to existing or approved stationary sources of noise, and
  - new stationary sources of noise (noise generating) in proximity to existing or approved noise-sensitive developments
- Aircraft noise

Surface Transportation Noise

The City of Ottawa's Official Plan, in addition to the ENCG dictate that the influence area must contain any of following conditions to classify as a surface transportation noise source for a subject site:

- Within 100 m of the right-of-way of an existing or proposed arterial, collector or major collector road; a light rail transit corridor; bus rapid transit, or transit priority corridor
- Within 250 m of the right-of-way for an existing or proposed highway or secondary rail line
- Within 300 m from the right of way of a proposed or existing rail corridor or a secondary main railway line
- Within 500 m of an existing 400 series provincial highway, freeway or principle main railway line.

The NPC-300 outlines the limitations of the stationary and environmental noise levels in relation to the location of the receptors. These can be found in the following tables:

Table 1 - Sound Level Limits for Outdoor Living Areas

Time Period	Required $L_{eq(16)}$ (dBA)
16-hour, 7:00-23:00	55

- Standards taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas - Road and Rail

Table 2 - Sound Level Limits for Indoor Living Area			
Type of Space	**Time Period**	**Required L_{eq} (dBA)**	
		Road	**Rail**
Living/Dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc	7:00-23:00	45	40
Theaters, place of worship, libraries, individual or semi-private offices, conference rooms, reading rooms	23:00-7:00	45	40
Sleeping quarters	7:00-23:00	45	40
	23:00-7:00	40	35
❑ Standards taken from Table 2.2b; Sound Level Limit for Indoor Living Areas - Road and Rail			

It is noted in ENCG that the limits outlined in Table 2 are for the sound levels on the interior of the glass pane. The ENCG further goes on to state that the limit for the exterior of the pane of glass will be 55 dBA.

If the sound level limits are exceeded at the window panes for the indoor living areas, the following Warning Clauses may be referenced:

Table 3 - Warning Clauses for Sound Level Exceedances	
Warning Clause	**Description**
Warning Clause Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type B	"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 (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type C	"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type D	"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
❑ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines - NPC-300	

Stationary Noise

Stationary noise sources include sources or facilities that are fixed or mobile and can cause a combination of sound and vibration levels emitted beyond the property line. These sources may include commercial air conditioner units, generators and fans. Facilities that may contribute to stationary noise may include car washes, snow disposal sites, transit stations and manufacturing facilities.

The impact of stationary noise sources are directly related to the location of the subject site within the urban environment. The proposed development can be classified as Class 2 by provincial guidelines and outlined in the ENGC, meaning “a suburban areas of the City outside of the busy core where the urban hum is evident but within the urban boundary.”

Table 4 - Guidelines for Stationary Noise - Class 2		
Time of Day	**Outdoor Point of Reception**	**Pane of Window**
7:00-19:00	50	50
19:00-23:00	45	50
23:00-7:00	-	45
❑ Standards taken from Table 3.2a; Guidelines for Stationary Noise - Steady and Varying Sound		

This development is considered a new noise-sensitive development application (noise receptors) in proximity to existing or approved stationary sources of noise. Therefore, a stationary noise analysis will be required.

Aircraft/Airport Noise

Due to the location of the subject site, an analysis of aircraft/airport noise is not required.

4.0 Analysis

Surface Transportation Noise

The proposed development is bordered to the west and north by residential dwellings and roadways, to the east by undeveloped land, and to the south by a rail corridor. Avenue P, Avenue R, Avenue S, Avenue T and Avenue U are identified within the 100 m radius of the proposed development and the Alexandria Rail Line is within the 300 m radius of the proposed development.

Based on the City of Ottawa Official Plan, Schedule F, no roads located within the 100 m radius are classified as either an arterial, collector or major collector road and are therefore not included in this study.

The Alexandria Rail Line is located within 300 m of the proposed development. It is understood that this rail line is used by VIA Rail. Based on a discussion with Mr. Paul Charbachi, P.Eng. of VIA Rail Canada, the method to determine the volume of trains along this rail line is to count the number of departures off of the rail schedule. Copies of the train schedule are included in Appendix 3. It was further confirmed by Mr. Charbachi, P.Eng. that each train consists of a diesel locomotive pulling 5 cars. An e-mail confirming this information is included in Appendix 3.

All noise sources are presented in Drawing PG4861-1 - Site Plan in Appendix 1.

The noise levels from road traffic are provided by the City of Ottawa, taking into consideration the right-of-way width and the implied roadway class. It is understood that these values represent the maximum allowable capacity of the proposed roadways. The parameters to be used for sound level predictions can be found below.

Table 5 - Traffic and Road Parameters						
Road	**Implied Roadway**	**AADT (Veh/day)**	**Posted Speed (km/h)**	**Day/Night Split %**	**Medium Truck %**	**Heavy Truck %**
Highway 417 Eastbound	Highway	91,665	100	92/8	7	5
Highway 417 Westbound	Highway	91,665	100	92/8	7	5
❑ Data obtained from the City of Ottawa document ENCG or calculated from OC Transpo online schedules						

Table 6 - Rail Parameters				
Rail Line	**Engine Type**	**Maximum Speed (km/hr)**	**Number of Trips/day**	**Length of Train**
VIA Rail	Diesel	100	24	6

Three (3) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the building elevation plans for this development.

Table 7 - Elevation of Reception Points			
Floor Number	**Elevation at Centre of Window (m)**	**Floor Use**	**Daytime/Nighttime Analysis**
Ground Floor	1.5	Living Area/Bedroom	daytime/nighttime
Fifth Floor (Building A)	13.5	Living Area/Bedroom	daytime/nighttime
Sixth Floor (Building B)	16.5	Living Area/Bedroom	daytime/nighttime

For this analysis, a reception point was taken at the centre of each floor, at the ground floor and fifth or sixth floor. For the outdoor living area - an outdoor amenity areas was identified on a plan. A reception point in the centre of this area, 1.5 m high was selected for the analysis of this area. Reception points are detailed on Drawing PG4861-2 - Receptor Locations presented in Appendix 1.

All horizontal distances have been measured from the reception point to the edge of the right-of-way. The highway was analyzed where it intersected the 500 m buffer zone and the rail line was analyzed where it intersected the 300 m buffer zone, which is reflected in the local angles described in Paterson Drawings PG4861-1B to 1I - Site Geometry in Appendix 1.

Table 9 - Summary of Reception Points and Geometry, located in Appendix 1, provides a summary of the points of reception and their geometry with respect to the noise sources. The analysis is completed so that no effects of sound reflection off of the building facade are considered, as stipulated by the ENGC.

The subject site is relatively flat and at grade with the neighbouring roads with the 500 m radius.

The analysis was completed using STAMSON version 5.04, a computer program which uses the road and rail traffic noise prediction methods using ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) and STEAM (Sound from Trains Environment Analysis Method), publications from the Ontario Ministry of Environment and Energy.

Stationary Noise

The OC Transpo light rail yard was identified at the 100 m boundary, triggering a stationary noise analysis. However, due to the variability and variance of the noise source, a worst-case scenario was utilized.

The ENCG does not outline the procedure to predict sound levels from stationary sources from fixed transit system facilities such as the adjacent light rail train yard. However, the Transit Noise and Vibration Impact Assessment (TNVIA) published by the Department of Transportation, Unites States of America - FTA-VA-90-1003-06 dated May 2006, an industry standard for this required analysis, does outline an analysis procedure. Therefore, Paterson will follow the analysis outlined in the TNVIA.

For the analysis a sound exposure level (SEL) is utilized because the stationary noise levels may vary throughout the day. SEL is based on typical measurements for the peak hour of operation of typical stationary sources. The TNVIA provides source reference levels at 15 m (50') from the centre of the stationary noise source in Table 5-5 (TNVIA), which has been included in Appendix 3 of this report. The applicable information has been extrapolated from Table 5-5 (TNVIA) and can be located on the following page.

Table 8 - Rail System Source Reference Levels at 15 m (Table 5-5 TNVIA)		
Source	**Reference SEL (dBA)**	**Reference Condition**
Yards and Shops	118	20 train movements in peak activity hour
Layover Tracks (commuter rail)	109	One train with diesel locomotive idling for one hour
Crossovers	100	one train
Crossing Signals	109	3600 seconds duration

Therefore, a reference SEL of 118 dBA was utilized for this analysis. In addition, a realistic approximation of 20 train movements in a peak activity hour was also utilized for this analysis.

The computation of an hourly L_{eq} at 15 m (50') was then determined using the following formula:

$$L_{eq(h)} = SEL_{REF} + C_N - 35.6$$

Where: $L_{eq(h)}$ = equivalent, hourly, continuous sound level (dBA)
SEL_{REF} = Reference Sound Exposure Level
C_N = volume adjustment

In this analysis, C_N is considered 0, providing an $L_{eq(h)}$ of 82.4 dBA. Finally, the daytime and nighttime L_{eq} at 15 m (50') can be compiled using the following formulas:

$$L_{eq(day)} = 10\log\left[\left(\frac{1}{15}\right)\sum_{7am-10pm} 10^{\frac{L_{eq(h)}}{10}}\right]$$

$$L_{eq(night)} = 10\log\left[\left(\frac{1}{9}\right)\sum_{10pm-7am} 10^{\frac{L_{eq(h)}}{10}}\right]$$

5.0 Results

Surface Transportation

The primary descriptors are the 16-hour daytime and the 8-hour night time equivalent sound levels, $L_{eq(16)}$ and the $L_{eq(8)}$ for City roads.

The proposed traffic noise levels were analyzed at all reception points. The results of the STAMSON software can be located in Appendix 2, and the summary of the results can be noted in Table 9.

Table 9 - Proposed Noise Levels

Reception Point	Description	OLA (dBA)	Daytime at Facade $L_{EQ(16)}$ (dBA)	Nighttime at Facade $L_{eq(8)}$ (dBA)
REC 1-1	Building A, Northern Elevation, 1st Floor	--	46.66	39.06
REC 1-5	Building A, Northern Elevation, 5th Floor	--	51.70	44.11
REC 2-1	Building A, Eastern Elevation, 1st Floor	--	63.93	53.18
REC 2-5	Building A, Eastern Elevation, 5th Floor	--	61.77	51.19
REC 3-1	Building A, Southern Elevation, 1st Floor	--	67.07	56.28
REC 3-5	Building A, Southern Elevation, 5th Floor	--	67.61	56.82
REC 4-1	Building A, Western Elevation, 1st Floor	--	59.35	48.69
REC 4-5	Building A, Western Elevation, 5th Floor	--	61.08	50.56
REC 5-1	Building B, Northern Elevation, 1st Floor	--	46.58	38.99
REC 5-6	Building B, Northern Elevation, 6th Floor	--	52.90	45.31
REC 6-1	Building B, Eastern Elevation, 1st Floor	--	59.97	51.02
REC 6-6	Building B, Eastern Elevation, 6th Floor	--	59.96	51.89
REC 7-1	Building B, Southern Elevation, 1st Floor	--	65.07	54.27
REC 7-6	Building B, Southern Elevation, 6th Floor	--	66.30	55.51
REC 8-1	Building B, Western Elevation, 1st Floor	--	58.36	47.72
REC 8-6	Building B, Western Elevation, 6th Floor	--	60.93	50.51
REC 9	Outdoor Amenity Area	58.91	--	--

Stationary Noise

Utilizing the procedure outlined in subsection 4, the following results were obtained:

SEL: 118 dBA
$L_{eq(h)}$: 82.4 dBA
$L_{eq(day)15m}$: 82.4 dBA
$L_{eq(night)15m}$: 82.4 dBA

The measured distance from the centre of the rail yard to the closest proposed building is 110 m. Utilizing the following formula, the adjusted L_{eq} level can be determined.

$$L_2 = L_1 - 20\log\left(\frac{R_2}{R_1}\right)$$

Where: L_2 = extrapolated L_{eq} sound level
L_1 = calculated L_{eq} sound level
R_2 = Distance from centre of stationary noise source to receptor
R_1 = Reference distance (15 m)

This extrapolates an $L_{eq(day)110m}$ of 54.15 dBA.

It is noted that the rail yard does have a noise barrier in place at the northern property line of the rail yard. This will result in an additional adjustment of -5 dBA. Therefore, the extrapolated $L_{eq(day)110m}$ will be 49.15 dBA.

6.0 Discussion and Recommendations

6.1 Outdoor Living Areas

An outdoor amenity area was identified in the centre of the proposed development, to the north of the proposed buildings. The outdoor living area was initially analyzed with no buildings, obtaining a free-field analysis. This resulted in a $L_{eq(16)}$ of 58.91 dBA (Noted as REC 9 in Appendix 2). This value is above the 55 dBA threshhold that is specified by the MOECC and the City of Ottawa. Therefore, mitigation measures will be required. The mitigation measures selected is to orient the buildings as to protect the outdoor living area.

It is assumed that the outdoor living area will only be utilized as an outdoor living area provided that one or both of the proposed buildings are constructed. Therefore, the proposed buildings will act as a noise barrier against the VIA Rail Corridor. Once Building A is constructed, the proposed $L_{eq(16)}$ will be 56.89 dBA (Noted as REC 9A in Appendix 2). This is a marginal exceedance of the 55 dBA threshhold and is considered acceptable. However, once both buildings will be constructed, the $L_{eq(16)}$ will be 53.04 dBA (Noted as REC 9B in Appendix 2). This is below the 55 dBA threshhold and no further mitigation measures will be required.

6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modelling indicates that the $L_{eq(16)}$ ranges between 46.58 dBA and 67.07 dBA. The ENGC states that the limits for the exterior of the pane of glass is 55 dBA. This value was exceeded at the eastern, southern and western receptor points. Therefore, this dwelling should be designed with a central air conditioning unit. Additionally, warning clause Type D, as outlined in Table 3, is also recommended for all units on the eastern, southern and western elevations.

This building does exceed the 65 dBA threshold for noise on the southern elevation. Therefore, an analysis of the building materials will be required. However, at this time the building materials and exterior wall construction details have not been finalized. Therefore, a review of the proposed building materials on the southern elevation will need to be completed.

Proposed Construction Specifications

It is understood that typical window and wall details are proposed for the residential buildings. The effectiveness of the noise insulation can be expressed as the Acoustical Insulation Factor (AIF), calculated as follows:

$$AIF = L_{eq(16)(Exterior)} - L_{eq(16)(Interior)} + 10\log_{10}(N) + 2dBA$$

Where:

$L_{eq(16)(Exterior)}$ = Calculated value at the window pane
$L_{eq(16)(Interior)}$ = 45 dBA
N = number of components in the room

No floor plans or detailed design drawings were provided for this portion of the review. A conservative approach is to assume that there are 2 components per room. Therefore, the AIF would need to be at least 28 dBA.

A conversion from AIF to a Standard Transmission Class (STC) rating will require the knowledge of room dimensions in addition to the wall and window dimensions. However, a conservative approach would be to increase the AIF factor by 3. **Therefore, provided the building materials of either the windows and/or exterior walls have an STC rating of 31 or higher, this would be a sufficient noise attenuation device.**

A review of industry standards for construction material indicates that, as long as the exterior cladding of the southern elevations consist of brick or concrete panels and that all windows consist of double pane glass, these materials have an STC rating of greater than 31 and are considered acceptable. If alternative materials are to be utilized on the southern elevation, then a review will need to be completed once design details are finalized.

6.3 Stationary Noise Source

The extrapolated sound level at the building facade was determined to be 49.15 dBA, which is below the standard threshhold for stationary noise of 50 dBA as set out in Table 4. Therefore, no additional noise attenuation measures will be required.

7.0 Summary of Findings

The subject site is located at 530 Tremblay Road. It is understood that the development will consist of a 5 storey and a 6 storey residential buildings. The associated analysis identified three surface transportation noise sources: Highway 417 West, Highway 417 East and the Alexandria Corridor VIA Rail Line.

Several reception points were selected for the analysis, consisting of pane of glass reception points on both the first and top level. The southern elevation of the proposed buildings exceeded the 55 dBA guideline specified by the ENCG. Therefore, a warning clause Type D will be required for these units in addition to the installation of a central air conditioning unit.

The results of the surface transportation noise indicates that the noise levels will be above 65 dBA on the southern elevations. Therefore, a review of the construction materials will be required. Based on industry standards, the construction materials suitable for the proposed noise attenuation would be concrete panels or brick veneer, with windows being double pane. If alternative construction materials are proposed, a review will be required.

A review of the outdoor living area (outdoor amenity area) was completed as well. The free field analysis indicates that there will be an exceedance of the 55 dBA threshhold. Therefore, the outdoor living area was further reviewed with respect to the proposed buildings, with the proposed buildings acting as noise barriers from the VIA rail corridor. It was determined that once one building was constructed, there would be a minor exceedance of the 55 dBA threshhold that would be considered acceptable. However, once both buildings are constructed, then the anticipated noise levels would be below the 55 dBA threshhold. Therefore, no additional mitigation measures will be required.

The following warning clause is to be included on all Offers of Purchase and Sale and/or lease agreements:

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

A stationary noise study was completed due to the proximity of the OC Transpo Rail yard, located to the south of the proposed buildings. Upon review of the rail yard, it was determined that the sound level from the stationary noise source will be below the 50 dBA threshhold required. Therefore, no additional mitigation measures will be required for the stationary noise caused by the OC Transpo Rail Yard.

8.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. Our recommendations should be reviewed when the project drawings and specifications are complete.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than CLV Group or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.

Stephanie A. Boisvenue, P.Eng.

David J. Gilbert, P.Eng.

Report Distribution:

- ❑ CLV Group (3 copies)
- ❑ Paterson Group (1 copy)

APPENDIX 1

TABLE 9 - SUMMARY OF RECEPTION POINTS AND GEOMETRY

DRAWING PG4861-1 - SITE PLAN

DRAWING PG4861-1B - SITE GEOMETRY (REC 1-1, REC 1-5)

DRAWING PG4861-1C - SITE GEOMETRY (REC 2-1, REC 2-5)

DRAWING PG4861-1D - SITE GEOMETRY (REC 3-1, REC 3-5)

DRAWING PG4861-1E - SITE GEOMETRY (REC 4-1, REC 4-5)

DRAWING PG4861-1F - SITE GEOMETRY (REC 5-1, REC 5-6)

DRAWING PG4861-1G - SITE GEOMETRY (REC 6-1, REC 6-6)

DRAWING PG4861-1H - SITE GEOMETRY (REC 7-1, REC 7-6)

DRAWING PG4861-1I - SITE GEOMETRY (REC 8-1, REC 8-6)

DRAWING PG4861-1J - SITE GEOMETRY (REC 9)

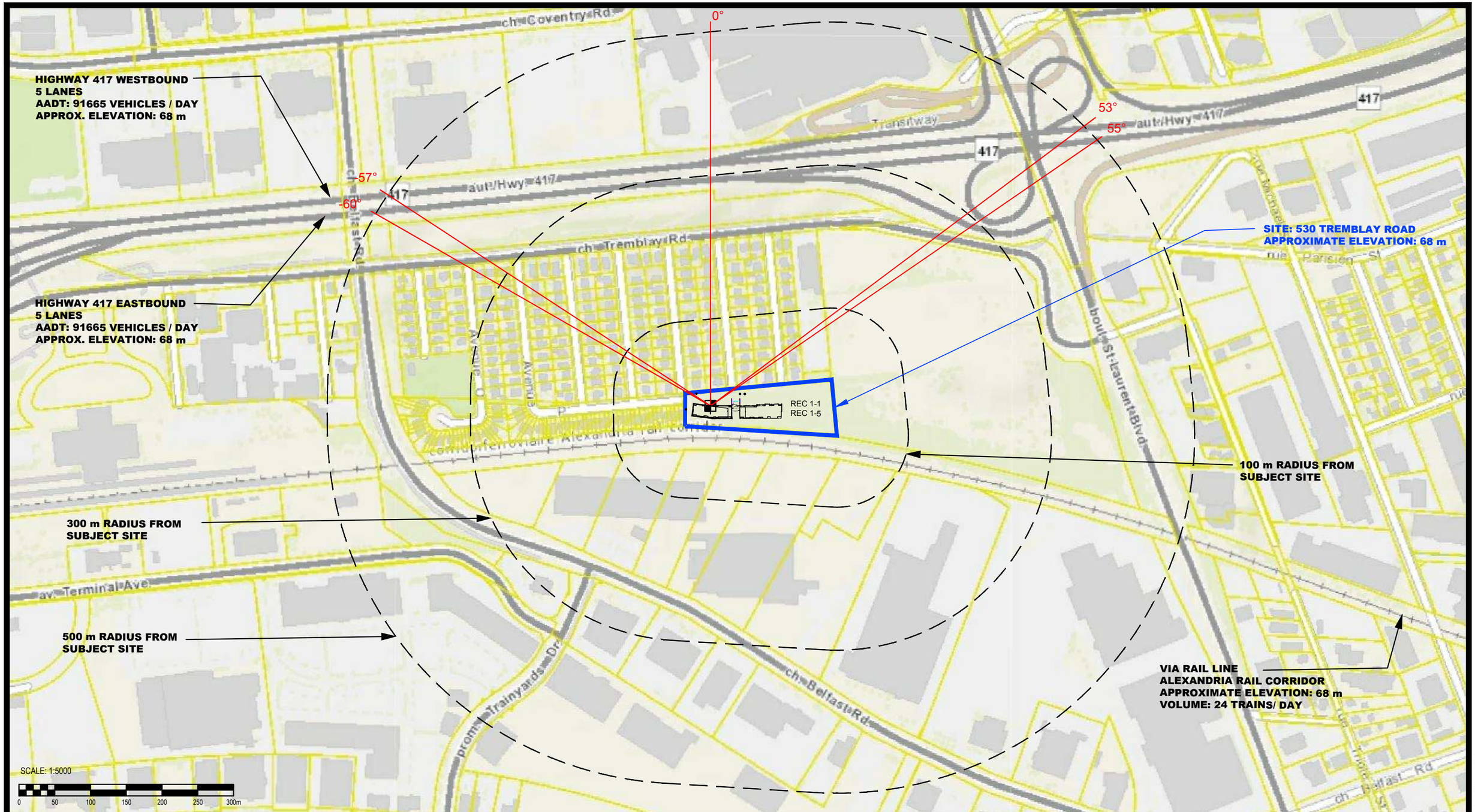
DRAWING PG4861-2 - RECEPTOR LOCATIONS

Table 9 - Summary of Reception Points and Geometry
530 Tremblay Road

Point of Reception	Location	Leq Day (dBA)	Highway 417 - Westbound						Highway 417 - Eastbound					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Barrier Height (m)	Distance (m)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Barrier Height (m)	Distance (m)
REC 1-1	Building A, Northern Elevation, 1st Floor	46.66	330	1.5	330	-57, 53	n/a	n/a	310	1.5	310	-60, 55	n/a	n/a
REC 1-5	Building A, Northern Elevation, 5th Floor	51.7	330	13.5	330.28	-57, 53	n/a	n/a	310	13.5	310.29	-60, 55	n/a	n/a
REC 2-1	Building A, Eastern Elevation, 1st Floor	63.93	340	1.5	340	0, 50	n/a	n/a	320	1.5	320	0, 53	n/a	n/a
REC 2-5	Building A, Eastern Elevation, 5th Floor	61.77	340	13.5	340.27	0, 50	n/a	n/a	320	13.5	320.28	0, 53	n/a	n/a
REC 3-1	Building A, Southern Elevation, 1st Floor	67.07	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 3-5	Building A, Southern Elevation, 5th Floor	67.61	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 4-1	Building A, Western Elevation, 1st Floor	59.35	330	1.5	330	-54, 0	n/a	n/a	300	1.5	300	-58, 0	n/a	n/a
REC 4-5	Building A, Western Elevation, 5th Floor	61.08	330	13.5	330.28	-54, 0	n/a	n/a	300	13.5	300.3	-58, 0	n/a	n/a
REC 5-1	Building B, Northern Elevation, 1st Floor	46.58	335	1.5	335	-60, 49	n/a	n/a	310	1.5	310	-63, 52	n/a	n/a
REC 5-6	Building B, Northern Elevation, 6th Floor	52.9	335	13.5	335.27	-60, 49	n/a	n/a	310	13.5	310.29	-63, 52	n/a	n/a
REC 6-1	Building B, Eastern Elevation, 1st Floor	60.42	350	1.5	350	0, 47	n/a	n/a	330	1.5	330	0, 50	n/a	n/a
REC 6-6	Building B, Eastern Elevation, 6th Floor	64.93	350	13.5	350.26	0, 47	n/a	n/a	330	13.5	330.28	0, 50	n/a	n/a
REC 7-1	Building B, Southern Elevation, 1st Floor	65.07	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 7-6	Building B, Southern Elevation, 6th Floor	66.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 8-1	Building B, Western Elevation, 1st Floor	58.36	340	1.5	340	-58, 0	n/a	n/a	320	1.5	320	-61, 0	n/a	n/a
REC 8-6	Building B, Western Elevation, 6th Floor	60.93	340	13.5	340.27	-58, 0	n/a	n/a	320	13.5	320.28	-61, 0	n/a	n/a
REC 9	Outdoor Amenity Area	58.91	320	1.5	320	-60, 52	n/a	n/a	300	1.5	300	-63, 55	n/a	n/a

Table 9b - Summary of Reception Points and Geometry
530 Tremblay Road

Point of Reception	Location	Leq Day (dBA)	Alexandria Rail Corridor					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Barrier Height (m)	Distance (m)
REC 1-1	Building A, Northern Elevation, 1st Floor	46.66	n/a	n/a	n/a	n/a	n/a	n/a
REC 1-5	Building A, Northern Elevation, 5th Floor	51.7	n/a	n/a	n/a	n/a	n/a	n/a
REC 2-1	Building A, Eastern Elevation, 1st Floor	63.93	25	1.5	25.04	-73, 0	n/a	n/a
REC 2-5	Building A, Eastern Elevation, 5th Floor	61.77	25	13.5	28.41	-73, 0	n/a	n/a
REC 3-1	Building A, Southern Elevation, 1st Floor	67.07	15	14.5	-80, 80	-77, 81	n/a	n/a
REC 3-5	Building A, Southern Elevation, 5th Floor	67.61	15	15.5	-80, 80	-77, 81	n/a	n/a
REC 4-1	Building A, Western Elevation, 1st Floor	59.35	30	1.5	0, 78	0, 78	n/a	n/a
REC 4-5	Building A, Western Elevation, 5th Floor	61.08	30	13.5	0, 78	0, 78	n/a	n/a
REC 5-1	Building B, Northern Elevation, 1st Floor	46.58	n/a	n/a	n/a	n/a	n/a	n/a
REC 5-6	Building B, Northern Elevation, 6th Floor	52.9	n/a	n/a	n/a	n/a	n/a	n/a
REC 6-1	Building B, Eastern Elevation, 1st Floor	60.42	40	1.5	40.03	-72,0	n/a	n/a
REC 6-6	Building B, Eastern Elevation, 6th Floor	64.93	40	13.5	42.22	-72, 0	n/a	n/a
REC 7-1	Building B, Southern Elevation, 1st Floor	65.07	20	25.5	32.41	-75, 82	n/a	n/a
REC 7-6	Building B, Southern Elevation, 6th Floor	66.3	20	37.5	42.5	-75, 82	n/a	n/a
REC 8-1	Building B, Western Elevation, 1st Floor	58.36	35	1.5	35.03	0, 80	n/a	n/a
REC 8-6	Building B, Western Elevation, 6th Floor	60.93	35	13.5	37.51	0, 80	n/a	n/a
REC 9	Outdoor Amenity Area	58.91	50	1.5	50.02	-73, 78	n/a	n/a



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS- 530 TREMBLAY ROAD

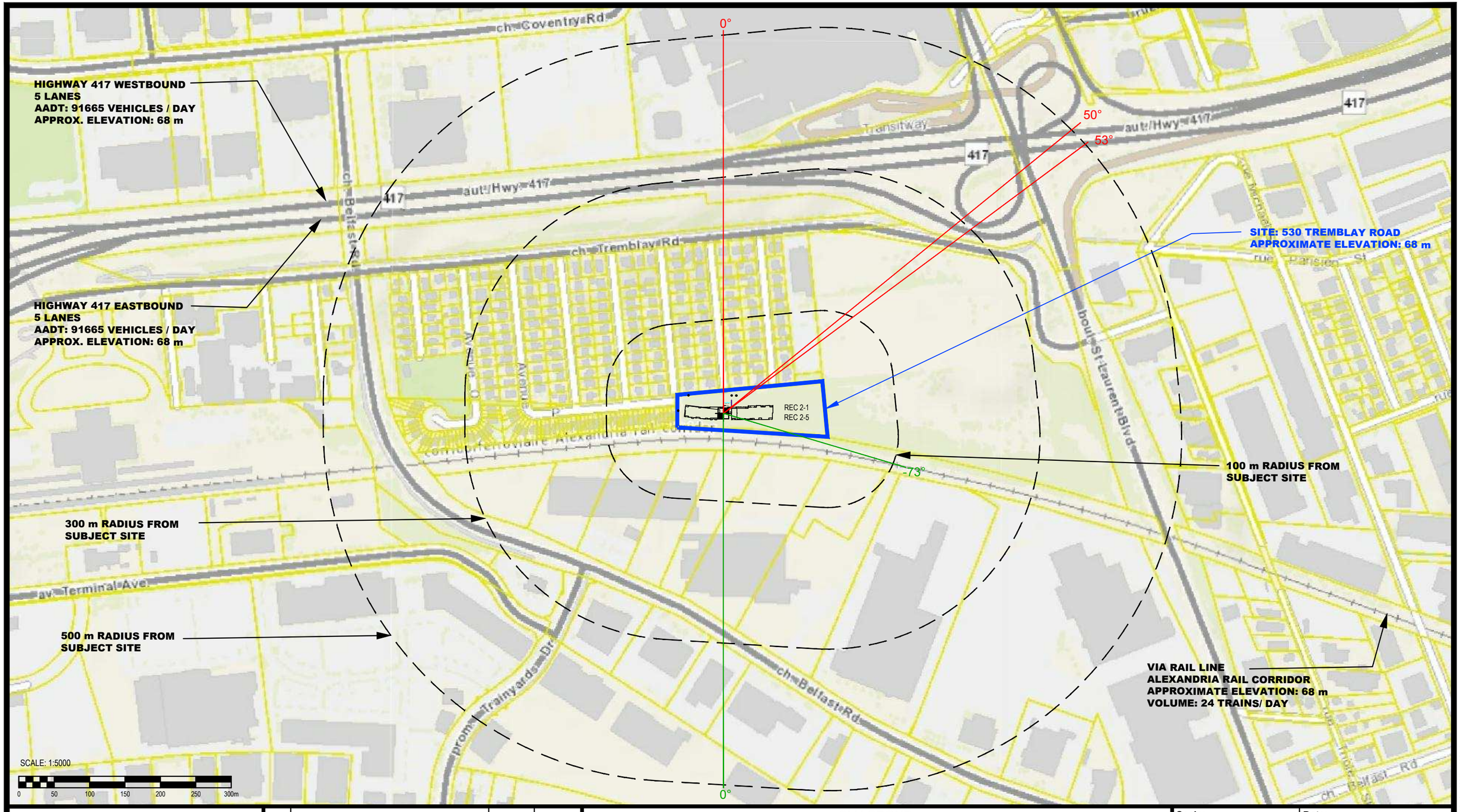
OTTAWA, ONTARIO

Title:

SITE GEOMERY- REC 1-1 AND REC 1-5

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1B
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

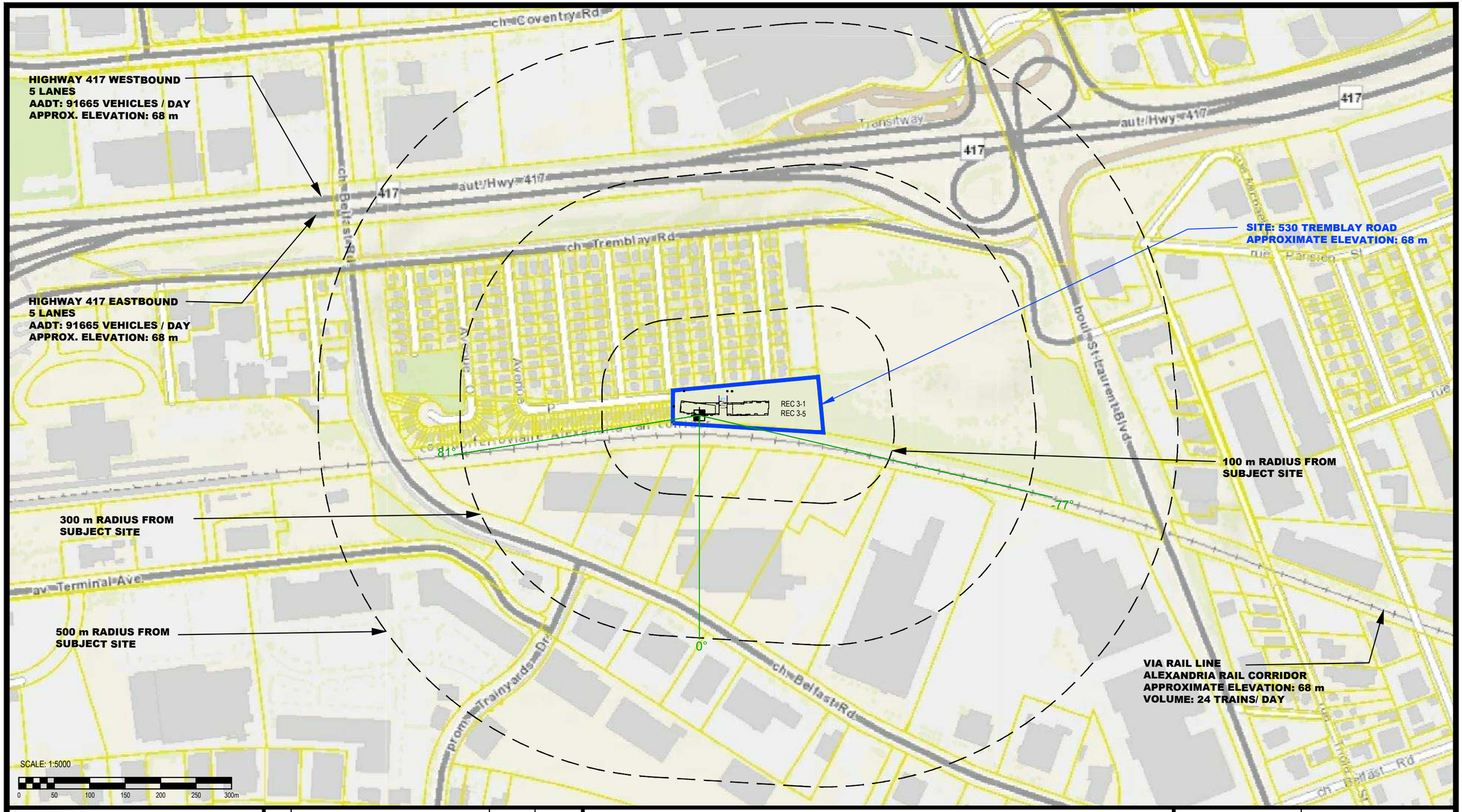
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS- 530 TREMBLAY ROAD
OTTAWA, ONTARIO

Title:

SITE GEOMETRY- REC 2-1 AND REC 2-5

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1C
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS- 530 TREMBLAY ROAD

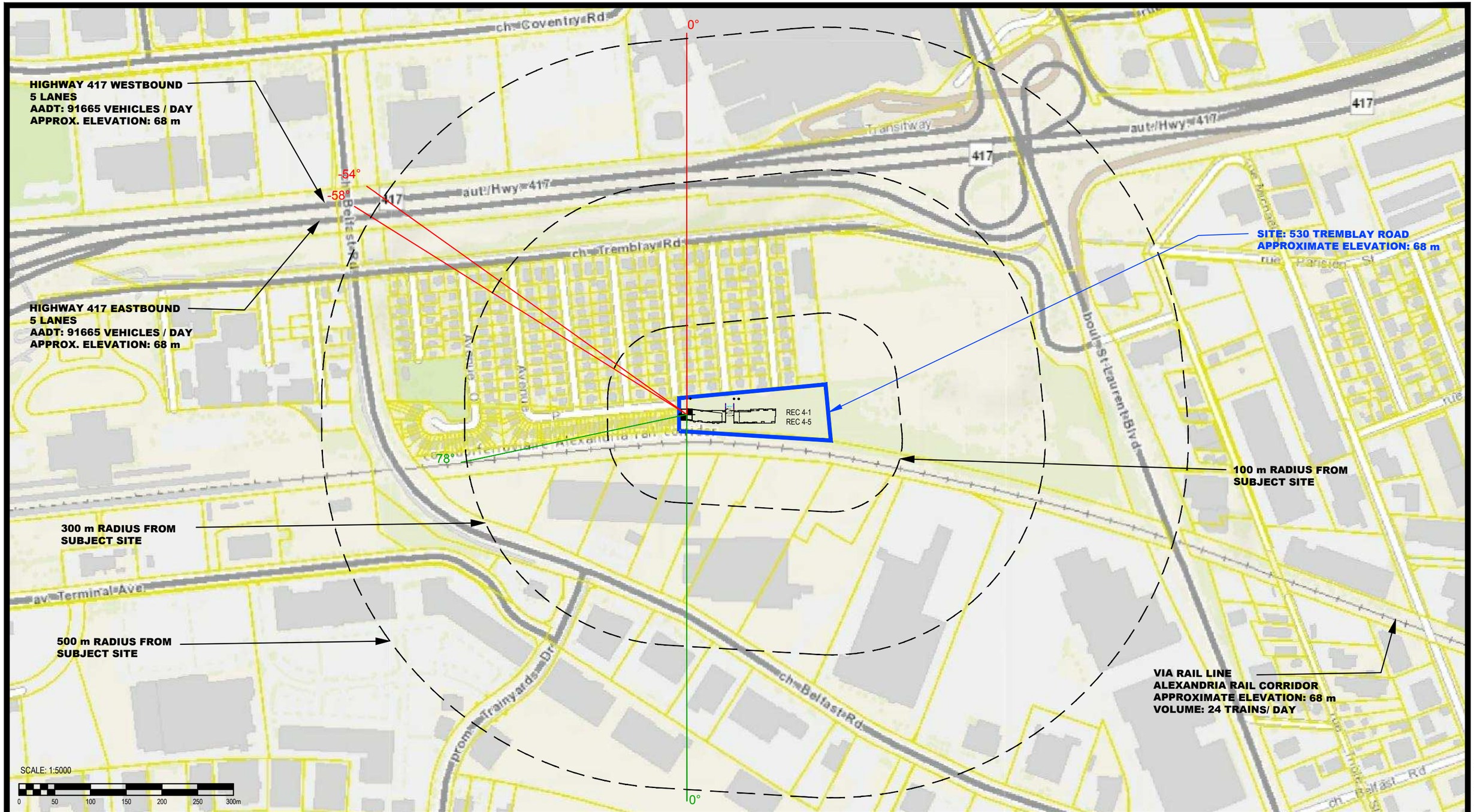
OTTAWA, ONTARIO

Title:

SITE GEOMETRY- REC 3-1 AND REC 3-5

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1D
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg4xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

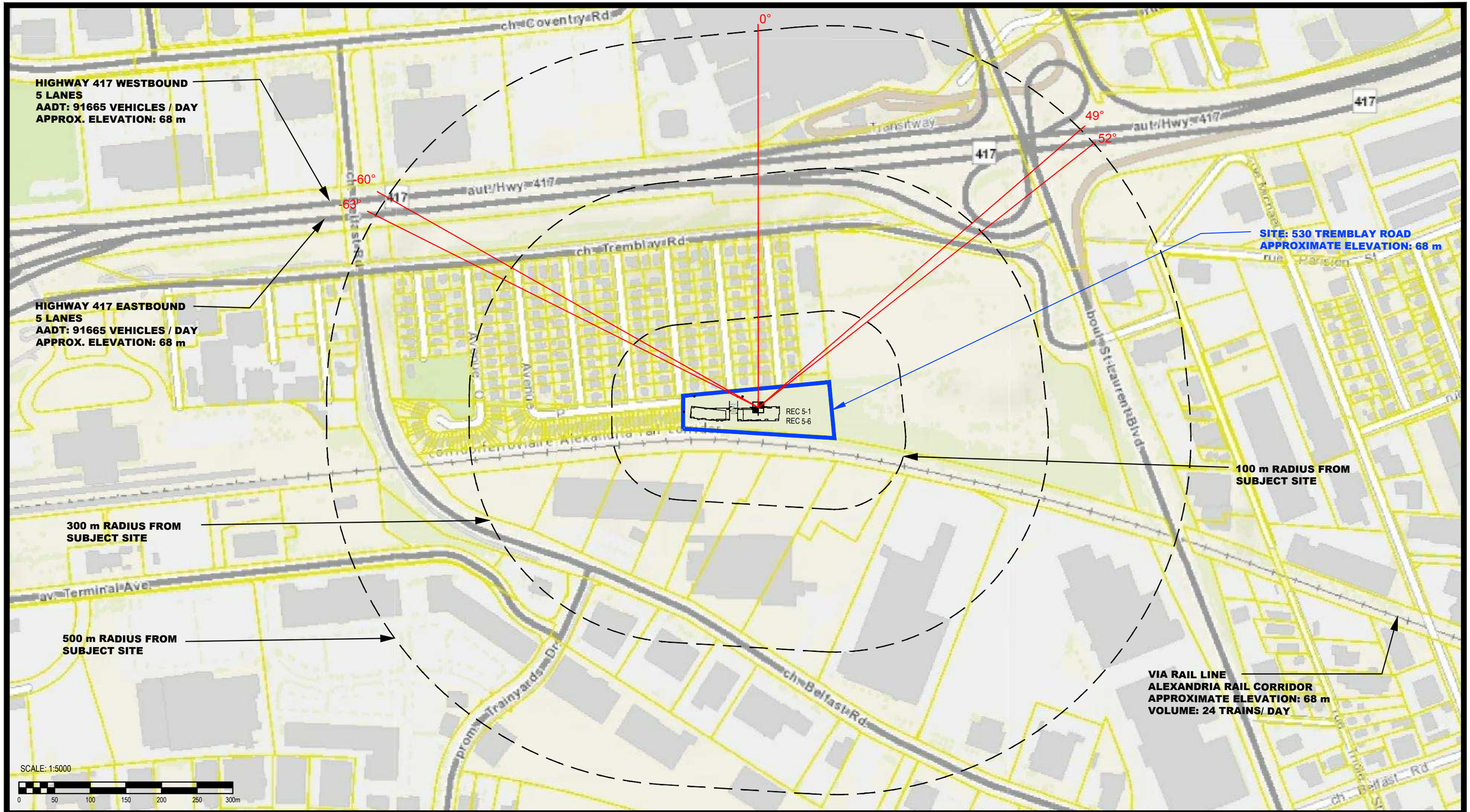
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS- 530 TREMBLAY ROAD
OTTAWA, ONTARIO

Title:

SITE GEOMETRY- REC 4-1 AND REC 4-5

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1E
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

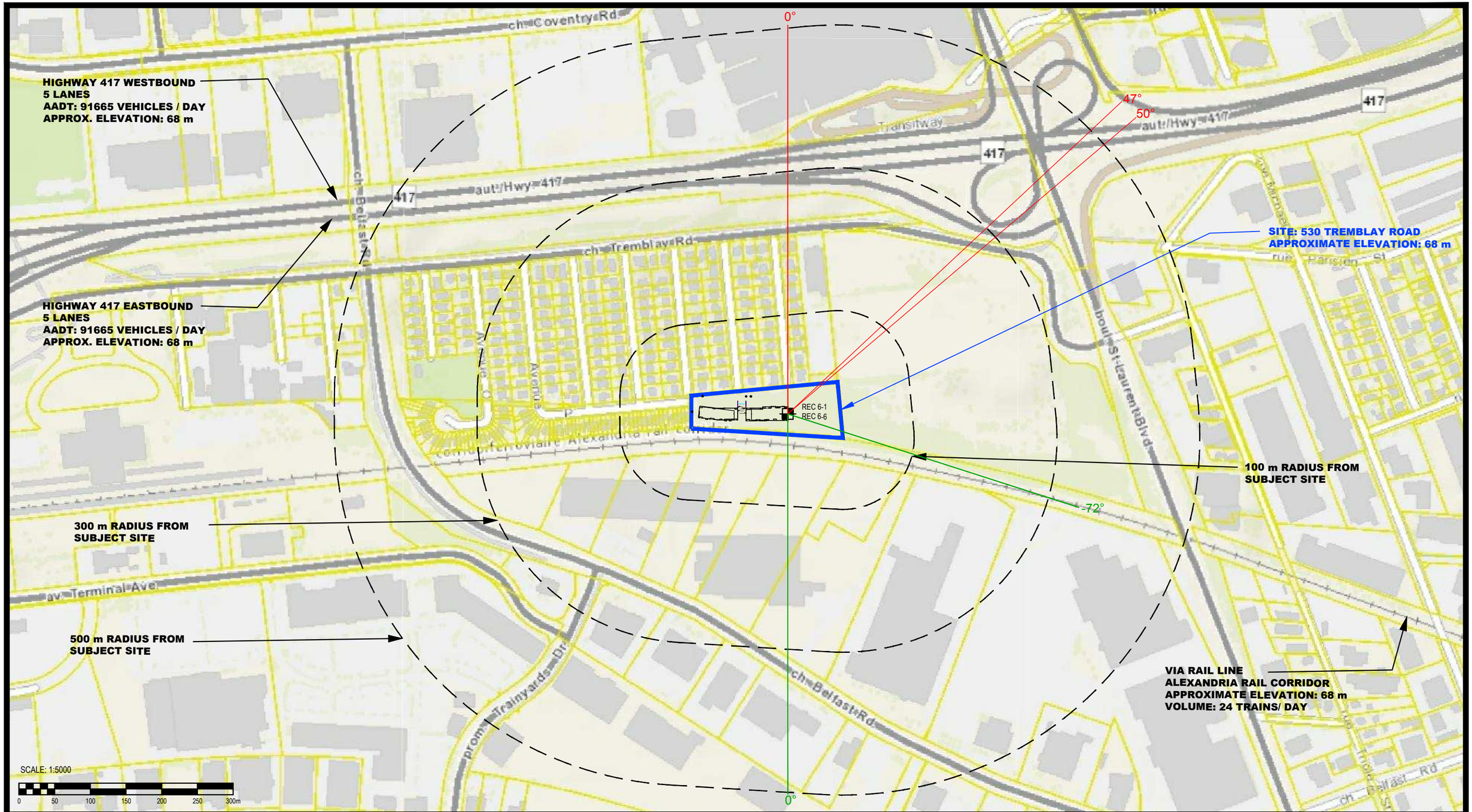
CLV GROUP

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS - 530 TREMBLAY ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY- REC 5-1 AND REC 5-6

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1F
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

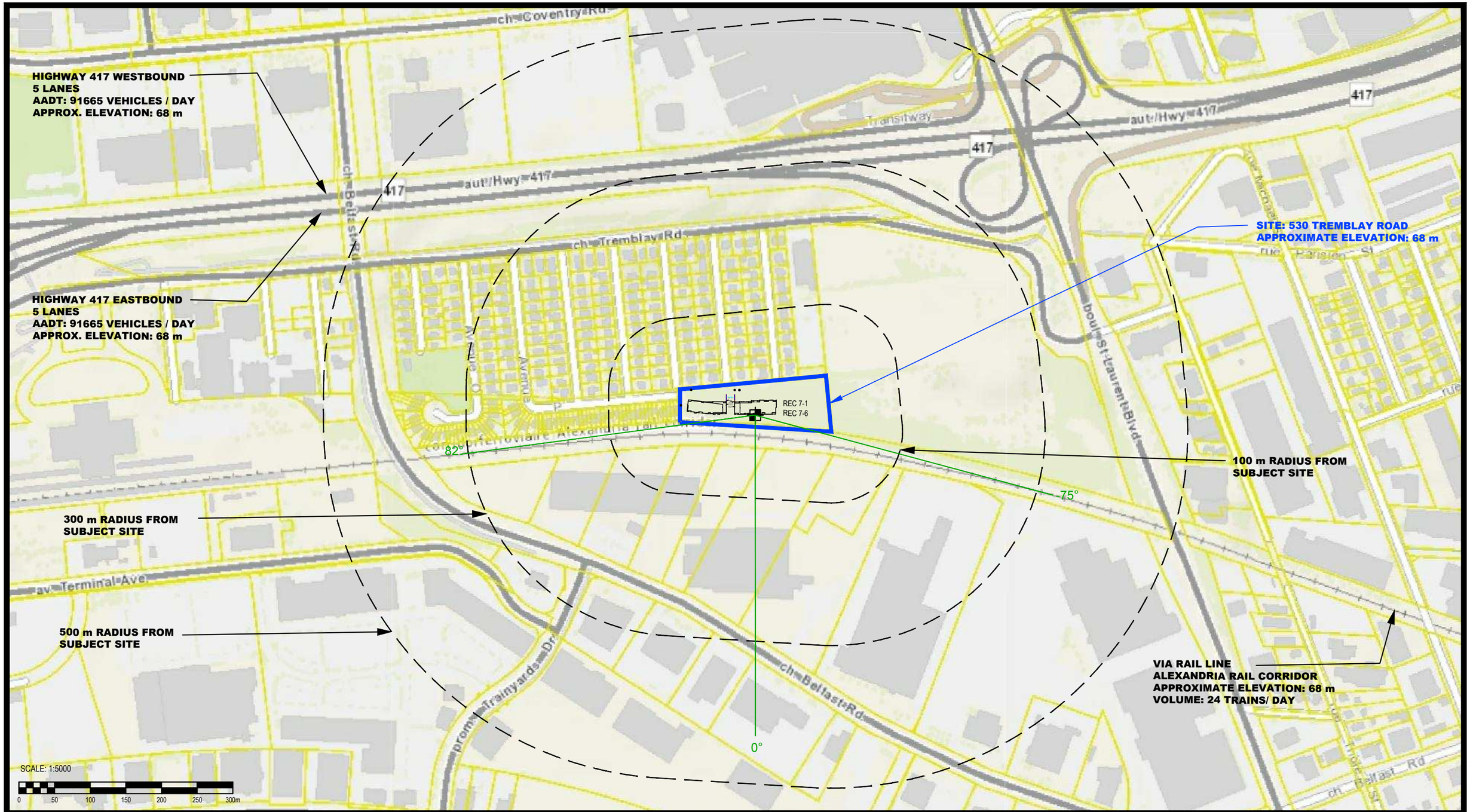
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS - 530 TREMBLAY ROAD
OTTAWA, ONTARIO

Title:

SITE GEOMETRY- REC 6-1 AND 6-6

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1G
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

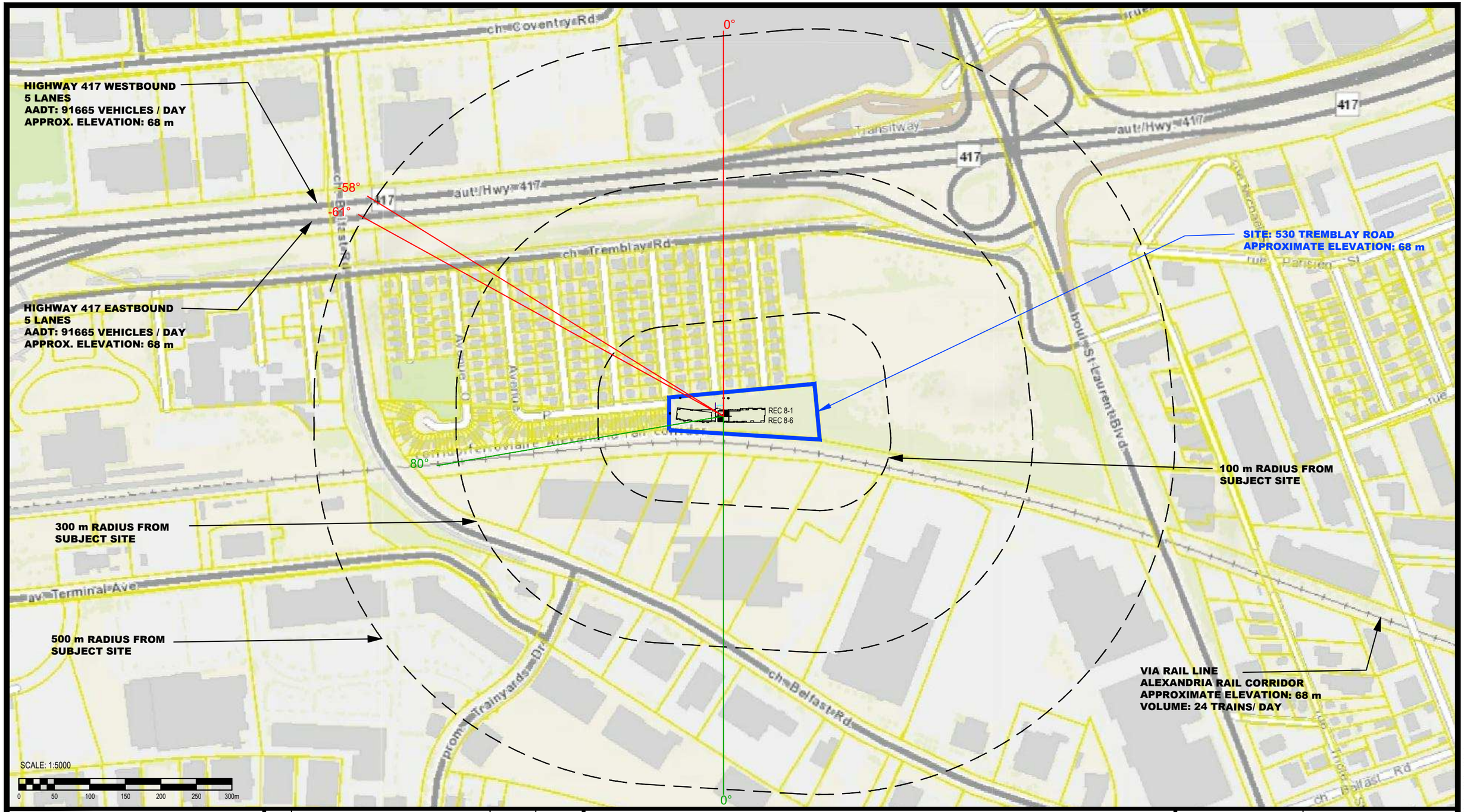
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS - 530 TREMBLAY ROAD
OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 7-1 AND REC 7-6

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1H
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS- 530 TREMBLAY ROAD

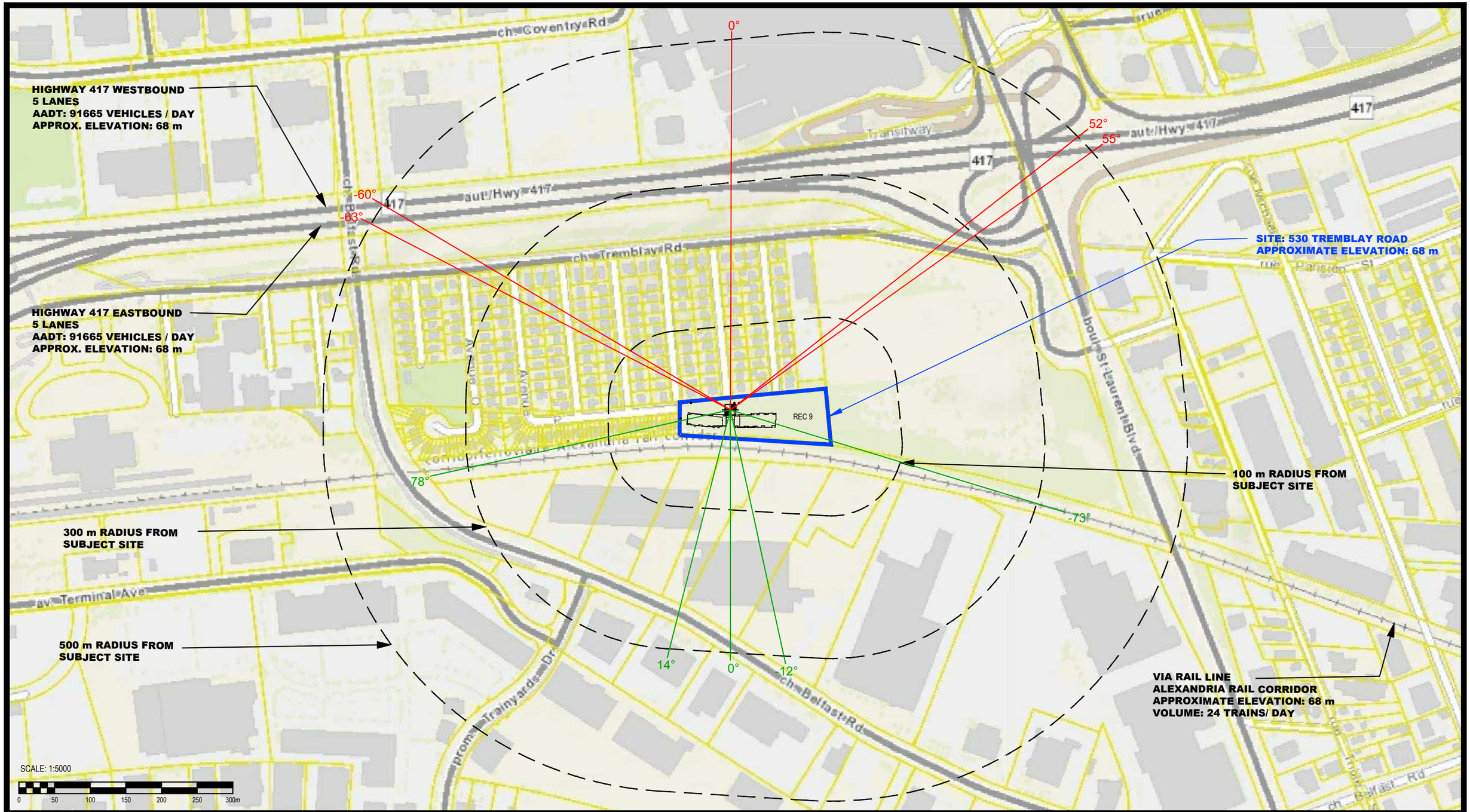
OTTAWA, ONTARIO

Title:

SITE GEOMETRY- REC 8-1 AND REC 8-6

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1 I
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CLV GROUP

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL BUILDINGS- 530 TREMBLAY ROAD

OTTAWA, ONTARIO

Title:

SITE GEOMETRY- REC 9

Scale: 1:5000	Date: 09/2019
Drawn by: YA	Report No.: PG4861-1
Checked by: SB	Dwg. No.: PG4861-1J
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg48xx\pg4861\pg4861-1-noise study.dwg

APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:04:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC11.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-1

Road data, segment # 1: Hwy 417W (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Hwy 417W (day/night)

Angle1 Angle2 : -57.00 deg 53.00 deg
Wood depth : 0 (No woods.)
No of house rows : 7 / 7
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 330.00 / 330.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Hwy 417E (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417E (day/night)
------------------------------------------
Angle1   Angle2           : -60.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 310.00 / 310.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.36 + 0.00) = 43.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -57     53   0.66  82.37   0.00 -22.28  -2.61   0.00 -14.11   0.00  43.36
-------------------------------------------------------------------------------

Segment Leq : 43.36 dBA

↟
Results segment # 2: Hwy 417E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.92 + 0.00) = 43.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     55   0.66  82.37   0.00 -21.83  -2.46   0.00 -14.15   0.00  43.92
-------------------------------------------------------------------------------

Segment Leq : 43.92 dBA

Total Leq All Segments: 46.66 dBA

↟
Results segment # 1: Hwy 417W (night)
```

```
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 35.77 + 0.00) = 35.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -57     53   0.66  74.77   0.00 -22.28  -2.61   0.00 -14.11   0.00  35.77
-------------------------------------------------------------------------------

Segment Leq : 35.77 dBA

↟
Results segment # 2: Hwy 417E (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.32 + 0.00) = 36.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     55   0.66  74.77   0.00 -21.83  -2.46   0.00 -14.15   0.00  36.32
-------------------------------------------------------------------------------

Segment Leq : 36.32 dBA

Total Leq All Segments: 39.06 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 46.66
                           (NIGHT): 39.06
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:06:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC15.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-5

Road data, segment # 1: Hwy 417W (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Hwy 417W (day/night)

Angle1 Angle2 : -57.00 deg 53.00 deg
Wood depth : 0 (No woods.)
No of house rows : 7 / 7
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 330.00 / 330.00 m
Receiver height : 13.50 / 13.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Hwy 417E (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417E (day/night)
------------------------------------------
Angle1   Angle2           : -60.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 310.00 / 310.00 m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠕
Results segment # 1: Hwy 417W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.44 + 0.00) = 48.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -57     53   0.30  82.37   0.00 -17.45  -2.36   0.00 -14.11   0.00  48.44
-------------------------------------------------------------------------------

Segment Leq : 48.44 dBA

🠕
Results segment # 2: Hwy 417E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.92 + 0.00) = 48.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     55   0.30  82.37   0.00 -17.10  -2.19   0.00 -14.15   0.00  48.92
-------------------------------------------------------------------------------

Segment Leq : 48.92 dBA

Total Leq All Segments: 51.70 dBA

🠕
Results segment # 1: Hwy 417W (night)
```

```
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 40.85 + 0.00) = 40.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -57     53   0.30  74.77   0.00 -17.45  -2.36   0.00 -14.11   0.00  40.85
-------------------------------------------------------------------------------

Segment Leq : 40.85 dBA

↟
Results segment # 2: Hwy 417E (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 41.33 + 0.00) = 41.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     55   0.30  74.77   0.00 -17.10  -2.19   0.00 -14.15   0.00  41.33
-------------------------------------------------------------------------------

Segment Leq : 41.33 dBA

Total Leq All Segments: 44.11 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 51.70
                           (NIGHT): 44.11
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:56:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-1

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-73.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	15.00 / 15.00	m
Receiver height	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 62.96 + 0.00) = 62.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.58	67.66	0.00	-4.70	0.00	0.00	0.00	62.96

WHEEL (0.00 + 56.73 + 0.00) = 56.73 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.66	61.51	0.00	-4.79	0.00	0.00	0.00	56.73

Segment Leq : 63.89 dBA

Total Leq All Segments: 63.89 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 52.17 + 0.00) = 52.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.58	56.87	0.00	-4.70	0.00	0.00	0.00	52.17

WHEEL (0.00 + 45.93 + 0.00) = 45.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.66	50.72	0.00	-4.79	0.00	0.00	0.00	45.93

Segment Leq : 53.10 dBA

Total Leq All Segments: 53.10 dBA

↟

Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume	: 74212/6453	veh/TimePeriod *
Medium truck volume	: 5903/513	veh/TimePeriod *
Heavy truck volume	: 4217/367	veh/TimePeriod *
Posted speed limit	: 100	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)		91665
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	7.00
Heavy Truck % of Total Volume	:	5.00
Day (16 hrs) % of Total Volume	:	92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1 Angle2	: 0.00 deg	50.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 7 / 7	
House density	: 80	%
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 340.00 / 340.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

↟

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   53.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 39.83 + 0.00) = 39.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     50   0.66  82.37   0.00 -22.50  -5.94   0.00 -14.09   0.00  39.83
-------------------------------------------------------------------------------

Segment Leq : 39.83 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 40.43 + 0.00) = 40.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     53   0.66  82.37   0.00 -22.06  -5.74   0.00 -14.13   0.00  40.43
-------------------------------------------------------------------------------

Segment Leq : 40.43 dBA

Total Leq All Segments: 43.15 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 32.23 + 0.00) = 32.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     50   0.66  74.77   0.00 -22.50  -5.94   0.00 -14.09   0.00  32.23
-------------------------------------------------------------------------------

Segment Leq : 32.23 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 32.83 + 0.00) = 32.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     53   0.66  74.77   0.00 -22.06  -5.74   0.00 -14.13   0.00  32.83
-------------------------------------------------------------------------------

Segment Leq : 32.83 dBA

Total Leq All Segments: 35.55 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 63.93
                          (NIGHT): 53.18
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:58:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec25.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-5

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-73.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	25.00 / 25.00	m
Receiver height	13.50 / 13.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 60.71 + 0.00) = 60.71 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.22	67.66	-2.72	-4.24	0.00	0.00	0.00	60.71

WHEEL (0.00 + 54.19 + 0.00) = 54.19 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.33	61.51	-2.95	-4.38	0.00	0.00	0.00	54.19

Segment Leq : 61.58 dBA

Total Leq All Segments: 61.58 dBA

Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 49.92 + 0.00) = 49.92 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.22	56.87	-2.72	-4.24	0.00	0.00	0.00	49.92

WHEEL (0.00 + 43.39 + 0.00) = 43.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.33	50.72	-2.95	-4.38	0.00	0.00	0.00	43.39

Segment Leq : 50.79 dBA

Total Leq All Segments: 50.79 dBA

↟

Road data, segment # 1: Hwy 417 West (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Hwy 417 West (day/night)

```
Angle1   Angle2           :   0.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 340.00 / 340.00 m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   53.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.91 + 0.00) = 44.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     50   0.30  82.37   0.00 -17.62  -5.74   0.00 -14.09   0.00  44.91
-------------------------------------------------------------------------------

Segment Leq : 44.91 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.44 + 0.00) = 45.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     53   0.30  82.37   0.00 -17.28  -5.51   0.00 -14.13   0.00  45.44
-------------------------------------------------------------------------------

Segment Leq : 45.44 dBA

Total Leq All Segments: 48.19 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 37.32 + 0.00) = 37.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     50   0.30  74.77   0.00 -17.62  -5.74   0.00 -14.09   0.00  37.32
-------------------------------------------------------------------------------

Segment Leq : 37.32 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 37.85 + 0.00) = 37.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     53   0.30  74.77   0.00 -17.28  -5.51   0.00 -14.13   0.00  37.85
-------------------------------------------------------------------------------

Segment Leq : 37.85 dBA

Total Leq All Segments: 40.60 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 61.77
                          (NIGHT): 51.19
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:40:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-1

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

* The identified number of trains have been adjusted for future growth using the following parameters:

Train type: No	Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	VIA Rail	24.0/1.0	0.00	0.00

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	: -77.00 deg	81.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 15.00 / 15.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

↑
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 66.15 + 0.00) = 66.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.58	67.66	0.00	-1.51	0.00	0.00	0.00	66.15

WHEEL (0.00 + 59.90 + 0.00) = 59.90 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.66	61.51	0.00	-1.61	0.00	0.00	0.00	59.90

Segment Leq : 67.07 dBA

Total Leq All Segments: 67.07 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 55.36 + 0.00) = 55.36 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.58	56.87	0.00	-1.51	0.00	0.00	0.00	55.36

WHEEL (0.00 + 49.11 + 0.00) = 49.11 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.66	50.72	0.00	-1.61	0.00	0.00	0.00	49.11

Segment Leq : 56.28 dBA

Total Leq All Segments: 56.28 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 67.07
(NIGHT): 56.28
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:41:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec35.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-5

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

* The identified number of trains have been adjusted for future growth using the following parameters:

Train type: No Name	Unadj. Trains	Annual % Increase	Years of Growth
1. VIA Rail	24.0/1.0	0.00	0.00

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-77.00 deg	81.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	15.00 / 15.00	m
Receiver height	13.50 / 13.50	m
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

↑
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 66.70 + 0.00) = 66.70 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.22	67.66	0.00	-0.96	0.00	0.00	0.00	66.70

WHEEL (0.00 + 60.39 + 0.00) = 60.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.33	61.51	0.00	-1.13	0.00	0.00	0.00	60.39

Segment Leq : 67.61 dBA

Total Leq All Segments: 67.61 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 55.91 + 0.00) = 55.91 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.22	56.87	0.00	-0.96	0.00	0.00	0.00	55.91

WHEEL (0.00 + 49.59 + 0.00) = 49.59 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	81	0.33	50.72	0.00	-1.13	0.00	0.00	0.00	49.59

Segment Leq : 56.82 dBA

Total Leq All Segments: 56.82 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 67.61
(NIGHT): 56.82
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-10-2019 09:43:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec41.te Time Period: Day/Night 16/8 hours
Description: Reception Point 4-1

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

* The identified number of trains have been adjusted for future growth using the following parameters:

Train type: No Name	Unadj. Trains	Annual % Increase	Years of Growth
1. VIA Rail	24.0/1.0	0.00	0.00

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	:	0.00 deg 78.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	30.00 / 30.00 m
Receiver height	:	1.50 / 1.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

↑
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 58.35 + 0.00) = 58.35 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.58	67.66	-4.77	-4.54	0.00	0.00	0.00	58.35

WHEEL (0.00 + 51.87 + 0.00) = 51.87 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.66	61.51	-5.00	-4.64	0.00	0.00	0.00	51.87

Segment Leq : 59.23 dBA

Total Leq All Segments: 59.23 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 47.56 + 0.00) = 47.56 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.58	56.87	-4.77	-4.54	0.00	0.00	0.00	47.56

WHEEL (0.00 + 41.08 + 0.00) = 41.08 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.66	50.72	-5.00	-4.64	0.00	0.00	0.00	41.08

Segment Leq : 48.44 dBA

Total Leq All Segments: 48.44 dBA

↟
Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513   veh/TimePeriod *
Heavy truck volume : 4217/367   veh/TimePeriod *
Posted speed limit :   100 km/h
Road gradient   :   0 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 91665
    Percentage of Annual Growth   :   0.00
    Number of Years of Growth   :   0.00
    Medium Truck % of Total Volume   :   7.00
    Heavy Truck % of Total Volume   :   5.00
    Day (16 hrs) % of Total Volume   : 92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1   Angle2   : -54.00 deg   0.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   7 / 7
House density   :   80 %
Surface   :   1   (Absorptive ground surface)

```
Receiver source distance  : 330.00 / 330.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -58.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 300.00 / 300.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 40.29 + 0.00) = 40.29 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -54      0   0.66  82.37   0.00 -22.28  -5.68   0.00 -14.11   0.00  40.29
-------------------------------------------------------------------------------

Segment Leq : 40.29 dBA
```

↑
Results segment # 2: Hwy 417 East (day)

Source height = 1.50 m

ROAD (0.00 + 41.15 + 0.00) = 41.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.66	82.37	0.00	-21.60	-5.44	0.00	-14.18	0.00	41.15

Segment Leq : 41.15 dBA

Total Leq All Segments: 43.75 dBA

↑
Results segment # 1: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 32.70 + 0.00) = 32.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-54	0	0.66	74.77	0.00	-22.28	-5.68	0.00	-14.11	0.00	32.70

Segment Leq : 32.70 dBA

↑
Results segment # 2: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 33.56 + 0.00) = 33.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.66	74.77	0.00	-21.60	-5.44	0.00	-14.18	0.00	33.56

Segment Leq : 33.56 dBA

Total Leq All Segments: 36.16 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 59.35
(NIGHT): 48.69

STAMSON 5.0 NORMAL REPORT Date: 02-10-2019 09:44:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec45.te Time Period: Day/Night 16/8 hours
Description: Reception Point 4-5

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

* The identified number of trains have been adjusted for future growth using the following parameters:

No	Train type: Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	VIA Rail	24.0/1.0	0.00	0.00

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	:	0.00 deg 78.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	30.00 / 30.00 m
Receiver height	:	13.50 / 13.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

↑
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 59.97 + 0.00) = 59.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.22	67.66	-3.69	-4.01	0.00	0.00	0.00	59.97

WHEEL (0.00 + 53.34 + 0.00) = 53.34 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.33	61.51	-4.00	-4.17	0.00	0.00	0.00	53.34

Segment Leq : 60.82 dBA

Total Leq All Segments: 60.82 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 49.17 + 0.00) = 49.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.22	56.87	-3.69	-4.01	0.00	0.00	0.00	49.17

WHEEL (0.00 + 42.55 + 0.00) = 42.55 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	78	0.33	50.72	-4.00	-4.17	0.00	0.00	0.00	42.55

Segment Leq : 50.03 dBA

Total Leq All Segments: 50.03 dBA

↟
Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513   veh/TimePeriod *
Heavy truck volume : 4217/367   veh/TimePeriod *
Posted speed limit :   100 km/h
Road gradient   :   0 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 91665
    Percentage of Annual Growth   :   0.00
    Number of Years of Growth   :   0.00
    Medium Truck % of Total Volume   :   7.00
    Heavy Truck % of Total Volume   :   5.00
    Day (16 hrs) % of Total Volume   : 92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1   Angle2   : -54.00 deg   0.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   7 / 7
House density   :   80 %
Surface   :   1   (Absorptive ground surface)

```
Receiver source distance  : 330.00 / 330.00 m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -58.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 300.00 / 300.00 m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.36 + 0.00) = 45.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -54      0   0.30  82.37   0.00 -17.45  -5.44   0.00 -14.11   0.00  45.36
-------------------------------------------------------------------------------

Segment Leq : 45.36 dBA
```

Results segment # 2: Hwy 417 East (day)

Source height = 1.50 m

ROAD (0.00 + 46.11 + 0.00) = 46.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.30	82.37	0.00	-16.92	-5.16	0.00	-14.18	0.00	46.11

Segment Leq : 46.11 dBA

Total Leq All Segments: 48.76 dBA

Results segment # 1: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 37.77 + 0.00) = 37.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-54	0	0.30	74.77	0.00	-17.45	-5.44	0.00	-14.11	0.00	37.77

Segment Leq : 37.77 dBA

Results segment # 2: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 38.52 + 0.00) = 38.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.30	74.77	0.00	-16.92	-5.16	0.00	-14.18	0.00	38.52

Segment Leq : 38.52 dBA

Total Leq All Segments: 41.17 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.08
(NIGHT): 50.56

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:23:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC51.te Time Period: Day/Night 16/8 hours
Description: Reception Point 5-1

Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1 Angle2 : -60.00 deg 49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 7 / 7
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 335.00 / 335.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Hwy 417 East (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -63.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 310.00 / 310.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.22 + 0.00) = 43.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     49   0.66  82.37   0.00 -22.39  -2.65   0.00 -14.10   0.00  43.22
-------------------------------------------------------------------------------

Segment Leq : 43.22 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.90 + 0.00) = 43.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     52   0.66  82.37   0.00 -21.83  -2.47   0.00 -14.15   0.00  43.90
-------------------------------------------------------------------------------

Segment Leq : 43.90 dBA

Total Leq All Segments: 46.58 dBA

↟
Results segment # 1: Hwy 417 West (night)
```

Source height = 1.50 m

ROAD (0.00 + 35.62 + 0.00) = 35.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	49	0.66	74.77	0.00	-22.39	-2.65	0.00	-14.10	0.00	35.62

Segment Leq : 35.62 dBA

↟

Results segment # 2: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 36.31 + 0.00) = 36.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	52	0.66	74.77	0.00	-21.83	-2.47	0.00	-14.15	0.00	36.31

Segment Leq : 36.31 dBA

Total Leq All Segments: 38.99 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 46.58
(NIGHT): 38.99

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:24:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC56.te Time Period: Day/Night 16/8 hours
Description: Reception Point 5-6

Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1 Angle2 : -60.00 deg 49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 7 / 7
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 335.00 / 335.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Hwy 417 East (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -63.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 310.00 / 310.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠕
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.60 + 0.00) = 49.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     49   0.21  82.37   0.00 -16.32  -2.33   0.00 -14.10   0.00  49.60
-------------------------------------------------------------------------------

Segment Leq : 49.60 dBA

🠕
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 50.17 + 0.00) = 50.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     52   0.21  82.37   0.00 -15.92  -2.12   0.00 -14.15   0.00  50.17
-------------------------------------------------------------------------------

Segment Leq : 50.17 dBA

Total Leq All Segments: 52.90 dBA

🠕
Results segment # 1: Hwy 417 West (night)
```

Source height = 1.50 m

ROAD (0.00 + 42.01 + 0.00) = 42.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	49	0.21	74.77	0.00	-16.32	-2.33	0.00	-14.10	0.00	42.01

Segment Leq : 42.01 dBA

↟

Results segment # 2: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 42.58 + 0.00) = 42.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	52	0.21	74.77	0.00	-15.92	-2.12	0.00	-14.15	0.00	42.58

Segment Leq : 42.58 dBA

Total Leq All Segments: 45.31 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 52.90
(NIGHT): 45.31

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 03-10-2019 13:56:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec61.te Time Period: Day/Night 16/8 hours
Description: Reception Point 6-1

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

* The identified number of trains have been adjusted for future growth using the following parameters:

Train type: No Name	Unadj. Trains	Annual % Increase	Years of Growth
1. VIA Rail	24.0/1.0	0.00	0.00

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	: -73.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 40.00 / 40.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

↑
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 56.21 + 0.00) = 56.21 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.58	67.66	-6.75	-4.70	0.00	0.00	0.00	56.21

WHEEL (0.00 + 49.66 + 0.00) = 49.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.66	61.51	-7.07	-4.79	0.00	0.00	0.00	49.66

Segment Leq : 57.08 dBA

Total Leq All Segments: 57.08 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 45.42 + 0.00) = 45.42 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.58	56.87	-6.75	-4.70	0.00	0.00	0.00	45.42

WHEEL (0.00 + 38.86 + 0.00) = 38.86 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	0	0.66	50.72	-7.07	-4.79	0.00	0.00	0.00	38.86

Segment Leq : 46.29 dBA

Total Leq All Segments: 46.29 dBA

↟
Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513 veh/TimePeriod *
Heavy truck volume : 4217/367 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 91665
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1 Angle2 : 0.00 deg 47.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 350.00 / 350.00 m

```
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 330.00 / 330.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.49 + 0.00) = 53.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     47   0.66  82.37   0.00 -22.71  -6.17   0.00   0.00   0.00  53.49
-------------------------------------------------------------------------------

Segment Leq : 53.49 dBA
```

↟

```
Results segment # 2: Hwy 417 East (day)
```

Source height = 1.50 m

ROAD (0.00 + 54.14 + 0.00) = 54.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.66	82.37	0.00	-22.28	-5.94	0.00	0.00	0.00	54.14

Segment Leq : 54.14 dBA

Total Leq All Segments: 56.84 dBA

↟

Results segment # 1: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 45.90 + 0.00) = 45.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	47	0.66	74.77	0.00	-22.71	-6.17	0.00	0.00	0.00	45.90

Segment Leq : 45.90 dBA

↟

Results segment # 2: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 46.54 + 0.00) = 46.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.66	74.77	0.00	-22.28	-5.94	0.00	0.00	0.00	46.54

Segment Leq : 46.54 dBA

Total Leq All Segments: 49.24 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.97
(NIGHT): 51.02

STAMSON 5.0 NORMAL REPORT Date: 03-10-2019 13:58:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec62.te Time Period: Day/Night 16/8 hours
Description: Reception Point 6-2

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

* The identified number of trains have been adjusted for future growth using the following parameters:

Train type: No Name	Unadj. Trains	Annual % Increase	Years of Growth
1. VIA Rail	24.0/1.0	0.00	0.00

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	: -72.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 40.00 / 40.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

↑
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 56.18 + 0.00) = 56.18 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-72	0	0.58	67.66	-6.75	-4.73	0.00	0.00	0.00	56.18

WHEEL (0.00 + 49.62 + 0.00) = 49.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-72	0	0.66	61.51	-7.07	-4.82	0.00	0.00	0.00	49.62

Segment Leq : 57.05 dBA

Total Leq All Segments: 57.05 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 45.39 + 0.00) = 45.39 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-72	0	0.58	56.87	-6.75	-4.73	0.00	0.00	0.00	45.39

WHEEL (0.00 + 38.83 + 0.00) = 38.83 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-72	0	0.66	50.72	-7.07	-4.82	0.00	0.00	0.00	38.83

Segment Leq : 46.26 dBA

Total Leq All Segments: 46.26 dBA

↟
Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume : 74212/6453 veh/TimePeriod *
Medium truck volume : 5903/513   veh/TimePeriod *
Heavy truck volume : 4217/367   veh/TimePeriod *
Posted speed limit :   100 km/h
Road gradient   :   0 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 91665
    Percentage of Annual Growth   :   0.00
    Number of Years of Growth   :   0.00
    Medium Truck % of Total Volume   :   7.00
    Heavy Truck % of Total Volume   :   5.00
    Day (16 hrs) % of Total Volume   : 92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1   Angle2   :   0.00 deg   47.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   0 / 0
Surface   :   1   (Absorptive ground surface)
Receiver source distance : 350.00 / 350.00 m

```
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 330.00 / 330.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.49 + 0.00) = 53.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     47   0.66  82.37   0.00 -22.71  -6.17   0.00   0.00   0.00  53.49
-------------------------------------------------------------------------------

Segment Leq : 53.49 dBA
```

↟

```
Results segment # 2: Hwy 417 East (day)
```

Source height = 1.50 m

ROAD (0.00 + 54.14 + 0.00) = 54.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.66	82.37	0.00	-22.28	-5.94	0.00	0.00	0.00	54.14

Segment Leq : 54.14 dBA

Total Leq All Segments: 56.84 dBA

↟

Results segment # 1: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 47.17 + 0.00) = 47.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	47	0.57	74.77	0.00	-21.48	-6.12	0.00	0.00	0.00	47.17

Segment Leq : 47.17 dBA

↟

Results segment # 2: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 47.80 + 0.00) = 47.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.57	74.77	0.00	-21.08	-5.89	0.00	0.00	0.00	47.80

Segment Leq : 47.80 dBA

Total Leq All Segments: 50.51 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.96
(NIGHT): 51.89

STAMSON 5.0 NORMAL REPORT Date: 02-10-2019 09:45:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec71.te Time Period: Day/Night 16/8 hours
Description: Reception Point 7-1

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-75.00 deg	82.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	20.00 / 20.00	m
Receiver height	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 64.16 + 0.00) = 64.16 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.58	67.66	-1.98	-1.53	0.00	0.00	0.00	64.16

WHEEL (0.00 + 57.81 + 0.00) = 57.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.66	61.51	-2.07	-1.63	0.00	0.00	0.00	57.81

Segment Leq : 65.07 dBA

Total Leq All Segments: 65.07 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 53.36 + 0.00) = 53.36 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.58	56.87	-1.98	-1.53	0.00	0.00	0.00	53.36

WHEEL (0.00 + 47.02 + 0.00) = 47.02 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.66	50.72	-2.07	-1.63	0.00	0.00	0.00	47.02

Segment Leq : 54.27 dBA

Total Leq All Segments: 54.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.07
(NIGHT): 54.27

STAMSON 5.0 NORMAL REPORT Date: 02-10-2019 09:46:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec76.te Time Period: Day/Night 16/8 hours
Description: Reception Point 7-6

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-75.00 deg	82.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	20.00 / 20.00	m
Receiver height	16.50 / 16.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 65.41 + 0.00) = 65.41 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.14	67.66	-1.42	-0.83	0.00	0.00	0.00	65.41

WHEEL (0.00 + 58.96 + 0.00) = 58.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.24	61.51	-1.55	-1.01	0.00	0.00	0.00	58.96

Segment Leq : 66.30 dBA

Total Leq All Segments: 66.30 dBA

↟
Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 54.62 + 0.00) = 54.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.14	56.87	-1.42	-0.83	0.00	0.00	0.00	54.62

WHEEL (0.00 + 48.17 + 0.00) = 48.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	82	0.24	50.72	-1.55	-1.01	0.00	0.00	0.00	48.17

Segment Leq : 55.51 dBA

Total Leq All Segments: 55.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.30
(NIGHT): 55.51

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:38:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: Time Period: Day/Night 16/8 hours
Description: Reception Point 8-1

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	0.00 deg	80.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	35.00 / 35.00	m
Receiver height	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 57.34 + 0.00) = 57.34 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.58	67.66	-5.83	-4.49	0.00	0.00	0.00	57.34

WHEEL (0.00 + 50.81 + 0.00) = 50.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.66	61.51	-6.11	-4.60	0.00	0.00	0.00	50.81

Segment Leq : 58.21 dBA

Total Leq All Segments: 58.21 dBA

Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 46.55 + 0.00) = 46.55 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.58	56.87	-5.83	-4.49	0.00	0.00	0.00	46.55

WHEEL (0.00 + 40.02 + 0.00) = 40.02 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.66	50.72	-6.11	-4.60	0.00	0.00	0.00	40.02

Segment Leq : 47.42 dBA

Total Leq All Segments: 47.42 dBA

Road data, segment # 1: Hwy 417 West (day/night)

Car traffic volume	: 74212/6453	veh/TimePeriod *
Medium truck volume	: 5903/513	veh/TimePeriod *
Heavy truck volume	: 4217/367	veh/TimePeriod *
Posted speed limit	: 100	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	:	91665
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	7.00
Heavy Truck % of Total Volume	:	5.00
Day (16 hrs) % of Total Volume	:	92.00

Data for Segment # 1: Hwy 417 West (day/night)

Angle1 Angle2	: -58.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 7 / 7	
House density	: 80	%
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 340.00 / 340.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -61.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 40.33 + 0.00) = 40.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -58      0   0.66  82.37   0.00 -22.50  -5.44   0.00 -14.09   0.00  40.33
-------------------------------------------------------------------------------

Segment Leq : 40.33 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 40.89 + 0.00) = 40.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -61      0   0.66  82.37   0.00 -22.06  -5.28   0.00 -14.13   0.00  40.89
-------------------------------------------------------------------------------

Segment Leq : 40.89 dBA

Total Leq All Segments: 43.63 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 32.74 + 0.00) = 32.74 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -58      0   0.66  74.77   0.00 -22.50  -5.44   0.00 -14.09   0.00  32.74
-------------------------------------------------------------------------------

Segment Leq : 32.74 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 33.29 + 0.00) = 33.29 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61      0   0.66  74.77   0.00 -22.06  -5.28   0.00 -14.13   0.00  33.29
-------------------------------------------------------------------------------

Segment Leq : 33.29 dBA

Total Leq All Segments: 36.03 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 58.36
                           (NIGHT): 47.72
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 05-06-2019 15:39:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC86.te Time Period: Day/Night 16/8 hours
Description: Reception Point 8-6

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	:	0.00 deg 80.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	35.00 / 35.00 m
Receiver height	:	16.50 / 16.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 59.72 + 0.00) = 59.72 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.14	67.66	-4.18	-3.77	0.00	0.00	0.00	59.72

WHEEL (0.00 + 53.00 + 0.00) = 53.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.24	61.51	-4.56	-3.95	0.00	0.00	0.00	53.00

Segment Leq : 60.56 dBA

Total Leq All Segments: 60.56 dBA

Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 48.93 + 0.00) = 48.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.14	56.87	-4.18	-3.77	0.00	0.00	0.00	48.93

WHEEL (0.00 + 42.21 + 0.00) = 42.21 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.24	50.72	-4.56	-3.95	0.00	0.00	0.00	42.21

Segment Leq : 49.77 dBA

Total Leq All Segments: 49.77 dBA

Road data, segment # 1: Hwy 417 West (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Hwy 417 West (day/night)

```
Angle1   Angle2           : -58.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 340.00 / 340.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -61.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 46.78 + 0.00) = 46.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -58      0   0.21  82.37   0.00 -16.40  -5.09   0.00 -14.09   0.00  46.78
-------------------------------------------------------------------------------

Segment Leq : 46.78 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 47.26 + 0.00) = 47.26 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -61      0   0.21  82.37   0.00 -16.08  -4.89   0.00 -14.13   0.00  47.26
-------------------------------------------------------------------------------

Segment Leq : 47.26 dBA

Total Leq All Segments: 50.04 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 39.19 + 0.00) = 39.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -58      0   0.21  74.77   0.00 -16.40  -5.09   0.00 -14.09   0.00  39.19
-------------------------------------------------------------------------------

Segment Leq : 39.19 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 39.66 + 0.00) = 39.66 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61      0   0.21  74.77   0.00 -16.08  -4.89   0.00 -14.13   0.00  39.66
-------------------------------------------------------------------------------

Segment Leq : 39.66 dBA

Total Leq All Segments: 42.44 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 60.93
                           (NIGHT): 50.51
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 03-10-2019 13:45:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec9.te Time Period: Day/Night 16/8 hours
Description: Reception Point 9 - No Buildings

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-73.00 deg	78.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	50.00 / 50.00	m
Receiver height	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 57.77 + 0.00) = 57.77 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	78	0.58	67.66	-8.29	-1.61	0.00	0.00	0.00	57.77

WHEEL (0.00 + 51.13 + 0.00) = 51.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	78	0.66	61.51	-8.68	-1.71	0.00	0.00	0.00	51.13

Segment Leq : 58.62 dBA

Total Leq All Segments: 58.62 dBA

Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 46.97 + 0.00) = 46.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	78	0.58	56.87	-8.29	-1.61	0.00	0.00	0.00	46.97

WHEEL (0.00 + 40.34 + 0.00) = 40.34 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	78	0.66	50.72	-8.68	-1.71	0.00	0.00	0.00	40.34

Segment Leq : 47.82 dBA

Total Leq All Segments: 47.82 dBA

↟

Road data, segment # 1: Hwy 417 West (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Hwy 417 West (day/night)

```
Angle1   Angle2           : -60.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -63.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 300.00 / 300.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.62 + 0.00) = 43.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     52   0.66  82.37   0.00 -22.06  -2.55   0.00 -14.13   0.00  43.62
-------------------------------------------------------------------------------

Segment Leq : 43.62 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.21 + 0.00) = 44.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
--------------------------------------------------------------------------------
   -63     55   0.66  82.37   0.00 -21.60  -2.38   0.00 -14.18   0.00  44.21
--------------------------------------------------------------------------------

Segment Leq : 44.21 dBA

Total Leq All Segments: 46.94 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.02 + 0.00) = 36.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -60     52   0.66  74.77   0.00 -22.06  -2.55   0.00 -14.13   0.00  36.02
--------------------------------------------------------------------------------

Segment Leq : 36.02 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.61 + 0.00) = 36.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -63     55   0.66  74.77   0.00 -21.60  -2.38   0.00 -14.18   0.00  36.61
--------------------------------------------------------------------------------

Segment Leq : 36.61 dBA

Total Leq All Segments: 39.34 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 58.91
                          (NIGHT): 48.40
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 03-10-2019 13:47:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec9A.te Time Period: Day/Night 16/8 hours
Description: Reception Point 9 - With Building A

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	: -73.00 deg	14.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 50.00 / 50.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 55.57 + 0.00) = 55.57 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	14	0.58	67.66	-8.29	-3.81	0.00	0.00	0.00	55.57

WHEEL (0.00 + 48.96 + 0.00) = 48.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	14	0.66	61.51	-8.68	-3.88	0.00	0.00	0.00	48.96

Segment Leq : 56.43 dBA

Total Leq All Segments: 56.43 dBA

Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 44.78 + 0.00) = 44.78 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	14	0.58	56.87	-8.29	-3.81	0.00	0.00	0.00	44.78

WHEEL (0.00 + 38.16 + 0.00) = 38.16 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-73	14	0.66	50.72	-8.68	-3.88	0.00	0.00	0.00	38.16

Segment Leq : 45.64 dBA

Total Leq All Segments: 45.64 dBA

↟

Road data, segment # 1: Hwy 417 West (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Hwy 417 West (day/night)

```
Angle1   Angle2           : -60.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -63.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 300.00 / 300.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.62 + 0.00) = 43.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     52   0.66  82.37   0.00 -22.06  -2.55   0.00 -14.13   0.00  43.62
-------------------------------------------------------------------------------

Segment Leq : 43.62 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.21 + 0.00) = 44.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
--------------------------------------------------------------------------------
   -63     55   0.66  82.37   0.00 -21.60  -2.38   0.00 -14.18   0.00  44.21
--------------------------------------------------------------------------------

Segment Leq : 44.21 dBA

Total Leq All Segments: 46.94 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.02 + 0.00) = 36.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -60     52   0.66  74.77   0.00 -22.06  -2.55   0.00 -14.13   0.00  36.02
--------------------------------------------------------------------------------

Segment Leq : 36.02 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.61 + 0.00) = 36.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -63     55   0.66  74.77   0.00 -21.60  -2.38   0.00 -14.18   0.00  36.61
--------------------------------------------------------------------------------

Segment Leq : 36.61 dBA

Total Leq All Segments: 39.34 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 56.89
                           (NIGHT): 46.55
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 03-10-2019 13:48:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec9B.te Time Period: Day/Night 16/8 hours
Description: Reception Point 9 - With Both Buildings

Rail data, segment # 1: VIA Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. VIA Rail	24.0/1.0	100.0	1.0	6.0	Diesel	No

Data for Segment # 1: VIA Rail (day/night)

Angle1 Angle2	-12.00 deg	14.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	50.00 / 50.00	m
Receiver height	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: VIA Rail (day)

LOCOMOTIVE (0.00 + 50.95 + 0.00) = 50.95 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	14	0.58	67.66	-8.29	-8.43	0.00	0.00	0.00	50.95

WHEEL (0.00 + 44.41 + 0.00) = 44.41 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	14	0.66	61.51	-8.68	-8.43	0.00	0.00	0.00	44.41

Segment Leq : 51.82 dBA

Total Leq All Segments: 51.82 dBA

Results segment # 1: VIA Rail (night)

LOCOMOTIVE (0.00 + 40.16 + 0.00) = 40.16 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	14	0.58	56.87	-8.29	-8.43	0.00	0.00	0.00	40.16

WHEEL (0.00 + 33.61 + 0.00) = 33.61 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-12	14	0.66	50.72	-8.68	-8.43	0.00	0.00	0.00	33.61

Segment Leq : 41.03 dBA

Total Leq All Segments: 41.03 dBA

↟

Road data, segment # 1: Hwy 417 West (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Hwy 417 West (day/night)

```
Angle1   Angle2           : -60.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 320.00 / 320.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Road data, segment # 2: Hwy 417 East (day/night)

```
Car traffic volume  : 74212/6453  veh/TimePeriod  *
Medium truck volume :  5903/513   veh/TimePeriod  *
Heavy truck volume  :  4217/367   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  91665
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -63.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 300.00 / 300.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.62 + 0.00) = 43.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     52   0.66  82.37   0.00 -22.06  -2.55   0.00 -14.13   0.00  43.62
-------------------------------------------------------------------------------

Segment Leq : 43.62 dBA

↟
Results segment # 2: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.21 + 0.00) = 44.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -63     55   0.66  82.37   0.00 -21.60  -2.38   0.00 -14.18   0.00  44.21
-------------------------------------------------------------------------------

Segment Leq : 44.21 dBA

Total Leq All Segments: 46.94 dBA

↟
Results segment # 1: Hwy 417 West (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.02 + 0.00) = 36.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     52   0.66  74.77   0.00 -22.06  -2.55   0.00 -14.13   0.00  36.02
-------------------------------------------------------------------------------

Segment Leq : 36.02 dBA

↟
Results segment # 2: Hwy 417 East (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 36.61 + 0.00) = 36.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     55   0.66  74.77   0.00 -21.60  -2.38   0.00 -14.18   0.00  36.61
-------------------------------------------------------------------------------

Segment Leq : 36.61 dBA

Total Leq All Segments: 39.34 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 53.04
                          (NIGHT): 43.28
↟
↟
```

APPENDIX 3

VIA RAIL TRAIN COUNT

CORRESPONDENCE

TABLE 5-5 (Transit Noise and Vibration Impact Assessment)

Québec City – Windsor Corridor

Available on most trains.

Corridor Québec – Windsor

Offert dans la plupart des trains.

MONTRÉAL → ALEXANDRIA → OTTAWA → FALLOWFIELD

TRAIN		51	33	633	35	635	37	637	39	639
DAYS / JOURS		1234567	1234567	1234567	1234567	1234567	1234567	1234567	1234567	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	✓	✓
Montréal, QC	DP	06:20	09:00	09:00	12:04	14:20	16:50	16:50	18:50	19:00
Dorval ✈		06:44	09:34	09:24	12:39	14:46	17:24	17:24	19:24	19:24
Coteau, QC									19:51	19:50
Alexandria, ON		07:28	10:22	10:11	13:27		18:09	18:09	20:18	20:17
Casselman		07:55	10:44	10:33	13:50					
Ottawa	AR	08:20	11:14	11:04	14:15	16:14	18:53	18:53	21:02	21:01
	DP	08:35					19:08		21:12	
Fallowfield, ON	AR	08:52					19:30		21:29	

FALLOWFIELD → OTTAWA → ALEXANDRIA → MONTRÉAL

TRAIN		22	24	624**	34*	26	28	38
DAYS / JOURS		1234567	1234567	1234567	1234567	1234567	1234567	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓
Fallowfield, ON	DP	06:04	09:48					
Ottawa	AR	06:21	10:05					
	DP	06:30	10:17	10:15	11:20	14:20	16:15	18:55
Casselman					11:47			19:22
Alexandria, ON		07:18	11:10	11:07	12:11	15:08		19:46
Coteau, QC		07:46				15:29[5]		
Dorval ✈		08:11	11:55	11:58	12:57	15:55	17:45	20:37
Montréal, QC	AR	08:31	12:15	12:17	13:16	16:15	18:05	20:57

No local service between Montréal and Dorval, or Ottawa and Fallowfield. / Pas de service local entre Montréal et Dorval, ainsi qu'entre Ottawa et Fallowfield.

5 The train stops at this station only on Fridays. / Le train arrête à cette gare seulement les vendredis.

✈ Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available only on Saturday. / Voiture à bagages disponible seulement samedi.

** Baggage car available only on Sunday. / Voiture à bagages disponible seulement dimanche.

E-boarding pass / Carte d'embarquement électronique

We'll email you a boarding pass with a bar code whenever you book a seat. You can present a printed version of this e-boarding pass or display its bar code on your mobile device, along with a photo ID upon request, at the boarding gate and on board the train. Skip the ticket counter – you can board the train directly.

Lorsque vous réserverez une place à bord d'un train, nous vous ferons parvenir par courriel une carte d'embarquement comportant un code-barres. Vous pourrez imprimer cette carte d'embarquement ou l'afficher sur votre appareil mobile et la présenter à la porte d'embarquement ou à bord du train, en l'accompagnant d'une carte d'identité avec photo. Plus besoin de passer à la billetterie, vous pourrez monter à bord directement.

You're mobile. So are we. / Vous êtes mobile, nous aussi.

VIA Rail is never very far from wherever you are. With the VIA mobile version of our booking engine, you can book a trip and consult arrivals and departures, all from your smartphone.

Où que vous soyez, VIA Rail n'est jamais bien loin. Grâce à la version mobile de notre moteur de réservation, réservez un voyage ou consultez les arrivées et les départs, le tout à l'aide de votre téléphone intelligent.

How to use the timetable / Comment utiliser l'horaire

In all sections, schedules are linear and usually read from the top down. Schedules for some routes read from the bottom up. Arrows will indicate the direction to follow.

In general, the schedule for each route indicates the departure time only. Stations at which the train stops are listed on the left. Locations in bold indicate a possible connection.

Les horaires de chaque section sont linéaires et se lisent généralement de haut en bas. Pour certaines liaisons, l'horaire se lit de bas en haut. Suivez le sens des flèches pour orienter votre lecture.

En général, l'horaire de chaque liaison n'indique que l'heure de départ. Le nom des localités desservies est inscrit à gauche. Les localités en gras indiquent une possibilité de correspondance.

Legend / Légende

Days / Jours	Time Zone		Fuseaux horaires
1 Monday / Lundi	Atlantic Time	AT / HA	Heure de l'Atlantique
2 Tuesday / Mardi	Eastern Time	ET / HE	Heure de l'Est
3 Wednesday / Mercredi	Central Time	CT / HC	Heure du Centre
4 Thursday / Jeudi	Mountain Time	MT / HR	Heure des Rocheuses
5 Friday / Vendredi	Pacific Time	PT / HP	Heure du Pacifique
6 Saturday / Samedi			
7 Sunday / Dimanche			

Bold numbers indicate the days when train service is offered. Grey numbers indicate days when no service is offered on a given route.
Example: **12345**67

Les chiffres en caractères gras indiquent les jours où les trains sont en service. Ceux en gris désignent les jours où il n'y a pas de service sur la liaison.
Exemple : **12345**67

There is a seat assignment in Economy class in the Québec City – Windsor corridor, except on trains 650 and 651. / Il y a une assignation des sièges en classe Économie dans le corridor Québec – Windsor, sauf pour les trains 650 et 651.

Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

Telephone numbers / Numéros de téléphone

Canada or United States / Canada ou États-Unis
1 888 VIA-RAIL* – 1 888 842-7245* – viarail.ca

Montréal: Local call from 514, 450 and 438 area codes /
Appel local des indicatifs régionaux 514, 450 et 438 ..... 514 989-2626

Moncton: Local call / Appel local..... 506 857-9830

Reward Program / Programme de récompense
VIA Préférence..... 1 888 VIA-PREF* – 1 888 842-7733* – viapreference.ca

TTY / ATS..... 1 800 268-9503*

Amtrak ..... 1 800 USA-RAIL* – 1 800 872-7245* – Amtrak.com

*toll-free / sans frais

Visit viarail.ca or call one of our telephone sales agents to find out when stations are open. / Pour connaître les heures d'ouverture des gares, consultez le site viarail.ca ou communiquez par téléphone avec un agent de VIA Rail.

Québec City – Windsor Corridor

Available on most trains.

Offert dans la plupart des trains.

Corridor Québec – Windsor

OTTAWA → MONTRÉAL → SAINTE-FOY → QUÉBEC

TRAIN		20	22	622 *	624 **	24	26	28	14
DAYS / JOURS		1234567	1234567	1234567	1234567	1234567	1234567	1234567	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	
Fallowfield, ON	DP		06:04			09:48			
Ottawa	AR		06:21			10:05			
	DP		06:30		10:15	10:17	14:20	16:15	
Casselman									
Alexandria, ON			07:18		11:07	11:10	15:08		
Coteau, ON			07:46				15:29[5]		
Dorval			08:11		11:58	11:55	15:55	17:45	
Montréal	AR		08:31		12:17	12:15	16:15	18:05	
	DP	06:20	08:56	09:06	12:45	12:45	16:40	18:25	19:00
Saint-Lambert		06:33	09:18	09:18	13:08	13:08	17:02	18:48	19:25
Saint-Hyacinthe		07:00		09:43			17:29	19:16	19:58
Drummondville		07:29	10:12	10:12	14:01	14:01	18:15	19:45	20:47
Charny					15:56	15:56			
Sainte-Foy		09:19	11:58	11:57	16:04	16:04	20:00	21:30	22:34
Québec, QC	AR	09:43	12:22	12:22	16:28	16:28	20:24	21:54	To/Vers Halifax

No local service between Québec City, Sainte-Foy and Charny, or Saint-Lambert and Montréal. / Pas de service local entre Québec, Sainte-Foy et Charny, ainsi qu'entre Saint-Lambert et Montréal.

Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

5 The train stops at this station only on Fridays. / Le train arrête à cette gare seulement les vendredis.

Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available only on Saturday. / Voiture à bagages disponible seulement samedi.

** Baggage car available only on Sunday. / Voiture à bagages disponible seulement dimanche.

E-boarding pass / Carte d'embarquement électronique

We'll email you a boarding pass with a bar code whenever you book a seat. You can present a printed version of this e-boarding pass or display its bar code on your mobile device, along with a photo ID upon request, at the boarding gate and on board the train. Skip the ticket counter – you can board the train directly.

Lorsque vous réserverez une place à bord d'un train, nous vous ferons parvenir par courriel une carte d'embarquement comportant un code-barres. Vous pourrez imprimer cette carte d'embarquement ou l'afficher sur votre appareil mobile et la présenter à la porte d'embarquement ou à bord du train, en l'accompagnant d'une carte d'identité avec photo. Plus besoin de passer à la billetterie, vous pourrez monter à bord directement.

You're mobile. So are we. / Vous êtes mobile, nous aussi.

VIA Rail is never very far from wherever you are. With the VIA mobile version of our booking engine, you can book a trip and consult arrivals and departures, all from your smartphone.

Où que vous soyez, VIA Rail n'est jamais bien loin. Grâce à la version mobile de notre moteur de réservation, réservez un voyage ou consultez les arrivées et les départs, le tout à l'aide de votre téléphone intelligent.

How to use the timetable / Comment utiliser l'horaire

In all sections, schedules are linear and usually read from the top down. Schedules for some routes read from the bottom up. Arrows will indicate the direction to follow.

In general, the schedule for each route indicates the departure time only. Stations at which the train stops are listed on the left. Locations in bold indicate a possible connection.

Les horaires de chaque section sont linéaires et se lisent généralement de haut en bas. Pour certaines liaisons, l'horaire se lit de bas en haut. Suivez le sens des flèches pour orienter votre lecture.

En général, l'horaire de chaque liaison n'indique que l'heure de départ. Le nom des localités desservies est inscrit à gauche. Les localités en gras indiquent une possibilité de correspondance.

Legend / Légende

Days / Jours	Time Zone		Fuseaux horaires
1 Monday / Lundi	Atlantic Time	AT / HA	Heure de l'Atlantique
2 Tuesday / Mardi	Eastern Time	ET / HE	Heure de l'Est
3 Wednesday / Mercredi	Central Time	CT / HC	Heure du Centre
4 Thursday / Jeudi	Mountain Time	MT / HR	Heure des Rocheuses
5 Friday / Vendredi	Pacific Time	PT / HP	Heure du Pacifique
6 Saturday / Samedi			
7 Sunday / Dimanche			

Bold numbers indicate the days when train service is offered. Grey numbers indicate days when no service is offered on a given route.
Example: **12345**67

Les chiffres en caractères gras indiquent les jours où les trains sont en service. Ceux en gris désignent les jours où il n'y a pas de service sur la liaison.
Exemple : **12345**67

There is a seat assignment in Economy class in the Québec City – Windsor corridor, except on trains 650 and 651. / Il y a une assignation des sièges en classe Économie dans le corridor Québec – Windsor, sauf pour les trains 650 et 651.

Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

Telephone numbers / Numéros de téléphone

Canada or United States / Canada ou États-Unis
1 888 VIA-RAIL* – 1 888 842-7245* – viarail.ca

Montréal: Local call from 514, 450 and 438 area codes /
Appel local des indicatifs régionaux 514, 450 et 438 ..... 514 989-2626

Moncton: Local call / Appel local..... 506 857-9830

Reward Program / Programme de récompense
VIA Préférence..... 1 888 VIA-PREF* – 1 888 842-7733* – viapreference.ca

TTY / ATS..... 1 800 268-9503*

Amtrak ..... 1 800 USA-RAIL* – 1 800 872-7245* – Amtrak.com

*toll-free / sans frais

Visit viarail.ca or call one of our telephone sales agents to find out when stations are open. / Pour connaître les heures d'ouverture des gares, consultez le site viarail.ca ou communiquez par téléphone avec un agent de VIA Rail.

Stephanie Boisvenue

From: Paul Charbachi <Paul_Charbachi@viarail.ca>
Sent: June 5, 2019 9:18 AM
To: Stephanie Boisvenue
Subject: RE: Request for Rail Information - Alexandria Corridor

Salut Stephane,
Alexandria it's ours,
Number of trains a day: 24 trains
Number of Engines: 1 per train
Type of Engine: P42 In general
Number of Cars: 6 cars average per train
Approximate Speed: 100 MPH
Hope it helps,
Pc

From: Stephanie Boisvenue <SBoisvenue@Patersongroup.ca>
Sent: Tuesday, June 04, 2019 2:35 PM
To: Paul Charbachi <Paul_Charbachi@viarail.ca>
Subject: RE: Request for Rail Information - Alexandria Corridor

No problem – I had information that there were 6 VIA trains that travelled from Alexandria to Ottawa a day on that line. I shall update my information accordingly.

However, now that I'm looking at my e-mail again, I did not update it correctly. Sorry for all the confusion.

Rail Line: **Alexandria Corridor**
Number of trains a day:
Number of Engines:
Type of Engine:
Number of Cars:
Approximate Speed:

Thanks again for all your help.

Best Regards

Stephanie Boisvenue, P.Eng.
patersongroup
solution oriented engineering
over 60 years servicing our clients

154 Colonnade Road South
Ottawa, Ontario, K2E 7J5
Tel: (613) 226-7381 Ext. 219

From: Paul Charbachi <Paul_Charbachi@viarail.ca>
Sent: June 4, 2019 2:32 PM

To: Stephanie Boisvenue <SBoisvenue@Patersongroup.ca>
Subject: Re: Request for Rail Information - Alexandria Corridor

Hello Stéphanie,
It's still CN yard , sorry it's not our property,
Thanks

Sent from my iPhone

On Jun 4, 2019, at 1:25 PM, Stephanie Boisvenue <SBoisvenue@patersongroup.ca> wrote:

> Paul,
>
> Thanks again for the previous information. I did forward my request to CN Rail.
>
> I am working on another property adjacent to the Alexandria Rail Corridor (between Alexandria and Ottawa). I was wondering if you could forward me the following information:
>
> Rail Line: Walkley Rail Corridor (Ottawa)
> Number of trains a day:
> Number of Engines:
> Type of Engine:
> Number of Cars:
> Approximate Speed:
>
> Best Regards
>
> Stephanie Boisvenue, P.Eng.
> **patersongroup**
> **solution oriented engineering**
> **over 60 years servicing our clients**
>
> 154 Colonnade Road South
> Ottawa, Ontario, K2E 7J5
> Tel: (613) 226-7381 Ext. 219

Table 5-5. Source Reference Levels at 50 feet from Center of Site, Stationary Sources		
Source	**Reference SEL (dBA)**	**Reference Conditions**
Rail System:		
Yards and Shops	118	20 train movements in peak activity hour
Layover Tracks (commuter rail)	109	One train with diesel locomotive idling for one hour
Crossovers	100	One train
Crossing signals	109	3600 seconds duration
Bus System:		
Storage Yard	111	100 buses accessing facility in peak activity hour
Operating Facility	114	100 buses accessing facility, 30 buses serviced and cleaned in peak activity hour
Transit Center	101	20 buses in peak activity hour
Ferry Terminal:		
Ferry Boat (no fog horn sounded)	97	4 ferry boats landings in one hour
Ferry Boat (fog horn sounded)	100	
Parking Garage	92	1000 cars in peak activity hour
Park & Ride Lot	101	12 buses, 1000 cars in peak activity hour