JLR No.: 26299-005
Revision: 1

October 25, 2023

NOISE CONTROL FEASIBILITY STUDY

ARCADIA STAGE 5

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Value through service and commitment

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1.0 INTRODUCTION

J.L. Richards & Associates Limited (JLR) was retained by Minto Communities Inc. (Minto) to prepare a Noise Control Feasibility Study for their residential development known as Arcadia Stage 5, located at 450 Huntmar Drive, within the City of Ottawa. The purpose of this study is to assess the potential environmental noise impact on the Development, due to vehicular traffic from Winterset Road, Campeau Drive, and Light Rail Transit (LRT). This Noise Control Feasibility Study develops a strategy for site plan and subdivision development that minimizes the reliance upon noise barriers, ventilation requirements and air conditioning as a means of addressing roadway noise and instead examines land use, roadway layout and building orientation as a principal means to mitigate roadway noise. Land use and building orientation identified in this study will then be examined in detail as part of the Noise Control Detailed Design Study prepared for the site plan and subdivision applications.

This report is prepared to satisfy the Ministry of the Environment, Conservation and Parks (MECP) Environmental Noise Guidelines NPC-300 and the City of Ottawa Environmental Noise Control Guidelines (approved by City Council January 2016) and in particular Part 4 Section 3.1 Noise Control Feasibility Study Requirements.

2.0 PROJECT DESCRIPTION

The proposed residential development is situated on a ±8.3 ha parcel of land that is bounded by the Carp River to the north and east, Winterset Road to the south and west, a future park to the north and west and Campeau Drive to the south and east, as shown on Figure 1 - Location Plan.

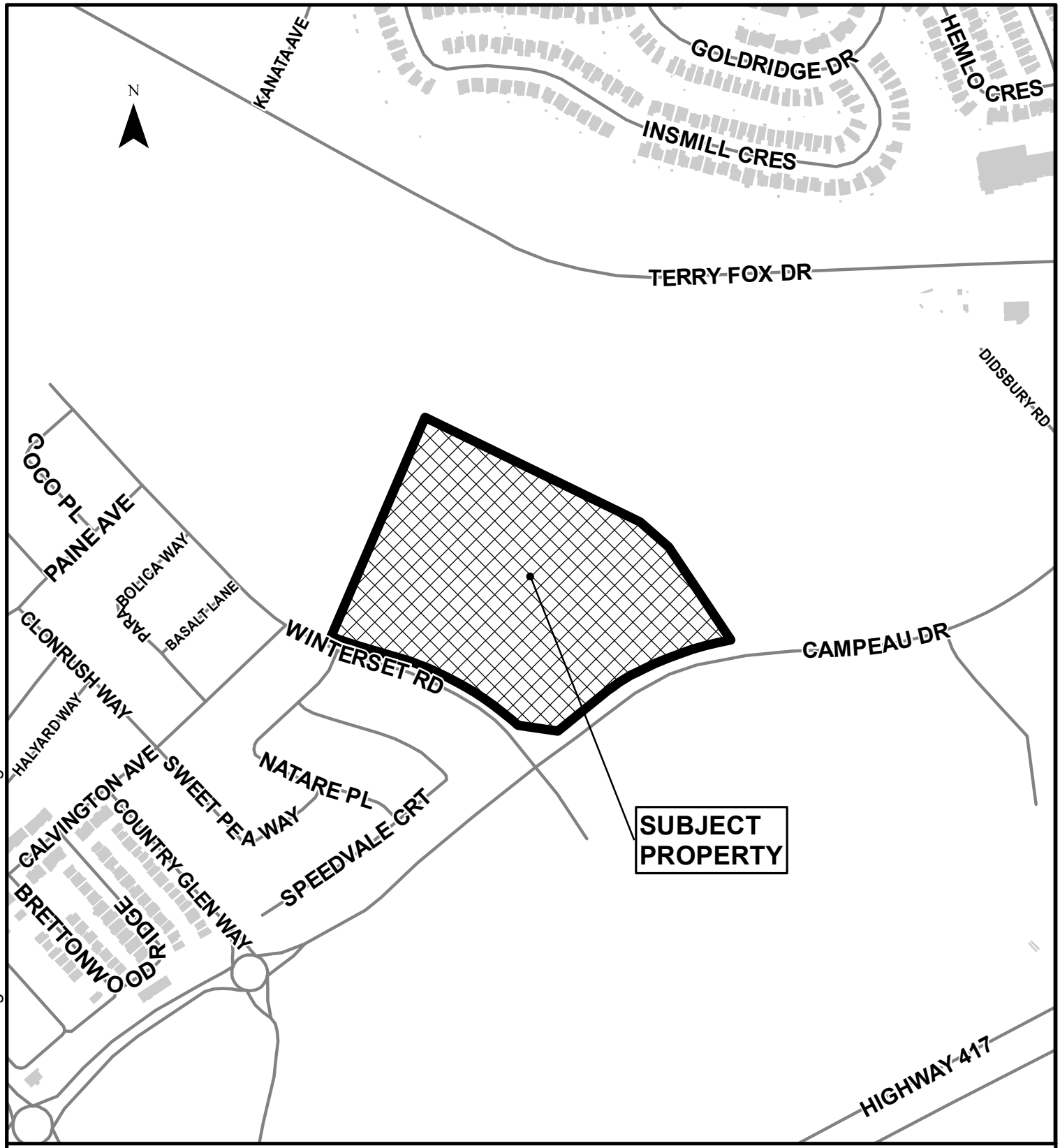
The proposed development will consist of 62 Single homes, 86 Executive Towns and 74 Avenue Towns for a total of 222 units as shown on the Concept Plan 23 (revision date August 25, 2023) provided in Appendix ‘A’.

3.0 TRANSPORTATION NOISE SOURCE

The transportation noise sources are Winterset Road, Campeau Drive and LRT. Drawing N1 shows the location of the noise sources and existing roadways in relation to the proposed development. Highway 417 is not considered a transportation noise source for this study because it is more than 500m away from the proposed noise sensitive land use, as shown on Figure 1.

3.1 Transportation Sound Level Criteria

For the purpose of determining the predicted noise levels, and based on the sound level criteria established by the City of Ottawa Environmental Noise Control Guidelines (ENCG), the following will be used as the maximum acceptable sound levels (Leq) for residential development and other land uses, such as nursing homes, schools and daycare centres:



PROJECT:

MINTO COMMUNITIES INC.
ARCADIA STAGE 5
450 HUNTMAR DRIVE, OTTAWA, ON

DRAWING:

LOCATION PLAN

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS
www.jlrichards.ca

DESIGN:	TB
DRAWN:	TB
CHECKED:	LJ
JLR #:	31418

DRAWING #:

FIGURE 1

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\Figures\26299-005-LocationPlan.mxd

Plot Date: Wednesday, November 24, 2021 9:28:31 AM

Receiver Location	Criteria	Time Period
Outdoor Living Area:	55 dBA	Daytime (0700 - 2300 hrs.)
Indoor Living/Dining Rooms (inside):	45 dBA	Daytime (0700 - 2300 hrs.)
General Office, Reception Area (inside):	50 dBA	Daytime (0700 - 2300 hrs.)
Sleeping Quarters (inside):	40 dBA	Nighttime (2300 - 0700 hrs.)

Outdoor Living Areas (OLA) are defined as that portion of the outdoor amenity area of a dwelling for the quiet enjoyment of the outdoor environment during the daytime period. Typically, the point of assessment in an OLA is 3.0 m from the building façade mid-point and 1.5 m above the ground within the designated OLA for each individual unit. OLAs commonly include backyards, balconies (with a minimum depth of 4 m as per NPC-300), common outdoor living areas, and passive recreational areas.

3.2 Transportation Noise Attenuation Requirements

When the sound levels are equal to or less than the specified criteria, per the City of Ottawa ENCG and/or MECP NPC-300, no noise attenuation (control) measures are required.

The following tables outline noise attenuation measures to achieve required dBA Leq for surface transportation noise, per the City of Ottawa ENCG.

Table 1: Outdoor Noise Control Measures for Surface Transportation Noise

<table>
<tr><th rowspan="2">Primary Mitigation Measure
(in order of preference)</th><th colspan="2">Secondary Mitigation Measures</th></tr>
<tr><th>Landscape Plantings and/or Non-acoustic Fence to Obscure Noise Source</th><th>Warning Clauses</th></tr>
<tr><td>Distance setback with soft ground</td><td rowspan="2">Recommended</td><td rowspan="2"></td></tr>
<tr><td>Insertion of Noise insensitive land uses between the source and receiver receptor</td></tr>
<tr><td>Orientation of buildings to provide sheltered zones in rear yards</td><td rowspan="4">Required</td><td rowspan="4">Warning Clauses necessary and to include:
- Reference to specific noise mitigation measures in the development.
- Whether noise is expected to increase in the future.
- That there is a need to maintain mitigation.</td></tr>
<tr><td>Shared outdoor amenity areas</td></tr>
<tr><td>Earth berms (sound barriers)</td></tr>
<tr><td>Acoustic barriers (acoustic barriers)</td></tr>
</table>

Table 2: Indoor Noise Control Measures for Surface Transportation Noise

Primary Mitigation Measure (in order of preference)	Secondary Mitigation Measures	
	Landscape Plantings and/or Non-acoustic Fence to Obscure Noise Source	Warning Clauses
Distance setback with soft ground	Recommended	Not necessary

Insertion of Noise insensitive land uses between the source and receiver receptor		
Orientation of buildings to provide sheltered zones or modified interior spaces and amenity areas	Required	Warning Clauses necessary and to include: - Reference to specific noise mitigation measures in the development. - Whether noise is expected to increase in the future. - That there is a need to maintain mitigation.
Enhanced construction techniques and construction quality		
Earth berms (sound barriers)		
Indoor isolation – air conditioning and ventilation, enhanced dampening materials (indoor isolation)		

The following tables outline the noise level limits per the MECP NPC-300 and City of Ottawa ENCG.

Table 3: Outdoor Living Area (OLA) Noise Limit for Surface Transportation

Time Period	Leq (16 hr) (dBA)
16 hr., 07:00 am - 23:00	55

Table 4: Indoor Noise Limit for Surface Transportation

Type of Space	Time Period	Leq (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00-23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00-07:00	45	40
Sleeping quarters	07:00-23:00	45	40
	23:00-07:00	40	35

In addition to the implementation of noise attenuation features, if required, and depending on the severity of the noise problem, warning clauses may be recommended to advise the prospective purchasers/tenants of affected units of the potential environmental noise. These warning clauses should be included in the Site Plan and Subdivision Agreements, in the Offers of Purchase and Sale, and should be registered on Title. Warning clauses may be included for any development, irrespective of whether it is considered a noise sensitive land use.

Where site measures are required to mitigate noise levels, the City of Ottawa requires that notices be placed on Title informing potential buyers and/or tenants of the site conditions. Sample templates of the notices that could be registered on Title are included in Appendix ‘B’ as presented in the City of Ottawa ENCG.

Detailed wording for clauses should be provided as part of a detailed Noise Impact Study to be completed in support of the Subdivision Application. Clauses are to be worded to describe the mitigation measures and noise conditions applicable where MECP and City of Ottawa noise criteria are exceeded.

3.3 Prediction of Noise Levels

3.3.1 Road Traffic Data

The following traffic data was used to predict noise levels:

Table 5: Road Traffic Data to Predict Noise Levels

	Campeau Drive	Winterset Road
Total Traffic Volume (AADT)	35,000	8,000
Day/Night Split (%)	92/8	92/8
Medium Trucks (%)	7	7
Heavy Trucks (%)	5	5
Posted Speed (km/hr.)	60	40
Road Gradient (%)	1	1
Road Classification	4-Lane Urban Arterial-Divided (4-UAD)	2-Lane Urban Collector (2-UCU)

Schedule ‘E’ and Annex 1 of the City of Ottawa Official Plan (May 2003) were utilized to determine the road classification and protected right-of-way. These road classifications were compared to Map 6 of the City of Ottawa Transportation Master Plan (Road Network – Urban). All findings were then compared to Table B1 (Part 4, Appendix ‘B’) of the City of Ottawa Environmental Noise Control Guidelines in order to determine an appropriate AADT value.

3.3.2 Light Rail Transit Corridor Data

Drawing N1 shows the location of the Light Rail Transit (LRT) Corridor in relation to the proposed residential development. The following data was used to predict LRT noise levels:

Table 6: Light Rapid Transit Corridor Data to Predict Noise Levels

	Light Rail Transit Corridor
Total Train Volume (AADT)	340
Day/Night Split (%)	92/8
No. of Locomotives/Train	2
No. of Cars/Train	4
Maximum Posted Speed (km/hr)	80

The computer program Stamson is used to predict noise levels associated with the bus rapid transit corridor.

3.3.3 Noise Level Calculations (Transportation)

Noise contours for the daytime periods were developed using the MECP Road Traffic Noise Computer program STAMSON, Version 5.03. The following procedure was used to establish the contours:

1. Distances were calculated from the centre of the roadway and LRT to even 5 dBA freefield noise levels ranging from 50 dBA to 70 dBA for each of the roadways. Table 7 below presents this information. Computer printouts are included in Appendix ‘C’.

2. Additional calculations were conducted to generate freefield noise levels where two roadways intersect to establish the distances along a 45 degree angle from the centre of the intersection. For example, receiver locations were identified along the bisecting angle between Winterset Road, Campeau Drive and LRT. Computer printouts are included in Appendix ‘D’.

3. These calculations were then compiled to prepare freefield composite noise level contours for each of Winterset Road, Campeau Drive and LRT. Drawing N1 presents these contours. For the purpose of this study, only the daytime freefield noise levels are presented. Computer printouts are included in Appendix ‘D’.

Table 7: Predicted Freefield Noise Levels and Distances from Noise Sources

Roads	Contour (dBA)	OLA (Freefield) Distance (m)
		Daytime
2-UCU (Winterset Road) 40 km/hr.	50	84.98
	55	42.47
	60	21.22
	65	n/a
	70	n/a

Roads	Contour (dBA)	OLA (Freefield) Distance (m)		
		Daytime		
		West Lanes	LRT	East Lanes
4-UAD (Campeau Drive) 60 km/hr. + LRT 80km/hr.	50	412.5	500.0	425.0
	55	187.5	298.0	200.0
	60	85.0	195.5	97.5
	65	37.5	148.0	50.0
	70	16.5	127.0	29.0

3.4 Summary of Findings (Transportation)

Arcadia Stage 5 will result in multiple blocks of residential units that will be impacted by roadway traffic noise.

Due to their proximity to the Arcadia Stage 5 residential development, Winterset Road and Campeau Drive have the highest noise impact on the development. To help mitigate the noise impact of these transportation noise sources, the building orientation of the Executive and Avenue Towns have been carefully placed to mitigate the noise for the development and reduce the need for noise barriers. Despite best efforts to passively mitigate the transportation noise, barriers will still be required.

The predicted noise contours shown on Drawing N1 are freefield and considered a conservative analysis. Existing development will also help mitigate noise levels. Where possible, non-sensitive land uses have been placed adjacent to the transportation noise sources (i.e. SWM Blocks, and Parks). Freefield noise levels at the property lines adjacent to Campeau Drive are estimated to be approximately 70 dBA as presented on Drawing N1. Freefield noise levels at the property

lines adjacent to Winterset Road are estimated to be approximately 65 dBA as presented on Drawing N1. Noise barriers and berms are projected to be required to mitigate outdoor living area noise levels. As a minimum, a 2.2 m high noise barrier will be required along the rear and side lot lines. In some locations the noise barriers will be 2.5 m high. Other locations may require a berm in addition to a 2.5 m high noise barrier. The approximate location of potential noise barriers, based on freefield noise calculations, are presented on Drawing N1. It is recommended that a Noise Control Detailed Study be completed to review and confirm the height and location of required noise barriers and/or berms.

As an alternative to noise barrier, setback buffers could be considered to reduce or eliminate noise barriers. However, in some locations, units flanking arterial roads may have to be eliminated. This is not a financially practical solution.

As part of the recommended Noise Control Detailed Study, a preliminary building component analysis should be included.

Warning clauses similar to those presented in Appendix 'B' will be required to highlight the exceedance of MECP and City of Ottawa noise criteria and to identify mitigation measures integrated into the subdivision design. Warning clauses could be required until it can be demonstrated that the noise guideline criteria is not exceeded. It is recommended that specific wording be developed for each unit and/or block in the Noise Control Detailed Study prepared to support the subdivision application.

At the time this study was completed, a detailed grading plan was not available.

4.0 CONCLUSION AND RECOMMENDATIONS

Predicted noise levels are expected to exceed the City of Ottawa ENCG and MECP criteria for the proposed units adjacent to Winterset Road and Campeau Drive. To address these exceedances, the developer has revised the draft plan of subdivision to reduce the reliance of noise barriers as the primary noise mitigation tool. Building orientation and increased separation to the transportation noise source have been used to reduce noise levels for residential units in close proximity to the transportation noise sources. Noise barriers may still be required to protect outdoor living areas.

It is recommended that the City of Ottawa accept the draft plan of subdivision submitted and include the condition for the proponent to complete a Noise Control Detailed Study as per the City of Ottawa ENCG 2016.

It is further recommended that the following be addressed as part of the Noise Control Detailed Study:

- Noise barrier details, such as height and location.
- Noise levels should be assessed at the building façade of units nearest the transportation noise sources.

- If it is determined that the noise level at the façade of a building exceeds 64.49 dBA, then the Acoustical Insulation Factor (AIF) method should be utilized to review building acoustic measures to be incorporated into the building construction. This method is described in the Ministry of the Environment of Ontario document, *Environmental Noise Assessment in Land Use Planning*, 1987 and 1999.

This report has been prepared by J.L. Richards & Associates Limited for Minto Communities Inc., exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

This report was prepared for the sole benefit and use of the named client and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited, and anyone intending to rely upon this report is advised to contact J.L. Richards & Associates Limited in order to obtain permission and to ensure that the report is suitable for their purpose.

J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Thomas Blais, A.Sc.T.
Senior Technologist

Reviewed by:

Lee Jablonski, P.Eng.
Associate
Senior Civil Engineer

Appendix A

Concept Plan

Freefield Daytime Noise Contours – N1

STAGE 4

BLOCK 249
FUTURE PARK
2.46 ha
(6.08 ac)

BLOCK 44
Open space/ Park
0.03 ha
(0.08 ac)

Stage 5

STREET NO. 1
STREET NO. 2
STREET NO. 3
STREET NO. 4

WINTERSET ROAD
SPEEDVALE COURT
DRIVE

Block 43
(DRY POND)
0.243 ha
(0.60 ac)

Block 73
(DRY POND)
0.19ha
(0.47ac)

Block 76
Open Space
0.07 ha / 0.17 ac

Block 75
Grading Easement
0.13 ha / 0.32 ac

Stage 3

Title:
Concept Plan 23

Project:
Arcadia - Stage 5

Legend

- 28' Singles
- 30' Single Corner
- 36' Singles
- 43' Singles
- Executive Town Homes
- Avenue (B2B) Town Homes
- Condo Lands
- Rear Lane Town Homes
- Parkland
- Storm Water Management
- Open Space
- Stage Limits
- Sidewalks

Unit Type	Stage 5		Total	
	Units		Units	
Singles	**62**	**27.9 %**	**62**	**27.9 %**
28'	14	22.6 %	14	22.6 %
30' Corner	1	1.6 %	1	1.6 %
36'	32	51.6 %	32	51.6 %
43'	15	24.2 %	15	24.2 %
Executive Towns	**86**	**38.7 %**	**86**	**38.7 %**
Avenue Towns	**74**	**33.3 %**	**74**	**33.3 %**
Total	**222**	**100.0**	**222**	**100.0 %**
Required Parkland @1ha per 600 units			0.37 ha	0.91 ac
Provided Parkland			0.00 ha	0.00 ac
Parkland Balance			**-0.37 ha**	**-0.91 ac**

No.	Description	Date	By
2	Change hatch colour Lots 7 & 8 from 28' Single to 36' Single	2023-10-26	K.G.
1	Addition of 28' Singles	2023-08-25	K.G.
0	Issued For Review	2023-08-09	M.M.

Revisions

minto Communities

Drawn By: M.M.
Checked By: C.S.

Minto Communities Inc
180 Kent Street,
Ottawa, ON
K1P 0B6

North

Scale: NTS

BLOCK 249
FUTURE PARK
2.46 ha
(6.08 ac)

BLOCK 44
Open space/ Park
0.03 ha
(0.08 ac)

STREET NO. 1
STREET NO. 2
STREET NO. 3
STREET NO. 4

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
BLOCK 10
BLOCK 11
BLOCK 12
BLOCK 13
BLOCK 14
BLOCK 16
BLOCK 20
BLOCK 21
BLOCK 23
BLOCK 24
BLOCK 25
BLOCK 26
BLOCK 27
BLOCK 28
BLOCK 29
BLOCK 30
BLOCK 31

Block 75
Grading Easement
0.13 ha / 0.32 ac

Block 74
Grading Easement
0.07 ha / 0.17 ac

WINTERSET ROAD
CENTERLINE
(AADT 8,000)

Block 43
(DRY POND)
0.48 ha
(0.85 ac)

14.75

CAMPEAU DRIVE
EAST BOUND CENTERLINE
(AADT 17,500)

BLOCK 72
CAMPEAU POND
1.92 ha (4.74 ac)

CAMPEAU DRIVE
WEST BOUND CENTERLINE
(AADT 17,500)

LRT CENTERLINE
(AADT 340)

Block 73
(DRY POND)
0.19ha
(0.47ac)

LEGEND

NOISE CONTOURS

- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA
- NOISE SOURCE
- POTENTIAL NOISE FENCE LOCATION, DETAILS TO BE IDENTIFIED IN A NOISE CONTROL DETAILED STUDY.

No.	ISSUE / REVISION	DD/MM/YY
2	RE-ISSUED WITH NOISE CONTROL FEASIBILITY STUDY	10/11/2023
1	ISSUED WITH NOISE CONTROL FEASIBILITY STUDY	09/12/21

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca
J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT:
ARCADIA STAGE 5
450 HUNTMAR DRIVE

DRAWING:
FREEFIELD DAYTIME NOISE CONTOURS (ROADS)

DESIGN:	TB
DRAWN:	TB
CHECKED:	LJ
JLR #:	26299-005

DRAWING #: N1

PLOT DATE: October 18, 2023 11:32:33 AM

File Location: V:\26000\26299-005 - Arcadia Stage 5\2-Design\1-Civil\Noise\2. Noise Feasibility - Nov 2023\26299-005 C N1.dwg

Appendix B

City of Ottawa Surface
Transportation Sample
Warning Clauses

City of Ottawa Environmental Noise Control Guidelines Sample Warning Clauses

Generic

Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and the Ministry of the Environment.

To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area that is within provincial guidelines. Measures for sound attenuation could include:

- A setback of buildings from the noise source and/or
- An acoustic barrier.

To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features.

The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.

Additionally this development includes trees and shrubs to screen the source of noise from occupants.

Extensive mitigation of indoor and outdoor amenity area

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/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.

To help address the need for sound attenuation this development includes:

- multi-pane glass;
- double brick veneer;
- an earth berm; and
- an acoustic barrier.

To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.

The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.

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

Additionally this development includes trees and shrubs to screen the source of noise from occupants.

No Outdoor amenity area

Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic will interfere with outdoor activities as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.
To help address the need for sound attenuation this development includes:

- multi-pane glass;
- double brick veneer;
- high sound transmission class walls.

To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.
This dwelling unit has been supplied with a central air conditioning system and other measures 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 City and the Ministry of the Environment

Appendix C

Transportation Noise Source Predictions

- Detailed Predicted Freefield Noise Level Calculations (Individual Transportation Noise Sources)

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 16:34:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2UCU50.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Winterset 2-UCU 50 dba

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: winterset (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 84.98 / 84.98 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: winterset (day)

Source height = 1.50 m

ROAD (0.00 + 50.00 + 0.00) = 50.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.96	0.00	-12.50	-1.46	0.00	0.00	0.00	50.00

Segment Leq : 50.00 dBA

Total Leq All Segments: 50.00 dBA

↟
Results segment # 1: winterset (night)

Source height = 1.50 m

ROAD (0.00 + 43.23 + 0.00) = 43.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	56.36	0.00	-11.83	-1.30	0.00	0.00	0.00	43.23

Segment Leq : 43.23 dBA

Total Leq All Segments: 43.23 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 50.00
(NIGHT): 43.23

↟
↟
STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 16:33:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2UCU55.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Winterset 2-UCU 55 dba

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: winterset (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.47 / 42.47 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: winterset (day)

Source height = 1.50 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.96	0.00	-7.50	-1.46	0.00	0.00	0.00	55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: winterset (night)

Source height = 1.50 m

ROAD (0.00 + 47.96 + 0.00) = 47.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	56.36	0.00	-7.10	-1.30	0.00	0.00	0.00	47.96

Segment Leq : 47.96 dBA

Total Leq All Segments: 47.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00
(NIGHT): 47.96

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 16:31:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 2UCU60.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Winterset 2-UCU 60 dba

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

Car traffic volume	6477/563	veh/TimePeriod *
Medium truck volume	515/45	veh/TimePeriod *
Heavy truck volume	368/32	veh/TimePeriod *
Posted speed limit	40 km/h	
Road gradient	1 %	
Road pavement	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	8000
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: winterset (day/night)

Angle1 Angle2	-90.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	21.22 / 21.22	m
Receiver height	1.50 / 4.50	m
Topography	1	(Flat/gentle slope; no barrier)
Reference angle	0.00	

Results segment # 1: winterset (day)

Source height = 1.50 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.96	0.00	-2.50	-1.46	0.00	0.00	0.00	60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

↟
Results segment # 1: winterset (night)

Source height = 1.50 m

ROAD (0.00 + 52.69 + 0.00) = 52.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	56.36	0.00	-2.37	-1.30	0.00	0.00	0.00	52.69

Segment Leq : 52.69 dBA

Total Leq All Segments: 52.69 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 60.00
(NIGHT): 52.69

↟
↟
STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 17:47:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4UAD50.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Campeau+LRT 4-UAD 50 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	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.	LRT	313.0/27.0	0.00	0.00

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

```
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 500.00 / 500.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00
```

↟

Results segment # 1: LRT (day)

LOCOMOTIVE (0.00 + 40.24 + 0.00) = 40.24 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	65.71	-24.14	-1.33	0.00	0.00	0.00	40.24

WHEEL (0.00 + 43.74 + 0.00) = 43.74 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.48	-25.28	-1.46	0.00	0.00	0.00	43.74

Segment Leq : 45.34 dBA

Total Leq All Segments: 45.34 dBA

↟

Results segment # 1: LRT (night)

LOCOMOTIVE (0.00 + 34.14 + 0.00) = 34.14 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	58.07	-22.77	-1.17	0.00	0.00	0.00	34.14

WHEEL (0.00 + 37.12 + 0.00) = 37.12 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	62.84	-24.37	-1.35	0.00	0.00	0.00	37.12

Segment Leq : 38.89 dBA

Total Leq All Segments: 38.89 dBA

↟

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: Campeau_E (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 425.00 / 425.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: Campeau_W (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 412.50 / 412.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

🡅

```
Results segment # 1: Campeau_E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.10 + 0.00) = 45.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00 -24.11  -1.46   0.00   0.00   0.00  45.10
-------------------------------------------------------------------------------

Segment Leq : 45.10 dBA
```

🡅

```
Results segment # 2: Campeau_W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.32 + 0.00) = 45.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00 -23.89  -1.46   0.00   0.00   0.00  45.32
-------------------------------------------------------------------------------

Segment Leq : 45.32 dBA

Total Leq All Segments: 48.22 dBA
```

🡅

```
Results segment # 1: Campeau_E (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 38.96 + 0.00) = 38.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -90     90   0.57  63.07   0.00 -22.80  -1.30   0.00   0.00   0.00  38.96
-------------------------------------------------------------------------------

Segment Leq : 38.96 dBA

↟
Results segment # 2: Campeau_W (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 39.17 + 0.00) = 39.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.57  63.07   0.00 -22.60  -1.30   0.00   0.00   0.00  39.17
-------------------------------------------------------------------------------

Segment Leq : 39.17 dBA

Total Leq All Segments: 42.08 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 50.03
                           (NIGHT): 43.78
↟
↟
STAMSON 5.0        NORMAL REPORT        Date: 24-11-2021 17:42:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4UAD55.te            Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Campeau+LRT 4-UAD 55 dba


Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. LRT         ! 313.0/27.0  !  80.0 !  2.0 !  4.0 !  Elec!  No

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

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
```

```
  1. LRT            ! 313.0/27.0  !    0.00  !    0.00  !

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 298.00 / 298.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

🠝
Results segment # 1: LRT (day)
------------------------------

LOCOMOTIVE (0.00 + 43.80 + 0.00) = 43.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.58  65.71 -20.58  -1.33   0.00   0.00   0.00  43.80
-------------------------------------------------------------------------

WHEEL (0.00 + 47.47 + 0.00) = 47.47 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  70.48 -21.55  -1.46   0.00   0.00   0.00  47.47
-------------------------------------------------------------------------

Segment Leq : 49.02 dBA

Total Leq All Segments: 49.02 dBA

🠝
Results segment # 1: LRT (night)
--------------------------------

LOCOMOTIVE (0.00 + 37.50 + 0.00) = 37.50 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.50  58.07 -19.41  -1.17   0.00   0.00   0.00  37.50
-------------------------------------------------------------------------

WHEEL (0.00 + 40.72 + 0.00) = 40.72 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.60  62.84 -20.77  -1.35   0.00   0.00   0.00  40.72
-------------------------------------------------------------------------
```

Segment Leq : 42.41 dBA

Total Leq All Segments: 42.41 dBA

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: Campeau_E (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 200.00 / 200.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 187.50 / 187.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Campeau_E (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 50.54 + 0.00) = 50.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00 -18.67  -1.46   0.00   0.00   0.00  50.54
-------------------------------------------------------------------------------

Segment Leq : 50.54 dBA
```

↟

```
Results segment # 2: Campeau_W (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 51.00 + 0.00) = 51.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00 -18.21  -1.46   0.00   0.00   0.00  51.00
-------------------------------------------------------------------------------

Segment Leq : 51.00 dBA

Total Leq All Segments: 53.79 dBA
```

↟

```
Results segment # 1: Campeau_E (night)
--------------------------------------

Source height = 1.50 m
```

ROAD (0.00 + 44.10 + 0.00) = 44.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-17.66	-1.30	0.00	0.00	0.00	44.10

Segment Leq : 44.10 dBA

↟

Results segment # 2: Campeau_W (night)

Source height = 1.50 m

ROAD (0.00 + 44.54 + 0.00) = 44.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-17.22	-1.30	0.00	0.00	0.00	44.54

Segment Leq : 44.54 dBA

Total Leq All Segments: 47.34 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 55.04
(NIGHT): 48.55

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 17:37:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4UAD60.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Campeau+LRT 4-UAD 60 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	No

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

Train type:	Unadj.	Annual %	Years of

```
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. LRT            ! 313.0/27.0  !    0.00  !    0.00  !

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 195.50 / 195.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

🠝
Results segment # 1: LRT (day)
------------------------------

LOCOMOTIVE (0.00 + 46.70 + 0.00) = 46.70 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.58  65.71 -17.67  -1.33   0.00   0.00   0.00  46.70
-------------------------------------------------------------------------

WHEEL (0.00 + 50.51 + 0.00) = 50.51 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  70.48 -18.51  -1.46   0.00   0.00   0.00  50.51
-------------------------------------------------------------------------

Segment Leq : 52.02 dBA

Total Leq All Segments: 52.02 dBA

🠝
Results segment # 1: LRT (night)
--------------------------------

LOCOMOTIVE (0.00 + 40.24 + 0.00) = 40.24 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.50  58.07 -16.67  -1.17   0.00   0.00   0.00  40.24
-------------------------------------------------------------------------

WHEEL (0.00 + 43.65 + 0.00) = 43.65 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.60  62.84 -17.84  -1.35   0.00   0.00   0.00  43.65
```

Segment Leq : 45.28 dBA

Total Leq All Segments: 45.28 dBA

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98   veh/TimePeriod *
Heavy truck volume :   805/70   veh/TimePeriod *
Posted speed limit :   60 km/h
Road gradient   :   1 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 17500
    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: Campeau_E (day/night)

Angle1   Angle2   : -90.00 deg   90.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   0 / 0
Surface   :   1   (Absorptive ground surface)
Receiver source distance : 97.50 / 97.50 m
Receiver height   :   1.50 / 4.50   m
Topography   :   1   (Flat/gentle slope; no barrier)
Reference angle   :   0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98   veh/TimePeriod *
Heavy truck volume :   805/70   veh/TimePeriod *
Posted speed limit :   60 km/h
Road gradient   :   1 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 17500
    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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  85.00 / 85.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Campeau_E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.71 + 0.00) = 55.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00 -13.49  -1.46   0.00   0.00   0.00  55.71
-------------------------------------------------------------------------------

Segment Leq : 55.71 dBA
```

↟

```
Results segment # 2: Campeau_W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.70 + 0.00) = 56.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00 -12.51  -1.46   0.00   0.00   0.00  56.70
-------------------------------------------------------------------------------

Segment Leq : 56.70 dBA

Total Leq All Segments: 59.24 dBA
```

↟

```
Results segment # 1: Campeau_E (night)
-------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 49.00 + 0.00) = 49.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-12.76	-1.30	0.00	0.00	0.00	49.00

Segment Leq : 49.00 dBA

Results segment # 2: Campeau_W (night)

Source height = 1.50 m

ROAD (0.00 + 49.94 + 0.00) = 49.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-11.83	-1.30	0.00	0.00	0.00	49.94

Segment Leq : 49.94 dBA

Total Leq All Segments: 52.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00
(NIGHT): 53.26

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 17:30:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4UAD65.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Campeau+LRT 4-UAD 65 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	No

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

```
Train type:          ! Unadj. ! Annual % ! Years of !
 No  Name            ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. LRT             ! 313.0/27.0  !    0.00  !    0.00  !

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 148.00 / 148.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

🠝
Results segment # 1: LRT (day)
------------------------------

LOCOMOTIVE (0.00 + 48.62 + 0.00) = 48.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.58  65.71 -15.76  -1.33   0.00   0.00   0.00  48.62
-------------------------------------------------------------------------

WHEEL (0.00 + 52.52 + 0.00) = 52.52 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  70.48 -16.50  -1.46   0.00   0.00   0.00  52.52
-------------------------------------------------------------------------

Segment Leq : 54.00 dBA

Total Leq All Segments: 54.00 dBA

🠝
Results segment # 1: LRT (night)
--------------------------------

LOCOMOTIVE (0.00 + 42.05 + 0.00) = 42.05 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.50  58.07 -14.86  -1.17   0.00   0.00   0.00  42.05
-------------------------------------------------------------------------

WHEEL (0.00 + 45.58 + 0.00) = 45.58 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.60  62.84 -15.91  -1.35   0.00   0.00   0.00  45.58
-------------------------------------------------------------------------

Segment Leq : 47.17 dBA

Total Leq All Segments: 47.17 dBA

↟
Road data, segment # 1: Campeau_E (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_E (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  50.00 / 50.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 2: Campeau_W (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

```
    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  37.50 / 37.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Campeau_E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.53 + 0.00) = 60.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00  -8.68  -1.46   0.00   0.00   0.00  60.53
-------------------------------------------------------------------------------

Segment Leq : 60.53 dBA
```

↟

```
Results segment # 2: Campeau_W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.60 + 0.00) = 62.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00  -6.61  -1.46   0.00   0.00   0.00  62.60
-------------------------------------------------------------------------------

Segment Leq : 62.60 dBA

Total Leq All Segments: 64.70 dBA
```

↟

```
Results segment # 1: Campeau_E (night)
```

Source height = 1.50 m

ROAD (0.00 + 53.56 + 0.00) = 53.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-8.21	-1.30	0.00	0.00	0.00	53.56

Segment Leq : 53.56 dBA

Results segment # 2: Campeau_W (night)

Source height = 1.50 m

ROAD (0.00 + 55.52 + 0.00) = 55.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-6.25	-1.30	0.00	0.00	0.00	55.52

Segment Leq : 55.52 dBA

Total Leq All Segments: 57.66 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.05
(NIGHT): 58.03

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 17:22:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 4UAD70.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 Campeau+LRT 4-UAD 70 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	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. LRT	313.0/27.0	0.00	0.00

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

Angle1 Angle2	: -90.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 127.00 / 127.00 m	
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle

Reference angle : 0.00

↟

Results segment # 1: LRT (day)

LOCOMOTIVE (0.00 + 49.67 + 0.00) = 49.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	65.71	-14.70	-1.33	0.00	0.00	0.00	49.67

WHEEL (0.00 + 53.62 + 0.00) = 53.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.48	-15.40	-1.46	0.00	0.00	0.00	53.62

Segment Leq : 55.09 dBA

Total Leq All Segments: 55.09 dBA

↟

Results segment # 1: LRT (night)

LOCOMOTIVE (0.00 + 43.04 + 0.00) = 43.04 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	58.07	-13.87	-1.17	0.00	0.00	0.00	43.04

WHEEL (0.00 + 46.65 + 0.00) = 46.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	62.84	-14.84	-1.35	0.00	0.00	0.00	46.65

Segment Leq : 48.22 dBA

Total Leq All Segments: 48.22 dBA

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

```
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_E (day/night)

```
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.00 / 29.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

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

```
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  16.50 / 16.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

🠉

```
Results segment # 1: Campeau_E (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.46 + 0.00) = 64.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00  -4.75  -1.46   0.00   0.00   0.00  64.46
-------------------------------------------------------------------------------

Segment Leq : 64.46 dBA
```

🠉

```
Results segment # 2: Campeau_W (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.52 + 0.00) = 68.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  70.67   0.00  -0.69  -1.46   0.00   0.00   0.00  68.52
-------------------------------------------------------------------------------

Segment Leq : 68.52 dBA

Total Leq All Segments: 69.96 dBA
```

Results segment # 1: Campeau_E (night)

Source height = 1.50 m

ROAD (0.00 + 57.27 + 0.00) = 57.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-4.50	-1.30	0.00	0.00	0.00	57.27

Segment Leq : 57.27 dBA

Results segment # 2: Campeau_W (night)

Source height = 1.50 m

ROAD (0.00 + 61.12 + 0.00) = 61.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-0.65	-1.30	0.00	0.00	0.00	61.12

Segment Leq : 61.12 dBA

Total Leq All Segments: 62.62 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.10
(NIGHT): 62.77

Appendix D

Transportation Noise Source Predictions

-Detailed Predicted Freefield Noise Level Calculations (Composite Transportation Noise Sources)

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 19:24:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp55a.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 winter+Campeau+LRT 55 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	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.	LRT	313.0/27.0	0.00	0.00

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

Angle1	Angle2	: -90.00 deg 90.00 deg
Wood depth		: 0 (No woods.)
No of house rows		: 0 / 0
Surface		: 1 (Absorptive ground surface)
Receiver source distance		: 298.00 / 298.00 m
Receiver height		: 1.50 / 4.50 m
Topography		: 1 (Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: LRT (day)

LOCOMOTIVE (0.00 + 43.80 + 0.00) = 43.80 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	65.71	-20.58	-1.33	0.00	0.00	0.00	43.80

WHEEL (0.00 + 47.47 + 0.00) = 47.47 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.48	-21.55	-1.46	0.00	0.00	0.00	47.47

Segment Leq : 49.02 dBA

Total Leq All Segments: 49.02 dBA

Results segment # 1: LRT (night)

LOCOMOTIVE (0.00 + 37.50 + 0.00) = 37.50 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	58.07	-19.41	-1.17	0.00	0.00	0.00	37.50

WHEEL (0.00 + 40.72 + 0.00) = 40.72 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	62.84	-20.77	-1.35	0.00	0.00	0.00	40.72

Segment Leq : 42.41 dBA

Total Leq All Segments: 42.41 dBA

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98   veh/TimePeriod *
Heavy truck volume :   805/70   veh/TimePeriod *
Posted speed limit :   60 km/h
Road gradient   :   1 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 17500
    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: Campeau_E (day/night)

Angle1   Angle2   : -90.00 deg   45.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   0 / 0
Surface   :   1   (Absorptive ground surface)
Receiver source distance : 200.00 / 200.00 m

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

↟

```
Road data, segment # 2: Campeau_W (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 187.50 / 187.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: winterset (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: winterset (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 135.00 / 135.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠝
Results segment # 1: Campeau_E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.70 + 0.00) = 49.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00 -18.67  -2.29   0.00   0.00   0.00  49.70
-------------------------------------------------------------------------------

Segment Leq : 49.70 dBA

🠝
Results segment # 2: Campeau_W (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
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00 -18.21  -2.29   0.00   0.00   0.00  50.17
-------------------------------------------------------------------------------

Segment Leq : 50.17 dBA

🠝
Results segment # 3: winterset (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.83 + 0.00) = 45.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -90     45   0.66  63.96   0.00 -15.84  -2.29   0.00   0.00   0.00  45.83
-------------------------------------------------------------------------------

Segment Leq : 45.83 dBA

Total Leq All Segments: 53.72 dBA

↟
Results segment # 1: Campeau_E (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.23 + 0.00) = 43.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00 -17.66  -2.18   0.00   0.00   0.00  43.23
-------------------------------------------------------------------------------

Segment Leq : 43.23 dBA

↟
Results segment # 2: Campeau_W (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.67 + 0.00) = 43.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00 -17.22  -2.18   0.00   0.00   0.00  43.67
-------------------------------------------------------------------------------

Segment Leq : 43.67 dBA

↟
Results segment # 3: winterset (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 39.20 + 0.00) = 39.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  56.36   0.00 -14.98  -2.18   0.00   0.00   0.00  39.20
-------------------------------------------------------------------------------

Segment Leq : 39.20 dBA
```

Total Leq All Segments: 47.21 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 54.99
(NIGHT): 48.45

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 19:43:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp55b.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 winterset+campeau+LRT 55 dba

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

Train Type	Trains	Speed (km/h)	# loc/Train	# Cars/Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	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.	LRT	313.0/27.0	0.00	0.00

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

Angle1 Angle2	-90.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	500.00 / 298.00 m	
Receiver height	1.50 / 4.50	m
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

↟

Results segment # 1: LRT (day)

LOCOMOTIVE (0.00 + 40.24 + 0.00) = 40.24 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq

```
-------------------------------------------------------------------------
   -90     90   0.58  65.71 -24.14  -1.33   0.00   0.00   0.00  40.24
-------------------------------------------------------------------------

WHEEL (0.00 + 43.74 + 0.00) = 43.74 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  70.48 -25.28  -1.46   0.00   0.00   0.00  43.74
-------------------------------------------------------------------------

Segment Leq : 45.34 dBA

Total Leq All Segments: 45.34 dBA

Results segment # 1: LRT (night)
--------------------------------

LOCOMOTIVE (0.00 + 37.50 + 0.00) = 37.50 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.50  58.07 -19.41  -1.17   0.00   0.00   0.00  37.50
-------------------------------------------------------------------------

WHEEL (0.00 + 40.72 + 0.00) = 40.72 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.60  62.84 -20.77  -1.35   0.00   0.00   0.00  40.72
-------------------------------------------------------------------------

Segment Leq : 42.41 dBA

Total Leq All Segments: 42.41 dBA

Road data, segment # 1: Campeau_E (day/night)
---------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_E (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 500.00 / 500.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

⬘
Road data, segment # 2: Campeau_W (day/night)
-------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 487.50 / 487.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

⬘
Road data, segment # 3: winterset (day/night)
-------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
```

```
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: winterset (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  42.47 / 42.47  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠝
Results segment # 1: Campeau_E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.10 + 0.00) = 43.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00 -25.28  -2.29   0.00   0.00   0.00  43.10
-------------------------------------------------------------------------------

Segment Leq : 43.10 dBA

🠝
Results segment # 2: Campeau_W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.28 + 0.00) = 43.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00 -25.10  -2.29   0.00   0.00   0.00  43.28
-------------------------------------------------------------------------------
```

Segment Leq : 43.28 dBA

↟
Results segment # 3: winterset (day)

Source height = 1.50 m

ROAD (0.00 + 54.16 + 0.00) = 54.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	63.96	0.00	-7.50	-2.29	0.00	0.00	0.00	54.16

Segment Leq : 54.16 dBA

Total Leq All Segments: 54.80 dBA

↟
Results segment # 1: Campeau_E (night)

Source height = 1.50 m

ROAD (0.00 + 36.98 + 0.00) = 36.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	63.07	0.00	-23.91	-2.18	0.00	0.00	0.00	36.98

Segment Leq : 36.98 dBA

↟
Results segment # 2: Campeau_W (night)

Source height = 1.50 m

ROAD (0.00 + 37.15 + 0.00) = 37.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	63.07	0.00	-23.74	-2.18	0.00	0.00	0.00	37.15

Segment Leq : 37.15 dBA

↟
Results segment # 3: winterset (night)

Source height = 1.50 m

ROAD (0.00 + 47.09 + 0.00) = 47.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	56.36	0.00	-7.10	-2.18	0.00	0.00	0.00	47.09

Segment Leq : 47.09 dBA

Total Leq All Segments: 47.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.27
(NIGHT): 48.96

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 19:12:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp60.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 winter+Campeau+LRT 60 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	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.	LRT	313.0/27.0	0.00	0.00

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

Angle1	Angle2	: -90.00 deg 90.00 deg
Wood depth		: 0 (No woods.)
No of house rows		: 0 / 0
Surface		: 1 (Absorptive ground surface)
Receiver source distance		: 195.50 / 195.50 m
Receiver height		: 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

↟
Results segment # 1: LRT (day)

LOCOMOTIVE (0.00 + 46.70 + 0.00) = 46.70 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	65.71	-17.67	-1.33	0.00	0.00	0.00	46.70

WHEEL (0.00 + 50.51 + 0.00) = 50.51 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.48	-18.51	-1.46	0.00	0.00	0.00	50.51

Segment Leq : 52.02 dBA

Total Leq All Segments: 52.02 dBA

↟
Results segment # 1: LRT (night)

LOCOMOTIVE (0.00 + 40.24 + 0.00) = 40.24 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	58.07	-16.67	-1.17	0.00	0.00	0.00	40.24

WHEEL (0.00 + 43.65 + 0.00) = 43.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	62.84	-17.84	-1.35	0.00	0.00	0.00	43.65

Segment Leq : 45.28 dBA

Total Leq All Segments: 45.28 dBA

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *

```
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_E (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  97.50 / 97.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 2: Campeau_W (day/night)
-------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  85.00 / 85.00  m
```

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

↟

```
Road data, segment # 3: winterset (day/night)
-----------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: winterset (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Campeau_E (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.88 + 0.00) = 54.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00 -13.49  -2.29   0.00   0.00   0.00  54.88
-------------------------------------------------------------------------------

Segment Leq : 54.88 dBA
```

↟

```
Results segment # 2: Campeau_W (day)
```

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

Source height = 1.50 m

ROAD (0.00 + 55.87 + 0.00) = 55.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00 -12.51  -2.29   0.00   0.00   0.00  55.87
-------------------------------------------------------------------------------

Segment Leq : 55.87 dBA

↟
Results segment # 3: winterset (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 51.67 + 0.00) = 51.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  63.96   0.00  -9.99  -2.29   0.00   0.00   0.00  51.67
-------------------------------------------------------------------------------

Segment Leq : 51.67 dBA

Total Leq All Segments: 59.25 dBA

↟
Results segment # 1: Campeau_E (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.13 + 0.00) = 48.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00 -12.76  -2.18   0.00   0.00   0.00  48.13
-------------------------------------------------------------------------------

Segment Leq : 48.13 dBA

↟
Results segment # 2: Campeau_W (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.06 + 0.00) = 49.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00 -11.83  -2.18   0.00   0.00   0.00  49.06
-------------------------------------------------------------------------------

Segment Leq : 49.06 dBA

↟
Results segment # 3: winterset (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.73 + 0.00) = 44.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  56.36   0.00  -9.45  -2.18   0.00   0.00   0.00  44.73
-------------------------------------------------------------------------------

Segment Leq : 44.73 dBA

Total Leq All Segments: 52.44 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 60.00
                           (NIGHT): 53.20
↟
↟
STAMSON 5.0        NORMAL REPORT        Date: 24-11-2021 19:20:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp60b.te           Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 winter+Campeau+LRT 60 dba


Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. LRT         ! 313.0/27.0  !  80.0 !  2.0 !  4.0 !  Elec!  No

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

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
```

```
  1. LRT            ! 313.0/27.0  !    0.00  !    0.00  !

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 195.50 / 195.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

🡅
Results segment # 1: LRT (day)
------------------------------

LOCOMOTIVE (0.00 + 46.70 + 0.00) = 46.70 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.58  65.71 -17.67  -1.33   0.00   0.00   0.00  46.70
-------------------------------------------------------------------------

WHEEL (0.00 + 50.51 + 0.00) = 50.51 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  70.48 -18.51  -1.46   0.00   0.00   0.00  50.51
-------------------------------------------------------------------------

Segment Leq : 52.02 dBA

Total Leq All Segments: 52.02 dBA

🡅
Results segment # 1: LRT (night)
--------------------------------

LOCOMOTIVE (0.00 + 40.24 + 0.00) = 40.24 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.50  58.07 -16.67  -1.17   0.00   0.00   0.00  40.24
-------------------------------------------------------------------------

WHEEL (0.00 + 43.65 + 0.00) = 43.65 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.60  62.84 -17.84  -1.35   0.00   0.00   0.00  43.65
-------------------------------------------------------------------------
```

Segment Leq : 45.28 dBA

Total Leq All Segments: 45.28 dBA

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: Campeau_E (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 500.00 / 500.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 487.50 / 487.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: winterset (day/night)
---------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: winterset (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  21.22 / 21.22  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Campeau_E (day)
------------------------------------

Source height = 1.50 m
```

ROAD (0.00 + 43.10 + 0.00) = 43.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	70.67	0.00	-25.28	-2.29	0.00	0.00	0.00	43.10

Segment Leq : 43.10 dBA

↟

Results segment # 2: Campeau_W (day)

Source height = 1.50 m

ROAD (0.00 + 43.28 + 0.00) = 43.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	70.67	0.00	-25.10	-2.29	0.00	0.00	0.00	43.28

Segment Leq : 43.28 dBA

↟

Results segment # 3: winterset (day)

Source height = 1.50 m

ROAD (0.00 + 59.17 + 0.00) = 59.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	63.96	0.00	-2.50	-2.29	0.00	0.00	0.00	59.17

Segment Leq : 59.17 dBA

Total Leq All Segments: 59.38 dBA

↟

Results segment # 1: Campeau_E (night)

Source height = 1.50 m

ROAD (0.00 + 36.98 + 0.00) = 36.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	63.07	0.00	-23.91	-2.18	0.00	0.00	0.00	36.98

Segment Leq : 36.98 dBA

↟
Results segment # 2: Campeau_W (night)

Source height = 1.50 m

ROAD (0.00 + 37.15 + 0.00) = 37.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	63.07	0.00	-23.74	-2.18	0.00	0.00	0.00	37.15

Segment Leq : 37.15 dBA

↟
Results segment # 3: winterset (night)

Source height = 1.50 m

ROAD (0.00 + 51.82 + 0.00) = 51.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	56.36	0.00	-2.37	-2.18	0.00	0.00	0.00	51.82

Segment Leq : 51.82 dBA

Total Leq All Segments: 52.10 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 60.12
(NIGHT): 52.92
↟
↟
STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 19:53:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp65a.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 winterset+campeau+LRT 65 dba

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

Train ! Trains ! Speed !# loc !# Cars! Eng !Cont

```
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. LRT         ! 313.0/27.0  !  80.0 !  2.0 !  4.0 !  Elec!  No

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

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. LRT            ! 313.0/27.0  !    0.00  !    0.00  !

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 162.50 / 162.50 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

🠝
Results segment # 1: LRT (day)
------------------------------

LOCOMOTIVE (0.00 + 47.98 + 0.00) = 47.98 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     90   0.58  65.71 -16.40  -1.33   0.00   0.00   0.00  47.98
-------------------------------------------------------------------

WHEEL (0.00 + 51.84 + 0.00) = 51.84 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     90   0.66  70.48 -17.18  -1.46   0.00   0.00   0.00  51.84
-------------------------------------------------------------------

Segment Leq : 53.34 dBA

Total Leq All Segments: 53.34 dBA

🠝
Results segment # 1: LRT (night)
--------------------------------

LOCOMOTIVE (0.00 + 41.44 + 0.00) = 41.44 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.50  58.07 -15.47  -1.17   0.00   0.00   0.00  41.44
-------------------------------------------------------------------------

WHEEL (0.00 + 44.93 + 0.00) = 44.93 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.60  62.84 -16.56  -1.35   0.00   0.00   0.00  44.93
-------------------------------------------------------------------------

Segment Leq : 46.54 dBA

Total Leq All Segments: 46.54 dBA

↟
Road data, segment # 1: Campeau_E (day/night)
---------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_E (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  64.50 / 64.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 2: Campeau_W (day/night)
---------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
```

```
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: winterset (day/night)
-------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: winterset (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 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 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Campeau_E (day)

Source height = 1.50 m

ROAD (0.00 + 57.86 + 0.00) = 57.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	70.67	0.00	-10.52	-2.29	0.00	0.00	0.00	57.86

Segment Leq : 57.86 dBA

Results segment # 2: Campeau_W (day)

Source height = 1.50 m

ROAD (0.00 + 59.42 + 0.00) = 59.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	70.67	0.00	-8.96	-2.29	0.00	0.00	0.00	59.42

Segment Leq : 59.42 dBA

Results segment # 3: winterset (day)

Source height = 1.50 m

ROAD (0.00 + 61.67 + 0.00) = 61.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	63.96	0.00	0.00	-2.29	0.00	0.00	0.00	61.67

Segment Leq : 61.67 dBA

Total Leq All Segments: 64.71 dBA

Results segment # 1: Campeau_E (night)

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

Source height = 1.50 m

ROAD (0.00 + 50.94 + 0.00) = 50.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00  -9.95  -2.18   0.00   0.00   0.00  50.94
-------------------------------------------------------------------------------

Segment Leq : 50.94 dBA

↟
Results segment # 2: Campeau_W (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.41 + 0.00) = 52.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00  -8.48  -2.18   0.00   0.00   0.00  52.41
-------------------------------------------------------------------------------

Segment Leq : 52.41 dBA

↟
Results segment # 3: winterset (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.18 + 0.00) = 54.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  56.36   0.00   0.00  -2.18   0.00   0.00   0.00  54.18
-------------------------------------------------------------------------------

Segment Leq : 54.18 dBA

Total Leq All Segments: 57.48 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 65.01
                           (NIGHT): 57.82
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 24-11-2021 20:05:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp70.te Time Period: Day/Night 16/8 hours
Description: Arcadia Stage 5 winterset+campeau+LRT 70 dba

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. LRT	313.0/27.0	80.0	2.0	4.0	Elec	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.	LRT	313.0/27.0	0.00	0.00

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

Angle1	Angle2	: -90.00 deg 90.00 deg
Wood depth		: 0 (No woods.)
No of house rows		: 0 / 0
Surface		: 1 (Absorptive ground surface)
Receiver source distance		: 127.00 / 127.00 m
Receiver height		: 1.50 / 4.50 m
Topography		: 1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle		: 0.00

↟
Results segment # 1: LRT (day)

LOCOMOTIVE (0.00 + 49.67 + 0.00) = 49.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	65.71	-14.70	-1.33	0.00	0.00	0.00	49.67

WHEEL (0.00 + 53.62 + 0.00) = 53.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.48	-15.40	-1.46	0.00	0.00	0.00	53.62

Segment Leq : 55.09 dBA

Total Leq All Segments: 55.09 dBA

↟
Results segment # 1: LRT (night)

LOCOMOTIVE (0.00 + 43.04 + 0.00) = 43.04 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.50	58.07	-13.87	-1.17	0.00	0.00	0.00	43.04

WHEEL (0.00 + 46.65 + 0.00) = 46.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	62.84	-14.84	-1.35	0.00	0.00	0.00	46.65

Segment Leq : 48.22 dBA

Total Leq All Segments: 48.22 dBA

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98   veh/TimePeriod *
Heavy truck volume :   805/70   veh/TimePeriod *
Posted speed limit :   60 km/h
Road gradient   :   1 %
Road pavement   :   1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 17500
    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: Campeau_E (day/night)

Angle1   Angle2   : -90.00 deg   45.00 deg
Wood depth   :   0   (No woods.)
No of house rows   :   0 / 0
Surface   :   1   (Absorptive ground surface)
Receiver source distance : 29.00 / 29.00 m

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

↟

```
Road data, segment # 2: Campeau_W (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: Campeau_W (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  16.50 / 16.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: winterset (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: winterset (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 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 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠝
Results segment # 1: Campeau_E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.63 + 0.00) = 63.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00  -4.75  -2.29   0.00   0.00   0.00  63.63
-------------------------------------------------------------------------------

Segment Leq : 63.63 dBA

🠝
Results segment # 2: Campeau_W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.69 + 0.00) = 67.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  70.67   0.00  -0.69  -2.29   0.00   0.00   0.00  67.69
-------------------------------------------------------------------------------

Segment Leq : 67.69 dBA

🠝
Results segment # 3: winterset (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.67 + 0.00) = 61.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -90     45   0.66  63.96   0.00   0.00  -2.29   0.00   0.00   0.00  61.67
-------------------------------------------------------------------------------

Segment Leq : 61.67 dBA

Total Leq All Segments: 69.85 dBA

↟
Results segment # 1: Campeau_E (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.40 + 0.00) = 56.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00  -4.50  -2.18   0.00   0.00   0.00  56.40
-------------------------------------------------------------------------------

Segment Leq : 56.40 dBA

↟
Results segment # 2: Campeau_W (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.24 + 0.00) = 60.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  63.07   0.00  -0.65  -2.18   0.00   0.00   0.00  60.24
-------------------------------------------------------------------------------

Segment Leq : 60.24 dBA

↟
Results segment # 3: winterset (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.18 + 0.00) = 54.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.57  56.36   0.00   0.00  -2.18   0.00   0.00   0.00  54.18
-------------------------------------------------------------------------------

Segment Leq : 54.18 dBA
```

Total Leq All Segments: 62.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.99
(NIGHT): 62.60

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