Road & Rail Traffic and Stationary Noise Impact Study

1066 Dunbarton Road, Pickering, Ontario

JJ-00476 NIS1

October 20, 2022 Reference No. JJ-00476-NIS1

Christina Wilkinson
KPMB Architects
cwilkinson@kpmbarchitects.com
351 King Street East, Suite 1200,
Toronto, Ontario M5A 0L6

Dear Ms. Wilkinson:

Re: Road & Rail Traffic and Stationary Noise Impact Study
1066 Dunbarton Road, Pickering, Ontario

1. Introduction

JJ Acoustic Engineering Ltd. (JJAE) was retained to complete a Road & Rail Traffic and Stationary Noise Impact Study (Study) for the residential development located at 1066 Dunbarton Road in Pickering, Ontario (Site). The Site will be developed into four 3-storey townhouse blocks. JJAE has provided a copy of the most up-to-date Site Plan in Attachment A.

The Study was prepared consistent with Ontario Ministry of the Environment, Conservation and Park (MOECP) NPC 300, "Environmental Noise Guideline, Stationary and Transportation Sources– Approval and Planning" dated August 2013.

This Study has determined that the potential environmental noise impact from road and rail traffic noise is significant. The proposed development will need the following: a requirement for central air-conditioning, special building components and noise warning clauses. Road traffic noise control requirements for the Site were determined based on road traffic volumes provided by the City of Pickering (City) and forecasted to 10 years from the date of this study. Rail traffic was provided by each of the authorities for the nearby rail lines and forecasted to 10 years from the date of this study.

The following attachments were included with this Study:

- Attachment A – Site Plan
- Attachment B – Traffic Data Summary Table & Sample Stamson Traffic Model Outputs

JJ Acoustic Engineering Ltd.
joey@jjae.ca
226-346-6473

- Attachment C – Stationary Noise Impact Figures
- Attachment D – Stationary Noise Impact Source Table

2. Road Traffic Analysis

2.1 Road Traffic Noise Modeling Methodology

The road traffic noise impact was conducted using STAMSON, the MOECP's computerized model of ORNAMENT. The Application of the model for the site was consistent with the ORNAMENT technical documents. The computer model input parameters include, among other data, the number of road segments, number of house rows, the positional relationship of the receptor to a noise source or barrier in terms of distance, elevation and angle of exposure to the source, the basic site topography, the ground surface type, traffic volumes, traffic composition and speed limit.

The predicted sound level is based on the 1-hour equivalent sound level, designated as Leq, and is adjusted by the STAMSON program to the 16-hour daytime and the 8-hour nighttime equivalent sound level. The applicable noise criteria for noise sensitive spaces are specified in terms of the 16-hour daytime period (7:00 a.m. to 11:00 p.m.) and 8-hour nighttime period (11:00 p.m. to 7:00 a.m.) enabling a direct comparison between the STAMSON model output and the noise limits.

2.2 Road Traffic Model Input Parameters

This section describes the STAMSON model input parameters used to predict road traffic noise impact for the Site.

The Site has four significant roadways in the vicinity of the development: Kingston Road which is approximately 85 meters (m) to the South of townhome #4, Dixie Road which is approximately 120 m to the East of townhome #3 and the Eastbound and Westbound side of the 401 highway which are approximately 240 m and 280 m to the South of townhome #4, respectfully. Where there are intervening and structures, both onsite and offsite, that provide line-of-sight obstruction to the roads, JJAE did not include line-of-sight obstruction in our analysis as to calculate worst-case noise impact.

2.2.1 Road Traffic Parameters

The traffic data provided by the City has been summarized below:

Kingston Road:

- Forecast AADT (2032): 35,000
- Commercial Vehicle Rates: 5.6% medium trucks and 2.4% heavy trucks
- Posted Speed Limit: 60 km/h
- Day Night Splits: 90% day and 10% night

Dixie Road:

- Forecast AADT (2032): 12,000
- Commercial Vehicle Rates: 4.8% medium trucks and 3.2% heavy trucks
- Posted Speed Limit: 60 km/h
- Day Night Splits: 90% day and 10% night

East Bound Highway 401:

- Current AADT (2012): 115,000
- Forecast AADT (2032): 170,718
- Commercial Vehicle Rates: 5% medium trucks and 15% heavy trucks
- Posted Speed Limit: 100 km/h
- Day Night Splits: 66.67% day and 33.33% night

West Bound Highway 401:

- Current AADT (2012): 115,000
- Forecast AADT (2032): 170,718
- Commercial Vehicle Rates: 5% medium trucks and 15% heavy trucks
- Posted Speed Limit: 100 km/h
- Day Night Splits: 66.67% day and 33.33% night

The traffic data is the foundation of this analysis, and the Study will be updated if the values change. Traffic data was supplied by the City and 401 data was provided by the 2016 Provincial Highways Annual Average Daily Traffic (AADT) document. Both the City's AADT report and the Provincial reports for this Noise Studies report has been supplied in Attachment B.

2.2.2 Rail Traffic Parameters

There are two rail traffic lines in the area: CN Kingston Subdivision and GO Transit (Lakeshore East Go) rail lines. The CN Kingston subdivision rail line runs approximately 190 m to the South of Townhome #4. The GO Transit rail line runs approximately 350 m to the South of Townhome #4. The Rail data provided has been summarized below. Percentage Annual Growth of 2.5% over 10 years was assumed. The combined rail traffic volume parameters as summarized below:

Rail Line	Train Type	Max Locomotives	Max Number of Cars	Max Speed (km/h)	Future Volumes Day/Night
Lakeshore East (GO)	GO (Diesel)	1	12	137	41/11
	GO (Diesel)	2	12	137	30/1
	GO (Electric)	1	12	137	124/25
	GO (Electric)	2	12	137	59/11
Kingston (CN)	Freight	4	140	105	23/9
	Way	4	25	105	1/4
	Passenger	2	10	152	59/0

JJAE was unable to acquire traffic data for either CN or GO rail lines, as such JJAE found traffic data provided for another noise study at a nearby site. This information was duplicated for this project and forecasted to 10 years from the date of this report. The other report was called "Noise Feasibility Study – Proposed Residential Building 0 Cedar Street, Ajax, Ontario" written by HGC Engineering and dated April 8, 2021. Once JJAE has received the data we have requested, and if the numbers are drastically different, JJAE will recalculate and reissue this report.

2.3 Road Traffic Noise Modeling Results

JJAE calculated the Plane of Window (POW) noise exposure for each floor at the Site for the separate daytime and nighttime periods.

The STAMSON road traffic model outputs are provided in Attachment B.

2.4 Road Traffic Modeling Discussion

Noise control requirements will be defined based on NPC 300.

Daytime Outdoor Living Area Assessment (NPC 300, Section C7.1.1)

NPC 300 section A5 (pages 13-14) defines an Outdoor Living Area (OLA). As part of this definition, a balcony or terrace is considered an OLA if it has a minimum depth of 4 meters. All balconies are less than 4 m in depth and therefore will not be considered as OLAs.

JJAE could not identify a feasible Outdoor Living Area for this Site.

Plane of a Window – Ventilation Requirements (NPC 300, Section C7.1.2)

The predicted daytime and nighttime Plane of Window (POW) noise impact assumes a worst-case and direct line of sight noise exposure to both roads, unless the building itself blocks line-of-sight (full or partial).

JJAE has used the following criteria, which is a summary of NPC 300 requirements, to evaluate the Site noise impacts from road traffic noise:

Daytime Level (dBA)	Nighttime Level (dBA)	Ventilation Requirements and Warning Clauses	Special Building Components
55	50	Not Required	Not Required
55 – 65	50 – 60	Yes, with Type C Warning Clause	Not Required
66 or more	60 or more	Yes, with Type D Warning Clause	Yes

Table B.1 summarizes the predicted worst-case sound levels and the requirements for the units. The following warning clause is required:

Warning Clause C: "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."

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

Indoor Living Areas – Building Components (NPC 300, Section C7.1.3)

At minimum, the building must be constructed to standard Ontario Building Code requirements. Improved building components are required and summarized in Table B.1. JJAE has assumed 35% window to floor area coverage and that windows are thick and operable.

3. Stationary Noise Impact Analysis

3.1 Stationary Noise Impact Sound Level Criteria

The general criteria for stationary noise sources are defined by NPC 300. The criteria defined in Table C-5 and C-6, "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Outdoor Points of Reception" and "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Plane of Window of Noise Sensitive Spaces" are used to evaluate the noise impact at the proposed development.

The criteria for a Class 1 area have been summarized below:

Receiver Category	Time Period	Stationary Noise Criteria
Outdoor Living Area (OLA)	Day = 7:00 to 23:00	Leq = 50 dBA
Plane of Window (POW)	Day = 7:00 to 23:00	Leq = 50 dBA

	Night = 23:00 to 7:00	Leq = 45 dBA

3.2 Modelling Methodology

The stationary noise impact was evaluated using the CADNA A acoustic modelling software that is based on the ISO 9613-2 standard. The data for all potential stationary noise sources was summarized in Attachment D.

4. Noise Impact Summary – From Site to Environment

The mechanical equipment for the townhome blocks is similar to that of a single-family home and typically considered to be environmentally insignificant. The site has not yet undergone mechanical design and as such once mechanical design has been reviewed an addendum to this report must be written.

5. Noise Impact Summary – From Environment to Site

There are several buildings near the site. JJAE has identified several potential stationary noise sources including:

- HVAC 2 FAN
- HVAC 4 FAN

A summary of the noise sources used in our modelling is provided in Attachment D.

JJAE modelled the noise impact from all significant noise sources to the Site. The results are summarized in the table below and illustrated on Figure 1.

Townhome Blocks	**Worst Case Daytime Sound Level (dBA)**	**Daytime Noise Limit (dBA)**	**Worst Case Nighttime Sound Level (dBA)**	**Nighttime Noise Limit (dBA)**	**Limits met**
Townhouses #1	42	50	38	45	Yes
Townhouses #2	41	50	37	45	Yes
Townhouses #3	40	50	37	45	Yes
Townhouses #4	44	50	40	45	Yes

From the table above it can be seen that all townhomes meet the noise limits.

6. Recommendations

The road traffic noise impacts were above the NPC 300 requirements. Noise mitigation measures including requirements for air conditioning and noise warning clauses. The following are recommendations for each building and townhome blocks.

Townhouses #1:

- Warning Clause Type D for all façades.
- A minimum of STC 42 is required for all exterior glazing for the South façade.
- A minimum of STC 39 is required for all exterior glazing for the East and West façades.
- A minimum of STC 33 is required for all exterior glazing for the North façade.
- JJAE requires air conditioning for all units.

Townhouses #2:

- Warning Clause Type D for all façades.
- A minimum of STC 42 is required for all exterior glazing for the South façade.
- A minimum of STC 39 is required for all exterior glazing for the East and West façades.
- A minimum of STC 33 is required for all exterior glazing for the North façade.
- JJAE requires air conditioning for all units.

Townhouses #3:

- Warning Clause Type D for all façades.
- A minimum of STC 42 is required for all exterior glazing for the South façade.
- A minimum of STC 39 is required for all exterior glazing for the East and West façades.
- A minimum of STC 32 is required for all exterior glazing for the North façade.
- JJAE requires air conditioning for all units.

Townhouses #4:

- Warning Clause Type D for all façades.
- A minimum of STC 43 is required for all exterior glazing for the South façade.
- A minimum of STC 40 is required for all exterior glazing for the East and West façades.
- A minimum of STC 33 is required for all exterior glazing for the North façade.
- JJAE requires air conditioning for all units.

The stationary noise impacts from the neighboring buildings to the Site were evaluated and the sound level predictions were determined to be below the noise limits for all townhome blocks.

The mechanical equipment for the townhome blocks is similar to that of a single-family home and typically considered to be environmentally insignificant. The site has not yet undergone mechanical design and as such once mechanical design has been reviewed an addendum to this report must be written.

7. Conclusions

The results of this Study indicate that the potential environmental impact from road and rail traffic noise sources is significant. Requirements for ventilation, special building components and noise warning clause for each unit.

Should you have any questions on the above, please do not hesitate to contact us.

Yours truly,

Written by: Reviewed by:

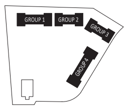
Oct. 20, 2022

Emmanuel Ghiorghis,
Acoustic Technician

Joey Jraige, P.Eng., B.A.Sc.
President

JJ Acoustic Engineering Ltd.
joey@jjae.ca
226-346-6473

ATTACHMENT A



KEY PLAN

LEGEND

- PROPERTY LINE
- EXISTING BUILDING TO BE DEMOLISHED
- PROPOSED TREE
- EXISTING TREE
- DEMOLISHED TREE

<u>ESTABLISHED GRADE CALCULATION</u>
ZBL 2285/21 4. Definitions (9)
"“Grade” or “Established Grade” means the average elevation of the finished level of the ground adjoining all exterior walls of a building.”

(POINT A + POINT B+.... etc)/# of POINTS = A.G.

EXISTING BUILDING EST. GRADE: 98.22 el.

GROUP 1 EST. GRADE: 99.850 el.
GROUP 2 EST. GRADE: 99.550 el.
GROUP 3 EST. GRADE: 98.550 el.
GROUP 4 EST. GRADE: 96.900 el.

KPMB Architects
351 King St E, Suite 1200
Toronto, ON, Canada M5A 0L6
416.977.5104

UPRC
Dunbarton - Fairport

1066 Dunbarton Rd
Pickering, ON L1V 1G8

Project North True North

Project No.	2139
Scale	1 : 150
Plot Date	10/14/2022

CONCEPTUAL SITE PLAN

A1-03

ATTACHMENT B

Planning and Economic Development Department

Planning Division

605 ROSSLAND RD. E.
4TH FLOOR
P.O. BOX 623
WHITBY, ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
Fax: 905-666-6208
E-Mail: planning@durham.ca

www.durham.ca

Brian Bridgeman, MCIP, RPP
Commissioner of Planning and Economic Development

The Regional Municipality of Durham

ROAD SEGMENT TRAFFIC FORECASTS FOR NOISE ANALYSES

This information is to be used as the basis for assessing the potential impacts of noise, generated by traffic on Provincial Highways and arterial roads, on proposed land uses that are sensitive (e.g., residential subdivisions). Arterial roads include existing and future Type A, B and C, as designated in the Durham Regional Official Plan.

Noise assessment reports recommend specific measures to be integrated into the design of sensitive developments to reduce road noise impacts to acceptable levels.

Provided For:

Name / Name of Firm: Joey Jragie, JJ Accoustic Engineering Ltd.

Address: 21342 Klondyke Road, Wheatley, Ontario, N0P2P0

Telephone: (226) 346-6473 Fax:

Location of Proposal:

1066 Dunbarton Road, Pickering, Ontario, L1V 1G8

Municipality: Lot(s): Concession:

Durham Region File No. (if available):

Name of Property Owner (if available):

Date Request Received: September 21, 2022 Received By: Anthony Caruso

Date Forecast Sent: October 4, 2022

Name of Road Segment	Forecasted AADT*	No. of Lanes	% of Trucks	Heavy : Medium Truck Ratio		Speed (km/h)
Kingston Road (Fairport Road to Dixie Road)	35,000	4	8	30 2.4%	70 5.6%	60
Dixie Road (Kingston Road to Glenanna Road)	12,000	2	8	40 3.2%	60 4.8%	60
	0	0	0	0	0	0
	0	0	0	0	0	0

* Average Annual Daily Traffic. Forecast based on ultimate development according to the Durham Regional Official Plan.

Highway	Location Description From	Location Description To	Dist. (KM)	2016 AADT
401	BENNETT RD IC-435-NEWCASTLE	LIBERTY ST IC 432-REG RD 14-BOWMANVILLE	2.5	82,400
401	LIBERTY ST IC 432-REG RD 14-BOWMANVILLE	WAVERLEY RD IC-431-NEWCASTLE	1.2	85,600
401	WAVERLEY RD IC-431-NEWCASTLE	HOLT RD IC-428-NEWCASTLE	2.9	89,600
401	HOLT RD IC-428-NEWCASTLE	COURTICE RD IC-425-REG RD 34-NEWCASTLE	3.2	98,000
401	COURTICE RD IC-425-REG RD 34-NEWCASTLE	BLOOR ST/HARMONY RD IC-419-REG RD 33	5.5	98,500
401	BLOOR ST/HARMONY RD IC-419-REG RD 33	RITSON RD IC-418-REG RD 16-OSHAWA	1.4	124,200
401	RITSON RD IC-418-REG RD 16-OSHAWA	SIMCOE ST IC-417-REG RD 2-OSHAWA	0.8	128,700
401	SIMCOE ST IC-417-REG RD 2-OSHAWA	STEVENSON RD IC-415-OSHAWA	1.6	134,200
401	STEVENSON RD IC-415-OSHAWA	THICKSON RD IC-412-REG RD 26-WHITBY	2.4	129,100
401	THICKSON RD IC-412-REG RD 26-WHITBY	HWY 12 IC-410-BROCK ST-WHITBY	2.5	151,200
401	HWY 12 IC-410-BROCK ST-WHITBY	SALEM RD IC 404	6.2	166,900
401	SALEM RD IC 404	WESTNEY RD IC 401	2.2	202,800
401	WESTNEY RD IC 401	BROCK RD IC-399-REG RD 1-PICKERING	2.6	210,000
401	BROCK RD IC-399-REG RD 1-PICKERING	LIVERPOOL RD IC-397-REG RD 29-PICKERING	1.7	223,000
401	LIVERPOOL RD IC-397-REG RD 29-PICKERING	WHITES RD IC-394-REG RD 38-PICKERING	2.5	230,000
401	WHITES RD IC-394-REG RD 38-PICKERING	401-HWY 2 KINGSTON RD IC 392	3.7	226,000
401	401-HWY 2 KINGSTON RD IC 392	MEADOWVALE RD IC-389-SCARBOROUGH	1.3	230,000
401	MEADOWVALE RD IC-389-SCARBOROUGH	MORNINGSIDE AV IC-387-SCARBOROUGH	2.4	230,000
401	MORNINGSIDE AV IC-387-SCARBOROUGH	NEILSON RD IC-385	1.5	260,000
401	NEILSON RD IC-385	HWY 48 IC-383-MARKHAM RD-SCARBOROUGH	1.7	280,000
401	HWY 48 IC-383-MARKHAM RD-SCARBOROUGH	MCCOWAN RD IC-381-SCARBOROUGH	1.6	291,200
401	MCCOWAN RD IC-381-SCARBOROUGH	BRIMLEY RD IC-380	0.8	329,800
401	BRIMLEY RD IC-380	KENNEDY RD IC-379-SCARBOROUGH	1.6	330,000
401	KENNEDY RD IC-379-SCARBOROUGH	WARDEN AV IC-378-SCARBOROUGH	1.6	355,000
401	WARDEN AV IC-378-SCARBOROUGH	VICTORIA PARK AV IC-376-SCARBOROUGH	1.2	334,000
401	VICTORIA PARK AV IC-376-SCARBOROUGH	HWY 404 IC-375-DON VALLEY PKWY-NORTH YORK	1.4	333,000
401	HWY 404 IC-375-DON VALLEY PKWY-NORTH YORK	LESLIE ST IC-373-NORTH YORK	2.0	348,000
401	LESLIE ST IC-373-NORTH YORK	BAYVIEW AV IC-371-NORTH YORK	1.9	332,000
401	BAYVIEW AV IC-371-NORTH YORK	HWY 11 IC-369-YONGE ST-NORTH YORK	2.0	341,500
401	HWY 11 IC-369-YONGE ST-NORTH YORK	AVENUE RD IC-367-NORTH YORK	1.7	332,000
401	AVENUE RD IC-367-NORTH YORK	BATHURST ST IC-366-NORTH YORK	1.0	343,000
401	BATHURST ST IC-366-NORTH YORK	ALLEN RD IC-365-NORTH YORK	1.4	350,000
401	ALLEN RD IC-365-NORTH YORK	DUFFERIN ST IC-364-NORTH YORK	0.7	368,000
401	DUFFERIN ST IC-364-NORTH YORK	KEELE ST IC-362-NORTH YORK	1.9	387,700
401	KEELE ST IC-362-NORTH YORK	HWY 400 IC-359-NORTH YORK	3.0	397,100
401	HWY 400 IC-359-NORTH YORK	WESTON RD IC-357-NORTH YORK	1.4	416,500
401	WESTON RD IC-357-NORTH YORK	ISLINGTON AV IC-356-ETOBICOKE	1.3	411,600
401	ISLINGTON AV IC-356-ETOBICOKE	DIXON RD IC-354-ETOBICOKE	2.4	390,700
401	DIXON RD IC-354-ETOBICOKE	HWY 427 IC 352	2.4	275,000
401	HWY 427 IC 352	RENFORTH DR IC 349	0.7	385,000
401	RENFORTH DR IC 349	DIXIE RD IC 346	4.3	352,000
401	DIXIE RD IC 346	HWYS 410 & 403 IC-344 END OF COMPLEX FRWY	1.4	340,000
401	HWYS 410 & 403 IC-344 END OF COMPLEX FRWY	HWY 10 IC-342-HURONTARIO ST-MISSISSAUGA	2.7	210,500
401	HWY 10 IC-342-HURONTARIO ST-MISSISSAUGA	MAVIS ROAD IC	2.1	216,500

Table B1

Road Traffic Noise Levels and Mitigation Measures Summary
1066 Dunbarton Road, Pickering, Ontario
Townhouse Building 1

Point of Reception	Road Sound Level Daytime (dBA)	Road Sound Level Nighttime (dBA)	Ventilation Requirements NPC 300	Rail Sound Level Daytime (dBA)	Rail Sound Level Nighttime (dBA)	Warning Clauses From NPC 300	Special Building Components
North Façade (1)							
Plane of Window Level 1	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	63 (dBA)	60 (dBA)	Type D	Minimum Window STC Rating of 33
Plane of Window Level 2	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	63 (dBA)	60 (dBA)	Type D	Minimum Window STC Rating of 33
Plane of Window Level 3	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	63 (dBA)	60 (dBA)	Type D	Minimum Window STC Rating of 33
East Façade							
Plane of Window Level 1	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 2	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 3	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
South Façade							
Plane of Window Level 1	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
Plane of Window Level 2	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
Plane of Window Level 3	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
West Façade							
Plane of Window Level 1	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	67 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 2	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	67 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 3	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	67 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39

Notes
`(1) The North Facade is shielded by the building. JJAE has assumed a conservative 10 dBA reduction in sound level from the South Façade for the North Façade

Table B1

Road Traffic Noise Levels and Mitigation Measures Summary
1066 Dunbarton Road, Pickering, Ontario
Townhouse Building 2

Point of Reception	Road Sound Level Daytime (dBA)	Road Sound Level Nighttime (dBA)	Ventilation Requirements NPC 300	Rail Sound Level Daytime (dBA)	Rail Sound Level Nighttime (dBA)	Warning Clauses From NPC 300	Special Building Components
North Façade (1)							
Plane of Window Level 1	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	63 (dBA)	60 (dBA)	Type D	Minimum Window STC Rating of 33
Plane of Window Level 2	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	63 (dBA)	60 (dBA)	Type D	Minimum Window STC Rating of 33
Plane of Window Level 3	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	63 (dBA)	60 (dBA)	Type D	Minimum Window STC Rating of 33
East Façade							
Plane of Window Level 1	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 2	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 3	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
South Façade							
Plane of Window Level 1	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
Plane of Window Level 2	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
Plane of Window Level 3	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
West Façade							
Plane of Window Level 1	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	67 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 2	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	67 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 3	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	67 (dBA)	64 (dBA)	Type D	Minimum Window STC Rating of 39

Notes
`(1) The North Facade is shielded by the building. JJAE has assumed a conservative 10 dBA reduction in sound level from the South Façade for the North Façade

Table B1

Road Traffic Noise Levels and Mitigation Measures Summary
1066 Dunbarton Road, Pickering, Ontario
Townhouse Building 3

Point of Reception	Road Sound Level Daytime (dBA)	Road Sound Level Nighttime (dBA)	Ventilation Requirements NPC 300	Rail Sound Level Daytime (dBA)	Rail Sound Level Nighttime (dBA)	Warning Clauses From NPC 300	Special Building Components
North Façade (1)							
Plane of Window Level 1	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	61 (dBA)	57 (dBA)	Type D	Minimum Window STC Rating of 32
Plane of Window Level 2	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	61 (dBA)	57 (dBA)	Type D	Minimum Window STC Rating of 32
Plane of Window Level 3	66 (dBA)	66 (dBA)	Requirement for Air Conditioning	61 (dBA)	57 (dBA)	Type D	Minimum Window STC Rating of 32
East Façade							
Plane of Window Level 1	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 2	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 3	73 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 39
South Façade							
Plane of Window Level 1	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
Plane of Window Level 2	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
Plane of Window Level 3	76 (dBA)	76 (dBA)	Requirement for Air Conditioning	71 (dBA)	67 (dBA)	Type D	Minimum Window STC Rating of 42
West Façade							
Plane of Window Level 1	72 (dBA)	72 (dBA)	Requirement for Air Conditioning	67 (dBA)	63 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 2	72 (dBA)	72 (dBA)	Requirement for Air Conditioning	67 (dBA)	63 (dBA)	Type D	Minimum Window STC Rating of 39
Plane of Window Level 3	72 (dBA)	72 (dBA)	Requirement for Air Conditioning	67 (dBA)	63 (dBA)	Type D	Minimum Window STC Rating of 39

Notes
`(1) The North Facade is shielded by the building. JJAE has assumed a conservative 10 dBA reduction in sound level from the South Façade for the North Façade

Table B1

Road Traffic Noise Levels and Mitigation Measures Summary
1066 Dunbarton Road, Pickering, Ontario
Townhouse Building 4

Point of Reception	Road Sound Level Daytime (dBA)	Road Sound Level Nighttime (dBA)	Ventilation Requirements NPC 300	Rail Sound Level Daytime (dBA)	Rail Sound Level Nighttime (dBA)	Warning Clauses From NPC 300	Special Building Components
North Façade (1)							
Plane of Window Level 1	67 (dBA)	67 (dBA)	Requirement for Air Conditioning	61 (dBA)	58 (dBA)	Type D	Minimum Window STC Rating of 33
Plane of Window Level 2	67 (dBA)	67 (dBA)	Requirement for Air Conditioning	61 (dBA)	58 (dBA)	Type D	Minimum Window STC Rating of 33
Plane of Window Level 3	67 (dBA)	67 (dBA)	Requirement for Air Conditioning	61 (dBA)	58 (dBA)	Type D	Minimum Window STC Rating of 33
East Façade							
Plane of Window Level 1	74 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 40
Plane of Window Level 2	74 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 40
Plane of Window Level 3	74 (dBA)	73 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 40
South Façade							
Plane of Window Level 1	77 (dBA)	77 (dBA)	Requirement for Air Conditioning	71 (dBA)	68 (dBA)	Type D	Minimum Window STC Rating of 43
Plane of Window Level 2	77 (dBA)	77 (dBA)	Requirement for Air Conditioning	71 (dBA)	68 (dBA)	Type D	Minimum Window STC Rating of 43
Plane of Window Level 3	77 (dBA)	77 (dBA)	Requirement for Air Conditioning	71 (dBA)	68 (dBA)	Type D	Minimum Window STC Rating of 43
West Façade							
Plane of Window Level 1	74 (dBA)	74 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 40
Plane of Window Level 2	74 (dBA)	74 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 40
Plane of Window Level 3	74 (dBA)	74 (dBA)	Requirement for Air Conditioning	68 (dBA)	65 (dBA)	Type D	Minimum Window STC Rating of 40

Notes
`(1) The North Facade is shielded by the building. JJAE has assumed a conservative 10 dBA reduction in sound level from the South Façade for the North Façade

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:07:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t1east.te Time Period: Day/Night 16/8 hours
Description: East Facade Townhouse Set 1 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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.	Freight	16.0/6.0	2.50	14.00
2.	Way	1.0/3.0	2.50	14.00
3.	Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	0.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	224.00 / 224.00 m	
Receiver height	2.00 / 2.00	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle

Reference angle	0.00

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 384.00 / 384.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 65.80 + 0.00) = 65.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  80.55 -11.74  -3.01   0.00   0.00   0.00  65.80
-------------------------------------------------------------------------

WHEEL (0.00 + 58.41 + 0.00) = 58.41 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  73.16 -11.74  -3.01   0.00   0.00   0.00  58.41
-------------------------------------------------------------------------

Segment Leq : 66.53 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.36 + 0.00) = 59.36 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  76.46 -14.08  -3.01   0.00   0.00   0.00  59.36
-------------------------------------------------------------------------

WHEEL (0.00 + 56.62 + 0.00) = 56.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
     0     90   0.00  73.72 -14.08  -3.01   0.00   0.00   0.00  56.62
-------------------------------------------------------------------------

Segment Leq : 61.21 dBA

Total Leq All Segments: 67.65 dBA

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

LOCOMOTIVE (0.00 + 62.80 + 0.00) = 62.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  77.55 -11.74  -3.01   0.00   0.00   0.00  62.80
-------------------------------------------------------------------------

WHEEL (0.00 + 56.14 + 0.00) = 56.14 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  70.89 -11.74  -3.01   0.00   0.00   0.00  56.14
-------------------------------------------------------------------------

Segment Leq : 63.65 dBA

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

LOCOMOTIVE (0.00 + 54.29 + 0.00) = 54.29 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  71.39 -14.08  -3.01   0.00   0.00   0.00  54.29
-------------------------------------------------------------------------

WHEEL (0.00 + 52.49 + 0.00) = 52.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  69.58 -14.08  -3.01   0.00   0.00   0.00  52.49
-------------------------------------------------------------------------

Segment Leq : 56.49 dBA

Total Leq All Segments: 64.41 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 140.00 / 140.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 174.00 / 174.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 302.00 / 302.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 342.00 / 342.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: KINGSTON (day)
-----------------------------------

Source height = 1.24 m

ROAD (0.00 + 59.11 + 0.00) = 59.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  71.83   0.00  -9.70  -3.01   0.00   0.00   0.00  59.11
-------------------------------------------------------------------------------

Segment Leq : 59.11 dBA

↟
Results segment # 2: DIXIE (day)
---------------------------------

Source height = 1.34 m

ROAD (0.00 + 56.94 + 0.00) = 56.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.59   0.00 -10.64   0.00   0.00   0.00   0.00  56.94
-------------------------------------------------------------------------------

Segment Leq : 56.94 dBA

↟
Results segment # 3: HWY 401 EB (day)
--------------------------------------

Source height = 1.97 m

ROAD (0.00 + 70.05 + 0.00) = 70.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  86.10   0.00 -13.04  -3.01   0.00   0.00   0.00  70.05
```

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

Segment Leq : 70.05 dBA

↟
Results segment # 4: HWY 401 WB (day)
------------------------------------

Source height = 1.97 m

ROAD (0.00 + 69.51 + 0.00) = 69.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  86.10   0.00 -13.58  -3.01   0.00   0.00   0.00  69.51
--------------------------------------------------------------------------------

Segment Leq : 69.51 dBA

Total Leq All Segments: 73.09 dBA

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

Source height = 1.24 m

ROAD (0.00 + 52.58 + 0.00) = 52.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  65.29   0.00  -9.70  -3.01   0.00   0.00   0.00  52.58
--------------------------------------------------------------------------------

Segment Leq : 52.58 dBA

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

Source height = 1.33 m

ROAD (0.00 + 50.39 + 0.00) = 50.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  61.04   0.00 -10.64   0.00   0.00   0.00   0.00  50.39
--------------------------------------------------------------------------------

Segment Leq : 50.39 dBA

↟
Results segment # 3: HWY 401 EB (night)
------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 70.05 + 0.00) = 70.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	86.10	0.00	-13.04	-3.01	0.00	0.00	0.00	70.05

Segment Leq : 70.05 dBA

↑

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 69.51 + 0.00) = 69.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	86.10	0.00	-13.58	-3.01	0.00	0.00	0.00	69.51

Segment Leq : 69.51 dBA

Total Leq All Segments: 72.86 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 74.18
(NIGHT): 73.44

↑
↑

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:08:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t1north.te Time Period: Day/Night 16/8 hours
Description: North Facade Townhouse Set 1 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

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

No	Train type: Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	Freight	16.0/6.0	2.50	14.00
2.	Way	1.0/3.0	2.50	14.00
3.	Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	0.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	500.00 / 500.00 m	
Receiver height	2.00 / 2.00 m	
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Results segment # 1: CN (day)

LOCOMOTIVE (0.00 + 62.31 + 0.00) = 62.31 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	80.55	-15.23	-3.01	0.00	0.00	0.00	62.31

WHEEL (0.00 + 54.93 + 0.00) = 54.93 dBA

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

```
     0     90   0.00  73.16 -15.23  -3.01   0.00   0.00   0.00  54.93
-------------------------------------------------------------------------

Segment Leq : 63.04 dBA

Total Leq All Segments: 63.04 dBA

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

LOCOMOTIVE (0.00 + 59.31 + 0.00) = 59.31 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  77.55 -15.23  -3.01   0.00   0.00   0.00  59.31
-------------------------------------------------------------------------

WHEEL (0.00 + 52.65 + 0.00) = 52.65 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  70.89 -15.23  -3.01   0.00   0.00   0.00  52.65
-------------------------------------------------------------------------

Segment Leq : 60.16 dBA

Total Leq All Segments: 60.16 dBA

↟
Road data, segment # 1: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
```

```
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 174.00 / 174.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

Source height = 1.34 m

ROAD (0.00 + 53.93 + 0.00) = 53.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00 -10.64  -3.01   0.00   0.00   0.00  53.93
-------------------------------------------------------------------------------

Segment Leq : 53.93 dBA

Total Leq All Segments: 53.93 dBA
```

↟

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

Source height = 1.33 m

ROAD (0.00 + 47.38 + 0.00) = 47.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  61.04   0.00 -10.64  -3.01   0.00   0.00   0.00  47.38
-------------------------------------------------------------------------------

Segment Leq : 47.38 dBA

Total Leq All Segments: 47.38 dBA
```

↟

```
TOTAL Leq FROM ALL SOURCES (DAY): 63.54
                           (NIGHT): 60.38
```

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:08:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t1south.te Time Period: Day/Night 16/8 hours
Description: South Facade Townhouse Set 1 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	-90.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	224.00 / 224.00 m	
Receiver height	2.00 / 2.00	m
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 384.00 / 384.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 68.81 + 0.00) = 68.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  80.55 -11.74   0.00   0.00   0.00   0.00  68.81
-------------------------------------------------------------------------

WHEEL (0.00 + 61.42 + 0.00) = 61.42 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  73.16 -11.74   0.00   0.00   0.00   0.00  61.42
-------------------------------------------------------------------------

Segment Leq : 69.54 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 62.37 + 0.00) = 62.37 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  76.46 -14.08   0.00   0.00   0.00   0.00  62.37
-------------------------------------------------------------------------

WHEEL (0.00 + 59.63 + 0.00) = 59.63 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.00  73.72 -14.08   0.00   0.00   0.00   0.00  59.63
-------------------------------------------------------------------------

Segment Leq : 64.22 dBA

Total Leq All Segments: 70.66 dBA

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

LOCOMOTIVE (0.00 + 65.81 + 0.00) = 65.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  77.55 -11.74   0.00   0.00   0.00   0.00  65.81
-------------------------------------------------------------------------

WHEEL (0.00 + 59.15 + 0.00) = 59.15 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  70.89 -11.74   0.00   0.00   0.00   0.00  59.15
-------------------------------------------------------------------------

Segment Leq : 66.66 dBA

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

LOCOMOTIVE (0.00 + 57.30 + 0.00) = 57.30 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  71.39 -14.08   0.00   0.00   0.00   0.00  57.30
-------------------------------------------------------------------------

WHEEL (0.00 + 55.50 + 0.00) = 55.50 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.58 -14.08   0.00   0.00   0.00   0.00  55.50
-------------------------------------------------------------------------

Segment Leq : 59.50 dBA

Total Leq All Segments: 67.42 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 140.00 / 140.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 206.00 / 206.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 302.00 / 302.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 342.00 / 342.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: KINGSTON (day)
-----------------------------------

Source height = 1.24 m

ROAD (0.00 + 62.12 + 0.00) = 62.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  71.83   0.00  -9.70   0.00   0.00   0.00   0.00  62.12
-------------------------------------------------------------------------------

Segment Leq : 62.12 dBA

↟
Results segment # 2: DIXIE (day)
---------------------------------

Source height = 1.34 m

ROAD (0.00 + 53.20 + 0.00) = 53.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00 -11.38  -3.01   0.00   0.00   0.00  53.20
-------------------------------------------------------------------------------

Segment Leq : 53.20 dBA

↟
Results segment # 3: HWY 401 EB (day)
--------------------------------------

Source height = 1.97 m

ROAD (0.00 + 73.06 + 0.00) = 73.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -13.04   0.00   0.00   0.00   0.00  73.06
```

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

Segment Leq : 73.06 dBA

↟
Results segment # 4: HWY 401 WB (day)
------------------------------------

Source height = 1.97 m

ROAD (0.00 + 72.52 + 0.00) = 72.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -13.58   0.00   0.00   0.00   0.00  72.52
--------------------------------------------------------------------------------

Segment Leq : 72.52 dBA

Total Leq All Segments: 76.01 dBA

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

Source height = 1.24 m

ROAD (0.00 + 55.59 + 0.00) = 55.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  65.29   0.00  -9.70   0.00   0.00   0.00   0.00  55.59
--------------------------------------------------------------------------------

Segment Leq : 55.59 dBA

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

Source height = 1.33 m

ROAD (0.00 + 46.65 + 0.00) = 46.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  61.04   0.00 -11.38  -3.01   0.00   0.00   0.00  46.65
--------------------------------------------------------------------------------

Segment Leq : 46.65 dBA

↟
Results segment # 3: HWY 401 EB (night)
------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 73.06 + 0.00) = 73.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-13.04	0.00	0.00	0.00	0.00	73.06

Segment Leq : 73.06 dBA

↟

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 72.52 + 0.00) = 72.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-13.58	0.00	0.00	0.00	0.00	72.52

Segment Leq : 72.52 dBA

Total Leq All Segments: 75.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 77.12
(NIGHT): 76.44

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:09:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t1west.te Time Period: Day/Night 16/8 hours
Description: West Facade Townhouse Set 1 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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.	Freight	16.0/6.0	2.50	14.00
2.	Way	1.0/3.0	2.50	14.00
3.	Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	-90.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	236.00 / 236.00 m	
Receiver height	2.00 / 2.00	m
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 396.00 / 396.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 65.58 + 0.00) = 65.58 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  80.55 -11.97  -3.01   0.00   0.00   0.00  65.58
-------------------------------------------------------------------------

WHEEL (0.00 + 58.19 + 0.00) = 58.19 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  73.16 -11.97  -3.01   0.00   0.00   0.00  58.19
-------------------------------------------------------------------------

Segment Leq : 66.31 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.23 + 0.00) = 59.23 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  76.46 -14.22  -3.01   0.00   0.00   0.00  59.23
-------------------------------------------------------------------------

WHEEL (0.00 + 56.49 + 0.00) = 56.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90      0   0.00  73.72 -14.22  -3.01   0.00   0.00   0.00  56.49
-------------------------------------------------------------------------

Segment Leq : 61.08 dBA

Total Leq All Segments: 67.45 dBA

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

LOCOMOTIVE (0.00 + 62.57 + 0.00) = 62.57 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  77.55 -11.97  -3.01   0.00   0.00   0.00  62.57
-------------------------------------------------------------------------

WHEEL (0.00 + 55.92 + 0.00) = 55.92 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  70.89 -11.97  -3.01   0.00   0.00   0.00  55.92
-------------------------------------------------------------------------

Segment Leq : 63.42 dBA

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

LOCOMOTIVE (0.00 + 54.16 + 0.00) = 54.16 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  71.39 -14.22  -3.01   0.00   0.00   0.00  54.16
-------------------------------------------------------------------------

WHEEL (0.00 + 52.35 + 0.00) = 52.35 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  69.58 -14.22  -3.01   0.00   0.00   0.00  52.35
-------------------------------------------------------------------------

Segment Leq : 56.36 dBA

Total Leq All Segments: 64.20 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 152.00 / 152.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 2: HWY 401 EB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 314.00 / 314.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 354.00 / 354.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

Source height = 1.24 m

ROAD (0.00 + 58.76 + 0.00) = 58.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  71.83   0.00 -10.06  -3.01   0.00   0.00   0.00  58.76
-------------------------------------------------------------------------------

Segment Leq : 58.76 dBA
```

↟

```
Results segment # 2: HWY 401 EB (day)
-----------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 69.88 + 0.00) = 69.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.21	-3.01	0.00	0.00	0.00	69.88

Segment Leq : 69.88 dBA

Results segment # 3: HWY 401 WB (day)

Source height = 1.97 m

ROAD (0.00 + 69.36 + 0.00) = 69.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.73	-3.01	0.00	0.00	0.00	69.36

Segment Leq : 69.36 dBA

Total Leq All Segments: 72.81 dBA

Results segment # 1: KINGSTON (night)

Source height = 1.24 m

ROAD (0.00 + 52.23 + 0.00) = 52.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	65.29	0.00	-10.06	-3.01	0.00	0.00	0.00	52.23

Segment Leq : 52.23 dBA

Results segment # 2: HWY 401 EB (night)

Source height = 1.97 m

ROAD (0.00 + 69.88 + 0.00) = 69.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.21	-3.01	0.00	0.00	0.00	69.88

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

Segment Leq : 69.88 dBA

↟
Results segment # 3: HWY 401 WB (night)
---------------------------------------

Source height = 1.97 m

ROAD (0.00 + 69.36 + 0.00) = 69.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -13.73  -3.01   0.00   0.00   0.00  69.36
--------------------------------------------------------------------------------

Segment Leq : 69.36 dBA

Total Leq All Segments: 72.68 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 73.92
                           (NIGHT): 73.25
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:09:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t2east.te Time Period: Day/Night 16/8 hours
Description: East Facade Townhouse Set 2 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	0.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	224.00 / 224.00 m	
Receiver height	2.00 / 2.00 m	
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 384.00 / 384.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 65.80 + 0.00) = 65.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  80.55 -11.74  -3.01   0.00   0.00   0.00  65.80
-------------------------------------------------------------------------

WHEEL (0.00 + 58.41 + 0.00) = 58.41 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  73.16 -11.74  -3.01   0.00   0.00   0.00  58.41
-------------------------------------------------------------------------

Segment Leq : 66.53 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.36 + 0.00) = 59.36 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  76.46 -14.08  -3.01   0.00   0.00   0.00  59.36
-------------------------------------------------------------------------

WHEEL (0.00 + 56.62 + 0.00) = 56.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
     0     90   0.00  73.72 -14.08  -3.01   0.00   0.00   0.00  56.62
-------------------------------------------------------------------------

Segment Leq : 61.21 dBA

Total Leq All Segments: 67.65 dBA

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

LOCOMOTIVE (0.00 + 62.80 + 0.00) = 62.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  77.55 -11.74  -3.01   0.00   0.00   0.00  62.80
-------------------------------------------------------------------------

WHEEL (0.00 + 56.14 + 0.00) = 56.14 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  70.89 -11.74  -3.01   0.00   0.00   0.00  56.14
-------------------------------------------------------------------------

Segment Leq : 63.65 dBA

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

LOCOMOTIVE (0.00 + 54.29 + 0.00) = 54.29 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  71.39 -14.08  -3.01   0.00   0.00   0.00  54.29
-------------------------------------------------------------------------

WHEEL (0.00 + 52.49 + 0.00) = 52.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  69.58 -14.08  -3.01   0.00   0.00   0.00  52.49
-------------------------------------------------------------------------

Segment Leq : 56.49 dBA

Total Leq All Segments: 64.41 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 140.00 / 140.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 144.00 / 144.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 302.00 / 302.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 342.00 / 342.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: KINGSTON (day)
-----------------------------------

Source height = 1.24 m

ROAD (0.00 + 59.11 + 0.00) = 59.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  71.83   0.00  -9.70  -3.01   0.00   0.00   0.00  59.11
-------------------------------------------------------------------------------

Segment Leq : 59.11 dBA

↟
Results segment # 2: DIXIE (day)
---------------------------------

Source height = 1.34 m

ROAD (0.00 + 57.77 + 0.00) = 57.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.59   0.00  -9.82   0.00   0.00   0.00   0.00  57.77
-------------------------------------------------------------------------------

Segment Leq : 57.77 dBA

↟
Results segment # 3: HWY 401 EB (day)
--------------------------------------

Source height = 1.97 m

ROAD (0.00 + 70.05 + 0.00) = 70.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  86.10   0.00 -13.04  -3.01   0.00   0.00   0.00  70.05
```

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

Segment Leq : 70.05 dBA

↟
Results segment # 4: HWY 401 WB (day)
------------------------------------

Source height = 1.97 m

ROAD (0.00 + 69.51 + 0.00) = 69.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  86.10   0.00 -13.58  -3.01   0.00   0.00   0.00  69.51
--------------------------------------------------------------------------------

Segment Leq : 69.51 dBA

Total Leq All Segments: 73.11 dBA

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

Source height = 1.24 m

ROAD (0.00 + 52.58 + 0.00) = 52.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  65.29   0.00  -9.70  -3.01   0.00   0.00   0.00  52.58
--------------------------------------------------------------------------------

Segment Leq : 52.58 dBA

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

Source height = 1.33 m

ROAD (0.00 + 51.21 + 0.00) = 51.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  61.04   0.00  -9.82   0.00   0.00   0.00   0.00  51.21
--------------------------------------------------------------------------------

Segment Leq : 51.21 dBA

↟
Results segment # 3: HWY 401 EB (night)
------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 70.05 + 0.00) = 70.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	86.10	0.00	-13.04	-3.01	0.00	0.00	0.00	70.05

Segment Leq : 70.05 dBA

↟

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 69.51 + 0.00) = 69.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	86.10	0.00	-13.58	-3.01	0.00	0.00	0.00	69.51

Segment Leq : 69.51 dBA

Total Leq All Segments: 72.87 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 74.20
(NIGHT): 73.45

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:09:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t2north.te Time Period: Day/Night 16/8 hours
Description: North Facade Townhouse Set 2 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

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

No	Train type: Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	Freight	16.0/6.0	2.50	14.00
2.	Way	1.0/3.0	2.50	14.00
3.	Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	0.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	480.00 / 480.00 m	
Receiver height	2.00 / 2.00 m	
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Results segment # 1: CN (day)

LOCOMOTIVE (0.00 + 62.49 + 0.00) = 62.49 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	80.55	-15.05	-3.01	0.00	0.00	0.00	62.49

WHEEL (0.00 + 55.10 + 0.00) = 55.10 dBA

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

```
     0     90   0.00  73.16 -15.05  -3.01   0.00   0.00   0.00  55.10
-------------------------------------------------------------------------

Segment Leq : 63.22 dBA

Total Leq All Segments: 63.22 dBA

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

LOCOMOTIVE (0.00 + 59.49 + 0.00) = 59.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  77.55 -15.05  -3.01   0.00   0.00   0.00  59.49
-------------------------------------------------------------------------

WHEEL (0.00 + 52.83 + 0.00) = 52.83 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  70.89 -15.05  -3.01   0.00   0.00   0.00  52.83
-------------------------------------------------------------------------

Segment Leq : 60.34 dBA

Total Leq All Segments: 60.34 dBA

↟
Road data, segment # 1: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
```

```
Surface                    :      2       (Reflective ground surface)
Receiver source distance   : 144.00 / 144.00 m
Receiver height            :   2.00 / 2.00   m
Topography                 :      1       (Flat/gentle slope; no barrier)
Reference angle            :   0.00
```

↟

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

Source height = 1.34 m

ROAD (0.00 + 54.75 + 0.00) = 54.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00  -9.82  -3.01   0.00   0.00   0.00  54.75
-------------------------------------------------------------------------------

Segment Leq : 54.75 dBA

Total Leq All Segments: 54.75 dBA
```

↟

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

Source height = 1.33 m

ROAD (0.00 + 48.20 + 0.00) = 48.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  61.04   0.00  -9.82  -3.01   0.00   0.00   0.00  48.20
-------------------------------------------------------------------------------

Segment Leq : 48.20 dBA

Total Leq All Segments: 48.20 dBA
```

↟

```
TOTAL Leq FROM ALL SOURCES (DAY): 63.80
                           (NIGHT): 60.60
```

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:10:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t2south.te Time Period: Day/Night 16/8 hours
Description: South Facade Townhouse Set 2 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 224.00 / 224.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 384.00 / 384.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 68.81 + 0.00) = 68.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  80.55 -11.74   0.00   0.00   0.00   0.00  68.81
-------------------------------------------------------------------------

WHEEL (0.00 + 61.42 + 0.00) = 61.42 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  73.16 -11.74   0.00   0.00   0.00   0.00  61.42
-------------------------------------------------------------------------

Segment Leq : 69.54 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 62.37 + 0.00) = 62.37 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  76.46 -14.08   0.00   0.00   0.00   0.00  62.37
-------------------------------------------------------------------------

WHEEL (0.00 + 59.63 + 0.00) = 59.63 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.00  73.72 -14.08   0.00   0.00   0.00   0.00  59.63
-------------------------------------------------------------------------

Segment Leq : 64.22 dBA

Total Leq All Segments: 70.66 dBA

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

LOCOMOTIVE (0.00 + 65.81 + 0.00) = 65.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  77.55 -11.74   0.00   0.00   0.00   0.00  65.81
-------------------------------------------------------------------------

WHEEL (0.00 + 59.15 + 0.00) = 59.15 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  70.89 -11.74   0.00   0.00   0.00   0.00  59.15
-------------------------------------------------------------------------

Segment Leq : 66.66 dBA

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

LOCOMOTIVE (0.00 + 57.30 + 0.00) = 57.30 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  71.39 -14.08   0.00   0.00   0.00   0.00  57.30
-------------------------------------------------------------------------

WHEEL (0.00 + 55.50 + 0.00) = 55.50 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.58 -14.08   0.00   0.00   0.00   0.00  55.50
-------------------------------------------------------------------------

Segment Leq : 59.50 dBA

Total Leq All Segments: 67.42 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 140.00 / 140.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 170.00 / 170.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 302.00 / 302.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 342.00 / 342.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: KINGSTON (day)
-----------------------------------

Source height = 1.24 m

ROAD (0.00 + 62.12 + 0.00) = 62.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  71.83   0.00  -9.70   0.00   0.00   0.00   0.00  62.12
-------------------------------------------------------------------------------

Segment Leq : 62.12 dBA

↟
Results segment # 2: DIXIE (day)
---------------------------------

Source height = 1.34 m

ROAD (0.00 + 54.03 + 0.00) = 54.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00 -10.54  -3.01   0.00   0.00   0.00  54.03
-------------------------------------------------------------------------------

Segment Leq : 54.03 dBA

↟
Results segment # 3: HWY 401 EB (day)
--------------------------------------

Source height = 1.97 m

ROAD (0.00 + 73.06 + 0.00) = 73.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -13.04   0.00   0.00   0.00   0.00  73.06
```

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

Segment Leq : 73.06 dBA

↟
Results segment # 4: HWY 401 WB (day)
-------------------------------------

Source height = 1.97 m

ROAD (0.00 + 72.52 + 0.00) = 72.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -13.58   0.00   0.00   0.00   0.00  72.52
-------------------------------------------------------------------------------

Segment Leq : 72.52 dBA

Total Leq All Segments: 76.02 dBA

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

Source height = 1.24 m

ROAD (0.00 + 55.59 + 0.00) = 55.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  65.29   0.00  -9.70   0.00   0.00   0.00   0.00  55.59
-------------------------------------------------------------------------------

Segment Leq : 55.59 dBA

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

Source height = 1.33 m

ROAD (0.00 + 47.48 + 0.00) = 47.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  61.04   0.00 -10.54  -3.01   0.00   0.00   0.00  47.48
-------------------------------------------------------------------------------

Segment Leq : 47.48 dBA

↟
Results segment # 3: HWY 401 EB (night)
---------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 73.06 + 0.00) = 73.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-13.04	0.00	0.00	0.00	0.00	73.06

Segment Leq : 73.06 dBA

↟

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 72.52 + 0.00) = 72.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-13.58	0.00	0.00	0.00	0.00	72.52

Segment Leq : 72.52 dBA

Total Leq All Segments: 75.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 77.13
(NIGHT): 76.44

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:10:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t2west.te Time Period: Day/Night 16/8 hours
Description: West Facade Townhouse Set 2 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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.	Freight	16.0/6.0	2.50	14.00
2.	Way	1.0/3.0	2.50	14.00
3.	Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	-90.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	236.00 / 236.00 m	
Receiver height	2.00 / 2.00	m
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 396.00 / 396.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 65.58 + 0.00) = 65.58 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  80.55 -11.97  -3.01   0.00   0.00   0.00  65.58
-------------------------------------------------------------------------

WHEEL (0.00 + 58.19 + 0.00) = 58.19 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  73.16 -11.97  -3.01   0.00   0.00   0.00  58.19
-------------------------------------------------------------------------

Segment Leq : 66.31 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.23 + 0.00) = 59.23 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  76.46 -14.22  -3.01   0.00   0.00   0.00  59.23
-------------------------------------------------------------------------

WHEEL (0.00 + 56.49 + 0.00) = 56.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90      0   0.00  73.72 -14.22  -3.01   0.00   0.00   0.00  56.49
-------------------------------------------------------------------------

Segment Leq : 61.08 dBA

Total Leq All Segments: 67.45 dBA

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

LOCOMOTIVE (0.00 + 62.57 + 0.00) = 62.57 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  77.55 -11.97  -3.01   0.00   0.00   0.00  62.57
-------------------------------------------------------------------------

WHEEL (0.00 + 55.92 + 0.00) = 55.92 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  70.89 -11.97  -3.01   0.00   0.00   0.00  55.92
-------------------------------------------------------------------------

Segment Leq : 63.42 dBA

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

LOCOMOTIVE (0.00 + 54.16 + 0.00) = 54.16 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  71.39 -14.22  -3.01   0.00   0.00   0.00  54.16
-------------------------------------------------------------------------

WHEEL (0.00 + 52.35 + 0.00) = 52.35 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  69.58 -14.22  -3.01   0.00   0.00   0.00  52.35
-------------------------------------------------------------------------

Segment Leq : 56.36 dBA

Total Leq All Segments: 64.20 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 152.00 / 152.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 2: HWY 401 EB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 314.00 / 314.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 354.00 / 354.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

Source height = 1.24 m

ROAD (0.00 + 58.76 + 0.00) = 58.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  71.83   0.00 -10.06  -3.01   0.00   0.00   0.00  58.76
-------------------------------------------------------------------------------

Segment Leq : 58.76 dBA
```

↟

```
Results segment # 2: HWY 401 EB (day)
-----------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 69.88 + 0.00) = 69.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.21	-3.01	0.00	0.00	0.00	69.88

Segment Leq : 69.88 dBA

Results segment # 3: HWY 401 WB (day)

Source height = 1.97 m

ROAD (0.00 + 69.36 + 0.00) = 69.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.73	-3.01	0.00	0.00	0.00	69.36

Segment Leq : 69.36 dBA

Total Leq All Segments: 72.81 dBA

Results segment # 1: KINGSTON (night)

Source height = 1.24 m

ROAD (0.00 + 52.23 + 0.00) = 52.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	65.29	0.00	-10.06	-3.01	0.00	0.00	0.00	52.23

Segment Leq : 52.23 dBA

Results segment # 2: HWY 401 EB (night)

Source height = 1.97 m

ROAD (0.00 + 69.88 + 0.00) = 69.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.21	-3.01	0.00	0.00	0.00	69.88

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

Segment Leq : 69.88 dBA

↟
Results segment # 3: HWY 401 WB (night)
---------------------------------------

Source height = 1.97 m

ROAD (0.00 + 69.36 + 0.00) = 69.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -13.73  -3.01   0.00   0.00   0.00  69.36
--------------------------------------------------------------------------------

Segment Leq : 69.36 dBA

Total Leq All Segments: 72.68 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 73.92
                           (NIGHT): 73.25
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:11:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t3east.te Time Period: Day/Night 16/8 hours
Description: East Facade Townhouse Set 3 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 216.00 / 216.00 m	
Receiver height	: 2.00 / 2.00 m	
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 376.00 / 376.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 65.96 + 0.00) = 65.96 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  80.55 -11.58  -3.01   0.00   0.00   0.00  65.96
-------------------------------------------------------------------------

WHEEL (0.00 + 58.57 + 0.00) = 58.57 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  73.16 -11.58  -3.01   0.00   0.00   0.00  58.57
-------------------------------------------------------------------------

Segment Leq : 66.69 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.46 + 0.00) = 59.46 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  76.46 -13.99  -3.01   0.00   0.00   0.00  59.46
-------------------------------------------------------------------------

WHEEL (0.00 + 56.71 + 0.00) = 56.71 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90      0   0.00  73.72 -13.99  -3.01   0.00   0.00   0.00  56.71
-------------------------------------------------------------------------

Segment Leq : 61.31 dBA

Total Leq All Segments: 67.80 dBA

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

LOCOMOTIVE (0.00 + 62.96 + 0.00) = 62.96 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  77.55 -11.58  -3.01   0.00   0.00   0.00  62.96
-------------------------------------------------------------------------

WHEEL (0.00 + 56.30 + 0.00) = 56.30 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  70.89 -11.58  -3.01   0.00   0.00   0.00  56.30
-------------------------------------------------------------------------

Segment Leq : 63.81 dBA

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

LOCOMOTIVE (0.00 + 54.38 + 0.00) = 54.38 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  71.39 -13.99  -3.01   0.00   0.00   0.00  54.38
-------------------------------------------------------------------------

WHEEL (0.00 + 52.58 + 0.00) = 52.58 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  69.58 -13.99  -3.01   0.00   0.00   0.00  52.58
-------------------------------------------------------------------------

Segment Leq : 56.58 dBA

Total Leq All Segments: 64.56 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 125.00 / 125.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 124.00 / 124.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 292.00 / 292.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 332.00 / 332.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```



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

Source height = 1.24 m

ROAD (0.00 + 62.62 + 0.00) = 62.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  71.83   0.00  -9.21   0.00   0.00   0.00   0.00  62.62
-------------------------------------------------------------------------------

Segment Leq : 62.62 dBA
```



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

Source height = 1.34 m

ROAD (0.00 + 58.41 + 0.00) = 58.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.59   0.00  -9.17   0.00   0.00   0.00   0.00  58.41
-------------------------------------------------------------------------------

Segment Leq : 58.41 dBA
```



```
Results segment # 3: HWY 401 EB (day)
-------------------------------------

Source height = 1.97 m

ROAD (0.00 + 70.19 + 0.00) = 70.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -12.89  -3.01   0.00   0.00   0.00  70.19
```

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

Segment Leq : 70.19 dBA

↟
Results segment # 4: HWY 401 WB (day)
-------------------------------------

Source height = 1.97 m

ROAD (0.00 + 69.64 + 0.00) = 69.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -13.45  -3.01   0.00   0.00   0.00  69.64
-------------------------------------------------------------------------------

Segment Leq : 69.64 dBA

Total Leq All Segments: 73.46 dBA

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

Source height = 1.24 m

ROAD (0.00 + 56.08 + 0.00) = 56.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  65.29   0.00  -9.21   0.00   0.00   0.00   0.00  56.08
-------------------------------------------------------------------------------

Segment Leq : 56.08 dBA

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

Source height = 1.33 m

ROAD (0.00 + 51.86 + 0.00) = 51.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  61.04   0.00  -9.17   0.00   0.00   0.00   0.00  51.86
-------------------------------------------------------------------------------

Segment Leq : 51.86 dBA

↟
Results segment # 3: HWY 401 EB (night)
---------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 70.19 + 0.00) = 70.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-12.89	-3.01	0.00	0.00	0.00	70.19

Segment Leq : 70.19 dBA

↟

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 69.64 + 0.00) = 69.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.45	-3.01	0.00	0.00	0.00	69.64

Segment Leq : 69.64 dBA

Total Leq All Segments: 73.06 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 74.50
(NIGHT): 73.63

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:11:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t3north.te Time Period: Day/Night 16/8 hours
Description: North Facade Townhouse Set 3 Floor 1

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

Car traffic volume : 28980/3220 veh/TimePeriod *
Medium truck volume : 1764/196 veh/TimePeriod *
Heavy truck volume : 756/84 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.60
Heavy Truck % of Total Volume : 2.40
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 9936/1104 veh/TimePeriod *
Medium truck volume : 518/58 veh/TimePeriod *
Heavy truck volume : 346/38 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00

```
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 118.00 / 118.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.24 m

ROAD (0.00 + 59.27 + 0.00) = 59.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  71.83   0.00  -9.54  -3.01   0.00   0.00   0.00  59.27
-------------------------------------------------------------------------------

Segment Leq : 59.27 dBA

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

Source height = 1.34 m

ROAD (0.00 + 55.62 + 0.00) = 55.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00  -8.96  -3.01   0.00   0.00   0.00  55.62
-------------------------------------------------------------------------------

Segment Leq : 55.62 dBA

Total Leq All Segments: 60.83 dBA

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

Source height = 1.24 m
```

ROAD (0.00 + 52.74 + 0.00) = 52.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	65.29	0.00	-9.54	-3.01	0.00	0.00	0.00	52.74

Segment Leq : 52.74 dBA

Results segment # 2: DIXIE (night)

Source height = 1.33 m

ROAD (0.00 + 49.07 + 0.00) = 49.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	61.04	0.00	-8.96	-3.01	0.00	0.00	0.00	49.07

Segment Leq : 49.07 dBA

Total Leq All Segments: 54.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.83
(NIGHT): 54.29

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:11:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t3south.te Time Period: Day/Night 16/8 hours
Description: South Facade Townhouse Set 3 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 226.00 / 226.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 386.00 / 386.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 68.77 + 0.00) = 68.77 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  80.55 -11.78   0.00   0.00   0.00   0.00  68.77
-------------------------------------------------------------------------

WHEEL (0.00 + 61.38 + 0.00) = 61.38 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  73.16 -11.78   0.00   0.00   0.00   0.00  61.38
-------------------------------------------------------------------------

Segment Leq : 69.50 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 62.35 + 0.00) = 62.35 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  76.46 -14.10   0.00   0.00   0.00   0.00  62.35
-------------------------------------------------------------------------

WHEEL (0.00 + 59.61 + 0.00) = 59.61 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.00  73.72 -14.10   0.00   0.00   0.00   0.00  59.61
-------------------------------------------------------------------------

Segment Leq : 64.20 dBA

Total Leq All Segments: 70.62 dBA

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

LOCOMOTIVE (0.00 + 65.77 + 0.00) = 65.77 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  77.55 -11.78   0.00   0.00   0.00   0.00  65.77
-------------------------------------------------------------------------

WHEEL (0.00 + 59.11 + 0.00) = 59.11 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  70.89 -11.78   0.00   0.00   0.00   0.00  59.11
-------------------------------------------------------------------------

Segment Leq : 66.62 dBA

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

LOCOMOTIVE (0.00 + 57.28 + 0.00) = 57.28 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  71.39 -14.10   0.00   0.00   0.00   0.00  57.28
-------------------------------------------------------------------------

WHEEL (0.00 + 55.47 + 0.00) = 55.47 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.58 -14.10   0.00   0.00   0.00   0.00  55.47
-------------------------------------------------------------------------

Segment Leq : 59.48 dBA

Total Leq All Segments: 67.39 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 135.00 / 135.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 140.00 / 140.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 302.00 / 302.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 342.00 / 342.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: KINGSTON (day)
-----------------------------------

Source height = 1.24 m

ROAD (0.00 + 62.28 + 0.00) = 62.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  71.83   0.00  -9.54   0.00   0.00   0.00   0.00  62.28
-------------------------------------------------------------------------------

Segment Leq : 62.28 dBA

↟
Results segment # 2: DIXIE (day)
---------------------------------

Source height = 1.34 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
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00  -9.70  -3.01   0.00   0.00   0.00  54.88
-------------------------------------------------------------------------------

Segment Leq : 54.88 dBA

↟
Results segment # 3: HWY 401 EB (day)
--------------------------------------

Source height = 1.97 m

ROAD (0.00 + 73.06 + 0.00) = 73.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -13.04   0.00   0.00   0.00   0.00  73.06
```

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

Segment Leq : 73.06 dBA

↟
Results segment # 4: HWY 401 WB (day)
-------------------------------------

Source height = 1.97 m

ROAD (0.00 + 72.52 + 0.00) = 72.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -13.58   0.00   0.00   0.00   0.00  72.52
--------------------------------------------------------------------------------

Segment Leq : 72.52 dBA

Total Leq All Segments: 76.03 dBA

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

Source height = 1.24 m

ROAD (0.00 + 55.75 + 0.00) = 55.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  65.29   0.00  -9.54   0.00   0.00   0.00   0.00  55.75
--------------------------------------------------------------------------------

Segment Leq : 55.75 dBA

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

Source height = 1.33 m

ROAD (0.00 + 48.33 + 0.00) = 48.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  61.04   0.00  -9.70  -3.01   0.00   0.00   0.00  48.33
--------------------------------------------------------------------------------

Segment Leq : 48.33 dBA

↟
Results segment # 3: HWY 401 EB (night)
---------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 73.06 + 0.00) = 73.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-13.04	0.00	0.00	0.00	0.00	73.06

Segment Leq : 73.06 dBA

↟

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 72.52 + 0.00) = 72.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-13.58	0.00	0.00	0.00	0.00	72.52

Segment Leq : 72.52 dBA

Total Leq All Segments: 75.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 77.13
(NIGHT): 76.44

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:12:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t3west.te Time Period: Day/Night 16/8 hours
Description: West Facade Townhouse Set 3 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 279.00 / 279.00 m	
Receiver height	: 2.00 / 2.00 m	
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco	29.0/8.0	2.50	14.00
2. Diesel2Loco	21.0/1.0	2.50	14.00
3. Ele1Loco	88.0/18.0	2.50	14.00
4. Ele2Loco	42.0/8.0	2.50	14.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 480.00 / 480.00 m	
Receiver height	: 2.00 / 2.00 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle

Reference angle	: 0.00

Results segment # 1: CN (day)

LOCOMOTIVE (0.00 + 64.85 + 0.00) = 64.85 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	80.55	-12.70	-3.01	0.00	0.00	0.00	64.85

WHEEL (0.00 + 57.46 + 0.00) = 57.46 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	73.16	-12.70	-3.01	0.00	0.00	0.00	57.46

Segment Leq : 65.58 dBA

Results segment # 2: GO (day)

LOCOMOTIVE (0.00 + 58.40 + 0.00) = 58.40 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	76.46	-15.05	-3.01	0.00	0.00	0.00	58.40

WHEEL (0.00 + 55.65 + 0.00) = 55.65 dBA

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

```
-------------------------------------------------------------------------
   -90      0   0.00  73.72 -15.05  -3.01   0.00   0.00   0.00  55.65
-------------------------------------------------------------------------

Segment Leq : 60.25 dBA

Total Leq All Segments: 66.70 dBA

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

LOCOMOTIVE (0.00 + 61.85 + 0.00) = 61.85 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  77.55 -12.70  -3.01   0.00   0.00   0.00  61.85
-------------------------------------------------------------------------

WHEEL (0.00 + 55.19 + 0.00) = 55.19 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  70.89 -12.70  -3.01   0.00   0.00   0.00  55.19
-------------------------------------------------------------------------

Segment Leq : 62.70 dBA

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

LOCOMOTIVE (0.00 + 53.32 + 0.00) = 53.32 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  71.39 -15.05  -3.01   0.00   0.00   0.00  53.32
-------------------------------------------------------------------------

WHEEL (0.00 + 51.52 + 0.00) = 51.52 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  69.58 -15.05  -3.01   0.00   0.00   0.00  51.52
-------------------------------------------------------------------------

Segment Leq : 55.52 dBA

Total Leq All Segments: 63.46 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 145.00 / 145.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 2: HWY 401 EB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 360.00 / 360.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 400.00 / 400.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

Source height = 1.24 m

ROAD (0.00 + 58.96 + 0.00) = 58.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  71.83   0.00  -9.85  -3.01   0.00   0.00   0.00  58.96
-------------------------------------------------------------------------------

Segment Leq : 58.96 dBA
```

↟

```
Results segment # 2: HWY 401 EB (day)
-----------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 69.29 + 0.00) = 69.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.80	-3.01	0.00	0.00	0.00	69.29

Segment Leq : 69.29 dBA

↟
Results segment # 3: HWY 401 WB (day)

Source height = 1.97 m

ROAD (0.00 + 68.83 + 0.00) = 68.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-14.26	-3.01	0.00	0.00	0.00	68.83

Segment Leq : 68.83 dBA

Total Leq All Segments: 72.28 dBA

↟
Results segment # 1: KINGSTON (night)

Source height = 1.24 m

ROAD (0.00 + 52.43 + 0.00) = 52.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	65.29	0.00	-9.85	-3.01	0.00	0.00	0.00	52.43

Segment Leq : 52.43 dBA

↟
Results segment # 2: HWY 401 EB (night)

Source height = 1.97 m

ROAD (0.00 + 69.28 + 0.00) = 69.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.80	-3.01	0.00	0.00	0.00	69.28

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

Segment Leq : 69.28 dBA

↟
Results segment # 3: HWY 401 WB (night)
----------------------------------------

Source height = 1.97 m

ROAD (0.00 + 68.83 + 0.00) = 68.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -14.26  -3.01   0.00   0.00   0.00  68.83
--------------------------------------------------------------------------------

Segment Leq : 68.83 dBA

Total Leq All Segments: 72.12 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 73.34
                           (NIGHT): 72.67
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:12:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t4east.te Time Period: Day/Night 16/8 hours
Description: East Facade Townhouse Set 4 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 202.00 / 202.00 m	
Receiver height	: 2.00 / 2.00 m	
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 362.00 / 362.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 66.25 + 0.00) = 66.25 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  80.55 -11.29  -3.01   0.00   0.00   0.00  66.25
-------------------------------------------------------------------------

WHEEL (0.00 + 58.86 + 0.00) = 58.86 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  73.16 -11.29  -3.01   0.00   0.00   0.00  58.86
-------------------------------------------------------------------------

Segment Leq : 66.98 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.62 + 0.00) = 59.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  76.46 -13.83  -3.01   0.00   0.00   0.00  59.62
-------------------------------------------------------------------------

WHEEL (0.00 + 56.88 + 0.00) = 56.88 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90      0   0.00  73.72 -13.83  -3.01   0.00   0.00   0.00  56.88
-------------------------------------------------------------------------

Segment Leq : 61.47 dBA

Total Leq All Segments: 68.06 dBA

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

LOCOMOTIVE (0.00 + 63.25 + 0.00) = 63.25 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  77.55 -11.29  -3.01   0.00   0.00   0.00  63.25
-------------------------------------------------------------------------

WHEEL (0.00 + 56.59 + 0.00) = 56.59 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  70.89 -11.29  -3.01   0.00   0.00   0.00  56.59
-------------------------------------------------------------------------

Segment Leq : 64.10 dBA

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

LOCOMOTIVE (0.00 + 54.55 + 0.00) = 54.55 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  71.39 -13.83  -3.01   0.00   0.00   0.00  54.55
-------------------------------------------------------------------------

WHEEL (0.00 + 52.74 + 0.00) = 52.74 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  69.58 -13.83  -3.01   0.00   0.00   0.00  52.74
-------------------------------------------------------------------------

Segment Leq : 56.75 dBA

Total Leq All Segments: 64.83 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 132.00 / 132.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 278.00 / 278.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 318.00 / 318.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

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

Source height = 1.24 m

ROAD (0.00 + 63.06 + 0.00) = 63.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  71.83   0.00  -8.77   0.00   0.00   0.00   0.00  63.06
-------------------------------------------------------------------------------

Segment Leq : 63.06 dBA
```

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

Source height = 1.34 m

ROAD (0.00 + 58.14 + 0.00) = 58.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.59   0.00  -9.44   0.00   0.00   0.00   0.00  58.14
-------------------------------------------------------------------------------

Segment Leq : 58.14 dBA
```

```
Results segment # 3: HWY 401 EB (day)
-------------------------------------

Source height = 1.97 m

ROAD (0.00 + 70.41 + 0.00) = 70.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -12.68  -3.01   0.00   0.00   0.00  70.41
```

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

Segment Leq : 70.41 dBA

↟
Results segment # 4: HWY 401 WB (day)
------------------------------------

Source height = 1.97 m

ROAD (0.00 + 69.82 + 0.00) = 69.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -13.26  -3.01   0.00   0.00   0.00  69.82
--------------------------------------------------------------------------------

Segment Leq : 69.82 dBA

Total Leq All Segments: 73.67 dBA

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

Source height = 1.24 m

ROAD (0.00 + 56.52 + 0.00) = 56.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  65.29   0.00  -8.77   0.00   0.00   0.00   0.00  56.52
--------------------------------------------------------------------------------

Segment Leq : 56.52 dBA

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

Source height = 1.33 m

ROAD (0.00 + 51.59 + 0.00) = 51.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  61.04   0.00  -9.44   0.00   0.00   0.00   0.00  51.59
--------------------------------------------------------------------------------

Segment Leq : 51.59 dBA

↟
Results segment # 3: HWY 401 EB (night)
------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 70.41 + 0.00) = 70.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-12.68	-3.01	0.00	0.00	0.00	70.41

Segment Leq : 70.41 dBA

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 69.82 + 0.00) = 69.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-13.26	-3.01	0.00	0.00	0.00	69.82

Segment Leq : 69.82 dBA

Total Leq All Segments: 73.26 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 74.72
(NIGHT): 73.84

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:12:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t4north.te Time Period: Day/Night 16/8 hours
Description: North Facade Townhouse Set 4 Floor 1

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

Car traffic volume : 28980/3220 veh/TimePeriod *
Medium truck volume : 1764/196 veh/TimePeriod *
Heavy truck volume : 756/84 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.60
Heavy Truck % of Total Volume : 2.40
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 118.00 / 118.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 9936/1104 veh/TimePeriod *
Medium truck volume : 518/58 veh/TimePeriod *
Heavy truck volume : 346/38 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00

```
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 141.00 / 141.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.24 m

ROAD (0.00 + 59.86 + 0.00) = 59.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  71.83   0.00  -8.96  -3.01   0.00   0.00   0.00  59.86
-------------------------------------------------------------------------------

Segment Leq : 59.86 dBA

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

Source height = 1.34 m

ROAD (0.00 + 54.85 + 0.00) = 54.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00  -9.73  -3.01   0.00   0.00   0.00  54.85
-------------------------------------------------------------------------------

Segment Leq : 54.85 dBA

Total Leq All Segments: 61.05 dBA

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

Source height = 1.24 m
```

ROAD (0.00 + 53.32 + 0.00) = 53.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	65.29	0.00	-8.96	-3.01	0.00	0.00	0.00	53.32

Segment Leq : 53.32 dBA

Results segment # 2: DIXIE (night)

Source height = 1.33 m

ROAD (0.00 + 48.30 + 0.00) = 48.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	61.04	0.00	-9.73	-3.01	0.00	0.00	0.00	48.30

Segment Leq : 48.30 dBA

Total Leq All Segments: 54.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.05
(NIGHT): 54.51

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:12:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t4south.te Time Period: Day/Night 16/8 hours
Description: South Facade Townhouse Set 4 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	-90.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	197.00 / 197.00 m	
Receiver height	2.00 / 2.00 m	
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 357.00 / 357.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 69.37 + 0.00) = 69.37 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  80.55 -11.18   0.00   0.00   0.00   0.00  69.37
-------------------------------------------------------------------------

WHEEL (0.00 + 61.98 + 0.00) = 61.98 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  73.16 -11.18   0.00   0.00   0.00   0.00  61.98
-------------------------------------------------------------------------

Segment Leq : 70.10 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 62.69 + 0.00) = 62.69 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  76.46 -13.77   0.00   0.00   0.00   0.00  62.69
-------------------------------------------------------------------------

WHEEL (0.00 + 59.95 + 0.00) = 59.95 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.00  73.72 -13.77   0.00   0.00   0.00   0.00  59.95
-------------------------------------------------------------------------

Segment Leq : 64.54 dBA

Total Leq All Segments: 71.17 dBA

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

LOCOMOTIVE (0.00 + 66.37 + 0.00) = 66.37 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  77.55 -11.18   0.00   0.00   0.00   0.00  66.37
-------------------------------------------------------------------------

WHEEL (0.00 + 59.71 + 0.00) = 59.71 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  70.89 -11.18   0.00   0.00   0.00   0.00  59.71
-------------------------------------------------------------------------

Segment Leq : 67.22 dBA

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

LOCOMOTIVE (0.00 + 57.62 + 0.00) = 57.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  71.39 -13.77   0.00   0.00   0.00   0.00  57.62
-------------------------------------------------------------------------

WHEEL (0.00 + 55.81 + 0.00) = 55.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.58 -13.77   0.00   0.00   0.00   0.00  55.81
-------------------------------------------------------------------------

Segment Leq : 59.82 dBA

Total Leq All Segments: 67.95 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
--------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

♠
Road data, segment # 2: DIXIE (day/night)
-----------------------------------------
Car traffic volume  :  9936/1104  veh/TimePeriod  *
Medium truck volume :   518/58    veh/TimePeriod  *
Heavy truck volume  :   346/38    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.80
    Heavy Truck  % of Total Volume     :   3.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: DIXIE (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 152.00 / 152.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 EB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 EB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 245.00 / 245.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: HWY 401 WB (day/night)
----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
```

```
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 4: HWY 401 WB (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 285.00 / 285.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: KINGSTON (day)
-----------------------------------

Source height = 1.24 m

ROAD (0.00 + 63.95 + 0.00) = 63.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  71.83   0.00  -7.88   0.00   0.00   0.00   0.00  63.95
-------------------------------------------------------------------------------

Segment Leq : 63.95 dBA

↟
Results segment # 2: DIXIE (day)
---------------------------------

Source height = 1.34 m

ROAD (0.00 + 54.52 + 0.00) = 54.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.59   0.00 -10.06  -3.01   0.00   0.00   0.00  54.52
-------------------------------------------------------------------------------

Segment Leq : 54.52 dBA

↟
Results segment # 3: HWY 401 EB (day)
--------------------------------------

Source height = 1.97 m

ROAD (0.00 + 73.97 + 0.00) = 73.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -12.13   0.00   0.00   0.00   0.00  73.97
```

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

Segment Leq : 73.97 dBA

↟
Results segment # 4: HWY 401 WB (day)
------------------------------------

Source height = 1.97 m

ROAD (0.00 + 73.31 + 0.00) = 73.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  86.10   0.00 -12.79   0.00   0.00   0.00   0.00  73.31
--------------------------------------------------------------------------------

Segment Leq : 73.31 dBA

Total Leq All Segments: 76.91 dBA

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

Source height = 1.24 m

ROAD (0.00 + 57.42 + 0.00) = 57.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90     90   0.00  65.29   0.00  -7.88   0.00   0.00   0.00   0.00  57.42
--------------------------------------------------------------------------------

Segment Leq : 57.42 dBA

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

Source height = 1.33 m

ROAD (0.00 + 47.97 + 0.00) = 47.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
     0     90   0.00  61.04   0.00 -10.06  -3.01   0.00   0.00   0.00  47.97
--------------------------------------------------------------------------------

Segment Leq : 47.97 dBA

↟
Results segment # 3: HWY 401 EB (night)
------------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 73.97 + 0.00) = 73.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-12.13	0.00	0.00	0.00	0.00	73.97

Segment Leq : 73.97 dBA

↟

Results segment # 4: HWY 401 WB (night)

Source height = 1.97 m

ROAD (0.00 + 73.31 + 0.00) = 73.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	86.10	0.00	-12.79	0.00	0.00	0.00	0.00	73.31

Segment Leq : 73.31 dBA

Total Leq All Segments: 76.72 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 77.94
(NIGHT): 77.26

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 14-10-2022 13:13:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: t4west.te Time Period: Day/Night 16/8 hours
Description: West Facade Townhouse Set 4 Floor 1

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

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Freight	22.6/8.5	105.0	4.0	140.0	Diesel	Yes
* 2. Way	1.4/4.2	105.0	4.0	25.0	Diesel	Yes
* 3. Passenger	59.3/0.0	150.0	2.0	10.0	Diesel	Yes

* 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. Freight	16.0/6.0	2.50	14.00
2. Way	1.0/3.0	2.50	14.00
3. Passenger	42.0/0.0	2.50	14.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 202.00 / 202.00 m	
Receiver height	: 2.00 / 2.00 m	
Topography	: 1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	: 0.00	

Rail data, segment # 2: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. Diesel1Loco	41.0/11.3	137.0	1.0	12.0	Diesel	Yes
* 2. Diesel2Loco	29.7/1.4	137.0	2.0	12.0	Diesel	Yes
* 3. Ele1Loco	124.3/25.4	137.0	1.0	12.0	Elec	Yes
* 4. Ele2Loco	59.3/11.3	137.0	2.0	12.0	Elec	Yes

* 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. Diesel1Loco     !  29.0/8.0   !    2.50  !   14.00  !
  2. Diesel2Loco     !  21.0/1.0   !    2.50  !   14.00  !
  3. Ele1Loco        !  88.0/18.0  !    2.50  !   14.00  !
  4. Ele2Loco        !  42.0/8.0   !    2.50  !   14.00  !

Data for Segment # 2: GO (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 362.00 / 362.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

↟
Results segment # 1: CN (day)
-----------------------------

LOCOMOTIVE (0.00 + 66.25 + 0.00) = 66.25 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  80.55 -11.29  -3.01   0.00   0.00   0.00  66.25
-------------------------------------------------------------------------

WHEEL (0.00 + 58.86 + 0.00) = 58.86 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  73.16 -11.29  -3.01   0.00   0.00   0.00  58.86
-------------------------------------------------------------------------

Segment Leq : 66.98 dBA

↟
Results segment # 2: GO (day)
-----------------------------

LOCOMOTIVE (0.00 + 59.62 + 0.00) = 59.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  76.46 -13.83  -3.01   0.00   0.00   0.00  59.62
-------------------------------------------------------------------------

WHEEL (0.00 + 56.88 + 0.00) = 56.88 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90      0   0.00  73.72 -13.83  -3.01   0.00   0.00   0.00  56.88
-------------------------------------------------------------------------

Segment Leq : 61.47 dBA

Total Leq All Segments: 68.06 dBA

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

LOCOMOTIVE (0.00 + 63.25 + 0.00) = 63.25 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  77.55 -11.29  -3.01   0.00   0.00   0.00  63.25
-------------------------------------------------------------------------

WHEEL (0.00 + 56.59 + 0.00) = 56.59 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  70.89 -11.29  -3.01   0.00   0.00   0.00  56.59
-------------------------------------------------------------------------

Segment Leq : 64.10 dBA

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

LOCOMOTIVE (0.00 + 54.55 + 0.00) = 54.55 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  71.39 -13.83  -3.01   0.00   0.00   0.00  54.55
-------------------------------------------------------------------------

WHEEL (0.00 + 52.74 + 0.00) = 52.74 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  69.58 -13.83  -3.01   0.00   0.00   0.00  52.74
-------------------------------------------------------------------------

Segment Leq : 56.75 dBA

Total Leq All Segments: 64.83 dBA

↟
Road data, segment # 1: KINGSTON (day/night)
---------------------------------------------
Car traffic volume  : 28980/3220  veh/TimePeriod  *
Medium truck volume :  1764/196   veh/TimePeriod  *
```

```
Heavy truck volume  :   756/84    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.60
    Heavy Truck  % of Total Volume     :   2.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: KINGSTON (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  96.00 / 96.00  m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: HWY 401 EB (day/night)
-----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 2: HWY 401 EB (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 251.00 / 251.00 m
```

```
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Car traffic volume  : 91054/45520 veh/TimePeriod  *
Medium truck volume :  5691/2845  veh/TimePeriod  *
Heavy truck volume  : 17073/8535  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 115000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  16.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: HWY 401 WB (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 291.00 / 291.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

Source height = 1.24 m

ROAD (0.00 + 60.75 + 0.00) = 60.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  71.83   0.00  -8.06  -3.01   0.00   0.00   0.00  60.75
-------------------------------------------------------------------------------

Segment Leq : 60.75 dBA
```

↟

```
Results segment # 2: HWY 401 EB (day)
-----------------------------------
```

Source height = 1.97 m

ROAD (0.00 + 70.85 + 0.00) = 70.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-12.24	-3.01	0.00	0.00	0.00	70.85

Segment Leq : 70.85 dBA

Results segment # 3: HWY 401 WB (day)

Source height = 1.97 m

ROAD (0.00 + 70.21 + 0.00) = 70.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-12.88	-3.01	0.00	0.00	0.00	70.21

Segment Leq : 70.21 dBA

Total Leq All Segments: 73.77 dBA

Results segment # 1: KINGSTON (night)

Source height = 1.24 m

ROAD (0.00 + 54.22 + 0.00) = 54.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	65.29	0.00	-8.06	-3.01	0.00	0.00	0.00	54.22

Segment Leq : 54.22 dBA

Results segment # 2: HWY 401 EB (night)

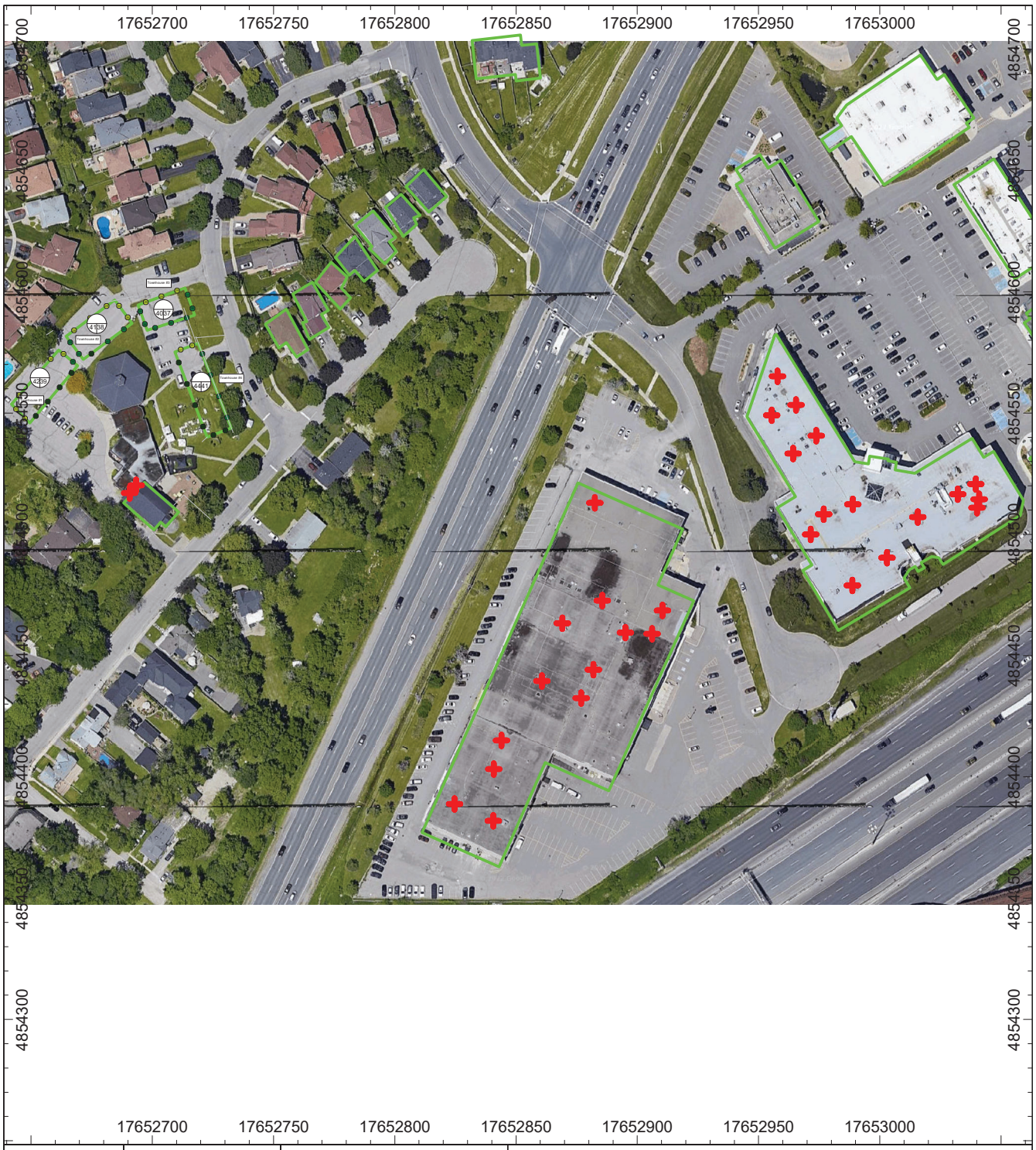
Source height = 1.97 m

ROAD (0.00 + 70.85 + 0.00) = 70.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	86.10	0.00	-12.24	-3.01	0.00	0.00	0.00	70.85

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

Segment Leq : 70.85 dBA

↟
Results segment # 3: HWY 401 WB (night)
----------------------------------------

Source height = 1.97 m

ROAD (0.00 + 70.21 + 0.00) = 70.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -90      0   0.00  86.10   0.00 -12.88  -3.01   0.00   0.00   0.00  70.21
--------------------------------------------------------------------------------

Segment Leq : 70.21 dBA

Total Leq All Segments: 73.60 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 74.81
                           (NIGHT): 74.14
↟
↟
```

ATTACHMENT C



> -99.0 dB
> 35.0 dB
> 40.0 dB
> 45.0 dB
> 50.0 dB
> 55.0 dB
> 60.0 dB
> 65.0 dB
> 70.0 dB
> 75.0 dB
> 80.0 dB
> 85.0 dB

Point Source
Building
Building Evaluation

STATIONARY NOISE IMPACT STUDY
1066 DUNBARTON ROAD, PICKERING, ONTARIO

Figure 1 - Stationary Noise Impact from Neighboring Buildings to Site

ATTACHMENT D

Table D1
Stationary Noise Impact Source Data
1066 Dunbarton Road, Pickering, Ontario

Noise Source Description	Cadna ID	Total SWL (dBA)	Data Source or Representative Data	Height Absolute (m)	Above Roof (m)	x	y
HVAC_4Fan	HVAC_4Fan	86.1	HVAC_4_Fan	7	2	17652869	4854463
HVAC_4Fan	HVAC_4Fan	86.1	HVAC_4_Fan	7	2	17652861	4854440
HVAC_4Fan	HVAC_4Fan	86.1	HVAC_4_Fan	7	2	17652906	4854459
HVAC_4Fan	HVAC_4Fan	86.1	HVAC_4_Fan	7	2	17652910	4854469
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652883	4854513
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652895	4854459
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652877	4854433
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652882	4854444
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652886	4854473
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652841	4854403
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652844	4854415
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652841	4854382
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652825	4854389
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	2	2	17652691	4854517
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	2	2	17652693	4854520
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652974	4854541
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652989	4854512
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17653040	4854521
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652955	4854549
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652958	4854565
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652964	4854533
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652965	4854553
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652971	4854500
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652977	4854508
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17653003	4854490
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17652989	4854479
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17653016	4854507
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17653040	4854511
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17653032	4854516
HVAC_2Fan	HVAC_2Fan	82.8	HVAC_2FAN_P23	7	2	17653041	4854514