261, 269, 277 KING EDWARD AVENUE AND 260 MURRAY STREET

NOISE IMPACT ASSESSMENT REPORT

Prepared By:

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April 11, 2016

Ref No.: R-2016-039
Novatech File No. 112078

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April 11, 2016

City of Ottawa
Planning and Growth Management Department
Development Review – Urban Services:
Infrastructure Approvals Division
110 Laurier Avenue West, 4th Floor
Ottawa, ON
K1P 1J1

Attention: Joshua White

Dear Mr. Wu:

Re: Noise Impact Assessment Management Report
Proposed Development
261-271 King Edward Avenue
Ottawa, ON
Our File No.: 112078

Enclosed herein are three (3) copies of the 'Noise Impact Assessment Report' for the proposed 261, 269, 271 King Edward Avenue and 260 Murray Street mixed use development. The site is located on King Edward Avenue between Murray Street and Clarence Street, in the City of Ottawa.

This report was prepared to assess the environmental impact of noise on the proposed mixed use development and recommend any necessary noise attenuation requirements. This report is submitted in support of the Site Plan application.

Please contact the undersigned, should you have any questions or require additional information.

Yours truly,

NOVATECH

John Riddell, P.Eng
Encl.

cc: Mike Perron, Claude Lauzon Group Ltd.

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Noise Control Summary Plan (115100-NC, Revision 1)

1.0 INTRODUCTION

Novatech has been retained by the Claude Lauzon Group Ltd. to prepare this noise control study in support of the proposed 261, 269, 271 King Edward Avenue and 260 Murray Street site plan application. This study was prepared to assess the environmental impact of noise and to outline any necessary noise attenuation requirements for the proposed residential/commercial development.

The subject site is located at 261-271 King Edward Avenue North, in the City of Ottawa, as shown on the Key Plan (**Figure 1**). The property is bordered by St. Patrick Street and Murray Streets to the North, Clarence Street to the South, King Edward Avenue to the West, and residential properties to the east. The 0.13 hectare site is currently vacant. The site layout is shown on the Site Plan (**Figure 2**).

The proposed development will consist of a 6 (six) storey mixed use building with associated vehicle/pedestrian access and landscaped areas. The ground level will consist of commercial/retail space. Levels 2-6 will consist of residential development. The two basement levels will provide underground parking with access to Murray Street to the north and Clarence Street to the south.

2.0 BACKGROUND

2.1 Noise Sources

The City of Ottawa's Official Plan (OP) and Environmental Nosie Control Guidelines (ENCG) stipulates a detailed noise study shall be prepared when a noise sensitive development is within proximity to a surface transportation, stationary, and aircraft noise sources. However due to the site location, this report only considers surface transportation noise from the following arterial roads: King Edward Avenue, Murray Street, and St. Patrick Street. All other sources of noise are located beyond the limits of consideration outlined in Part 1, Section 2.1 (When a Study is required) of the ENCG Guidelines. The design criteria for all streets considered in this report is listed in **Table 1**.

Table 1: Existing/Future Street Design Parameters

Street	Street Designation	Implied Class	Protected ROW (m)	Speed Limit (km/h)
King Edward	Arterial	6 UAD	40	40
Murray	Arterial	2 UAU	20	50
St. Patrick	Arterial	4 UAU	20/37.5*	50

- Street designation as per Schedule F, Central Area/Inner City Road Network of the OP.
- Implied Class as per Table B1 Traffic and Road Parameters To Be Used For Sound Level Predictions of Appendix B of the ENCG.
- Protected ROW as per Table 1 Road of ROW Protection, Section 7, Annex 1 – Road Classification of Rights-of-Way Protection.

***** Protected ROW considered in this report.

3.0 CITY OF OTTAWA NOISE CONTROL GUIDELINES

3.1 Sound Level Criteria

The City of Ottawa is concerned with noise from aircraft, roads, transitways, and railways, as expressed in Tables 2.2a: Sound Level Limit for Outdoor Living Areas – Road and Rail and 2.2b: Sound Level Limit for Indoor living Areas Road and Rail, and 2.2c: Supplementary Sound Level Limits for Indoor Spaces – Road and Rail in Part 1, Section 2.2 Applicable Guidelines for

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KEY PLAN

CITY OF OTTAWA

261-271 KING EDWARD AVE

DATE	JOB	FIGURE
APR 2016	112078	FIG-1

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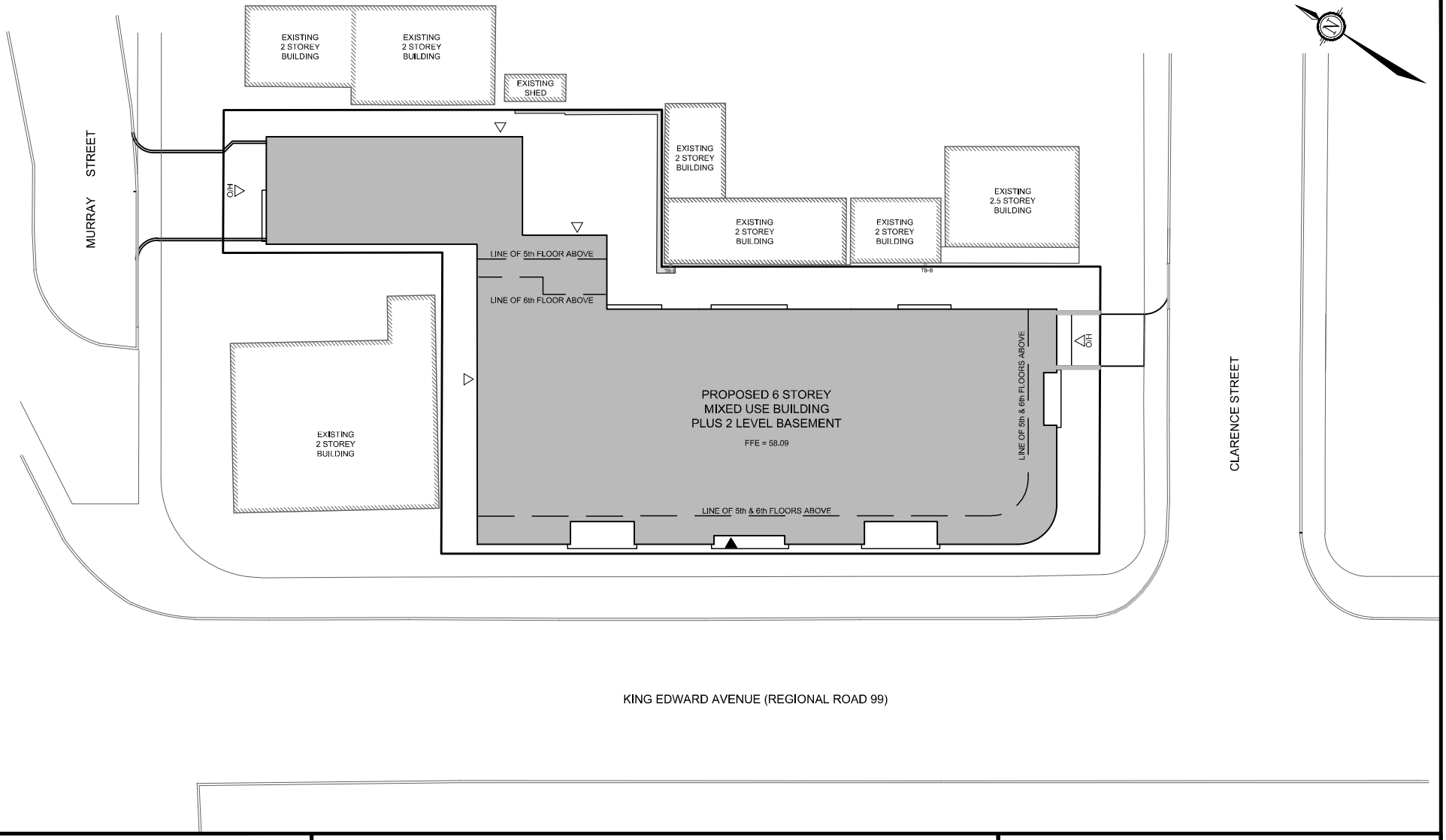

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261-271 KING EDWARD AVE

SITE PLAN

SCALE 1 : 400 (0, 4, 8, 12, 16)

DATE APR 2016 | JOB 112078 | FIGURE FIG-2

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Transportation Noise – Road and Rail of the ENCG. For reference, Tables 2.2a, 2.2b, and 2.2c of the ENCG are included in **Appendix A** and summarized below in **Table 2**:

Table 2: Sound Level Limits – Road and Rail

Type of Space	Time Period	Required Leq (dBA)	
		Road	Rail
Outdoor Living Area (OLA)	7:00 – 23:00	55	55
Plane of Window (POW): Residential Living/Dining Areas	7:00 – 23:00	45	40
	23:00 – 7:00	40	35
POW: Residential Sleeping quarters	7:00 – 23:00	45	40
	23:00 – 7:00	40	35
POW: Office, Commercial, Retail, etc.	7:00 – 23:00	50	45

To analyze the noise levels, plane of window and outdoor living area sound receiver locations were considered inside the dwelling units and in the amenity area outside.

Outdoor Living Area and Plane of Window receivers are defined as:

- **Outdoor Living Area (OLA):** The outdoor amenity area provided for quiet enjoyment of the outdoor environment during the daytime period (i.e., backyards, terraces and patios). OLA noise levels are considered 3.0m from the building façade, 1.5m above grade.

- **Plane of Window (POW):** The indoor living space where the sound levels will affect the living room area during daytime hours and bedrooms during nighttime hours. POW noise levels are considered inside the building, 1.5m above the finished floor.

3.2 Noise Attenuation Requirements

When sound levels are predicted to be approximately equal to or less than the criteria listed in **Table 2**, no attenuation measures are required. As the noise levels increase and the noise criteria in **Table 2** are exceeded, attenuation measures are required to reduce noise levels. When noise attenuation is required, the City of Ottawa recommends the following noise measures:

- Adjusting the site layout to maximize noise insensitive lands uses between the noise source and receptor and/or orienting blank walls face towards the noise source
- Increasing the building acoustic insulation (Construction techniques)
- Constructing noise barriers wall/berms (to be avoided when possible)

This report will recommend attenuating the noise levels by increasing the building's acoustic insulation and the addition of warning clauses to the residents to notify them of the increased sound levels. The warning clause will reference the specific mitigation measures utilized, if the noise is expected to increase in the future, and state the need to maintain the specified noise mitigation measures.

4.0 PREDICTION AND MITIGATION OF NOISE LEVELS

4.1 Road Traffic

As per Table B1 of Appendix B of the ENCG, **Table 3** outlines the traffic parameters used to calculate the noise levels for the site.

Table 3: Existing/Future Traffic Parameters

Street	Implied Class	Speed Limit (km/h)	Day/Night Split (%)	Medium Trucks (%)	Heavy Trucks
King Edward	6 UAD	40	92/8	7	5
Murray	2 UAU	50	92/8	7	5
St. Patrick	4 UAU	50	92/8	7	5

4.2 Noise Level Analysis

The noise levels for the site were analyzed using version 5.03 of the STAMPSON computer noise modelling program. Refer to the Noise Control Plan, located at the back of this report, for confirmation of: receiver locations, receiver elevations, and receiver distances to noise sources. The noise levels for all receiver locations generated from STAMPSON are listed in **Table 4**.

Table 4: Calculated Noise Level Results

Receiver	Location	File	Units	Calculated Noise Level (dBa)		Warning Clause
				(7:00-23:00)	(23:00-7:00)	
POW 1A	2nd Floor	Pow1aF2a/b	x03	66.9	**59.4**	Yes
	4th Floor	Pow1aF4a/b	x03	67.5	**59.9**	Yes
POW 1B	2nd Floor	Pow1bF2a/b	x03	**62.0**	54.4	Yes
	4th Floor	Pow1bF4a/b	x03	**66.4**	58.8	Yes
POW 2	2nd Floor	Pow2F2	x02	64.0	**56.4**	Yes
	4th Floor	Pow2F4	x02	69.9	**62.3**	Yes
	6th Floor	Pow2F6	x02	69.9	**62.3**	Yes
POW 3	2nd Floor	Pow3F2	x02	**70.8**	63.2	Yes
	4th Floor	Pow3F4	x02	**71.2**	63.6	Yes
	6th Floor	Pow3F6	x02	**71.2**	63.6	Yes
POW 4	2nd Floor	Pow4F2	x01	60.3	**52.7**	Yes
	4th Floor	Pow4F4	x01	63.1	**55.5**	Yes
	6th Floor	Pow4F6	x01	63.1	**55.5**	Yes
POW 5	2nd Floor	Pow5F2	x06	63.6	**56.0**	Yes
	4th Floor	Pow5F4	x06	63.9	**56.3**	Yes
	6th Floor	Pow5F6	x05	**65.5**	57.9	Yes
POW 6	2nd Floor	Pow6F2	x07	**70.5**	62.9	Yes
	4th Floor	Pow6F4	x07	**70.6**	63.0	Yes
	6th Floor	Pow6F6	x05	**70.8**	63.2	Yes
POW 7	2nd Floor	Pow7F2	x07	67.2	**59.6**	Yes
	4th Floor	Pow7F4	x07	67.5	**59.9**	Yes
	6th Floor	Pow7F6	x05	70.8	**63.2**	Yes
POW 8	1st Floor	Pow8F1	Retail	**63.9**	56.3	Yes
POW 9	1st Floor	Pow9F1	Retail	**70.9**	63.3	Yes
POW 10	1st Floor	Pow10F1	Retail	**70.5**	62.9	Yes
OLA 1	1st Floor	OLA1	-	**52.5**	44.9	No

- Table 4 includes daytime (7:00-23:00) and nighttime (23:00-7:00) calculated noise results for all noise receiver locations. **Calculated Noise Levels highlight in bold indicate the noise level considered at the noise receiver.**

Table 4 confirms the noise levels for the residential units (POW 1-7) and commercial/retail space (POW 8-10) are greater than the criteria outlined in **Table 1** above; therefore, window

and wall façade improvements complete with warning clauses, are required to mitigate the sound. In addition, to ensure windows and exterior doors can remain closed during periods of high noise levels, the dwelling units are required to be equipped a with central air conditioning system. **Table 4** also confirms the noise level for the outdoor amenity area (OLA 1) is acceptable and requires no further action. Refer to **Appendix B** for all detailed Stampson noise modeling results.

4.3 Implementation

To achieve the required sound attenuation this report follows the guidelines of the Acoustic Insulation Factor (AIF) method outlined in the National Research Council's Acoustic Insulation Factor, A Rating for the Insulation of Buildings against Noise (June 1980, JD Quirt), a method recognized by the City of Ottawa.

The AIF method uses the following formula to confirm the required AIF insulation level:

AIF = Outside L_{eq} (24 h) – Indoor L_{eq} (24 h) + 10 $\log_{10}$(N) + 2dBA

Where: Outside Leq (24hr) = The maximum unattenuated noise level (Table 5).
Indoor Leq (24hr) = The maximum allowable noise level (Table 1).
N = The number of components forming the exterior (n = 2, windows and façade).
AIF = dBA

Listed below is a typical AIF calculation at POW 1A.

$AIF_{(Daytime)}$ = 66.9 dBA – 45 dBA + 10log(2) dBA + 2dBA
$AIF_{(Daytime)}$ = 26.9 dBA
$AIF_{(Daytime)}$ = 27 dBA (rounded)

$AIF_{(Nighttime)}$ = 59.4 dBA – 40 dBA + 10log(2) dBA + 2dBA
$AIF_{(Nighttime)}$ = 24.4 dBA
$AIF_{(Nighttime)}$ = 24 dBA (rounded)

The higher of the two AIF values (daytime verses nighttime) is considered; therefore, the above confirms all units represented by receiver POW1 require the window and walls to have a minimum AIF value of 27.

Table 5 below summarizes the AIF for all units in the proposed development. Refer to **Appendix C** for detailed AIF calculations for all receivers.

Table 5: Acoustic Insulation Factor (AIF) Values

Receiver	Location	AIF Value		Attenuated Noise Level (dBA)	
		7:00-23:00	23:00-7:00	7:00-23:00	23:00-7:00
POW 1A	2nd Floor	27	24	40.0	32.4
	4th Floor	28	25	40.0	32.5
POW 1B	2nd Floor	22	19	40.0	32.4
	4th Floor	26	24	40.0	32.4
POW 2	2nd Floor	24	21	40.0	32.4

Table 5: Acoustic Insulation Factor (AIF) Values

Receiver	Location	AIF Value		Attenuated Noise Level (dBA)	
		7:00-23:00	23:00-7:00	7:00-23:00	23:00-7:00
	4th Floor	30	27	40.0	32.4
	6th Floor	30	27	40.0	32.4
POW 3	2nd Floor	31	28	40.0	32.4
	4th Floor	31	29	40.0	32.4
	6th Floor	31	29	40.0	32.4
POW 4	2nd Floor	20	18	40.0	32.4
	4th Floor	23	21	40.0	32.4
	6th Floor	23	21	40.0	32.4
POW 5	2nd Floor	24	21	40.0	32.4
	4th Floor	24	21	40.0	32.4
	6th Floor	26	23	40.0	32.4
POW 6	2nd Floor	31	28	40.0	32.4
	4th Floor	31	28	40.0	32.4
	6th Floor	31	28	40.0	32.4
POW 7	2nd Floor	27	25	40.0	32.4
	4th Floor	28	25	40.0	32.4
	6th Floor	31	28	40.0	32.4
POW 8	1st Floor	24	21	40.0	32.4
POW 9	1st Floor	31	28	40.0	32.4
POW 10	1st Floor	31	28	40.0	32.4

Tables 5 and 6.3 of the National Research Council's AIF method were used to confirm the window and exterior wall type assemblies, respectively. For reference, Tables 5 and 6.3 of the National Research Council's AIF method are included in **Appendix C**.

Table 5 of the National Research Council's AIF method uses a combination of the percentage of total window area to floor area to confirm the minimum required window assemblies.

Table 6.3 of the National Research Council's AIF method uses a combination of percentage of exterior wall area to floor area to confirm the minimum exterior wall assemblies.

The elevation drawings and floor plans used to determine the total floor, wall and window areas are included on **Appendix D**. **Table 6** summarizes the percent ratio of window to floor area and exterior wall to floor area used to determine the typical assemblies for windows and exterior walls.

Table 6: Window/Exterior Wall to Floor Area Ratios

Receiver	Location	Ratio of Window Area to Floor Area (%)	Ratio of Exterior Wall Area to Floor Area (%)	Time of Day
POW 1A	2nd Floor	38.7	174.2	Night
	4th Floor	46.4	166.2	
POW 1B	2nd Floor	54.9	62.1	Day
	4th Floor	61.8	55.2	
POW 2	2nd Floor	35.9	29.0	Night

Table 6: Window/Exterior Wall to Floor Area Ratios

Receiver	Location	Ratio of Window Area to Floor Area (%)	Ratio of Exterior Wall Area to Floor Area (%)	Time of Day
	4th Floor	44.3	22.0	
	6th Floor	34.6	30.8	
POW 3	2nd Floor	30.2	81.9	
	4th Floor	36.2	76.0	Day
	6th Floor	55.4	83.9	
POW 4	2nd Floor	47.9	27.1	
	4th Floor	57.4	17.6	Night
	6th Floor	64.4	43.0	
POW 5	2nd Floor	43.6	136.5	Day
	4th Floor	52.2	96.7	
	6th Floor	39.8	105.7	Night
POW 6	2nd Floor	56.4	47.0	
	4th Floor	67.4	36.0	Day
	6th Floor	60.6	94.9	
POW 7	2nd Floor	79.5	35.3	
	4th Floor	66.5	22.2	Night
	6th Floor	67.1	30.5	
POW 8	1st Floor	24.2	19.3	
POW 9	1st Floor	24.2	19.3	Day
POW 10	1st Floor	24.2	19.3	

Based on Tables 5 and 6.3 of the National Research Council's AIF method and the results listed in **Tables 4, 5, and 6** of this report, **Table 7** confirms the typical window and exterior wall type assembles for all units within the proposed development were confirmed.

Table 7: Typical Window and Wall Type Assemblies

Receiver	Unit	Location	Typical Type Assemblies*	
			Window	Exterior Wall
POW 1A/1B	x03	2nd Floor	2-15-2	EW1
		3rd Floor	2-18-2	EW1
		4th Floor	2-22-2	EW1
POW 2/3	x02	2nd Floor	2-28-2	EW1
		3rd Floor	2-35-2	EW1
		4th Floor	2-35-2	EW1
		5th Floor	2-42-2	EW1
		6th Floor	2-42-2	EW1
POW 4	x01	2nd Floor	2-6-2	EW1
		3rd Floor	2-6-2	EW1
		4th Floor	2-6-2	EW1
		5th Floor	2-6-2	EW1
		6th Floor	2-6-2	EW1
POW 5	x06	2nd Floor	2-6-2	EW1
		3rd Floor	2-6-2	EW1

Table 7: Typical Window and Wall Type Assemblies

Receiver	Unit	Location	Typical Type Assemblies*	
			Window	Exterior Wall
		4th Floor	2-6-2	EW1
POW 5	x04	5th Floor	2-6-2	EW1
		6th Floor	2-6-2	EW1
POW 6/7	x07	2nd Floor	2-42-2	EW1
		3rd Floor	2-50-2	EW1
		4th Floor	2-50-2	EW1
	x05	5th Floor	2-50-2	EW1
		6th Floor	2-50-2	EW1
POW 8	Commercial	1st Floor	2-6-2	EW1
POW 9	Commercial	1st Floor	2-28-2	EW1
POW 10	Commercial	1st Floor	2-28-2	EW1

-Typical Window Assemblies 2-6-2 denotes 2mm glass, 6mm spacing, 2mm glass.
-EW1 type wall assembly includes 12.7mm gypsum board, vapour barrier, 38X89mm studs with 50mm (min) mineral wool or glass fibre batts in inter stud cavities plus sheathing, wood/metal siding, and fibre backer board.
-*Denotes equivalent type assemblies can be used.
-3rd and 5th Floor type assemblies assumed based on adjacent floor results.

Because the noise levels are anticipated to be above the sound level limits listed above in **Table 2**, it is recommended the following noise clause be registered on title and incorporated into the agreement of sale/lease:

> Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities as sound levels may exceed the sound level limits of the City and the Ministry of the Environment. To help address the need for sound attenuation this development includes:
>
> - Multi-pane glass assemblies.
> - Enhanced exterior wall type assembly.
>
> To ensure that provincial sound level limits are not exceeded inside the dwelling units, it is important to maintain these attenuation features.
>
> This dwelling unit has been supplied with a central air conditioning system and other measures which will allow windows and exterior doors to remain closed, thereby ensuring the indoor sound levels of the City and the Ministry of the Environment.

4.4 Additional Information

In addition to the National Research Council's AIF Method, the sound transmission class (STC) can also be considered to ensure noise levels remain within the ENCG guidelines. However because the STC system is not recognized by the City of Ottawa, the STC information provided in this report is for information only and will not be discussed in detail.

Based on the AIF values listed in **Table 5** and the window/exterior wall to floor ratios listed in **Table 6** above, Tables 11 and 12 (provided in **Appendix C)** were used to calculate the

equivalent STC ratings for all units. **Table 8** below summarizes the STC calculations for the proposed development.

Table 8: Equivalent Sound Transmission Class (STC) Values

Receiver	Unit	Location	AIF	Window		Exterior Wall	
				Conversion	STC	Conversion	STC
POW 1A/1B	x03	2nd Floor	27	STC-2	29	STC-9	36
		3rd Floor	28	STC-3	31	STC-9	37
		4th Floor	28	STC-3	31	STC-9	37
POW 2/3	x02	2nd Floor	31	STC-1	32	STC-6	37
		3rd Floor	31	STC-2	33	STC-6	37
		4th Floor	31	STC-2	33	STC-6	37
		5th Floor	31	STC-3	34	STC-6	37
		6th Floor	31	STC-3	34	STC-6	37
POW 4	x01	2nd Floor	20	STC-3	23	STC-1	21
		3rd Floor	22	STC-4	26	STC	22
		4th Floor	23	STC-4	27	STC+1	22
		5th Floor	23	STC-4	27	STC-1	24
		6th Floor	23	STC-4	27	STC-3	26
POW 5	x06	2nd Floor	24	STC-2	26	STC-8	32
		3rd Floor	24	STC-3	27	STC-8	32
		4th Floor	24	STC-3	27	STC-7	31
	x04	5th Floor	25	STC-3	28	STC-7	32
		6th Floor	26	STC-2	28	STC-7	33
POW 6/7	x07	2nd Floor	31	STC-3	34	STC-4	35
		3rd Floor	31	STC-4	35	STC-4	35
		4th Floor	31	STC-4	35	STC-3	34
	x05	5th Floor	31	STC-4	35	STC-5	36
		6th Floor	31	STC-4	35	STC-7	38
POW 8		1st Floor	24	STC	24	STC	24
POW 9		1st Floor	31	STC	31	STC	31
POW 10		1st Floor	31	STC	31	STC	31

-3rd and 5th Floor STC assumed based on adjacent floor results

5.0 CONCLUSIONS AND RECOMMENDATIONS

This report confirms the predicted noise levels for the proposed mixed use development generated from the following adjacent arterial roads: King Edward Avenue, Murray Street and St. Patrick Street are in excess of the City of Ottawa's and Ministry of the Environment guidelines. To mitigate the noise levels and inform potential buyers/tenants, the following noise attenuation requirements are proposed for the project:

- The installation EW1 wall type assembly (or equivalent).
- The installation of window type assemblies (or equivalent).
- The installation of a central air conditioning system in dwelling units.
- The inclusion of a noise waring clause registered on title and incorporated into the sales/rental agreements.

Table 9 summarizes the findings of this report.

Table 9: Summary of Results

Receiver	Unit	Location	AIF	STC Classification		Typical Type Assemblies*	
				Window	Ext. Wall	Window	Ext. Wall
POW 1A/1B	x03	2nd Floor	27	29	36	2-15-2	EW1
		3rd Floor	28	31	37	2-18-2	EW1
		4th Floor	28	31	37	2-22-2	EW1
POW 2/3	x02	2nd Floor	31	32	37	2-28-2	EW1
		3rd Floor	31	33	37	2-35-2	EW1
		4th Floor	31	33	37	2-35-2	EW1
		5th Floor	31	34	37	2-42-2	EW1
		6th Floor	31	34	37	2-42-2	EW1
POW 4	x01	2nd Floor	20	23	21	2-6-2	EW1
		3rd Floor	22	26	22	2-6-2	EW1
		4th Floor	23	27	22	2-6-2	EW1
		5th Floor	23	27	24	2-6-2	EW1
		6th Floor	23	27	26	2-6-2	EW1
POW 5	x06	2nd Floor	24	26	32	2-6-2	EW1
		3rd Floor	24	27	32	2-6-2	EW1
		4th Floor	24	27	31	2-6-2	EW1
	x04	5th Floor	25	28	32	2-6-2	EW1
		6th Floor	26	28	33	2-6-2	EW1
POW 6/7	x07	2nd Floor	31	34	35	2-42-2	EW1
		3rd Floor	31	35	35	2-50-2	EW1
		4th Floor	31	35	34	2-50-2	EW1
	x05	5th Floor	31	35	36	2-50-2	EW1
		6th Floor	31	35	38	2-50-2	EW1
POW 8		1st Floor	24	24	24	2-6-2	EW1
POW 9		1st Floor	31	31	31	2-28-2	EW1
POW 10		1st Floor	31	31	31	2-28-2	EW1

-*Denotes equivalent type assemblies can be used.
-3rd and 5th Floor STC and type assemblies assumed based on adjacent floor results.

Prepared by:

NOVATECH

Mark Bowen

Reviewed by:

John Riddell, P.Eng.
President

APPENDIX A

Environmental Noise Control Guidelines Excerpts

Official Plan - Schedule F
Central Area/Inner City Road Network

Prepared by: Planning and Growth Management Department

Plan officiel - Annexe F
Aire centrale/Réseau routes de l'hypercentre

Preparé par : Service de l'urbanisme et de la gestion de la croissance

Highway Existing	**Route** Établie
Federally Owned Road Existing	**Chemins de propriété fédérale** Établie
Arterial Existing Proposed (Alignment defined)	**Artère** Établie Proposée (Alignement déterminée)
Major Collector Existing	**Grands Collectrice** Établie
Collector Existing	**Collectrice** Établie

Ottawa

Scale / Échelle
Mètres 200 100 0 200 400 Metres 200

03 / 2012

Note:
1) This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text.
2) This schedule is intended as a framework for planning and design;consequently alignments of proposed roads are approximate and subject to detailed study.
3) This schedule includes some lands adjacent to the Central Area that are designated General Urban Area.

Note:
1) La présente annexe fait partie du Plan officiel de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente annexe doit servir de guide en matière de planification et de conception;il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
3) Cette annexe englobe des terrains contigus à l'aire centrale qui portent la désignation Aire urbaine générale.

F

Rivière des Outaouais
Ottawa River
Rideau River
Canal Rideau
Rideau Canal
Ile Chaudiere Island
Ile Victoria Island
Ile Green Island
Ile Porter Island
Parliament Hill
Colline de Parlement
417

City of Ottawa Official Plan Consolidation and Amendments

Ville d'Ottawa Plan officiel Amendement au plan directeur approuvé

# 14 (09/2004) # 76* # 96 (03/2012)	

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.
[2] The number of lanes is determined by the future mature state of the roadway.

Table 1- Road of Right-of-Way Protection

Road	ROW to be Protected
Arterials in the rural area (as shown on Schedules G and H of the Official Plan)	ROW to be protected is **30 metres** unless otherwise indicated
Collectors in the rural area (as shown on Schedules G and H of the Official Plan)	ROW to be protected is **26 metres** unless otherwise indicated
Local roads in the rural area	ROW to be protected is **20 metres** unless otherwise indicated

Road	From	To	ROW to be Protected	Classification	Sector
Abbott West	West Ridge	Main	24	collector	urban
Abbott East	Main	Iber	26	major collector	urban
Airport Parkway	Bronson	Airport Parkway Private	ECP	arterial	urban
Albert	Empress	Bronson	40 Note: Maximum land requirement from property abutting existing ROW (10.0 m).	arterial	urban
Albert	Bronson	Elgin	VRW Note: Maximum land requirement from property abutting existing ROW (1.25 m). Subject to widening/easement policy.	arterial	urban
Albert	Elgin	MacKenzie King Bridge	VRW Note: Maximum land requirement from property abutting existing ROW	arterial	urban

Amendment #141, August 27, 2014]					
Kenaston	Entire length		23	local	urban
Kent	Wellington	Catherine	20 Note: Maximum land requirement from property abutting existing ROW (0.90 m). Subject to widening/easement policy.	arterial	urban
Kimberley	Richmond	Ridgefield	24	collector	urban
King Edward	Sussex	Rideau	40	arterial	urban
Kirkwood	Richmond	Merivale	26	arterial	urban
Klondike	Second Line	March Valley	24	collector	urban
Knoxdale	Hunt Club West	Woodroffe	24	collector	urban
L'Église	Montreal	35m north of College	20 east side	local	urban
Larkin	Fallowfield	Greenbank	24	collector	urban
Larkspur	Eaton	Northside	24	collector	urban
Laurier East	Nicholas	King Edward	23	arterial	urban
Laurier West	Bronson	Elgin	20 Note: Maximum land requirement from property abutting existing ROW (0.90 m). Subject towidening/easement policy.	arterial	urban
Laurier West & East	Elgin	Nicholas	26	arterial	urban
Leacock	Beaverbrook	Beaverbrook	24	collector	urban
Leacock	Leacock	The Parkway	24	collector	urban
Lees	Robinson	Mann	26	arterial	urban
Lees	Main	Robinson	23	arterial	urban
Legget	Terry Fox	Herzberg	24	collector	urban
Leikin	Crestway	Merivale	26	major collector	urban
Leitrim	River Road	South Urban Community- urban area limit	37.5 Note: An additional 5.0 m on the Greenbelt side may be required to construct a rural	arterial	urban

Moodie	Richmond	West Hunt Club	24	collector	urban
Moodie	West Hunt Club	Greenbelt Boundary	G	arterial	urban
Moodie	Urban Area Limit (Greenbelt)	Fallowfield	34	arterial	rural
Murray	Alexandra Bridge	Sussex	20	arterial	urban
Murray	Sussex	King Edward	20 Note: Maximum land requirement from property abutting existing ROW (0.00 m). Subject to widening/easement policy.	collector	urban
Nanaimo	Richmond	Queensline	24	collector	urban
Navan	Blackburn Hamlet Bypass	Greenbelt boundary	G	arterial	urban
Navan	Greenbelt boundary	Urban area limit	37.5	arterial	urban
Navan	Urban Area Limit	Trim	34	arterial	rural
New Orchard	Richmond	Ambleside	20	local	urban
Newtown	Entire Length		20	local	rural
Nicholas	Rideau	Laurier	20 Note: Maximum land requirement from property abutting existing ROW (1.70 m). Subject to widening/easement policy	arterial	urban
Nicholas	Laurier East	Greenfield	26	arterial	urban
Norice	Woodroffe	Viewmount	24	collector	urban
North Service	Tenth Line	Trim	26	major collector	urban
Northside	Larkspur (west intersection)	Cassidy	24	collector	urban
O`Grady	Manotick Main	Dickinson	18	local	village
O`Connor	Wellington	Isabella	20	arterial	urban
Ogilvie	St. Laurent	Bathgate	44.5	arterial	urban
Ogilvie	Blair	Montréal	37.5	arterial	urban
Ohio	54m east of Clementine	Bank	18	local	urban
Old Carp	Second Line	March	26	local	rural, urban

	limit				
St. Joseph	Edgar Brault	Gabriel	26	arterial	urban
St. Joseph	Gabriel	130 m west of Duford/Place d'Orléans	32	arterial	urban
St. Joseph	130 m west of Duford/Place d'Orléans	Trim	37.5	arterial	urban
St. Laurent	Hemlock	Montréal	26	arterial	urban
St. Laurent	Montréal	Smyth	44.5	arterial	urban
St. Patrick	Sussex	King Edward	20 Note: Maximum land requirement from property abutting existing ROW (0.55m)	arterial	urban
St. Patrick	King Edward	Vanier parkway	37.5	arterial	urban
St. Pierre	North end	130m north of St. Joseph	23	local	urban
Stafford	Moodie	Richmond	24	collector	urban
Star Top	Cyrville	Innes	26	local	urban
Stonehaven	Eagleson	Richmond	26	collector	urban
Stonemeadow	Entire length		24	collector	urban
Strandherd	Fallowfield	Crestway	44.5	arterial	urban
Strandherd	Crestway	Prince of Wales	44.5 Note: subject to widenings in the Rideau River Bridge Strandherd/Armstrong Road ESR	arterial	urban
Strandherd/Earl Armstrong	Prince of Wales	River	44.5 Note: subject to widenings in the Rideau River Bridge Strandherd/Armstrong Road ESR	arterial	urban
Sunderland	Bentley	West Hunt Club	24	collector	urban
Sussex	Princess	John	20	arterial	urban
Sussex	John	St. Patrick	26	arterial	urban
Tallwood	Centrepointe	Woodroffe	28	collector	urban
Taylor Creek	St. Joseph	Trim	26	collector	urban
Tenth Line	Tompkins	Amiens	44.5	arterial	urban
Tenth Line	Vanguard	East Urban	37.5	arterial	urban

Table 2.2a: Sound Level Limit for Outdoor Living Areas - Road and Rail
(from NPC-300, 2013 Table C-1)

Time Period	Required Leq (16) (dBA)
16-hour, 07:00 – 23:00	55

Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail
(from NPC-300, 2013 Table C-2)

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

The Province also provides for supplementary indoor sound level limits for land uses not generally considered noise sensitive (see Table 2.2c below). These good practice design objectives should be addressed in any noise study prepared for the City. These supplementary sound level limits are based on the windows and doors to an indoor space being closed.

Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces - Road and Rail (adapted from NPC-300 Table C-9)

Type of Space	Time Period	Required Leq (dBA) Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Theatres, places of worship, libraries, individual or semi- private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

APPENDIX B

STAMPSON Noise Modelling Program Results

STAMSON 5.0 SUMMARY REPORT Date: 05-04-2016 09:48:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POW1aF2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	: 50000
Percentage of Annual Growth	: 0.00
Number of Years of Growth	: 0.00
Medium Truck % of Total Volume	: 7.00
Heavy Truck % of Total Volume	: 5.00
Day (16 hrs) % of Total Volume	: 92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2	: 43.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 48.00 / 48.00	m
Receiver height	: 5.00 / 5.00	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: 63.00 deg	Angle2 : 90.00 deg
Barrier height	: 6.00	m
Barrier receiver distance	: 42.00 / 42.00	m
Source elevation	: 58.00	m
Receiver elevation	: 58.10	m
Barrier elevation	: 58.00	m
Reference angle	: 0.00	

```
Road data, segment # 2: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   47.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  16.00 / 16.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -47.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Murray2 (day/night)
-------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Murray2 (day/night)
-----------------------------------------
Angle1   Angle2           :  47.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  16.00 / 16.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  47.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: St.Patrick1 (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: St.Patrick1 (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   -29.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -47.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: St.Patrick2 (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: St.Patrick2 (day/night)
------------------------------------------------
Angle1   Angle2           : -29.00 deg   47.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -29.00 deg   Angle2 : 10.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  42.00 / 42.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: St.Patrick3 (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: St.Patrick3 (day/night)
---------------------------------------------
Angle1   Angle2           :  47.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  47.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	57.75	57.75
2.Murray	1.50	65.41	65.41
3.Murray2	1.50	44.26	44.26
4.St.Patrick1	1.50	54.13	54.13
5.St.Patrick2	1.50	57.57	57.57
6.St.Patrick3	1.50	40.87	40.87
Total			66.94 dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	57.62	57.62
8.00	66.00	57.59	57.59
8.50	66.50	57.56	57.56
9.00	67.00	57.54	57.54
9.50	67.50	57.53	57.53
10.00	68.00	57.51	57.51
10.50	68.50	57.50	57.50
11.00	69.00	57.49	57.49
11.50	69.50	57.48	57.48
12.00	70.00	57.47	57.47

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	65.41	65.41
15.10	73.10	65.41	65.41
15.60	73.60	65.41	65.41
16.10	74.10	65.41	65.41
16.60	74.60	65.41	65.41
17.10	75.10	65.41	65.41
17.60	75.60	65.41	65.41
18.10	76.10	65.41	65.41
18.60	76.60	65.41	65.41
19.10	77.10	65.40	65.40

Barrier table for segment # 3: Murray2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	43.88	43.88
15.10	73.10	43.78	43.78
15.60	73.60	43.69	43.69
16.10	74.10	43.61	43.61
16.60	74.60	43.53	43.53
17.10	75.10	43.46	43.46
17.60	75.60	43.40	43.40
18.10	76.10	43.34	43.34
18.60	76.60	43.28	43.28
19.10	77.10	43.23	43.23

Barrier table for segment # 4: St.Patrick1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	54.11	54.11
15.10	73.10	54.10	54.10
15.60	73.60	54.10	54.10
16.10	74.10	54.09	54.09
16.60	74.60	54.09	54.09
17.10	75.10	54.09	54.09
17.60	75.60	54.08	54.08
18.10	76.10	54.08	54.08
18.60	76.60	54.08	54.08
19.10	77.10	54.08	54.08

Barrier table for segment # 5: St.Patrick2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	57.29	57.29
8.00	66.00	57.25	57.25
8.50	66.50	57.21	57.21
9.00	67.00	57.18	57.18
9.50	67.50	57.16	57.16
10.00	68.00	57.15	57.15
10.50	68.50	57.13	57.13
11.00	69.00	57.12	57.12
11.50	69.50	57.11	57.11
12.00	70.00	57.11	57.11

Barrier table for segment # 6: St.Patrick3 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	40.37	40.37
15.10	73.10	40.24	40.24
15.60	73.60	40.12	40.12
16.10	74.10	40.01	40.01
16.60	74.60	39.91	39.91
17.10	75.10	39.81	39.81
17.60	75.60	39.73	39.73
18.10	76.10	39.65	39.65
18.60	76.60	39.57	39.57
19.10	77.10	39.51	39.51

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	50.16	50.16
2.Murray	1.50	57.82	57.82
3.Murray2	1.50	36.66	36.66
4.St.Patrick1	1.50	46.53	46.53
5.St.Patrick2	1.50	49.97	49.97
6.St.Patrick3	1.50	33.27	33.27
Total			59.35 dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	50.02	50.02
8.00	66.00	49.99	49.99
8.50	66.50	49.97	49.97
9.00	67.00	49.95	49.95
9.50	67.50	49.93	49.93
10.00	68.00	49.91	49.91
10.50	68.50	49.90	49.90
11.00	69.00	49.89	49.89
11.50	69.50	49.88	49.88
12.00	70.00	49.87	49.87

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	57.81	57.81
15.10	73.10	57.81	57.81
15.60	73.60	57.81	57.81
16.10	74.10	57.81	57.81
16.60	74.60	57.81	57.81
17.10	75.10	57.81	57.81
17.60	75.60	57.81	57.81
18.10	76.10	57.81	57.81
18.60	76.60	57.81	57.81
19.10	77.10	57.81	57.81

Barrier table for segment # 3: Murray2 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	36.29	36.29
15.10	73.10	36.19	36.19
15.60	73.60	36.09	36.09
16.10	74.10	36.01	36.01
16.60	74.60	35.93	35.93
17.10	75.10	35.86	35.86
17.60	75.60	35.80	35.80
18.10	76.10	35.74	35.74
18.60	76.60	35.69	35.69
19.10	77.10	35.63	35.63

Barrier table for segment # 4: St.Patrick1 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	46.51	46.51
15.10	73.10	46.51	46.51
15.60	73.60	46.50	46.50
16.10	74.10	46.50	46.50
16.60	74.60	46.49	46.49
17.10	75.10	46.49	46.49
17.60	75.60	46.49	46.49
18.10	76.10	46.48	46.48
18.60	76.60	46.48	46.48
19.10	77.10	46.48	46.48

Barrier table for segment # 5: St.Patrick2 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	49.70	49.70
8.00	66.00	49.65	49.65
8.50	66.50	49.61	49.61
9.00	67.00	49.59	49.59
9.50	67.50	49.57	49.57
10.00	68.00	49.55	49.55
10.50	68.50	49.54	49.54
11.00	69.00	49.53	49.53
11.50	69.50	49.52	49.52
12.00	70.00	49.51	49.51

Barrier table for segment # 6: St.Patrick3 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	32.78	32.78
15.10	73.10	32.64	32.64
15.60	73.60	32.52	32.52
16.10	74.10	32.41	32.41
16.60	74.60	32.31	32.31
17.10	75.10	32.22	32.22
17.60	75.60	32.13	32.13
18.10	76.10	32.05	32.05
18.60	76.60	31.98	31.98
19.10	77.10	31.91	31.91

TOTAL Leq FROM ALL SOURCES (DAY): 66.94
(NIGHT): 59.35

STAMSON 5.0 SUMMARY REPORT Date: 05-04-2016 09:52:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1af4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2	: 43.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 48.00 / 48.00	m
Receiver height	: 11.40 / 11.40	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: 63.00 deg	Angle2 : 90.00 deg
Barrier height	: 6.00	m
Barrier receiver distance	: 42.00 / 42.00	m
Source elevation	: 58.00	m
Receiver elevation	: 58.10	m
Barrier elevation	: 58.00	m
Reference angle	: 0.00	

```
Road data, segment # 2: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   47.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  16.00 / 16.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -47.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Murray2 (day/night)
-------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Murray2 (day/night)
-----------------------------------------
Angle1   Angle2           :  47.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  16.00 / 16.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  47.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: St.Patrick1 (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: St.Patrick1 (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   -29.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -47.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: St.Patrick2 (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: St.Patrick2 (day/night)
---------------------------------------------
Angle1   Angle2           : -29.00 deg   47.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -29.00 deg   Angle2 : 10.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  42.00 / 42.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: St.Patrick3 (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: St.Patrick3 (day/night)
---------------------------------------------
Angle1   Angle2           :  47.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  47.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	57.90	57.90	
2.Murray	1.50	65.47	65.47	
3.Murray2	1.50	48.43	48.43	
4.St.Patrick1	1.50	54.85	54.85	
5.St.Patrick2	1.50	60.18	60.18	*
6.St.Patrick3	1.50	47.68	47.68	
Total			67.49	dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	57.71	57.71
8.00	66.00	57.66	57.66
8.50	66.50	57.63	57.63
9.00	67.00	57.60	57.60
9.50	67.50	57.58	57.58
10.00	68.00	57.55	57.55
10.50	68.50	57.54	57.54
11.00	69.00	57.52	57.52
11.50	69.50	57.51	57.51
12.00	70.00	57.50	57.50

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	65.43	65.43
15.10	73.10	65.43	65.43
15.60	73.60	65.42	65.42
16.10	74.10	65.42	65.42
16.60	74.60	65.42	65.42
17.10	75.10	65.41	65.41
17.60	75.60	65.41	65.41
18.10	76.10	65.41	65.41
18.60	76.60	65.41	65.41
19.10	77.10	65.41	65.41

Barrier table for segment # 3: Murray2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	46.30	46.30
15.10	73.10	45.84	45.84
15.60	73.60	45.46	45.46
16.10	74.10	45.14	45.14
16.60	74.60	44.88	44.88
17.10	75.10	44.65	44.65
17.60	75.60	44.45	44.45
18.10	76.10	44.28	44.28
18.60	76.60	44.13	44.13
19.10	77.10	44.00	44.00

Barrier table for segment # 4: St.Patrick1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	54.40	54.40
15.10	73.10	54.33	54.33
15.60	73.60	54.28	54.28
16.10	74.10	54.24	54.24
16.60	74.60	54.21	54.21
17.10	75.10	54.18	54.18
17.60	75.60	54.17	54.17
18.10	76.10	54.15	54.15
18.60	76.60	54.14	54.14
19.10	77.10	54.13	54.13

Barrier table for segment # 5: St.Patrick2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	58.29	58.29
8.00	66.00	58.18	58.18
8.50	66.50	58.00	58.00
9.00	67.00	57.81	57.81
9.50	67.50	57.63	57.63
10.00	68.00	57.50	57.50
10.50	68.50	57.40	57.40
11.00	69.00	57.32	57.32
11.50	69.50	57.27	57.27
12.00	70.00	57.23	57.23

Barrier table for segment # 6: St.Patrick3 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	44.61	44.61
15.10	73.10	43.87	43.87
15.60	73.60	43.23	43.23
16.10	74.10	42.70	42.70
16.60	74.60	42.25	42.25
17.10	75.10	41.88	41.88
17.60	75.60	41.56	41.56
18.10	76.10	41.29	41.29
18.60	76.60	41.05	41.05
19.10	77.10	40.84	40.84

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	50.31	50.31	
2.Murray	1.50	57.87	57.87	
3.Murray2	1.50	40.84	40.84	
4.St.Patrick1	1.50	47.25	47.25	
5.St.Patrick2	1.50	52.58	52.58	*
6.St.Patrick3	1.50	40.08	40.08	
Total			59.90	dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	50.11	50.11
8.00	66.00	50.07	50.07
8.50	66.50	50.03	50.03
9.00	67.00	50.00	50.00
9.50	67.50	49.98	49.98
10.00	68.00	49.96	49.96
10.50	68.50	49.94	49.94
11.00	69.00	49.92	49.92
11.50	69.50	49.91	49.91
12.00	70.00	49.90	49.90

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	57.83	57.83
15.10	73.10	57.83	57.83
15.60	73.60	57.83	57.83
16.10	74.10	57.82	57.82
16.60	74.60	57.82	57.82
17.10	75.10	57.82	57.82
17.60	75.60	57.82	57.82
18.10	76.10	57.82	57.82
18.60	76.60	57.81	57.81
19.10	77.10	57.81	57.81

Barrier table for segment # 3: Murray2 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	38.70	38.70
15.10	73.10	38.24	38.24
15.60	73.60	37.86	37.86
16.10	74.10	37.55	37.55
16.60	74.60	37.28	37.28
17.10	75.10	37.05	37.05
17.60	75.60	36.86	36.86
18.10	76.10	36.68	36.68
18.60	76.60	36.53	36.53
19.10	77.10	36.40	36.40

Barrier table for segment # 4: St.Patrick1 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	46.81	46.81
15.10	73.10	46.73	46.73
15.60	73.60	46.68	46.68
16.10	74.10	46.64	46.64
16.60	74.60	46.61	46.61
17.10	75.10	46.59	46.59
17.60	75.60	46.57	46.57
18.10	76.10	46.55	46.55
18.60	76.60	46.54	46.54
19.10	77.10	46.53	46.53

Barrier table for segment # 5: St.Patrick2 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	50.69	50.69
8.00	66.00	50.59	50.59
8.50	66.50	50.40	50.40
9.00	67.00	50.21	50.21
9.50	67.50	50.04	50.04
10.00	68.00	49.90	49.90
10.50	68.50	49.80	49.80
11.00	69.00	49.73	49.73
11.50	69.50	49.67	49.67
12.00	70.00	49.63	49.63

Barrier table for segment # 6: St.Patrick3 (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	37.01	37.01
15.10	73.10	36.27	36.27
15.60	73.60	35.63	35.63
16.10	74.10	35.10	35.10
16.60	74.60	34.66	34.66
17.10	75.10	34.29	34.29
17.60	75.60	33.97	33.97
18.10	76.10	33.69	33.69
18.60	76.60	33.45	33.45
19.10	77.10	33.24	33.24

TOTAL Leq FROM ALL SOURCES (DAY): 67.49
(NIGHT): 59.90

STAMSON 5.0 SUMMARY REPORT Date: 05-04-2016 11:19:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1bf2a.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2 : -90.00 deg -23.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 43.00 / 43.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -23.00 deg
Barrier height : 19.50 m
Barrier receiver distance : 8.00 / 8.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

```
Road data, segment # 2: King Edward (day/night)
------------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    40 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):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: King Edward (day/night)
------------------------------------------------
Angle1   Angle2           : -23.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -23.00 deg   Angle2 : 39.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   9.00 / 9.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: King Edward (day/night)
------------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    40 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):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: King Edward (day/night)
------------------------------------------------
Angle1   Angle2           :  39.00 deg   70.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  39.00 deg   Angle2 : 70.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: King Edward (day/night)
------------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    40 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):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: King Edward (day/night)
------------------------------------------------
Angle1   Angle2           :  70.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  70.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  42.00 / 42.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -60.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   8.00 / 8.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -60.00 deg   -18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -60.00 deg   Angle2 : -18.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 7: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -18.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  20.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 8: St Patrick (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: St Patrick (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -60.00 deg
Barrier height            :   9.00 m
Barrier receiver distance :  65.00 / 65.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 9: St Patrick (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 9: St Patrick (day/night)
------------------------------------------------
Angle1   Angle2           : -60.00 deg   -18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -60.00 deg   Angle2 : -18.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :  65.00 / 65.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	44.30	44.30
2.King Edward	1.50	52.08	52.08
3.King Edward	1.50	39.70	39.70
4.King Edward	1.50	44.81	44.81
5.Murray	1.50	50.45	50.45
6.Murray	1.50	40.50	40.50
7.Murray	1.50	60.18	60.18
8.St Patrick	1.50	46.18	46.18
9.St Patrick	1.50	38.02	38.02
Total			61.58 dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	44.15	44.15
21.50	79.50	44.10	44.10
22.00	80.00	44.06	44.06
22.50	80.50	44.02	44.02
23.00	81.00	43.99	43.99
23.50	81.50	43.96	43.96
24.00	82.00	43.92	43.92
24.50	82.50	43.89	43.89
25.00	83.00	43.87	43.87
25.50	83.50	43.84	43.84

Barrier table for segment # 2: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	46.95	46.95
8.00	66.00	45.71	45.71
8.50	66.50	44.62	44.62
9.00	67.00	43.67	43.67
9.50	67.50	42.87	42.87
10.00	68.00	42.72	42.72
10.50	68.50	42.71	42.71
11.00	69.00	42.71	42.71
11.50	69.50	42.71	42.71
12.00	70.00	42.71	42.71

Barrier table for segment # 3: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	39.70	39.70
15.10	73.10	39.70	39.70
15.60	73.60	39.70	39.70
16.10	74.10	39.70	39.70
16.60	74.60	39.70	39.70
17.10	75.10	39.70	39.70
17.60	75.60	39.70	39.70
18.10	76.10	39.70	39.70
18.60	76.60	39.70	39.70
19.10	77.10	39.70	39.70

Barrier table for segment # 4: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	43.65	43.65
8.00	66.00	43.33	43.33
8.50	66.50	43.04	43.04
9.00	67.00	42.79	42.79
9.50	67.50	42.55	42.55
10.00	68.00	42.34	42.34
10.50	68.50	42.15	42.15
11.00	69.00	41.97	41.97
11.50	69.50	41.80	41.80
12.00	70.00	41.65	41.65

Barrier table for segment # 5: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	47.81	47.81
8.00	66.00	47.09	47.09
8.50	66.50	46.43	46.43
9.00	67.00	45.83	45.83
9.50	67.50	45.28	45.28
10.00	68.00	44.77	44.77
10.50	68.50	44.32	44.32
11.00	69.00	43.92	43.92
11.50	69.50	43.57	43.57
12.00	70.00	43.26	43.26

Barrier table for segment # 6: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	40.50	40.50
15.10	73.10	40.50	40.50
15.60	73.60	40.50	40.50
16.10	74.10	40.50	40.50
16.60	74.60	40.50	40.50
17.10	75.10	40.50	40.50
17.60	75.60	40.50	40.50
18.10	76.10	40.50	40.50
18.60	76.60	40.50	40.50
19.10	77.10	40.50	40.50

Barrier table for segment # 7: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	60.17	60.17
15.10	73.10	60.17	60.17
15.60	73.60	60.17	60.17
16.10	74.10	60.17	60.17
16.60	74.60	60.16	60.16
17.10	75.10	60.16	60.16
17.60	75.60	60.16	60.16
18.10	76.10	60.16	60.16
18.60	76.60	60.16	60.16
19.10	77.10	60.16	60.16

Barrier table for segment # 8: St Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	45.01	45.01
11.00	69.00	44.65	44.65
11.50	69.50	44.30	44.30
12.00	70.00	43.97	43.97
12.50	70.50	43.65	43.65
13.00	71.00	43.35	43.35
13.50	71.50	43.06	43.06
14.00	72.00	42.77	42.77
14.50	72.50	42.50	42.50
15.00	73.00	42.24	42.24

Barrier table for segment # 9: St Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	37.50	37.50
15.10	73.10	37.44	37.44
15.60	73.60	37.40	37.40
16.10	74.10	37.39	37.39
16.60	74.60	37.39	37.39
17.10	75.10	37.39	37.39
17.60	75.60	37.39	37.39
18.10	76.10	37.39	37.39
18.60	76.60	37.39	37.39
19.10	77.10	37.39	37.39

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	36.70	36.70
2.King Edward	1.50	44.48	44.48
3.King Edward	1.50	32.10	32.10
4.King Edward	1.50	37.21	37.21
5.Murray	1.50	42.85	42.85
6.Murray	1.50	32.90	32.90
7.Murray	1.50	52.58	52.58
8.St Patrick	1.50	38.58	38.58
9.St Patrick	1.50	30.43	30.43
Total			53.98 dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	36.55	36.55
21.50	79.50	36.51	36.51
22.00	80.00	36.47	36.47
22.50	80.50	36.43	36.43
23.00	81.00	36.39	36.39
23.50	81.50	36.36	36.36
24.00	82.00	36.33	36.33
24.50	82.50	36.30	36.30
25.00	83.00	36.27	36.27
25.50	83.50	36.24	36.24

Barrier table for segment # 2: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	39.36	39.36
8.00	66.00	38.11	38.11
8.50	66.50	37.03	37.03
9.00	67.00	36.07	36.07
9.50	67.50	35.27	35.27
10.00	68.00	35.12	35.12
10.50	68.50	35.12	35.12
11.00	69.00	35.12	35.12
11.50	69.50	35.12	35.12
12.00	70.00	35.12	35.12

Barrier table for segment # 3: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	32.10	32.10
15.10	73.10	32.10	32.10
15.60	73.60	32.10	32.10
16.10	74.10	32.10	32.10
16.60	74.60	32.10	32.10
17.10	75.10	32.10	32.10
17.60	75.60	32.10	32.10
18.10	76.10	32.10	32.10
18.60	76.60	32.10	32.10
19.10	77.10	32.10	32.10

Barrier table for segment # 4: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	36.05	36.05
8.00	66.00	35.73	35.73
8.50	66.50	35.45	35.45
9.00	67.00	35.19	35.19
9.50	67.50	34.96	34.96
10.00	68.00	34.74	34.74
10.50	68.50	34.55	34.55
11.00	69.00	34.37	34.37
11.50	69.50	34.20	34.20
12.00	70.00	34.05	34.05

Barrier table for segment # 5: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	40.22	40.22
8.00	66.00	39.49	39.49
8.50	66.50	38.84	38.84
9.00	67.00	38.24	38.24
9.50	67.50	37.68	37.68
10.00	68.00	37.18	37.18
10.50	68.50	36.72	36.72
11.00	69.00	36.32	36.32
11.50	69.50	35.97	35.97
12.00	70.00	35.66	35.66

Barrier table for segment # 6: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	32.90	32.90
15.10	73.10	32.90	32.90
15.60	73.60	32.90	32.90
16.10	74.10	32.90	32.90
16.60	74.60	32.90	32.90
17.10	75.10	32.90	32.90
17.60	75.60	32.90	32.90
18.10	76.10	32.90	32.90
18.60	76.60	32.90	32.90
19.10	77.10	32.90	32.90

Barrier table for segment # 7: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	52.57	52.57
15.10	73.10	52.57	52.57
15.60	73.60	52.57	52.57
16.10	74.10	52.57	52.57
16.60	74.60	52.57	52.57
17.10	75.10	52.57	52.57
17.60	75.60	52.56	52.56
18.10	76.10	52.56	52.56
18.60	76.60	52.56	52.56
19.10	77.10	52.56	52.56

Barrier table for segment # 8: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	37.41	37.41
11.00	69.00	37.05	37.05
11.50	69.50	36.71	36.71
12.00	70.00	36.38	36.38
12.50	70.50	36.06	36.06
13.00	71.00	35.75	35.75
13.50	71.50	35.46	35.46
14.00	72.00	35.18	35.18
14.50	72.50	34.90	34.90
15.00	73.00	34.64	34.64

Barrier table for segment # 9: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	29.91	29.91
15.10	73.10	29.84	29.84
15.60	73.60	29.80	29.80
16.10	74.10	29.79	29.79
16.60	74.60	29.79	29.79
17.10	75.10	29.79	29.79
17.60	75.60	29.79	29.79
18.10	76.10	29.79	29.79
18.60	76.60	29.79	29.79
19.10	77.10	29.79	29.79

TOTAL Leq FROM ALL SOURCES (DAY): 61.58
(NIGHT): 53.98

STAMSON 5.0 SUMMARY REPORT Date: 05-04-2016 11:22:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1bf2b.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 10: St Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 40 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 10: St Patrick (day/night)

Angle1 Angle2 : -18.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 105.00 / 105.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -18.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 48.00 / 48.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 11: St Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

```
Posted speed limit  :    40 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 11: St Patrick (day/night)
-------------------------------------------
Angle1   Angle2           :  20.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  20.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00



Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 10.St Patrick       !     1.50 !    50.28 !    50.28
 11.St Patrick       !     1.50 !    40.02 !    40.02
--------------------+----------+----------+----------
                      Total                   50.67 dBA



Barrier table for segment # 10: St Patrick (day)
------------------------------------------------

Barrier ! Elev of !  Road   ! Tot Leq !
```

Height	Barr Top	dBA	dBA
7.50	65.50	49.60	49.60
8.00	66.00	49.47	49.47
8.50	66.50	49.37	49.37
9.00	67.00	49.30	49.30
9.50	67.50	49.24	49.24
10.00	68.00	49.19	49.19
10.50	68.50	49.15	49.15
11.00	69.00	49.12	49.12
11.50	69.50	49.10	49.10
12.00	70.00	49.08	49.08

Barrier table for segment # 11: St Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	39.64	39.64
15.10	73.10	39.54	39.54
15.60	73.60	39.46	39.46
16.10	74.10	39.37	39.37
16.60	74.60	39.30	39.30
17.10	75.10	39.23	39.23
17.60	75.60	39.17	39.17
18.10	76.10	39.11	39.11
18.60	76.60	39.06	39.06
19.10	77.10	39.01	39.01

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
10.St Patrick	1.50	42.68	42.68
11.St Patrick	1.50	32.42	32.42
Total			43.07 dBA

Barrier table for segment # 10: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

7.50	65.50	42.00	42.00
8.00	66.00	41.88	41.88
8.50	66.50	41.78	41.78
9.00	67.00	41.70	41.70
9.50	67.50	41.64	41.64
10.00	68.00	41.60	41.60
10.50	68.50	41.56	41.56
11.00	69.00	41.53	41.53
11.50	69.50	41.50	41.50
12.00	70.00	41.48	41.48

Barrier table for segment # 11: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	32.05	32.05
15.10	73.10	31.95	31.95
15.60	73.60	31.86	31.86
16.10	74.10	31.78	31.78
16.60	74.60	31.70	31.70
17.10	75.10	31.64	31.64
17.60	75.60	31.57	31.57
18.10	76.10	31.52	31.52
18.60	76.60	31.46	31.46
19.10	77.10	31.41	31.41

TOTAL Leq FROM ALL SOURCES (DAY): 50.67
(NIGHT): 43.07

STAMSON 5.0 SUMMARY REPORT Date: 05-04-2016 11:26:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1bf4a.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2 : -90.00 deg -23.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 43.00 / 43.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -23.00 deg
Barrier height : 19.50 m
Barrier receiver distance : 8.00 / 8.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: King Edward (day/night)

Angle1 Angle2 : -23.00 deg 39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 43.00 / 43.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -23.00 deg Angle2 : 39.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 9.00 / 9.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

```
Road data, segment # 3: King Edward (day/night)
-----------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    40 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):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: King Edward (day/night)
---------------------------------------------
Angle1   Angle2           :  39.00 deg   70.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  39.00 deg   Angle2 : 70.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: King Edward (day/night)
------------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    40 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):  50000
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 4: King Edward (day/night)
------------------------------------------------
Angle1   Angle2           :  70.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  70.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  42.00 / 42.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -60.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   8.00 / 8.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -60.00 deg   -18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -60.00 deg   Angle2 : -18.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 7: Murray (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Murray (day/night)
----------------------------------------
Angle1   Angle2           : -18.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  20.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 8: St Patrick (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: St Patrick (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -60.00 deg
Barrier height            :   9.00 m
Barrier receiver distance :  65.00 / 65.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

```
Road data, segment # 9: St Patrick (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 9: St Patrick (day/night)
------------------------------------------------
Angle1   Angle2           : -60.00 deg   -18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -60.00 deg   Angle2 : -18.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :  65.00 / 65.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	45.22	45.22	
2.King Edward	1.50	62.71	62.71	*
3.King Edward	1.50	45.12	45.12	
4.King Edward	1.50	45.45	45.45	
5.Murray	1.50	59.04	59.04	*
6.Murray	1.50	42.45	42.45	
7.Murray	1.50	60.36	60.36	
8.St Patrick	1.50	48.43	48.43	
9.St Patrick	1.50	40.32	40.32	
Total			65.97	dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	44.83	44.83
21.50	79.50	44.73	44.73
22.00	80.00	44.64	44.64
22.50	80.50	44.55	44.55
23.00	81.00	44.47	44.47
23.50	81.50	44.40	44.40
24.00	82.00	44.33	44.33
24.50	82.50	44.27	44.27
25.00	83.00	44.22	44.22
25.50	83.50	44.17	44.17

Barrier table for segment # 2: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	62.71	62.71
8.00	66.00	62.71	62.71
8.50	66.50	62.71	62.71
9.00	67.00	62.71	62.71
9.50	67.50	57.68	57.68
10.00	68.00	56.65	56.65
10.50	68.50	54.68	54.68
11.00	69.00	52.50	52.50
11.50	69.50	50.49	50.49
12.00	70.00	48.75	48.75

Barrier table for segment # 3: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	41.18	41.18
15.10	73.10	40.44	40.44
15.60	73.60	40.02	40.02
16.10	74.10	39.81	39.81
16.60	74.60	39.72	39.72
17.10	75.10	39.70	39.70
17.60	75.60	39.70	39.70
18.10	76.10	39.70	39.70
18.60	76.60	39.70	39.70
19.10	77.10	39.70	39.70

Barrier table for segment # 4: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	44.27	44.27
8.00	66.00	43.94	43.94
8.50	66.50	43.63	43.63
9.00	67.00	43.35	43.35
9.50	67.50	43.09	43.09
10.00	68.00	42.86	42.86
10.50	68.50	42.65	42.65
11.00	69.00	42.45	42.45
11.50	69.50	42.27	42.27
12.00	70.00	42.10	42.10

Barrier table for segment # 5: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	59.04	59.04
8.00	66.00	54.02	54.02
8.50	66.50	53.64	53.64
9.00	67.00	52.91	52.91
9.50	67.50	51.99	51.99
10.00	68.00	51.03	51.03
10.50	68.50	50.10	50.10
11.00	69.00	49.23	49.23
11.50	69.50	48.43	48.43
12.00	70.00	47.69	47.69

Barrier table for segment # 6: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	40.50	40.50
15.10	73.10	40.50	40.50
15.60	73.60	40.50	40.50
16.10	74.10	40.50	40.50
16.60	74.60	40.50	40.50
17.10	75.10	40.50	40.50
17.60	75.60	40.50	40.50
18.10	76.10	40.50	40.50
18.60	76.60	40.50	40.50
19.10	77.10	40.50	40.50

Barrier table for segment # 7: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	60.24	60.24
15.10	73.10	60.22	60.22
15.60	73.60	60.21	60.21
16.10	74.10	60.20	60.20
16.60	74.60	60.19	60.19
17.10	75.10	60.19	60.19
17.60	75.60	60.18	60.18
18.10	76.10	60.18	60.18
18.60	76.60	60.18	60.18
19.10	77.10	60.17	60.17

Barrier table for segment # 8: St Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	47.03	47.03
11.00	69.00	46.59	46.59
11.50	69.50	46.17	46.17
12.00	70.00	45.76	45.76
12.50	70.50	45.38	45.38
13.00	71.00	45.01	45.01
13.50	71.50	44.65	44.65
14.00	72.00	44.31	44.31
14.50	72.50	43.98	43.98
15.00	73.00	43.67	43.67

Barrier table for segment # 9: St Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	38.82	38.82
15.10	73.10	38.38	38.38
15.60	73.60	38.04	38.04
16.10	74.10	37.80	37.80
16.60	74.60	37.63	37.63
17.10	75.10	37.51	37.51
17.60	75.60	37.44	37.44
18.10	76.10	37.40	37.40
18.60	76.60	37.39	37.39
19.10	77.10	37.39	37.39

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	37.63	37.63	
2.King Edward	1.50	55.12	55.12	*
3.King Edward	1.50	37.52	37.52	
4.King Edward	1.50	37.85	37.85	
5.Murray	1.50	51.44	51.44	*
6.Murray	1.50	34.86	34.86	
7.Murray	1.50	52.76	52.76	
8.St Patrick	1.50	40.83	40.83	
9.St Patrick	1.50	32.73	32.73	
Total			58.37	dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	37.24	37.24
21.50	79.50	37.13	37.13
22.00	80.00	37.04	37.04
22.50	80.50	36.95	36.95
23.00	81.00	36.87	36.87
23.50	81.50	36.80	36.80
24.00	82.00	36.74	36.74
24.50	82.50	36.68	36.68
25.00	83.00	36.62	36.62
25.50	83.50	36.57	36.57

Barrier table for segment # 2: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	55.12	55.12
8.00	66.00	55.12	55.12
8.50	66.50	55.12	55.12
9.00	67.00	55.12	55.12
9.50	67.50	50.09	50.09
10.00	68.00	49.06	49.06
10.50	68.50	47.08	47.08
11.00	69.00	44.91	44.91
11.50	69.50	42.90	42.90
12.00	70.00	41.15	41.15

Barrier table for segment # 3: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	33.59	33.59
15.10	73.10	32.84	32.84
15.60	73.60	32.43	32.43
16.10	74.10	32.21	32.21
16.60	74.60	32.12	32.12
17.10	75.10	32.10	32.10
17.60	75.60	32.10	32.10
18.10	76.10	32.10	32.10
18.60	76.60	32.10	32.10
19.10	77.10	32.10	32.10

Barrier table for segment # 4: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	36.67	36.67
8.00	66.00	36.34	36.34
8.50	66.50	36.03	36.03
9.00	67.00	35.75	35.75
9.50	67.50	35.50	35.50
10.00	68.00	35.26	35.26
10.50	68.50	35.05	35.05
11.00	69.00	34.85	34.85
11.50	69.50	34.67	34.67
12.00	70.00	34.50	34.50

Barrier table for segment # 5: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	51.44	51.44
8.00	66.00	46.42	46.42
8.50	66.50	46.05	46.05
9.00	67.00	45.31	45.31
9.50	67.50	44.40	44.40
10.00	68.00	43.44	43.44
10.50	68.50	42.51	42.51
11.00	69.00	41.64	41.64
11.50	69.50	40.83	40.83
12.00	70.00	40.09	40.09

Barrier table for segment # 6: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	32.91	32.91
15.10	73.10	32.90	32.90
15.60	73.60	32.90	32.90
16.10	74.10	32.90	32.90
16.60	74.60	32.90	32.90
17.10	75.10	32.90	32.90
17.60	75.60	32.90	32.90
18.10	76.10	32.90	32.90
18.60	76.60	32.90	32.90
19.10	77.10	32.90	32.90

Barrier table for segment # 7: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	52.64	52.64
15.10	73.10	52.63	52.63
15.60	73.60	52.61	52.61
16.10	74.10	52.60	52.60
16.60	74.60	52.60	52.60
17.10	75.10	52.59	52.59
17.60	75.60	52.59	52.59
18.10	76.10	52.58	52.58
18.60	76.60	52.58	52.58
19.10	77.10	52.58	52.58

Barrier table for segment # 8: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	39.43	39.43
11.00	69.00	38.99	38.99
11.50	69.50	38.57	38.57
12.00	70.00	38.17	38.17
12.50	70.50	37.78	37.78
13.00	71.00	37.41	37.41
13.50	71.50	37.05	37.05
14.00	72.00	36.71	36.71
14.50	72.50	36.38	36.38
15.00	73.00	36.07	36.07

Barrier table for segment # 9: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	31.22	31.22
15.10	73.10	30.78	30.78
15.60	73.60	30.44	30.44
16.10	74.10	30.20	30.20
16.60	74.60	30.03	30.03
17.10	75.10	29.92	29.92
17.60	75.60	29.84	29.84
18.10	76.10	29.81	29.81
18.60	76.60	29.79	29.79
19.10	77.10	29.79	29.79

TOTAL Leq FROM ALL SOURCES (DAY): 65.97
(NIGHT): 58.37

STAMSON 5.0 SUMMARY REPORT Date: 05-04-2016 13:41:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1bf4b.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 10: St Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 40 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 10: St Patrick (day/night)

Angle1 Angle2 : -18.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 105.00 / 105.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -18.00 deg Angle2 : 11.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 48.00 / 48.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 11: St Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

```
Posted speed limit  :    40 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 11: St Patrick (day/night)
-------------------------------------------
Angle1   Angle2           :  20.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground
surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :  11.40 / 11.40  m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  20.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00



Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 10.St Patrick       !     1.50 !    55.16 !    55.16 *
 11.St Patrick       !     1.50 !    46.59 !    46.59
--------------------+----------+----------+----------
                      Total                   55.73 dBA



Barrier table for segment # 10: St Patrick (day)
------------------------------------------------

Barrier ! Elev of !  Road   ! Tot Leq !
```

Height	Barr Top	dBA	dBA
7.50	65.50	51.80	51.80
8.00	66.00	51.46	51.46
8.50	66.50	51.04	51.04
9.00	67.00	50.62	50.62
9.50	67.50	50.27	50.27
10.00	68.00	49.98	49.98
10.50	68.50	49.77	49.77
11.00	69.00	49.60	49.60
11.50	69.50	49.47	49.47
12.00	70.00	49.37	49.37

Barrier table for segment # 11: St Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	43.27	43.27
15.10	73.10	42.53	42.53
15.60	73.60	41.96	41.96
16.10	74.10	41.50	41.50
16.60	74.60	41.13	41.13
17.10	75.10	40.83	40.83
17.60	75.60	40.57	40.57
18.10	76.10	40.35	40.35
18.60	76.60	40.16	40.16
19.10	77.10	40.00	40.00

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
10.St Patrick	1.50	47.56	47.56 *
11.St Patrick	1.50	39.00	39.00
Total			48.13 dBA

Barrier table for segment # 10: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

7.50	65.50	44.20	44.20
8.00	66.00	43.86	43.86
8.50	66.50	43.44	43.44
9.00	67.00	43.03	43.03
9.50	67.50	42.67	42.67
10.00	68.00	42.39	42.39
10.50	68.50	42.17	42.17
11.00	69.00	42.00	42.00
11.50	69.50	41.88	41.88
12.00	70.00	41.78	41.78

Barrier table for segment # 11: St Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	35.68	35.68
15.10	73.10	34.93	34.93
15.60	73.60	34.36	34.36
16.10	74.10	33.91	33.91
16.60	74.60	33.54	33.54
17.10	75.10	33.23	33.23
17.60	75.60	32.98	32.98
18.10	76.10	32.76	32.76
18.60	76.60	32.57	32.57
19.10	77.10	32.40	32.40

TOTAL Leq FROM ALL SOURCES (DAY): 55.73
(NIGHT): 48.13

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 10:35:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow2f2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (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 : 29.00 / 29.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 0.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 29.00 / 29.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	60.84	60.84
2.Murray	1.50	58.70	58.70
3.St.Patrick	1.50	57.27	57.27
Total			63.96 dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	60.18	60.18
8.00	66.00	60.11	60.11
8.50	66.50	60.08	60.08
9.00	67.00	60.07	60.07
9.50	67.50	60.06	60.06
10.00	68.00	60.06	60.06
10.50	68.50	60.06	60.06
11.00	69.00	60.06	60.06
11.50	69.50	60.06	60.06
12.00	70.00	60.06	60.06

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	57.33	57.33
8.00	66.00	57.16	57.16
8.50	66.50	57.06	57.06
9.00	67.00	57.00	57.00
9.50	67.50	56.96	56.96
10.00	68.00	56.93	56.93
10.50	68.50	56.91	56.91
11.00	69.00	56.90	56.90
11.50	69.50	56.88	56.88
12.00	70.00	56.87	56.87

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	55.36	55.36
8.00	66.00	55.13	55.13
8.50	66.50	54.96	54.96
9.00	67.00	54.86	54.86
9.50	67.50	54.80	54.80
10.00	68.00	54.76	54.76
10.50	68.50	54.73	54.73
11.00	69.00	54.70	54.70
11.50	69.50	54.69	54.69
12.00	70.00	54.67	54.67

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	53.24	53.24
2.Murray	1.50	51.10	51.10
3.St.Patrick	1.50	49.67	49.67
Total			56.36 dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	52.58	52.58
8.00	66.00	52.52	52.52
8.50	66.50	52.48	52.48
9.00	67.00	52.47	52.47
9.50	67.50	52.46	52.46
10.00	68.00	52.46	52.46
10.50	68.50	52.46	52.46
11.00	69.00	52.46	52.46
11.50	69.50	52.46	52.46
12.00	70.00	52.46	52.46

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	49.74	49.74
8.00	66.00	49.56	49.56
8.50	66.50	49.46	49.46
9.00	67.00	49.40	49.40
9.50	67.50	49.36	49.36
10.00	68.00	49.33	49.33
10.50	68.50	49.31	49.31
11.00	69.00	49.30	49.30
11.50	69.50	49.29	49.29
12.00	70.00	49.28	49.28

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	47.77	47.77
8.00	66.00	47.53	47.53
8.50	66.50	47.36	47.36
9.00	67.00	47.26	47.26
9.50	67.50	47.20	47.20
10.00	68.00	47.16	47.16
10.50	68.50	47.13	47.13
11.00	69.00	47.11	47.11
11.50	69.50	47.09	47.09
12.00	70.00	47.08	47.08

TOTAL Leq FROM ALL SOURCES (DAY): 63.96
(NIGHT): 56.36

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 10:26:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow2f4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (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 : 29.00 / 29.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 0.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 29.00 / 29.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	66.04	66.04	*
2.Murray	1.50	65.62	65.62	*
3.St.Patrick	1.50	63.39	63.39	*
Total			69.93	dBA

* Bright Zone !

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	66.04	66.04
8.00	66.00	66.04	66.04
8.50	66.50	66.04	66.04
9.00	67.00	66.04	66.04
9.50	67.50	66.04	66.04
10.00	68.00	66.04	66.04
10.50	68.50	62.77	62.77
11.00	69.00	61.87	61.87
11.50	69.50	61.04	61.04
12.00	70.00	60.57	60.57

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	65.62	65.62
8.00	66.00	65.62	65.62
8.50	66.50	65.62	65.62
9.00	67.00	65.62	65.62
9.50	67.50	65.62	65.62
10.00	68.00	65.62	65.62
10.50	68.50	61.49	61.49
11.00	69.00	60.30	60.30
11.50	69.50	59.04	59.04
12.00	70.00	58.21	58.21

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	63.39	63.39
8.00	66.00	63.39	63.39
8.50	66.50	63.39	63.39
9.00	67.00	63.39	63.39
9.50	67.50	63.39	63.39
10.00	68.00	63.39	63.39
10.50	68.50	63.39	63.39
11.00	69.00	63.39	63.39
11.50	69.50	59.07	59.07
12.00	70.00	57.77	57.77

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	58.44	58.44	*
2.Murray	1.50	58.02	58.02	*
3.St.Patrick	1.50	55.79	55.79	*
Total			62.33 dBA	

* Bright Zone !

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	58.44	58.44
8.00	66.00	58.44	58.44
8.50	66.50	58.44	58.44
9.00	67.00	58.44	58.44
9.50	67.50	58.44	58.44
10.00	68.00	58.44	58.44
10.50	68.50	55.17	55.17
11.00	69.00	54.27	54.27
11.50	69.50	53.44	53.44
12.00	70.00	52.98	52.98

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	58.02	58.02
8.00	66.00	58.02	58.02
8.50	66.50	58.02	58.02
9.00	67.00	58.02	58.02
9.50	67.50	58.02	58.02
10.00	68.00	58.02	58.02
10.50	68.50	53.89	53.89
11.00	69.00	52.70	52.70
11.50	69.50	51.45	51.45
12.00	70.00	50.62	50.62

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	55.79	55.79
8.00	66.00	55.79	55.79
8.50	66.50	55.79	55.79
9.00	67.00	55.79	55.79
9.50	67.50	55.79	55.79
10.00	68.00	55.79	55.79
10.50	68.50	55.79	55.79
11.00	69.00	55.79	55.79
11.50	69.50	51.48	51.48
12.00	70.00	50.17	50.17

TOTAL Leq FROM ALL SOURCES (DAY): 69.93
(NIGHT): 62.33

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 10:18:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow2f6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (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 : 29.00 / 29.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 0.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 29.00 / 29.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -68.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	66.04	66.04	*
2.Murray	1.50	65.62	65.62	*
3.St.Patrick	1.50	63.39	63.39	*
Total			69.93	dBA

* Bright Zone !

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	66.04	66.04
8.00	66.00	66.04	66.04
8.50	66.50	66.04	66.04
9.00	67.00	66.04	66.04
9.50	67.50	66.04	66.04
10.00	68.00	66.04	66.04
10.50	68.50	66.04	66.04
11.00	69.00	66.04	66.04
11.50	69.50	66.04	66.04
12.00	70.00	66.04	66.04

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	65.62	65.62
8.00	66.00	65.62	65.62
8.50	66.50	65.62	65.62
9.00	67.00	65.62	65.62
9.50	67.50	65.62	65.62
10.00	68.00	65.62	65.62
10.50	68.50	65.62	65.62
11.00	69.00	65.62	65.62
11.50	69.50	65.62	65.62
12.00	70.00	65.62	65.62

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	63.39	63.39
8.00	66.00	63.39	63.39
8.50	66.50	63.39	63.39
9.00	67.00	63.39	63.39
9.50	67.50	63.39	63.39
10.00	68.00	63.39	63.39
10.50	68.50	63.39	63.39
11.00	69.00	63.39	63.39
11.50	69.50	63.39	63.39
12.00	70.00	63.39	63.39

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	58.44	58.44	*
2.Murray	1.50	58.02	58.02	*
3.St.Patrick	1.50	55.79	55.79	*
Total			62.33 dBA	

* Bright Zone !

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	58.44	58.44
8.00	66.00	58.44	58.44
8.50	66.50	58.44	58.44
9.00	67.00	58.44	58.44
9.50	67.50	58.44	58.44
10.00	68.00	58.44	58.44
10.50	68.50	58.44	58.44
11.00	69.00	58.44	58.44
11.50	69.50	58.44	58.44
12.00	70.00	58.44	58.44

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	58.02	58.02
8.00	66.00	58.02	58.02
8.50	66.50	58.02	58.02
9.00	67.00	58.02	58.02
9.50	67.50	58.02	58.02
10.00	68.00	58.02	58.02
10.50	68.50	58.02	58.02
11.00	69.00	58.02	58.02
11.50	69.50	58.02	58.02
12.00	70.00	58.02	58.02

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	55.79	55.79
8.00	66.00	55.79	55.79
8.50	66.50	55.79	55.79
9.00	67.00	55.79	55.79
9.50	67.50	55.79	55.79
10.00	68.00	55.79	55.79
10.50	68.50	55.79	55.79
11.00	69.00	55.79	55.79
11.50	69.50	55.79	55.79
12.00	70.00	55.79	55.79

TOTAL Leq FROM ALL SOURCES (DAY): 69.93
(NIGHT): 62.33

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 10:41:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow3f2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: KingEdward (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	: 22.00 / 22.00	m
Receiver height	: 5.00 / 5.00	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 35.00 / 35.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 116.00 / 116.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -36.00 deg
Barrier height : 7.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	70.25	70.25
2.Murray	1.50	60.20	60.20
3.St.Patrick	1.50	56.68	56.68
Total			70.83 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	60.17	60.17
11.00	69.00	60.16	60.16
11.50	69.50	60.16	60.16
12.00	70.00	60.15	60.15
12.50	70.50	60.15	60.15
13.00	71.00	60.15	60.15
13.50	71.50	60.15	60.15
14.00	72.00	60.14	60.14
14.50	72.50	60.14	60.14
15.00	73.00	60.14	60.14

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
9.00	67.00	56.51	56.51
9.50	67.50	56.48	56.48
10.00	68.00	56.46	56.46
10.50	68.50	56.45	56.45
11.00	69.00	56.44	56.44
11.50	69.50	56.43	56.43
12.00	70.00	56.42	56.42
12.50	70.50	56.41	56.41
13.00	71.00	56.41	56.41
13.50	71.50	56.40	56.40

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	62.65	62.65
2.Murray	1.50	52.60	52.60
3.St.Patrick	1.50	49.09	49.09
Total			63.23 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	52.57	52.57
11.00	69.00	52.57	52.57
11.50	69.50	52.56	52.56
12.00	70.00	52.56	52.56
12.50	70.50	52.56	52.56
13.00	71.00	52.55	52.55
13.50	71.50	52.55	52.55
14.00	72.00	52.55	52.55
14.50	72.50	52.55	52.55
15.00	73.00	52.55	52.55

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
9.00	67.00	48.91	48.91
9.50	67.50	48.89	48.89
10.00	68.00	48.87	48.87
10.50	68.50	48.85	48.85
11.00	69.00	48.84	48.84
11.50	69.50	48.83	48.83
12.00	70.00	48.82	48.82
12.50	70.50	48.82	48.82
13.00	71.00	48.81	48.81
13.50	71.50	48.81	48.81

TOTAL Leq FROM ALL SOURCES (DAY): 70.83
(NIGHT): 63.23

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 10:50:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow3f4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: KingEdward (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 : 22.00 / 22.00 m
Receiver height : 11.40 / 11.40 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 35.00 / 35.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 116.00 / 116.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -36.00 deg
Barrier height : 7.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	70.25	70.25	
2.Murray	1.50	61.79	61.79	*
3.St.Patrick	1.50	60.27	60.27	*
Total			71.19	dBA

* Bright Zone !

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	61.79	61.79
11.00	69.00	60.67	60.67
11.50	69.50	60.55	60.55
12.00	70.00	60.43	60.43
12.50	70.50	60.35	60.35
13.00	71.00	60.29	60.29
13.50	71.50	60.25	60.25
14.00	72.00	60.22	60.22
14.50	72.50	60.20	60.20
15.00	73.00	60.19	60.19

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
9.00	67.00	60.27	60.27
9.50	67.50	60.27	60.27
10.00	68.00	60.27	60.27
10.50	68.50	60.27	60.27
11.00	69.00	60.27	60.27
11.50	69.50	57.89	57.89
12.00	70.00	57.48	57.48
12.50	70.50	57.11	57.11
13.00	71.00	56.87	56.87
13.50	71.50	56.72	56.72

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	62.65	62.65	
2.Murray	1.50	54.19	54.19	*
3.St.Patrick	1.50	52.67	52.67	*
Total			63.59	dBA

* Bright Zone !

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	54.19	54.19
11.00	69.00	53.08	53.08
11.50	69.50	52.96	52.96
12.00	70.00	52.84	52.84
12.50	70.50	52.75	52.75
13.00	71.00	52.69	52.69
13.50	71.50	52.65	52.65
14.00	72.00	52.63	52.63
14.50	72.50	52.61	52.61
15.00	73.00	52.59	52.59

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
9.00	67.00	52.67	52.67
9.50	67.50	52.67	52.67
10.00	68.00	52.67	52.67
10.50	68.50	52.67	52.67
11.00	69.00	52.67	52.67
11.50	69.50	50.30	50.30
12.00	70.00	49.88	49.88
12.50	70.50	49.51	49.51
13.00	71.00	49.27	49.27
13.50	71.50	49.13	49.13

TOTAL Leq FROM ALL SOURCES (DAY): 71.19
(NIGHT): 63.59

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 10:57:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow3f6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: KingEdward (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	: 22.00 / 22.00	m
Receiver height	: 17.80 / 17.80	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 35.00 / 35.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -61.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 116.00 / 116.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -36.00 deg
Barrier height : 7.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	70.25	70.25	
2.Murray	1.50	61.79	61.79	*
3.St.Patrick	1.50	60.27	60.27	*
Total			71.19	dBA

* Bright Zone !

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	61.79	61.79
11.00	69.00	61.79	61.79
11.50	69.50	61.79	61.79
12.00	70.00	61.79	61.79
12.50	70.50	61.79	61.79
13.00	71.00	61.79	61.79
13.50	71.50	61.79	61.79
14.00	72.00	61.79	61.79
14.50	72.50	61.79	61.79
15.00	73.00	61.79	61.79

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
9.00	67.00	60.27	60.27
9.50	67.50	60.27	60.27
10.00	68.00	60.27	60.27
10.50	68.50	60.27	60.27
11.00	69.00	60.27	60.27
11.50	69.50	60.27	60.27
12.00	70.00	60.27	60.27
12.50	70.50	60.27	60.27
13.00	71.00	60.27	60.27
13.50	71.50	60.27	60.27

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	62.65	62.65	
2.Murray	1.50	54.19	54.19	*
3.St.Patrick	1.50	52.67	52.67	*
Total			63.59	dBA

* Bright Zone !

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	54.19	54.19
11.00	69.00	54.19	54.19
11.50	69.50	54.19	54.19
12.00	70.00	54.19	54.19
12.50	70.50	54.19	54.19
13.00	71.00	54.19	54.19
13.50	71.50	54.19	54.19
14.00	72.00	54.19	54.19
14.50	72.50	54.19	54.19
15.00	73.00	54.19	54.19

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
9.00	67.00	52.67	52.67
9.50	67.50	52.67	52.67
10.00	68.00	52.67	52.67
10.50	68.50	52.67	52.67
11.00	69.00	52.67	52.67
11.50	69.50	52.67	52.67
12.00	70.00	52.67	52.67
12.50	70.50	52.67	52.67
13.00	71.00	52.67	52.67
13.50	71.50	52.67	52.67

TOTAL Leq FROM ALL SOURCES (DAY): 71.19
(NIGHT): 63.59

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:04:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow4f2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	: -66.00 deg	-51.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 22.00 / 22.00	m
Receiver height	: 5.00 / 5.00	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg -39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 49.00 / 49.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -49.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 58.10 m
Receiver elevation : 58.00 m
Barrier elevation : 58.10 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (day/night)

Angle1 Angle2 : -90.00 deg -39.00 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 : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -39.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	59.46	59.46
2.Murray	1.50	51.75	51.75
3.St.Patrick	1.50	45.92	45.92
Total			60.30 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.60	51.47	51.47
11.00	69.10	51.41	51.41
11.50	69.60	51.35	51.35
12.00	70.10	51.31	51.31
12.50	70.60	51.27	51.27
13.00	71.10	51.24	51.24
13.50	71.60	51.21	51.21
14.00	72.10	51.19	51.19
14.50	72.60	51.17	51.17
15.00	73.10	51.16	51.16

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	44.13	44.13
11.00	69.00	43.62	43.62
11.50	69.50	43.14	43.14
12.00	70.00	42.70	42.70
12.50	70.50	42.30	42.30
13.00	71.00	41.95	41.95
13.50	71.50	41.64	41.64
14.00	72.00	41.36	41.36
14.50	72.50	41.10	41.10
15.00	73.00	40.88	40.88

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	51.86	51.86
2.Murray	1.50	44.15	44.15
3.St.Patrick	1.50	38.32	38.32
Total			52.70 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.60	43.88	43.88
11.00	69.10	43.81	43.81
11.50	69.60	43.76	43.76
12.00	70.10	43.71	43.71
12.50	70.60	43.68	43.68
13.00	71.10	43.64	43.64
13.50	71.60	43.62	43.62
14.00	72.10	43.60	43.60
14.50	72.60	43.58	43.58
15.00	73.10	43.56	43.56

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	36.53	36.53
11.00	69.00	36.02	36.02
11.50	69.50	35.55	35.55
12.00	70.00	35.10	35.10
12.50	70.50	34.71	34.71
13.00	71.00	34.36	34.36
13.50	71.50	34.04	34.04
14.00	72.00	33.76	33.76
14.50	72.50	33.51	33.51
15.00	73.00	33.28	33.28

TOTAL Leq FROM ALL SOURCES (DAY): 60.30
(NIGHT): 52.70

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:11:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow4f4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	: -66.00 deg	-51.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 22.00 / 22.00	m
Receiver height	: 11.40 / 11.40	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg -39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 49.00 / 49.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -49.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (day/night)

Angle1 Angle2 : -90.00 deg -39.00 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 : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -39.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	59.46	59.46	
2.Murray	1.50	57.86	57.86	*
3.St.Patrick	1.50	57.24	57.24	*
Total			63.06	dBA

* Bright Zone !

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	53.57	53.57
11.00	69.00	53.16	53.16
11.50	69.50	52.80	52.80
12.00	70.00	52.50	52.50
12.50	70.50	52.26	52.26
13.00	71.00	52.06	52.06
13.50	71.50	51.89	51.89
14.00	72.00	51.76	51.76
14.50	72.50	51.65	51.65
15.00	73.00	51.55	51.55

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	57.24	57.24
11.00	69.00	52.07	52.07
11.50	69.50	51.49	51.49
12.00	70.00	50.65	50.65
12.50	70.50	49.71	49.71
13.00	71.00	48.78	48.78
13.50	71.50	47.90	47.90
14.00	72.00	47.09	47.09
14.50	72.50	46.34	46.34
15.00	73.00	45.65	45.65

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	51.86	51.86	
2.Murray	1.50	50.27	50.27	*
3.St.Patrick	1.50	49.64	49.64	*
Total			55.46 dBA	

* Bright Zone

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	45.97	45.97
11.00	69.00	45.57	45.57
11.50	69.50	45.21	45.21
12.00	70.00	44.91	44.91
12.50	70.50	44.66	44.66
13.00	71.00	44.46	44.46
13.50	71.50	44.29	44.29
14.00	72.00	44.16	44.16
14.50	72.50	44.05	44.05
15.00	73.00	43.96	43.96

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	49.64	49.64
11.00	69.00	44.48	44.48
11.50	69.50	43.89	43.89
12.00	70.00	43.05	43.05
12.50	70.50	42.12	42.12
13.00	71.00	41.19	41.19
13.50	71.50	40.31	40.31
14.00	72.00	39.49	39.49
14.50	72.50	38.74	38.74
15.00	73.00	38.06	38.06

TOTAL Leq FROM ALL SOURCES (DAY): 63.06
(NIGHT): 55.46

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:16:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow4f6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	: -66.00 deg	-51.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 22.00 / 22.00	m
Receiver height	: 17.80 / 17.80	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg -39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 49.00 / 49.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -49.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (day/night)

Angle1 Angle2 : -90.00 deg -39.00 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 : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -39.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	59.46	59.46	
2.Murray	1.50	57.86	57.86	*
3.St.Patrick	1.50	57.24	57.24	*
Total			63.06	dBA

* Bright Zone !

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	57.86	57.86
11.00	69.00	57.86	57.86
11.50	69.50	57.86	57.86
12.00	70.00	57.86	57.86
12.50	70.50	57.86	57.86
13.00	71.00	57.86	57.86
13.50	71.50	57.86	57.86
14.00	72.00	54.39	54.39
14.50	72.50	54.22	54.22
15.00	73.00	53.89	53.89

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	57.24	57.24
11.00	69.00	57.24	57.24
11.50	69.50	57.24	57.24
12.00	70.00	57.24	57.24
12.50	70.50	57.24	57.24
13.00	71.00	57.24	57.24
13.50	71.50	57.24	57.24
14.00	72.00	57.24	57.24
14.50	72.50	57.24	57.24
15.00	73.00	57.24	57.24

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.KingEdward	1.50	51.86	51.86	
2.Murray	1.50	50.27	50.27	*
3.St.Patrick	1.50	49.64	49.64	*
Total			55.46 dBA	

* Bright Zone

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	50.27	50.27
11.00	69.00	50.27	50.27
11.50	69.50	50.27	50.27
12.00	70.00	50.27	50.27
12.50	70.50	50.27	50.27
13.00	71.00	50.27	50.27
13.50	71.50	50.27	50.27
14.00	72.00	46.79	46.79
14.50	72.50	46.63	46.63
15.00	73.00	46.29	46.29

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	49.64	49.64
11.00	69.00	49.64	49.64
11.50	69.50	49.64	49.64
12.00	70.00	49.64	49.64
12.50	70.50	49.64	49.64
13.00	71.00	49.64	49.64
13.50	71.50	49.64	49.64
14.00	72.00	49.64	49.64
14.50	72.50	49.64	49.64
15.00	73.00	49.64	49.64

TOTAL Leq FROM ALL SOURCES (DAY): 63.06
(NIGHT): 55.46

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:24:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow5f2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: KingEdward (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 : 33.00 / 33.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 33.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 22.00 / 22.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	63.56	63.56
Total			63.56 dBA

Barrier table for segment # 1: KingEdward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	63.53	63.53
8.00	66.00	63.52	63.52
8.50	66.50	63.52	63.52
9.00	67.00	63.52	63.52
9.50	67.50	63.52	63.52
10.00	68.00	63.52	63.52
10.50	68.50	63.52	63.52
11.00	69.00	63.52	63.52
11.50	69.50	63.52	63.52
12.00	70.00	63.52	63.52

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	55.96	55.96
Total			55.96 dBA

Barrier table for segment # 1: KingEdward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	55.93	55.93
8.00	66.00	55.93	55.93
8.50	66.50	55.92	55.92
9.00	67.00	55.92	55.92
9.50	67.50	55.92	55.92
10.00	68.00	55.92	55.92
10.50	68.50	55.92	55.92
11.00	69.00	55.92	55.92
11.50	69.50	55.92	55.92
12.00	70.00	55.92	55.92

TOTAL Leq FROM ALL SOURCES (DAY): 63.56
(NIGHT): 55.96

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:26:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow5f4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: KingEdward (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 : 33.00 / 33.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 33.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 22.00 / 22.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	63.87	63.87
Total			63.87 dBA

Barrier table for segment # 1: KingEdward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	63.61	63.61
8.00	66.00	63.58	63.58
8.50	66.50	63.56	63.56
9.00	67.00	63.54	63.54
9.50	67.50	63.53	63.53
10.00	68.00	63.53	63.53
10.50	68.50	63.52	63.52
11.00	69.00	63.52	63.52
11.50	69.50	63.52	63.52
12.00	70.00	63.52	63.52

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	56.27	56.27
Total			56.27 dBA

Barrier table for segment # 1: KingEdward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	56.01	56.01
8.00	66.00	55.98	55.98
8.50	66.50	55.96	55.96
9.00	67.00	55.95	55.95
9.50	67.50	55.94	55.94
10.00	68.00	55.93	55.93
10.50	68.50	55.93	55.93
11.00	69.00	55.92	55.92
11.50	69.50	55.92	55.92
12.00	70.00	55.92	55.92

TOTAL Leq FROM ALL SOURCES (DAY): 63.87
(NIGHT): 56.27

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:32:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow5f6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: KingEdward (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	: 33.00 / 33.00	m
Receiver height	: 17.80 / 17.80	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: 0.00 deg	Angle2 : 33.00 deg
Barrier height	: 6.00	m
Barrier receiver distance	: 22.00 / 22.00	m
Source elevation	: 58.00	m
Receiver elevation	: 58.10	m
Barrier elevation	: 58.00	m
Reference angle	: 0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	65.48	65.48 *
Total			65.48 dBA

* Bright Zone !

Barrier table for segment # 1: KingEdward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	64.13	64.13
8.00	66.00	63.96	63.96
8.50	66.50	63.80	63.80
9.00	67.00	63.70	63.70
9.50	67.50	63.64	63.64
10.00	68.00	63.60	63.60
10.50	68.50	63.58	63.58
11.00	69.00	63.56	63.56
11.50	69.50	63.55	63.55
12.00	70.00	63.54	63.54

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.KingEdward	1.50	57.88	57.88 *
Total			57.88 dBA

* Bright Zone !

Barrier table for segment # 1: KingEdward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	56.53	56.53
8.00	66.00	56.36	56.36
8.50	66.50	56.21	56.21
9.00	67.00	56.11	56.11
9.50	67.50	56.04	56.04
10.00	68.00	56.00	56.00
10.50	68.50	55.98	55.98
11.00	69.00	55.96	55.96
11.50	69.50	55.95	55.95
12.00	70.00	55.94	55.94

TOTAL Leq FROM ALL SOURCES (DAY): 65.48
(NIGHT): 57.88

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:38:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow6f2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (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	: 22.00 / 22.00	m
Receiver height	: 5.00 / 5.00	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 63.00 / 63.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -38.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

```
Road data, segment # 3: St.Patrick (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 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     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: St.Patrick (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  : 144.00 / 144.00 m
Receiver height           :   5.00 / 5.00   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -26.00 deg
Barrier height            :   9.00 m
Barrier receiver distance :  41.00 / 41.00  m
Source elevation          :  58.00 m
Receiver elevation        :  58.10 m
Barrier elevation         :  58.00 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	70.25	70.25
2.Murray	1.50	55.79	55.79
3.St.Patrick	1.50	54.88	54.88
Total			70.52 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	55.71	55.71
11.00	69.00	55.69	55.69
11.50	69.50	55.68	55.68
12.00	70.00	55.66	55.66
12.50	70.50	55.65	55.65
13.00	71.00	55.64	55.64
13.50	71.50	55.64	55.64
14.00	72.00	55.63	55.63
14.50	72.50	55.62	55.62
15.00	73.00	55.62	55.62

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	54.63	54.63
11.00	69.00	54.56	54.56
11.50	69.50	54.51	54.51
12.00	70.00	54.46	54.46
12.50	70.50	54.42	54.42
13.00	71.00	54.38	54.38
13.50	71.50	54.35	54.35
14.00	72.00	54.32	54.32
14.50	72.50	54.29	54.29
15.00	73.00	54.27	54.27

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	62.65	62.65
2.Murray	1.50	48.19	48.19
3.St.Patrick	1.50	47.29	47.29
Total			62.92 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	48.11	48.11
11.00	69.00	48.10	48.10
11.50	69.50	48.08	48.08
12.00	70.00	48.07	48.07
12.50	70.50	48.06	48.06
13.00	71.00	48.05	48.05
13.50	71.50	48.04	48.04
14.00	72.00	48.03	48.03
14.50	72.50	48.03	48.03
15.00	73.00	48.02	48.02

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	47.03	47.03
11.00	69.00	46.97	46.97
11.50	69.50	46.91	46.91
12.00	70.00	46.86	46.86
12.50	70.50	46.82	46.82
13.00	71.00	46.78	46.78
13.50	71.50	46.75	46.75
14.00	72.00	46.72	46.72
14.50	72.50	46.70	46.70
15.00	73.00	46.67	46.67

TOTAL Leq FROM ALL SOURCES (DAY): 70.52
(NIGHT): 62.92

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:41:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow6f4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40 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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (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	: 22.00 / 22.00	m
Receiver height	: 11.40 / 11.40	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 63.00 / 63.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -38.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 144.00 / 144.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -26.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	70.25	70.25
2.Murray	1.50	56.02	56.02
3.St.Patrick	1.50	56.41	56.41
Total			70.58 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	55.85	55.85
11.00	69.00	55.81	55.81
11.50	69.50	55.78	55.78
12.00	70.00	55.75	55.75
12.50	70.50	55.73	55.73
13.00	71.00	55.71	55.71
13.50	71.50	55.69	55.69
14.00	72.00	55.68	55.68
14.50	72.50	55.66	55.66
15.00	73.00	55.65	55.65

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	55.92	55.92
11.00	69.00	55.70	55.70
11.50	69.50	55.50	55.50
12.00	70.00	55.32	55.32
12.50	70.50	55.16	55.16
13.00	71.00	55.02	55.02
13.50	71.50	54.90	54.90
14.00	72.00	54.80	54.80
14.50	72.50	54.71	54.71
15.00	73.00	54.64	54.64

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	62.65	62.65
2.Murray	1.50	48.43	48.43
3.St.Patrick	1.50	48.81	48.81
Total			62.98 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	48.26	48.26
11.00	69.00	48.22	48.22
11.50	69.50	48.18	48.18
12.00	70.00	48.16	48.16
12.50	70.50	48.13	48.13
13.00	71.00	48.11	48.11
13.50	71.50	48.09	48.09
14.00	72.00	48.08	48.08
14.50	72.50	48.07	48.07
15.00	73.00	48.06	48.06

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	48.32	48.32
11.00	69.00	48.11	48.11
11.50	69.50	47.90	47.90
12.00	70.00	47.72	47.72
12.50	70.50	47.56	47.56
13.00	71.00	47.42	47.42
13.50	71.50	47.30	47.30
14.00	72.00	47.20	47.20
14.50	72.50	47.12	47.12
15.00	73.00	47.04	47.04

TOTAL Leq FROM ALL SOURCES (DAY): 70.58
(NIGHT): 62.98

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:47:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow6f6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40 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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (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	: 22.00 / 22.00	m
Receiver height	: 17.80 / 17.80	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 63.00 / 63.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -38.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 144.00 / 144.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -26.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	70.25	70.25	
2.Murray	1.50	56.60	56.60	
3.St.Patrick	1.50	59.33	59.33	*
Total			70.76	dBA

* Bright Zone

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	56.18	56.18
11.00	69.00	56.08	56.08
11.50	69.50	56.01	56.01
12.00	70.00	55.94	55.94
12.50	70.50	55.89	55.89
13.00	71.00	55.85	55.85
13.50	71.50	55.81	55.81
14.00	72.00	55.78	55.78
14.50	72.50	55.75	55.75
15.00	73.00	55.73	55.73

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	59.33	59.33
11.00	69.00	59.33	59.33
11.50	69.50	59.33	59.33
12.00	70.00	59.33	59.33
12.50	70.50	59.33	59.33
13.00	71.00	59.33	59.33
13.50	71.50	56.42	56.42
14.00	72.00	56.32	56.32
14.50	72.50	56.16	56.16
15.00	73.00	55.95	55.95

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	62.65	62.65
2.Murray	1.50	49.00	49.00
3.St.Patrick	1.50	51.73	51.73 *
Total			63.16 dBA

* Bright Zone

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	48.58	48.58
11.00	69.00	48.49	48.49
11.50	69.50	48.41	48.41
12.00	70.00	48.35	48.35
12.50	70.50	48.29	48.29
13.00	71.00	48.25	48.25
13.50	71.50	48.21	48.21
14.00	72.00	48.18	48.18
14.50	72.50	48.15	48.15
15.00	73.00	48.13	48.13

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	51.73	51.73
11.00	69.00	51.73	51.73
11.50	69.50	51.73	51.73
12.00	70.00	51.73	51.73
12.50	70.50	51.73	51.73
13.00	71.00	51.73	51.73
13.50	71.50	48.82	48.82
14.00	72.00	48.73	48.73
14.50	72.50	48.56	48.56
15.00	73.00	48.36	48.36

TOTAL Leq FROM ALL SOURCES (DAY): 70.76
(NIGHT): 63.16

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:55:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow7f2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40 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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2	: -44.00 deg	44.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 22.00 / 22.00	m
Receiver height	: 5.00 / 5.00	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg -46.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 58.00 / 58.00 m
Receiver height : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -46.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (day/night)

Angle1 Angle2 : -90.00 deg -46.00 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 : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -46.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	67.14	67.14
2.Murray	1.50	43.40	43.40
3.St.Patrick	1.50	47.12	47.12
Total			67.20 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	42.10	42.10
11.00	69.00	41.73	41.73
11.50	69.50	41.39	41.39
12.00	70.00	41.09	41.09
12.50	70.50	40.81	40.81
13.00	71.00	40.56	40.56
13.50	71.50	40.33	40.33
14.00	72.00	40.12	40.12
14.50	72.50	39.93	39.93
15.00	73.00	39.75	39.75

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	45.74	45.74
11.00	69.00	45.32	45.32
11.50	69.50	44.92	44.92
12.00	70.00	44.54	44.54
12.50	70.50	44.18	44.18
13.00	71.00	43.83	43.83
13.50	71.50	43.50	43.50
14.00	72.00	43.18	43.18
14.50	72.50	42.87	42.87
15.00	73.00	42.57	42.57

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	59.55	59.55
2.Murray	1.50	35.80	35.80
3.St.Patrick	1.50	39.52	39.52
Total			59.61 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	34.50	34.50
11.00	69.00	34.13	34.13
11.50	69.50	33.80	33.80
12.00	70.00	33.49	33.49
12.50	70.50	33.22	33.22
13.00	71.00	32.97	32.97
13.50	71.50	32.74	32.74
14.00	72.00	32.52	32.52
14.50	72.50	32.33	32.33
15.00	73.00	32.15	32.15

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	38.15	38.15
11.00	69.00	37.73	37.73
11.50	69.50	37.33	37.33
12.00	70.00	36.95	36.95
12.50	70.50	36.58	36.58
13.00	71.00	36.23	36.23
13.50	71.50	35.90	35.90
14.00	72.00	35.58	35.58
14.50	72.50	35.27	35.27
15.00	73.00	34.98	34.98

TOTAL Leq FROM ALL SOURCES (DAY): 67.20
(NIGHT): 59.61

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 11:59:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow7f4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40 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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2	: -44.00 deg	44.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 22.00 / 22.00	m
Receiver height	: 11.40 / 11.40	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg -46.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 58.00 / 58.00 m
Receiver height : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -46.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (day/night)

Angle1 Angle2 : -90.00 deg 46.00 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 : 11.40 / 11.40 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 46.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	67.14	67.14
2.Murray	1.50	45.57	45.57
3.St.Patrick	1.50	56.12	56.12
Total			67.50 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	43.94	43.94
11.00	69.00	43.46	43.46
11.50	69.50	43.02	43.02
12.00	70.00	42.60	42.60
12.50	70.50	42.20	42.20
13.00	71.00	41.83	41.83
13.50	71.50	41.50	41.50
14.00	72.00	41.20	41.20
14.50	72.50	40.92	40.92
15.00	73.00	40.67	40.67

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	54.29	54.29
11.00	69.00	53.46	53.46
11.50	69.50	52.63	52.63
12.00	70.00	51.83	51.83
12.50	70.50	51.07	51.07
13.00	71.00	50.35	50.35
13.50	71.50	49.69	49.69
14.00	72.00	49.07	49.07
14.50	72.50	48.49	48.49
15.00	73.00	47.95	47.95

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	59.55	59.55
2.Murray	1.50	37.97	37.97
3.St.Patrick	1.50	48.53	48.53
Total			59.91 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	36.34	36.34
11.00	69.00	35.86	35.86
11.50	69.50	35.42	35.42
12.00	70.00	35.00	35.00
12.50	70.50	34.60	34.60
13.00	71.00	34.23	34.23
13.50	71.50	33.90	33.90
14.00	72.00	33.60	33.60
14.50	72.50	33.32	33.32
15.00	73.00	33.07	33.07

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	46.70	46.70
11.00	69.00	45.87	45.87
11.50	69.50	45.03	45.03
12.00	70.00	44.23	44.23
12.50	70.50	43.47	43.47
13.00	71.00	42.76	42.76
13.50	71.50	42.09	42.09
14.00	72.00	41.47	41.47
14.50	72.50	40.89	40.89
15.00	73.00	40.35	40.35

TOTAL Leq FROM ALL SOURCES (DAY): 67.50
(NIGHT): 59.91

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 12:05:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow7f6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (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	: 22.00 / 22.00	m
Receiver height	: 17.80 / 17.80	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 58.00 / 58.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -40.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 140.00 / 140.00 m
Receiver height : 17.80 / 17.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -28.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	70.25	70.25	
2.Murray	1.50	56.80	56.80	
3.St.Patrick	1.50	59.45	59.45	*
Total			70.77 dBA	

* Bright Zone

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	56.53	56.53
11.00	69.00	56.47	56.47
11.50	69.50	56.42	56.42
12.00	70.00	56.38	56.38
12.50	70.50	56.35	56.35
13.00	71.00	56.32	56.32
13.50	71.50	56.30	56.30
14.00	72.00	56.28	56.28
14.50	72.50	56.26	56.26
15.00	73.00	56.25	56.25

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	59.45	59.45
11.00	69.00	59.45	59.45
11.50	69.50	59.45	59.45
12.00	70.00	59.45	59.45
12.50	70.50	59.45	59.45
13.00	71.00	59.45	59.45
13.50	71.50	56.65	56.65
14.00	72.00	56.55	56.55
14.50	72.50	56.38	56.38
15.00	73.00	56.19	56.19

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.King Edward	1.50	62.65	62.65	
2.Murray	1.50	49.20	49.20	
3.St.Patrick	1.50	51.85	51.85	*
Total			63.17 dBA	

* Bright Zone

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	48.93	48.93
11.00	69.00	48.87	48.87
11.50	69.50	48.83	48.83
12.00	70.00	48.79	48.79
12.50	70.50	48.75	48.75
13.00	71.00	48.73	48.73
13.50	71.50	48.70	48.70
14.00	72.00	48.68	48.68
14.50	72.50	48.67	48.67
15.00	73.00	48.65	48.65

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	51.85	51.85
11.00	69.00	51.85	51.85
11.50	69.50	51.85	51.85
12.00	70.00	51.85	51.85
12.50	70.50	51.85	51.85
13.00	71.00	51.85	51.85
13.50	71.50	49.06	49.06
14.00	72.00	48.95	48.95
14.50	72.50	48.78	48.78
15.00	73.00	48.59	48.59

TOTAL Leq FROM ALL SOURCES (DAY): 70.77
(NIGHT): 63.17

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 13:38:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow8f1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (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 : 27.00 / 27.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -61.00 deg Angle2 : 0.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 29.00 / 29.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -61.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -61.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.50 / 3.50 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	61.53	61.53
2.Murray	1.50	58.07	58.07
3.St.Patrick	1.50	55.87	55.87
Total			63.89 dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	61.52	61.52
8.00	66.00	61.52	61.52
8.50	66.50	61.52	61.52
9.00	67.00	61.52	61.52
9.50	67.50	61.52	61.52
10.00	68.00	61.52	61.52
10.50	68.50	61.52	61.52
11.00	69.00	61.52	61.52
11.50	69.50	61.52	61.52
12.00	70.00	61.52	61.52

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	58.01	58.01
8.00	66.00	58.00	58.00
8.50	66.50	57.99	57.99
9.00	67.00	57.98	57.98
9.50	67.50	57.97	57.97
10.00	68.00	57.97	57.97
10.50	68.50	57.96	57.96
11.00	69.00	57.96	57.96
11.50	69.50	57.95	57.95
12.00	70.00	57.95	57.95

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	55.80	55.80
8.00	66.00	55.78	55.78
8.50	66.50	55.77	55.77
9.00	67.00	55.76	55.76
9.50	67.50	55.76	55.76
10.00	68.00	55.75	55.75
10.50	68.50	55.74	55.74
11.00	69.00	55.74	55.74
11.50	69.50	55.74	55.74
12.00	70.00	55.73	55.73

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	53.93	53.93
2.Murray	1.50	50.48	50.48
3.St.Patrick	1.50	48.27	48.27
Total			56.29 dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	53.93	53.93
8.00	66.00	53.93	53.93
8.50	66.50	53.93	53.93
9.00	67.00	53.93	53.93
9.50	67.50	53.93	53.93
10.00	68.00	53.93	53.93
10.50	68.50	53.93	53.93
11.00	69.00	53.93	53.93
11.50	69.50	53.93	53.93
12.00	70.00	53.93	53.93

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	50.41	50.41
8.00	66.00	50.40	50.40
8.50	66.50	50.39	50.39
9.00	67.00	50.38	50.38
9.50	67.50	50.38	50.38
10.00	68.00	50.37	50.37
10.50	68.50	50.36	50.36
11.00	69.00	50.36	50.36
11.50	69.50	50.36	50.36
12.00	70.00	50.35	50.35

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	48.20	48.20
8.00	66.00	48.19	48.19
8.50	66.50	48.17	48.17
9.00	67.00	48.17	48.17
9.50	67.50	48.16	48.16
10.00	68.00	48.15	48.15
10.50	68.50	48.15	48.15
11.00	69.00	48.14	48.14
11.50	69.50	48.14	48.14
12.00	70.00	48.14	48.14

TOTAL Leq FROM ALL SOURCES (DAY): 63.89
(NIGHT): 56.29

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 13:46:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow9f1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (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	: 22.00 / 22.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 33.00 / 33.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 26.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 32.00 / 32.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 110.00 / 110.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 53.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	70.25	70.25
2.Murray	1.50	60.58	60.58
3.St.Patrick	1.50	56.75	56.75
Total			70.87 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	60.58	60.58
11.00	69.00	60.58	60.58
11.50	69.50	60.58	60.58
12.00	70.00	60.58	60.58
12.50	70.50	60.58	60.58
13.00	71.00	60.58	60.58
13.50	71.50	60.58	60.58
14.00	72.00	60.58	60.58
14.50	72.50	60.58	60.58
15.00	73.00	60.58	60.58

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	56.72	56.72
11.00	69.00	56.71	56.71
11.50	69.50	56.70	56.70
12.00	70.00	56.70	56.70
12.50	70.50	56.70	56.70
13.00	71.00	56.70	56.70
13.50	71.50	56.70	56.70
14.00	72.00	56.70	56.70
14.50	72.50	56.70	56.70
15.00	73.00	56.70	56.70

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	62.65	62.65
2.Murray	1.50	52.99	52.99
3.St.Patrick	1.50	49.16	49.16
Total			63.27 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	52.99	52.99
11.00	69.00	52.99	52.99
11.50	69.50	52.99	52.99
12.00	70.00	52.99	52.99
12.50	70.50	52.99	52.99
13.00	71.00	52.99	52.99
13.50	71.50	52.99	52.99
14.00	72.00	52.99	52.99
14.50	72.50	52.99	52.99
15.00	73.00	52.99	52.99

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	49.12	49.12
11.00	69.00	49.11	49.11
11.50	69.50	49.11	49.11
12.00	70.00	49.10	49.10
12.50	70.50	49.10	49.10
13.00	71.00	49.10	49.10
13.50	71.50	49.10	49.10
14.00	72.00	49.10	49.10
14.50	72.50	49.10	49.10
15.00	73.00	49.10	49.10

TOTAL Leq FROM ALL SOURCES (DAY): 70.87
(NIGHT): 63.27

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 13:52:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow10f1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 40480/3520	veh/TimePeriod *
Medium truck volume	: 3220/280	veh/TimePeriod *
Heavy truck volume	: 2300/200	veh/TimePeriod *
Posted speed limit	: 40	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)	50000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

Data for Segment # 1: King Edward (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	: 22.00 / 22.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Murray (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 : 64.00 / 64.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 52.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: St.Patrick (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 : 146.00 / 146.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 64.00 deg
Barrier height : 9.00 m
Barrier receiver distance : 41.00 / 41.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	70.25	70.25
2.Murray	1.50	55.49	55.49
3.St.Patrick	1.50	54.13	54.13
Total			70.49 dBA

Barrier table for segment # 2: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	55.48	55.48
11.00	69.00	55.48	55.48
11.50	69.50	55.48	55.48
12.00	70.00	55.48	55.48
12.50	70.50	55.48	55.48
13.00	71.00	55.48	55.48
13.50	71.50	55.48	55.48
14.00	72.00	55.48	55.48
14.50	72.50	55.48	55.48
15.00	73.00	55.48	55.48

Barrier table for segment # 3: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	54.05	54.05
11.00	69.00	54.03	54.03
11.50	69.50	54.02	54.02
12.00	70.00	54.01	54.01
12.50	70.50	54.00	54.00
13.00	71.00	53.99	53.99
13.50	71.50	53.99	53.99
14.00	72.00	53.99	53.99
14.50	72.50	53.98	53.98
15.00	73.00	53.98	53.98

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	62.65	62.65
2.Murray	1.50	47.89	47.89
3.St.Patrick	1.50	46.53	46.53
Total			62.89 dBA

Barrier table for segment # 2: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	47.89	47.89
11.00	69.00	47.89	47.89
11.50	69.50	47.89	47.89
12.00	70.00	47.89	47.89
12.50	70.50	47.89	47.89
13.00	71.00	47.89	47.89
13.50	71.50	47.89	47.89
14.00	72.00	47.89	47.89
14.50	72.50	47.89	47.89
15.00	73.00	47.89	47.89

Barrier table for segment # 3: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
10.50	68.50	46.45	46.45
11.00	69.00	46.44	46.44
11.50	69.50	46.42	46.42
12.00	70.00	46.41	46.41
12.50	70.50	46.40	46.40
13.00	71.00	46.40	46.40
13.50	71.50	46.39	46.39
14.00	72.00	46.39	46.39
14.50	72.50	46.39	46.39
15.00	73.00	46.39	46.39

TOTAL Leq FROM ALL SOURCES (DAY): 70.49
(NIGHT): 62.89

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2016 14:01:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: King Edward (day/night)

Angle1 Angle2 : -90.00 deg -77.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 44.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -77.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 1.00 / 1.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

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

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: King Edward (day/night)

Angle1 Angle2 : -77.00 deg 48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 44.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -77.00 deg Angle2 : 48.00 deg
Barrier height : 19.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 3: King Edward (day/night)

Car traffic volume : 40480/3520 veh/TimePeriod *
Medium truck volume : 3220/280 veh/TimePeriod *
Heavy truck volume : 2300/200 veh/TimePeriod *
Posted speed limit : 40 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): 50000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: King Edward (day/night)

Angle1 Angle2 : 48.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 44.00 / 44.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 48.00 deg Angle2 : 90.00 deg
Barrier height : 13.10 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 4: Murray (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 4: Murray (day/night)

Angle1 Angle2 : -90.00 deg -41.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -41.00 deg
Barrier height : 19.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 5: Murray (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 5: Murray (day/night)

Angle1 Angle2 : -41.00 deg 49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -41.00 deg Angle2 : 49.00 deg
Barrier height : 13.10 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 6: Murray (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 50 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 6: Murray (day/night)

Angle1 Angle2 : 49.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 49.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 6.00 / 6.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 7: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 7: St.Patrick (day/night)

Angle1 Angle2 : -90.00 deg -41.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 119.00 / 119.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -41.00 deg
Barrier height : 19.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 8: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 8: St.Patrick (day/night)

Angle1 Angle2 : -41.00 deg 49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 119.00 / 119.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -41.00 deg Angle2 : 49.00 deg
Barrier height : 13.10 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Road data, segment # 9: St.Patrick (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 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 : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 9: St.Patrick (day/night)

Angle1 Angle2 : 49.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 119.00 / 119.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 49.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 6.00 / 6.00 m
Source elevation : 58.00 m
Receiver elevation : 58.10 m
Barrier elevation : 58.00 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	43.91	43.91
2.King Edward	1.50	45.66	45.66
3.King Edward	1.50	43.08	43.08
4.Murray	1.50	39.81	39.81
5.Murray	1.50	41.32	41.32
6.Murray	1.50	44.86	44.86
7.St.Patrick	1.50	38.82	38.82
8.St.Patrick	1.50	40.15	40.15
9.St.Patrick	1.50	44.11	44.11
Total			52.53 dBA

Barrier table for segment # 1: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	42.80	42.80
8.00	66.00	42.49	42.49
8.50	66.50	42.20	42.20
9.00	67.00	41.92	41.92
9.50	67.50	41.67	41.67
10.00	68.00	41.43	41.43
10.50	68.50	41.22	41.22
11.00	69.00	41.02	41.02
11.50	69.50	40.83	40.83
12.00	70.00	40.66	40.66

Barrier table for segment # 2: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	45.66	45.66
21.50	79.50	45.66	45.66
22.00	80.00	45.66	45.66
22.50	80.50	45.66	45.66
23.00	81.00	45.66	45.66
23.50	81.50	45.66	45.66
24.00	82.00	45.66	45.66
24.50	82.50	45.66	45.66
25.00	83.00	45.66	45.66
25.50	83.50	45.66	45.66

Barrier table for segment # 3: King Edward (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	42.81	42.81
15.10	73.10	42.74	42.74
15.60	73.60	42.67	42.67
16.10	74.10	42.60	42.60
16.60	74.60	42.54	42.54
17.10	75.10	42.48	42.48
17.60	75.60	42.42	42.42
18.10	76.10	42.37	42.37
18.60	76.60	42.33	42.33
19.10	77.10	42.28	42.28

Barrier table for segment # 4: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	39.71	39.71
21.50	79.50	39.68	39.68
22.00	80.00	39.65	39.65
22.50	80.50	39.63	39.63
23.00	81.00	39.60	39.60
23.50	81.50	39.58	39.58
24.00	82.00	39.55	39.55
24.50	82.50	39.53	39.53
25.00	83.00	39.51	39.51
25.50	83.50	39.49	39.49

Barrier table for segment # 5: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	41.32	41.32
15.10	73.10	41.32	41.32
15.60	73.60	41.32	41.32
16.10	74.10	41.32	41.32
16.60	74.60	41.32	41.32
17.10	75.10	41.32	41.32
17.60	75.60	41.32	41.32
18.10	76.10	41.32	41.32
18.60	76.60	41.32	41.32
19.10	77.10	41.32	41.32

Barrier table for segment # 6: Murray (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	43.18	43.18
8.00	66.00	42.74	42.74
8.50	66.50	42.37	42.37
9.00	67.00	42.04	42.04
9.50	67.50	41.75	41.75
10.00	68.00	41.49	41.49
10.50	68.50	41.27	41.27
11.00	69.00	41.06	41.06
11.50	69.50	40.88	40.88
12.00	70.00	40.71	40.71

Barrier table for segment # 7: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

21.00	79.00	38.71	38.71
21.50	79.50	38.68	38.68
22.00	80.00	38.65	38.65
22.50	80.50	38.62	38.62
23.00	81.00	38.59	38.59
23.50	81.50	38.56	38.56
24.00	82.00	38.54	38.54
24.50	82.50	38.52	38.52
25.00	83.00	38.49	38.49
25.50	83.50	38.47	38.47

Barrier table for segment # 8: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	40.15	40.15
15.10	73.10	40.15	40.15
15.60	73.60	40.15	40.15
16.10	74.10	40.15	40.15
16.60	74.60	40.15	40.15
17.10	75.10	40.15	40.15
17.60	75.60	40.15	40.15
18.10	76.10	40.15	40.15
18.60	76.60	40.15	40.15
19.10	77.10	40.15	40.15

Barrier table for segment # 9: St.Patrick (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	42.45	42.45
8.00	66.00	42.01	42.01
8.50	66.50	41.62	41.62
9.00	67.00	41.28	41.28
9.50	67.50	40.98	40.98
10.00	68.00	40.71	40.71
10.50	68.50	40.48	40.48
11.00	69.00	40.26	40.26
11.50	69.50	40.07	40.07
12.00	70.00	39.90	39.90

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.King Edward	1.50	36.32	36.32
2.King Edward	1.50	38.06	38.06
3.King Edward	1.50	35.48	35.48
4.Murray	1.50	32.22	32.22
5.Murray	1.50	33.72	33.72
6.Murray	1.50	37.27	37.27
7.St.Patrick	1.50	31.22	31.22
8.St.Patrick	1.50	32.56	32.56
9.St.Patrick	1.50	36.51	36.51
Total			44.94 dBA

Barrier table for segment # 1: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	35.20	35.20
8.00	66.00	34.89	34.89
8.50	66.50	34.60	34.60
9.00	67.00	34.33	34.33
9.50	67.50	34.07	34.07
10.00	68.00	33.84	33.84
10.50	68.50	33.62	33.62
11.00	69.00	33.42	33.42
11.50	69.50	33.23	33.23
12.00	70.00	33.06	33.06

Barrier table for segment # 2: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	38.06	38.06
21.50	79.50	38.06	38.06
22.00	80.00	38.06	38.06
22.50	80.50	38.06	38.06
23.00	81.00	38.06	38.06
23.50	81.50	38.06	38.06
24.00	82.00	38.06	38.06
24.50	82.50	38.06	38.06
25.00	83.00	38.06	38.06
25.50	83.50	38.06	38.06

Barrier table for segment # 3: King Edward (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	35.22	35.22
15.10	73.10	35.14	35.14
15.60	73.60	35.07	35.07
16.10	74.10	35.00	35.00
16.60	74.60	34.94	34.94
17.10	75.10	34.88	34.88
17.60	75.60	34.83	34.83
18.10	76.10	34.78	34.78
18.60	76.60	34.73	34.73
19.10	77.10	34.68	34.68

Barrier table for segment # 4: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
21.00	79.00	32.12	32.12
21.50	79.50	32.09	32.09
22.00	80.00	32.06	32.06
22.50	80.50	32.03	32.03
23.00	81.00	32.00	32.00
23.50	81.50	31.98	31.98
24.00	82.00	31.95	31.95
24.50	82.50	31.93	31.93
25.00	83.00	31.91	31.91
25.50	83.50	31.89	31.89

Barrier table for segment # 5: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	33.72	33.72
15.10	73.10	33.72	33.72
15.60	73.60	33.72	33.72
16.10	74.10	33.72	33.72
16.60	74.60	33.72	33.72
17.10	75.10	33.72	33.72
17.60	75.60	33.72	33.72
18.10	76.10	33.72	33.72
18.60	76.60	33.72	33.72
19.10	77.10	33.72	33.72

Barrier table for segment # 6: Murray (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	35.58	35.58
8.00	66.00	35.15	35.15
8.50	66.50	34.77	34.77
9.00	67.00	34.44	34.44
9.50	67.50	34.15	34.15
10.00	68.00	33.90	33.90
10.50	68.50	33.67	33.67
11.00	69.00	33.46	33.46
11.50	69.50	33.28	33.28
12.00	70.00	33.11	33.11

Barrier table for segment # 7: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

21.00	79.00	31.11	31.11
21.50	79.50	31.08	31.08
22.00	80.00	31.05	31.05
22.50	80.50	31.02	31.02
23.00	81.00	30.99	30.99
23.50	81.50	30.97	30.97
24.00	82.00	30.94	30.94
24.50	82.50	30.92	30.92
25.00	83.00	30.90	30.90
25.50	83.50	30.87	30.87

Barrier table for segment # 8: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
14.60	72.60	32.56	32.56
15.10	73.10	32.56	32.56
15.60	73.60	32.56	32.56
16.10	74.10	32.56	32.56
16.60	74.60	32.56	32.56
17.10	75.10	32.56	32.56
17.60	75.60	32.56	32.56
18.10	76.10	32.56	32.56
18.60	76.60	32.56	32.56
19.10	77.10	32.56	32.56

Barrier table for segment # 9: St.Patrick (night)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.50	65.50	34.86	34.86
8.00	66.00	34.41	34.41
8.50	66.50	34.02	34.02
9.00	67.00	33.68	33.68
9.50	67.50	33.38	33.38
10.00	68.00	33.12	33.12
10.50	68.50	32.88	32.88
11.00	69.00	32.67	32.67
11.50	69.50	32.47	32.47
12.00	70.00	32.30	32.30

TOTAL Leq FROM ALL SOURCES (DAY): 52.53
(NIGHT): 44.94

APPENDIX C

AIF and STC Tables Recommended Components Memo

TABLE 5: Acoustic Insulation Factor for Various Types of Windows

Window area as a percentage of total floor area of room[1]													
4	5	6	8	10	13	16	20	25	32	40	50	63	80
Acoustic Insulation Factor (AIF)[2]													
35	34	33	32	31	30	29	28	27	26	25	24	23	22
36	35	34	33	32	31	30	29	28	27	26	25	24	23
37	36	35	34	33	32	31	30	29	28	27	26	25	24
38	37	36	35	34	33	32	31	30	29	28	27	26	25
39	38	37	36	35	34	33	32	31	30	29	28	27	26
40	39	38	37	36	35	34	33	32	31	30	29	28	27
41	40	39	38	37	36	35	34	33	32	31	30	29	28
42	41	40	39	38	37	36	35	34	33	32	31	30	29
43	42	41	40	39	38	37	36	35	34	33	32	31	30
44	43	42	41	40	39	38	37	36	35	34	33	32	31
45	44	43	42	41	40	39	38	37	36	35	34	33	32
46	45	44	43	42	41	40	39	38	37	36	35	34	33
47	46	45	44	43	42	41	40	39	38	37	36	35	34
48	47	46	45	44	43	42	41	40	39	38	37	36	35
49	48	47	46	45	44	43	42	41	40	39	38	37	36
50	49	48	47	46	45	44	43	42	41	40	39	38	37

Single glazing	Double glazing of indicated glass thickness					Triple Glazing	
	2mm and 2mm glass	3mm and 3mm glass	4mm and 4mm glass	3mm and 6mm glass	6mm and 6mm glass	3mm, 3mm and 3mm glass	3mm, 3mm and 6mm glass
Thickness	Interpane spacing in mm[3]					Interpane spacings in mm[5]	
2mm	6						
	13						
3mm	15	6					
4mm, 6mm	18	13	6				
	22	16	13	6	6	6,6	
9mm[4]	28	20	16	13	13	6,10	6,6
	35	25	20	16	16	6,15	6,10
12mm[4]	42	32	25	20	20	6,20	6,15
	50	40	32	25	24	6,30	6,20
	63	50	40	32	30	6,40	6,30
	80	63	50	40	37	6,50	6,40
	100	80	63	53	50	6,65	6,50
	125	100	80	75	70	6,80	6,65
	150	125	100	95	90	6,100	6,80
		150	125	110	100		6,100
			150	135	125		

Source: National Research Council, Division of Building Research, June 1980.

Explanatory Notes:

1) Where the calculated percentage window area is not presented as a column heading, the nearest percentage column in the table values should be used.
2) AIF data listed in the table are for well-fitted weatherstripped units that can be opened. The AIF values apply only when the windows are closed. For windows fixed and sealed to the frame, add three (3) to the AIF given in the table.
3) If the interpane spacing or glass thickness for a specific double-glazed window is not listed in the table, the nearest listed values should be used.
4) The AIF ratings for 9mm and 12mm glass are for laminated glass only; for solid glass subtract two (2) from the AIF values listed in the table.
5) If the interpane spacings for a specific triple-glazed window are not listed in the table, use the listed case whose combined spacings are nearest the actual combined spacing.
6) The AIF data listed in the table are for typical windows, but details of glass mounting, window seals, etc. may result in slightly different performance for some manufacturers' products. If laboratory sound transmission loss data (conforming to ASTM test method E-90) are available, these should be used to calculate the AIF.

Table 6.3 - Acoustic Insulation Factor for Various Types of Exterior Wall

Percentage of exterior wall area to total floor area of room												Type of Exterior Wall
	16	20	25	32	40	50	63	80	100	125	160	
Acoustic Insulation Factor	39	38	37	36	35	34	33	32	31	30	29	EW1
	41	40	39	38	37	36	35	34	33	32	31	EW2
	44	43	42	41	40	39	38	37	36	35	34	EW3
	47	46	45	44	43	42	41	40	39	38	37	EW4
	48	47	46	45	44	43	42	41	40	39	38	EW1R
	49	48	47	46	45	44	43	42	41	40	39	EW2R
	50	49	48	47	46	45	44	43	42	41	40	EW3R
	55	54	53	52	51	50	49	48	47	46	45	EW5
	56	55	54	53	52	51	50	49	48	47	46	EW4R
	58	57	56	55	54	53	52	51	50	49	48	EW6
	59	58	57	56	55	54	53	52	51	50	49	EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8

Source : National Research Council, Division of Building Research, December 1980.

Explanatory Notes :

1) Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
2) The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
3) EW1 denotes exterior wall as in Note 2), plus sheathing, plus wood siding or metal siding and fibre backer board.
EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board.
EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material.
EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco.
EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer.
EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick.
EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick.
EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete.
4) R signifies the mounting of the interior gypsum board on resilient clips.
5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm), 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
6) An exterior wall described in EW1 with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

Window (or door) area expressed as percentage of room floor area	Acoustic Insulation Factor (AIF)
80	STC-5
63	STC-4
50	STC-3
40	STC-2
32	STC-1
25	STC
20	STC+1
16	STC+2
12.5	STC+3
10	STC+4
8	STC+5
6.3	STC+6
5	STC+7
4	STC+8

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a window whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

TABLE 12: Approximate conversion from STC to AIF for exterior walls:

Exterior wall area expressed as percentage of room floor area	Acoustic Insulation Factor (AIF)
200	STC-10
160	STC-9
125	STC-8
100	STC-7
80	STC-6
63	STC-5
50	STC-4
40	STC-3
32	STC-2
25	STC-1
20	STC
16	STC+1
12.5	STC+2
10	STC+3
8	

Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 - 8 = 40.

NOVATECH
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261-271 King Edward Avenue
AIF Adjusted Sounds Levels

Created: March 22, 2016

POW 1A 2nd Floor	
Unattenuated	
Daytime	66.9
Nighttime	59.4
AIF Day	26.9
AIF Night	24.4
Attenuated	
Daytime	40.0
Nighttime	32.5

POW 1A 4th Floor	
Unattenuated	
Daytime	67.5
Nighttime	59.9
AIF Day	27.5
AIF Night	24.9
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 1B 2nd Floor	
Unattenuated	
Daytime	62
Nighttime	54.4
AIF Day	22.0
AIF Night	19.4
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 1B 4th Floor	
Unattenuated	
Daytime	66.4
Nighttime	58.8
AIF Day	26.4
AIF Night	23.8
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 2 2nd Floor	
Unattenuated	
Daytime	63.96
Nighttime	56.36
AIF Day	24.0
AIF Night	21.4
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 2 4th Floor	
Unattenuated	
Daytime	69.93
Nighttime	62.33
AIF Day	29.9
AIF Night	27.3
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 2 6th Floor	
Unattenuated	
Daytime	69.93
Nighttime	62.33
AIF Day	29.9
AIF Night	27.3
Attenuated	
Daytime	40.0
Nighttime	32.4

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Engineers, Planners & Landscape Architects

261-271 King Edward Avenue
AIF Adjusted Sounds Levels

Created: March 22, 2016

POW 3 2nd Floor	
Unattenuated	
Daytime	70.83
Nighttime	63.23
AIF Day	30.8
AIF Night	28.2
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 3 4th Floor	
Unattenuated	
Daytime	71.19
Nighttime	63.59
AIF Day	31.2
AIF Night	28.6
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 3 6th Floor	
Unattenuated	
Daytime	71.19
Nighttime	63.59
AIF Day	31.2
AIF Night	28.6
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 4 2nd Floor	
Unattenuated	
Daytime	60.3
Nighttime	52.7
AIF Day	20.3
AIF Night	17.7
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 4 4th Floor	
Unattenuated	
Daytime	63.06
Nighttime	55.46
AIF Day	23.1
AIF Night	20.5
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 4 6th Floor	
Unattenuated	
Daytime	63.06
Nighttime	55.46
AIF Day	23.1
AIF Night	20.5
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 5 2nd Floor	
Unattenuated	
Daytime	63.56
Nighttime	55.96
AIF Day	23.6
AIF Night	21.0
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 5 4th Floor	
Unattenuated	
Daytime	63.87
Nighttime	56.27
AIF Day	23.9
AIF Night	21.3
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 5 6th Floor	
Unattenuated	
Daytime	65.48
Nighttime	57.88
AIF Day	25.5
AIF Night	22.9
Attenuated	
Daytime	40.0
Nighttime	32.4

NOVATECH
Engineers, Planners & Landscape Architects

261-271 King Edward Avenue
AIF Adjusted Sounds Levels

Created: March 22, 2016

POW 6 2nd Floor	
Unattenuated	
Daytime	70.52
Nighttime	62.92
AIF Day	30.5
AIF Night	27.9
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 6 4th Floor	
Unattenuated	
Daytime	70.58
Nighttime	62.98
AIF Day	30.6
AIF Night	28.0
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 6 6th Floor	
Unattenuated	
Daytime	70.76
Nighttime	63.16
AIF Day	30.8
AIF Night	28.2
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 7 2nd Floor	
Unattenuated	
Daytime	67.2
Nighttime	59.61
AIF Day	27.2
AIF Night	24.6
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 7 4th Floor	
Unattenuated	
Daytime	67.5
Nighttime	59.91
AIF Day	27.5
AIF Night	24.9
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 7 6th Floor	
Unattenuated	
Daytime	70.77
Nighttime	63.17
AIF Day	30.8
AIF Night	28.2
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 8 1st Floor	
Unattenuated	
Daytime	63.89
Nighttime	56.29
AIF Day	23.9
AIF Night	21.3
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 9 1st Floor	
Unattenuated	
Daytime	70.87
Nighttime	63.27
AIF Day	30.9
AIF Night	28.3
Attenuated	
Daytime	40.0
Nighttime	32.4

POW 10 1st Floor	
Unattenuated	
Daytime	70.49
Nighttime	62.89
AIF Day	30.5
AIF Night	27.9
Attenuated	
Daytime	40.0
Nighttime	32.4

NOVATECH
Engineers, Planners & Landscape Architects

M E M O R A N D U M

DATE: APRIL 11, 2016

TO: CYNTHIA JACQUES

FROM: MARK BOWEN

RE: 261-271 KING EDWARD RECOMMENDED EXTERIOR WALL AND WINDOW COMPONENTS

CC: MIKE PERRON

This memo is in support of the 261-271 King Edward Avenue Noise Impact Assessment Report and outlines the minimal components of a EW1 exterior wall and provides several equivalents for the window type assemblies specified.

Typical EW1 exterior walls are composed of the following materials:

- 12.7mm (0.5") gypsum board
- Vapour barrier
- 38mm (1.5") x 89mm (3.5") studs with 50mm (2") mineral wood or glass fibre batts in the stud cavities
- Sheathing
- Wood or metal siding complete with fibre backer board.

Table 1 lists several equivalent window type assemblies equivalent to the window type assemblies outlined in Tables 7 and 9 of the report.

Table 1. Equivalent Window Type Assemblies

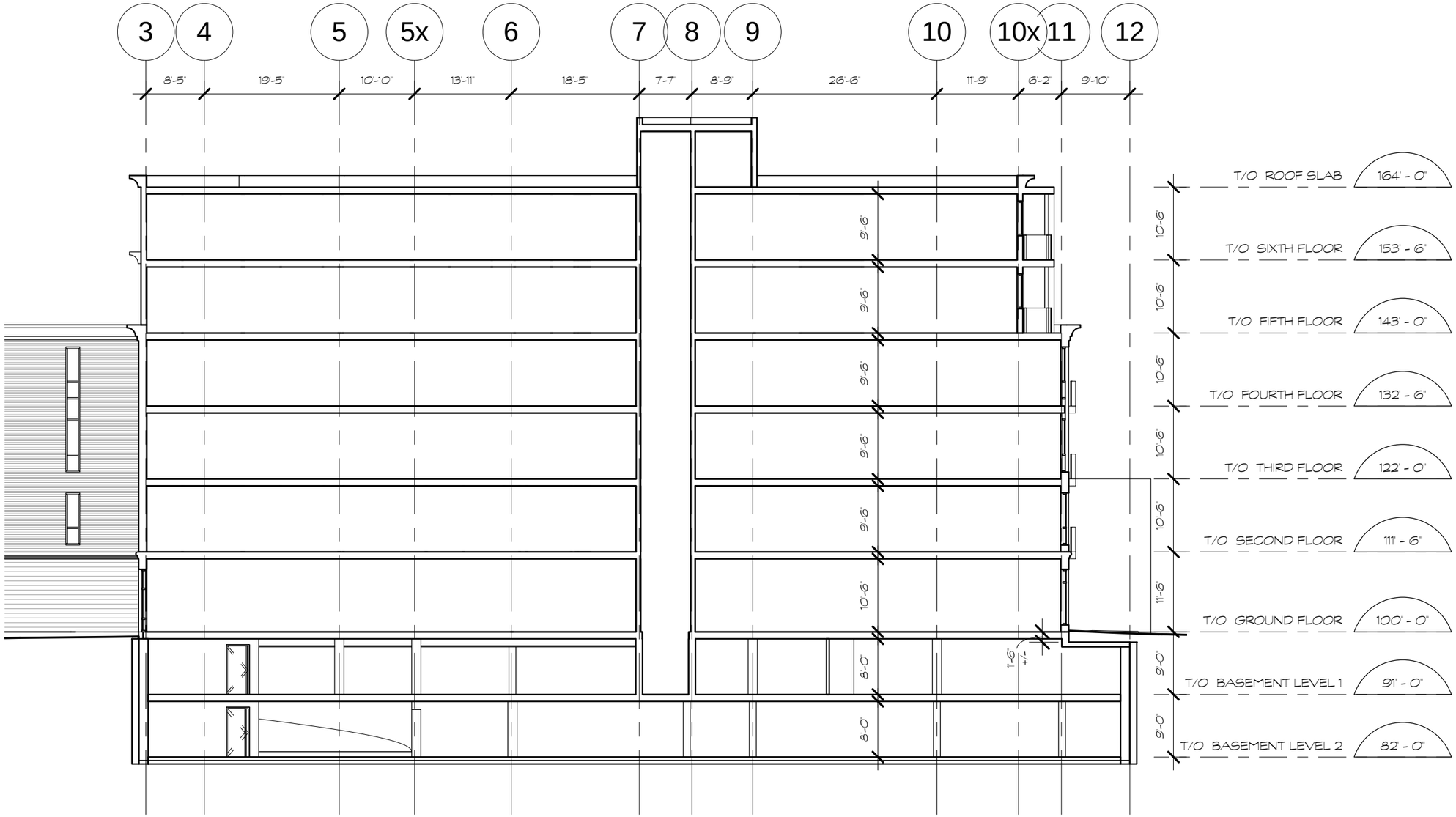
Specified Window	Double Glazing Options				Triple Glazing Options	
2mm Glass	3mm Glass	4mm Glass	3mm/6mm Glass	6mm Glass	3mm Glass	3mm/6mm Glass
2-*6*-2	-	-	-	-	-	-
2-*15*-2	3-*6*-3	-	-	-	-	-
2-*18*-2	3-*13*-3	4-*6*-4	-	-	-	-
2-*22*-2	3-*16*-3	4-*13*-4	3-*6*-6	6-*6*-6	3-*6*-3-*6*-3	-
2-*28*-2	3-*20*-3	4-*16*-4	3-*13*-6	6-*13*-6	3-*6*-3-*10*-3	3-*6*-3-*6*-6
2-*35*-2	3-*25*-3	4-*20*-4	3-*16*-6	6-*16*-6	3-*6*-3-*15*-3	3-*6*-3-*10*-6
2-*42*-2	3-*32*-3	4-*25*-4	3-*20*-6	6-*20*-6	3-*6*-3-*20*-3	3-*6*-3-*15*-6

Regular text represents the glass thickness (mm)
Italic text represents the space between the glass (mm)

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

APPENDIX D

Elevation Plans, Floor Plans, and Noise Control Plan



BUILDING SECTION

SCALE: 1/16" = 1'-0"

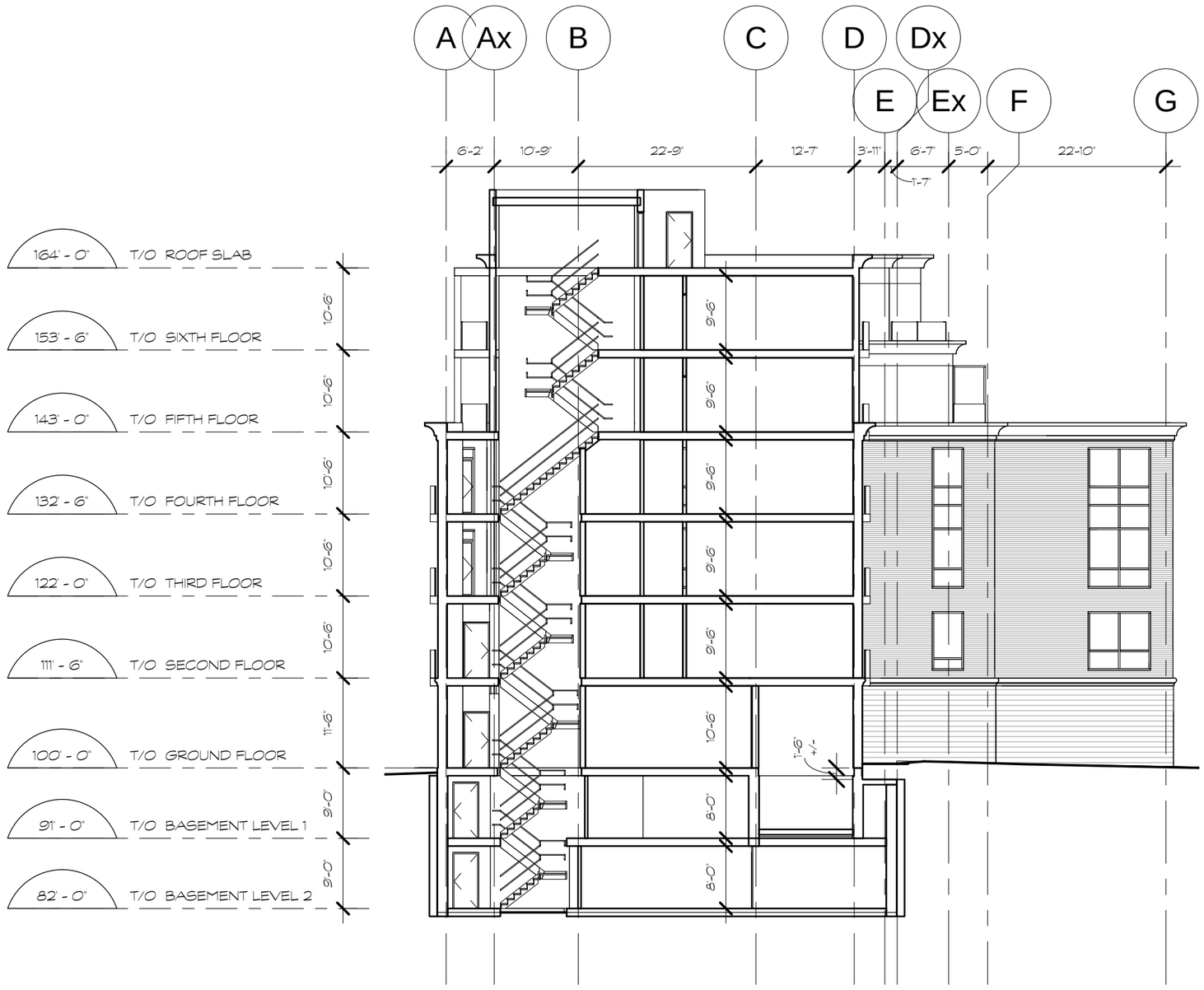
kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



BUILDING SECTION

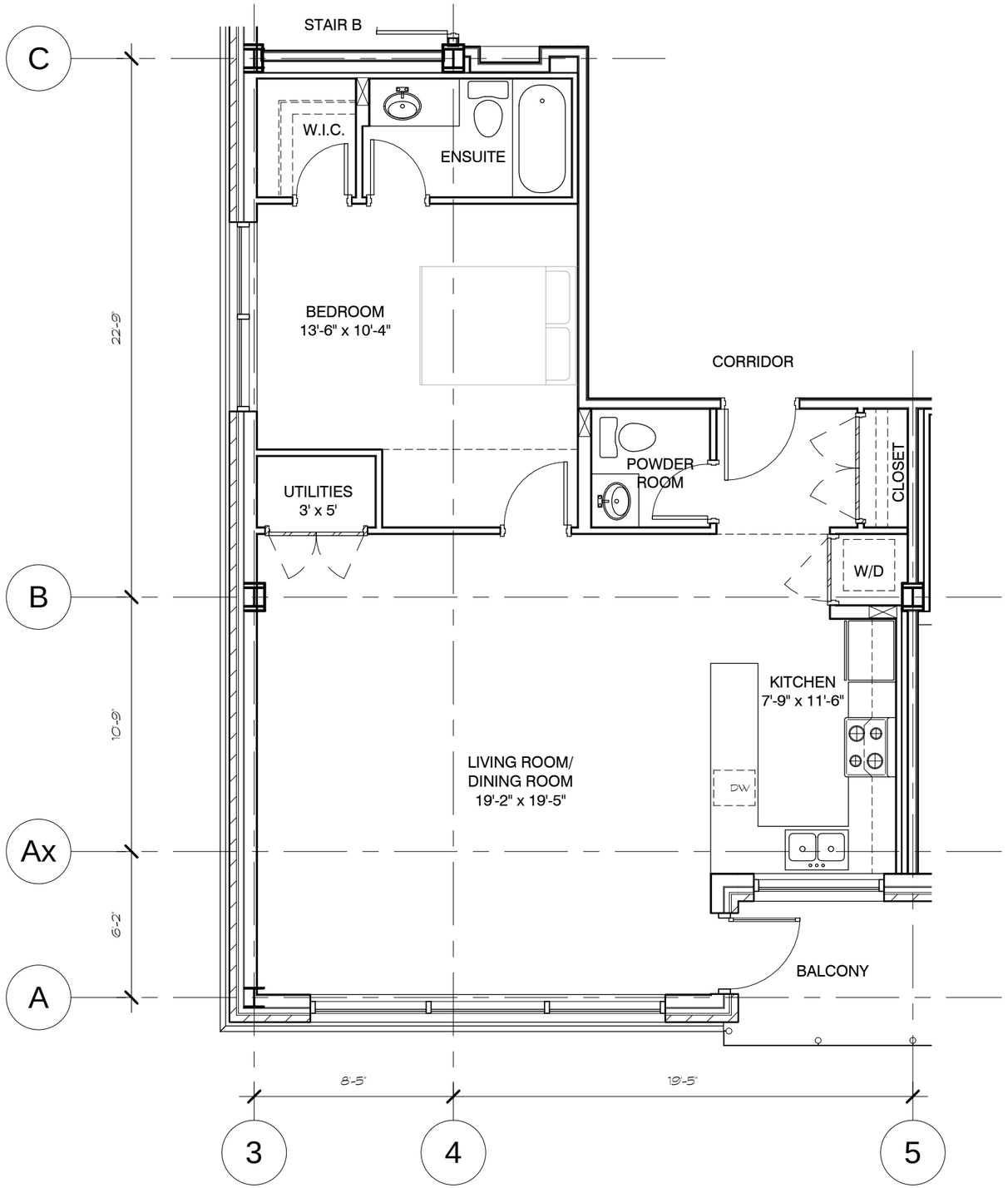
SCALE: 1/16" = 1'-0"

APARTMENT BUILDING

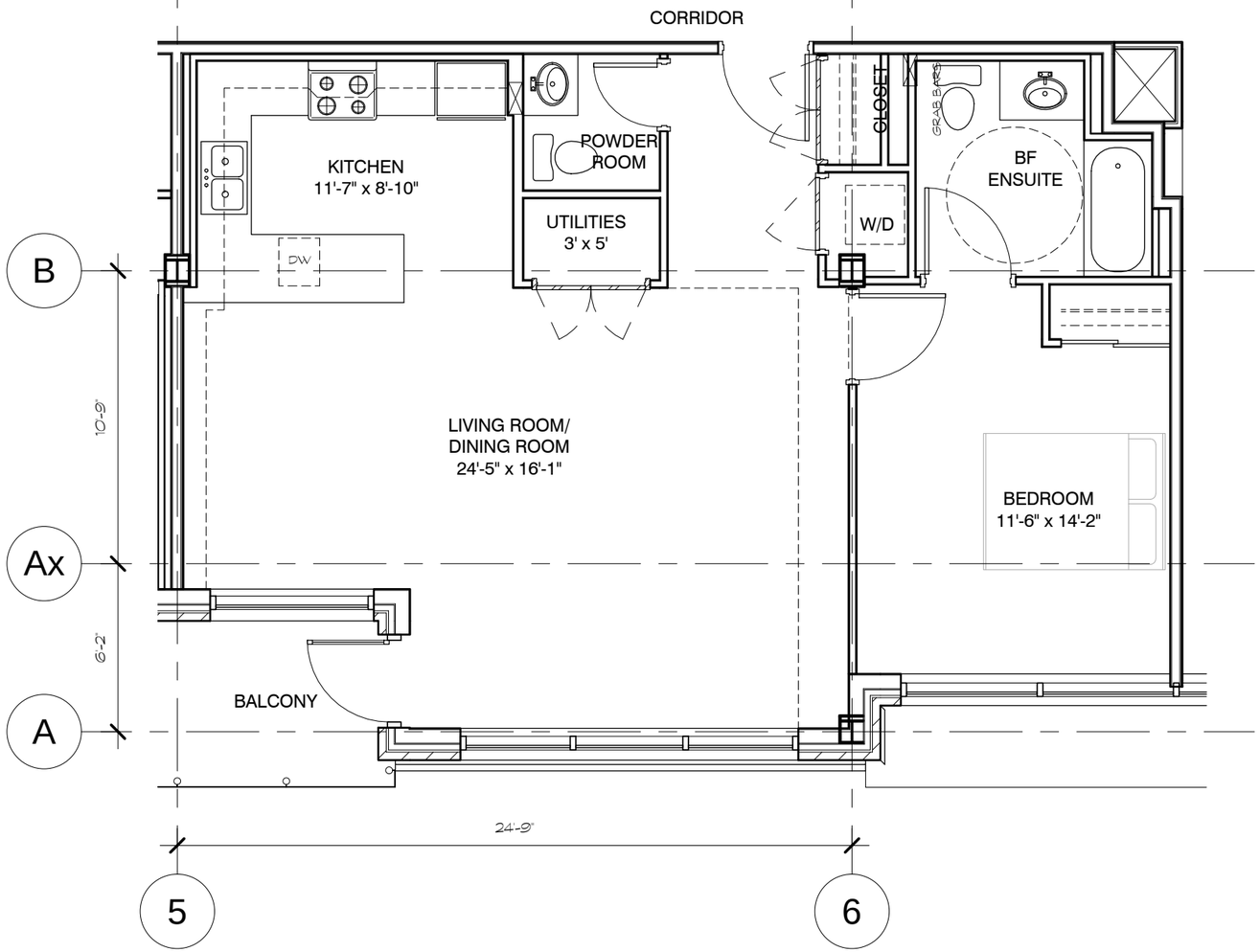
275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 202/302/402



UNIT 201/301/401
BARRIER FREE

UNIT x01 & x02 PLANS (TYPICAL FLOOR)

SCALE: 3/16" = 1'-0"

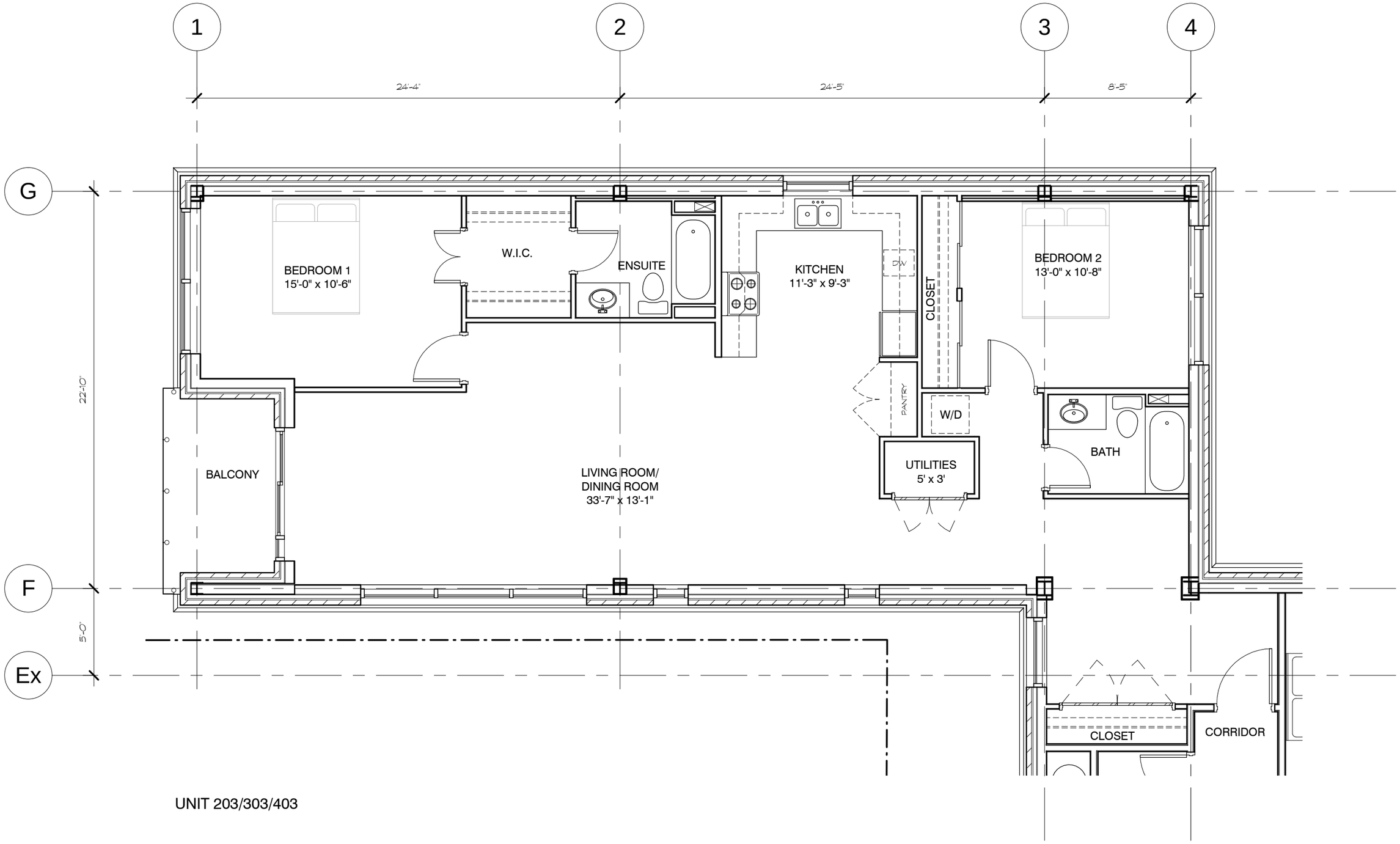
kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 203/303/403

UNIT x03 PLAN (TYPICAL FLOOR)

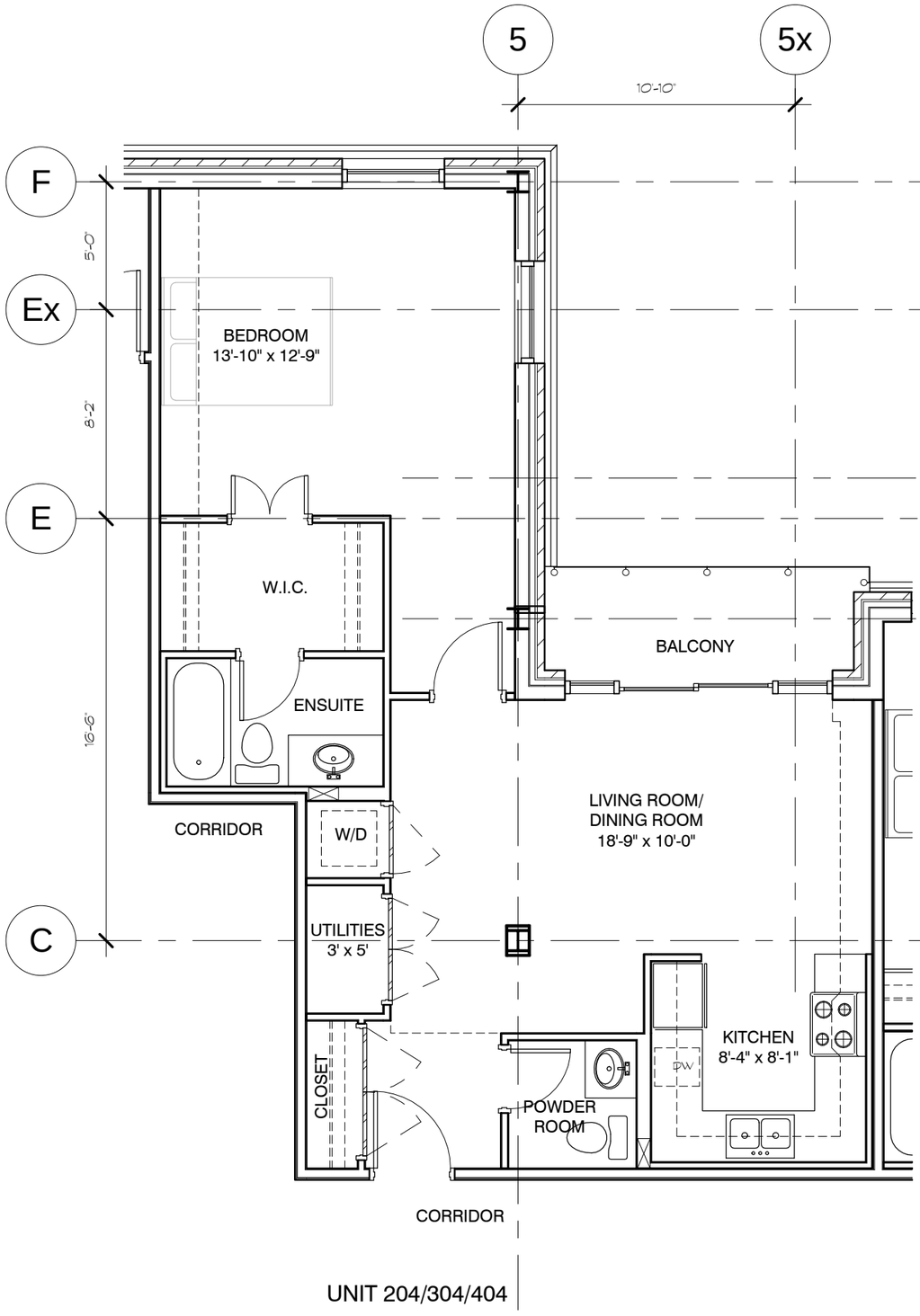
SCALE: 3/16" = 1'-0"

APARTMENT BUILDING

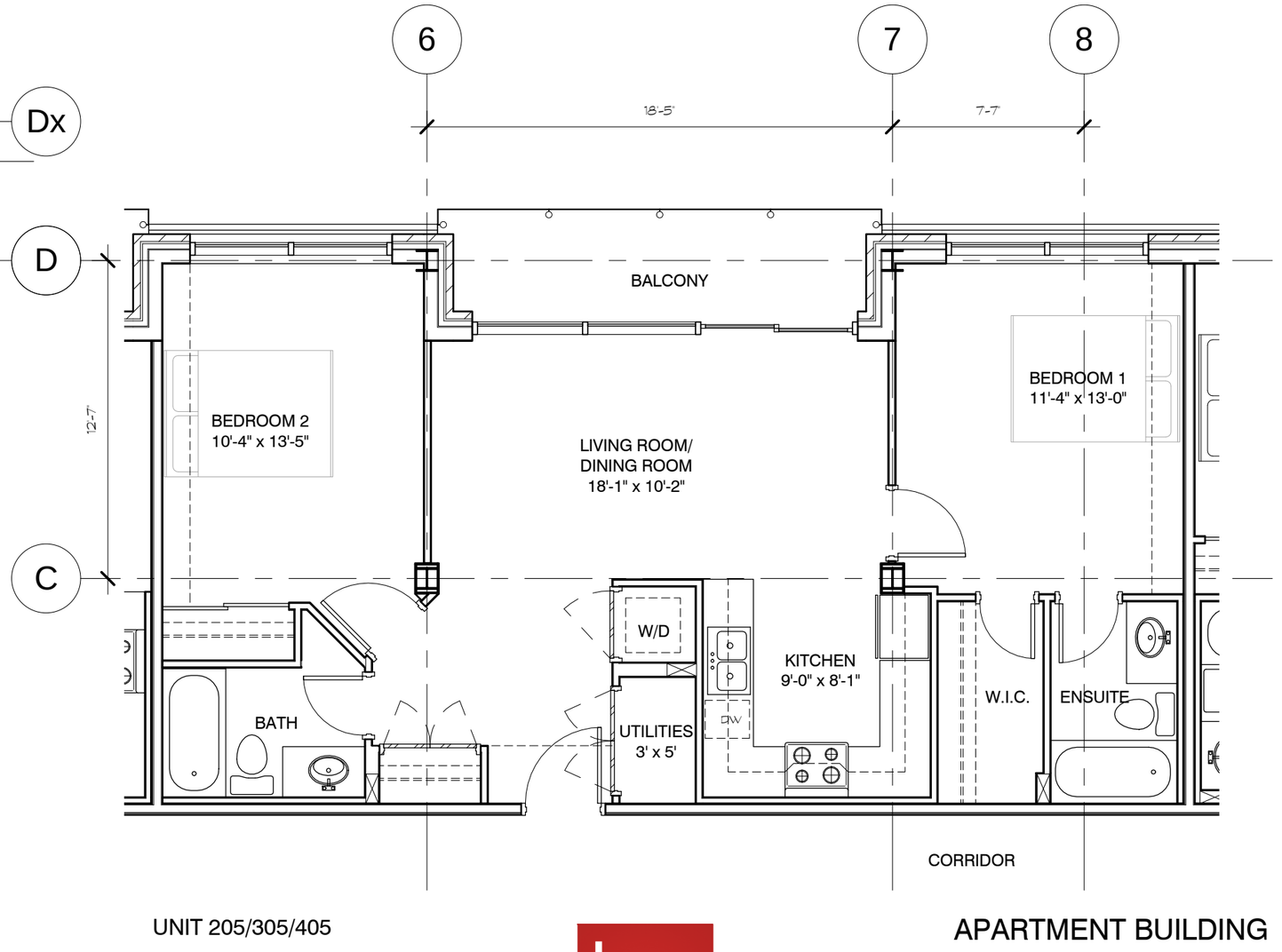
275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 204/304/404



UNIT 205/305/405

UNIT x04 & x05 PLANS (TYPICAL FLOOR)

SCALE: 3/16" = 1'-0"

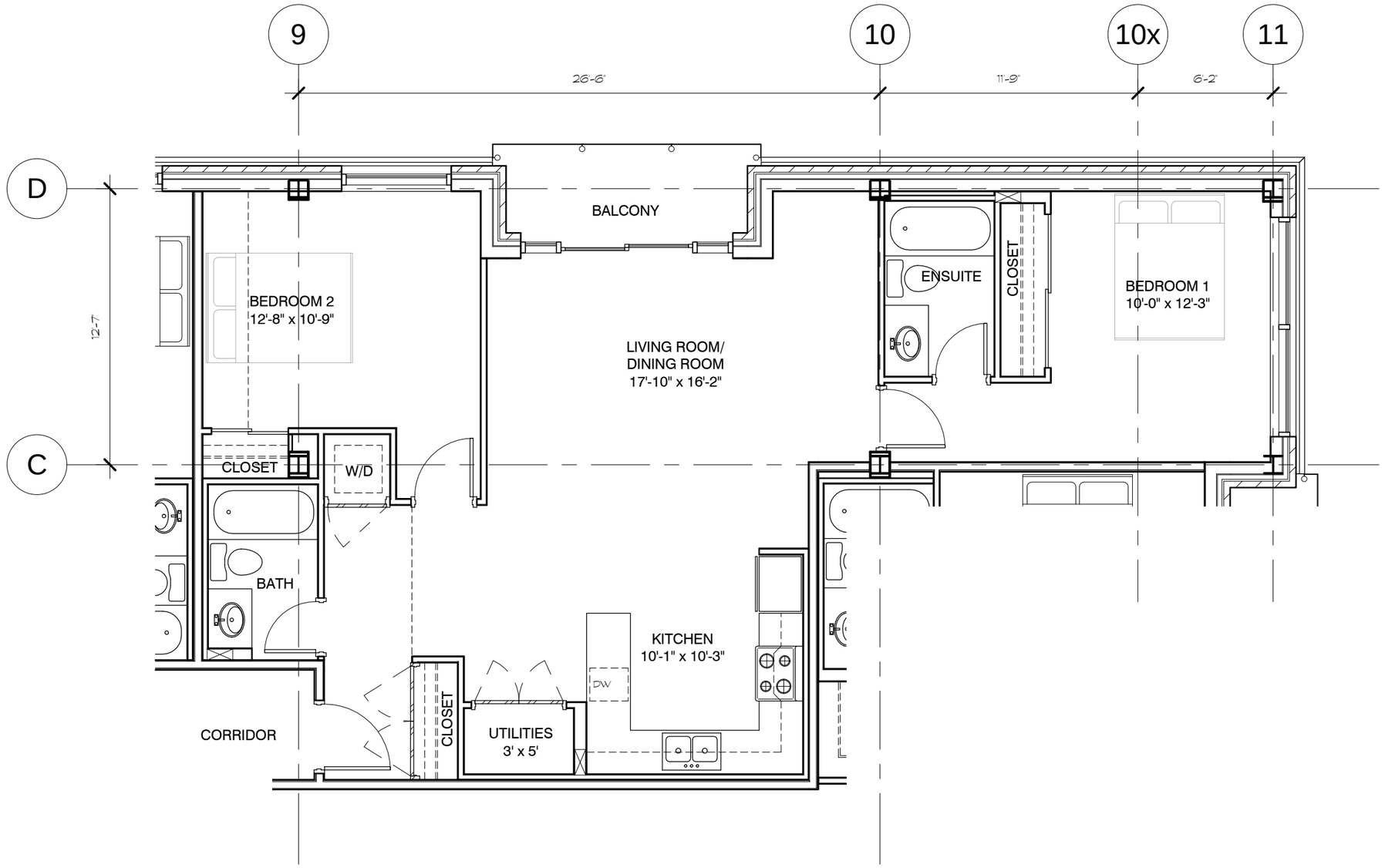
kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 206/306/406

UNIT x06 PLAN (TYPICAL FLOOR)

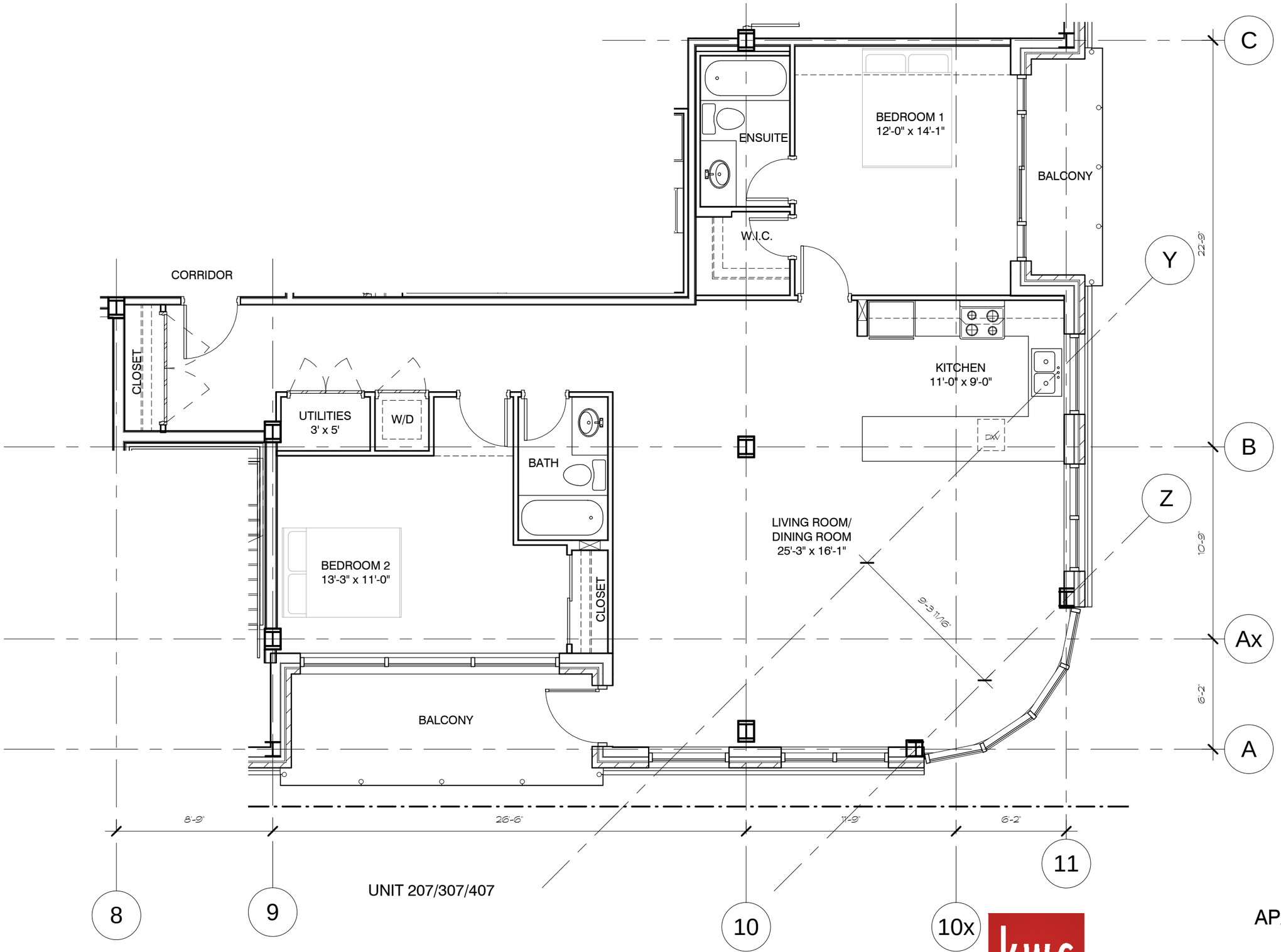
SCALE: 3/16" = 1'-0"

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT x07 PLAN (TYPICAL FLOOR)

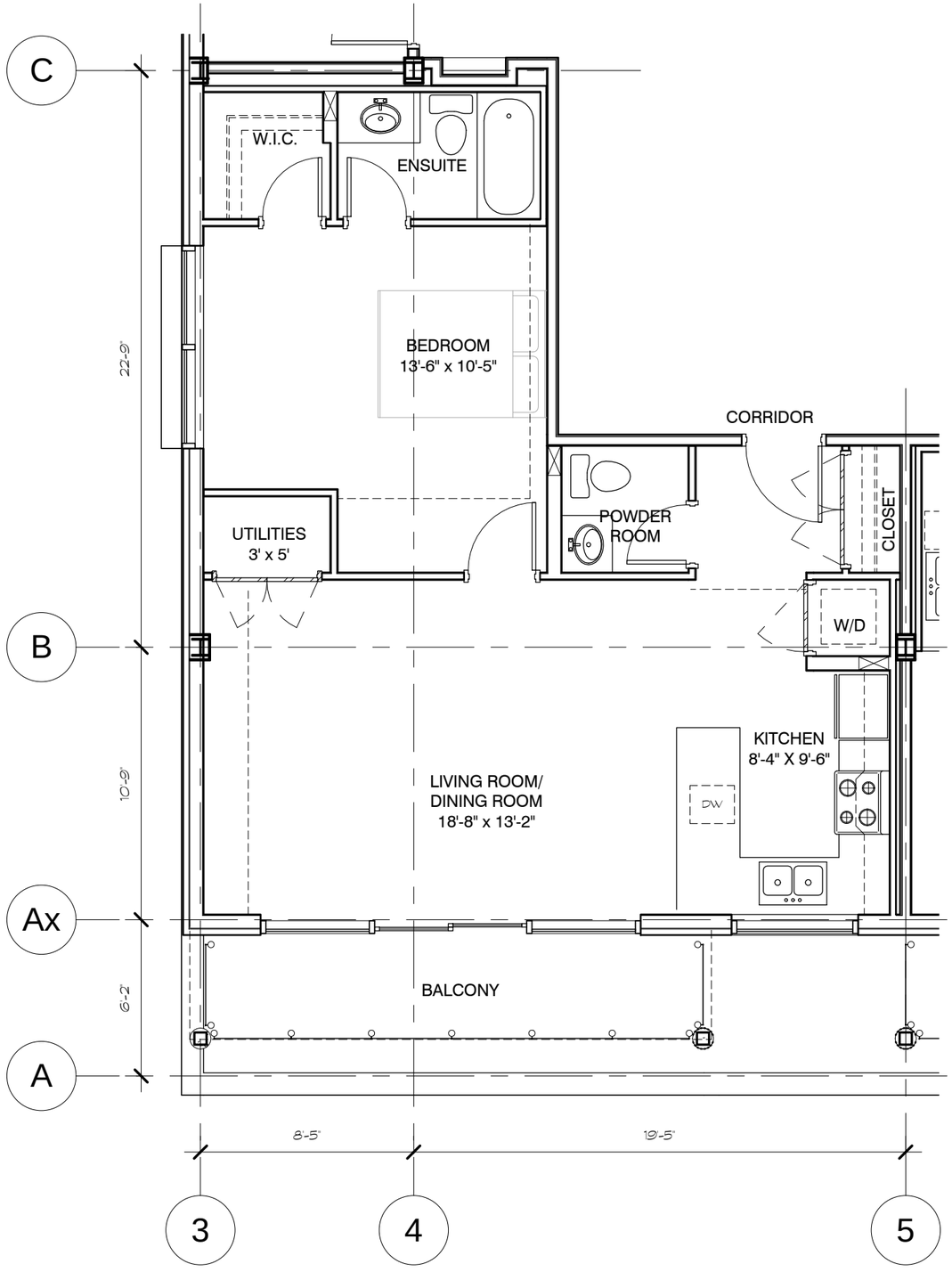
SCALE: 3/16" = 1'-0"

APARTMENT BUILDING

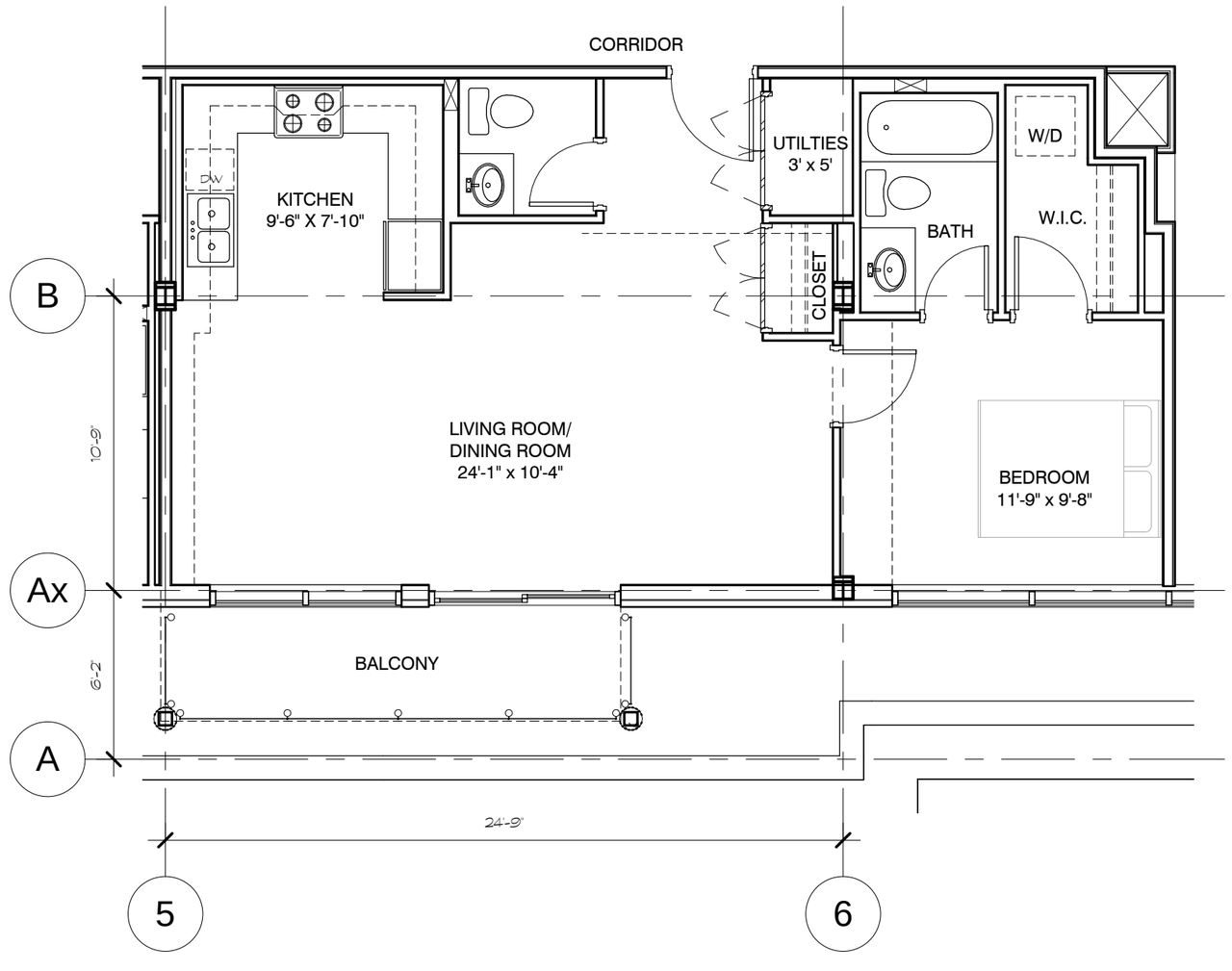
275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 502/602



UNIT 501/601

UNIT x01 & x02 PLANS (5th & 6th FLOORS)

SCALE: 3/16" = 1'-0"

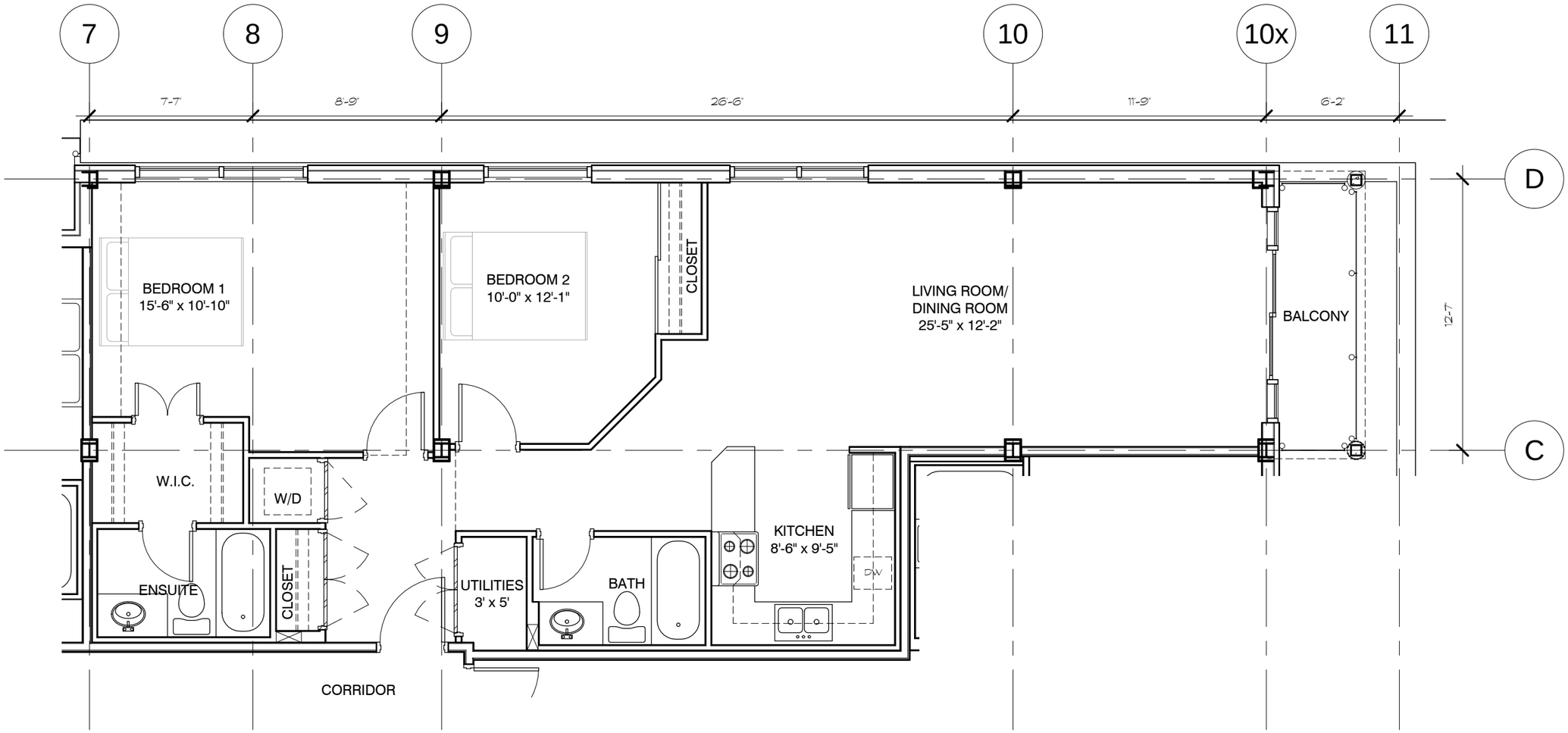
kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 504/604

UNIT x04 PLAN (5th & 6th FLOORS)

SCALE: 3/16" = 1'-0"

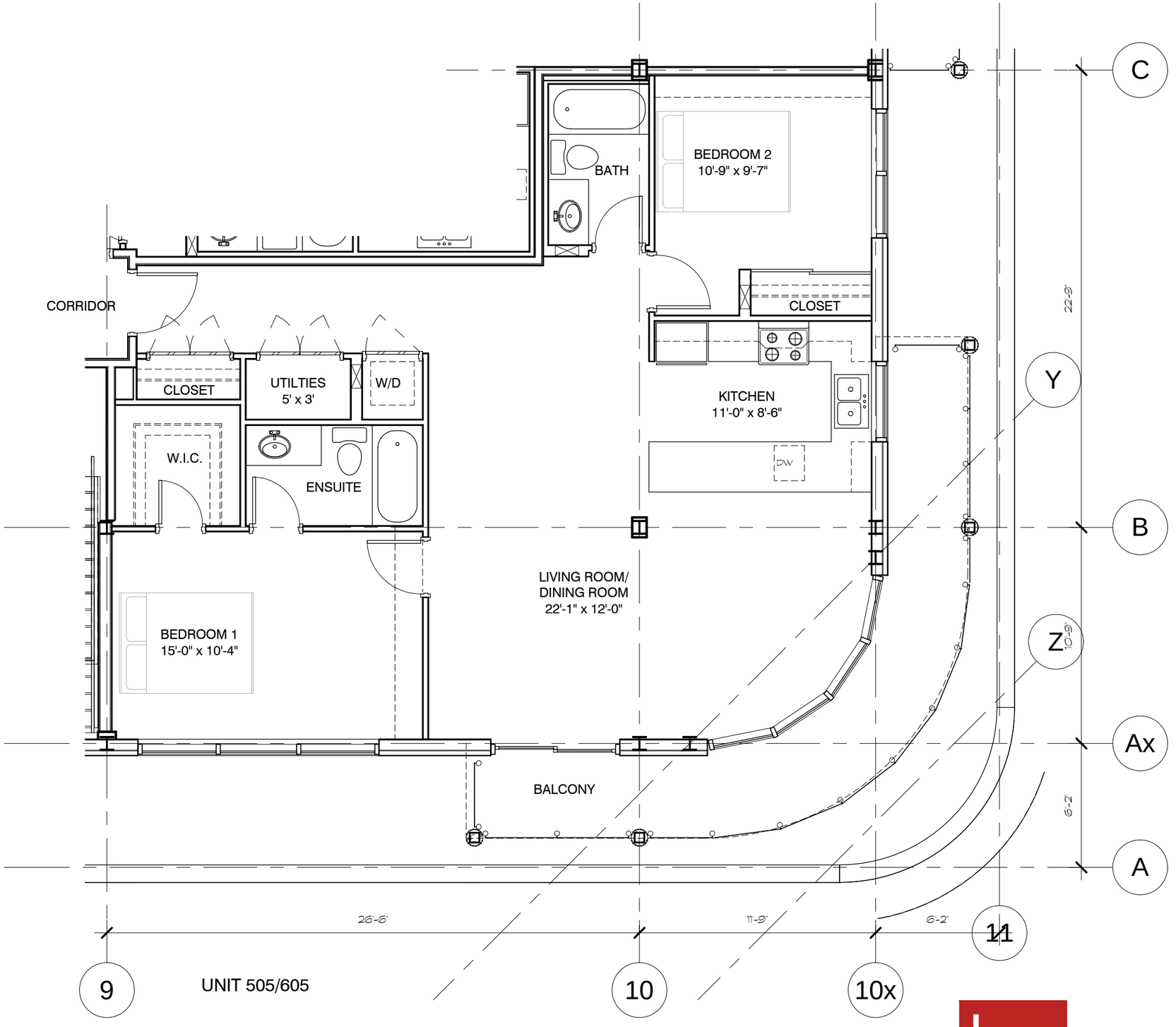
kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT x05 PLAN (5th & 6th FLOORS)

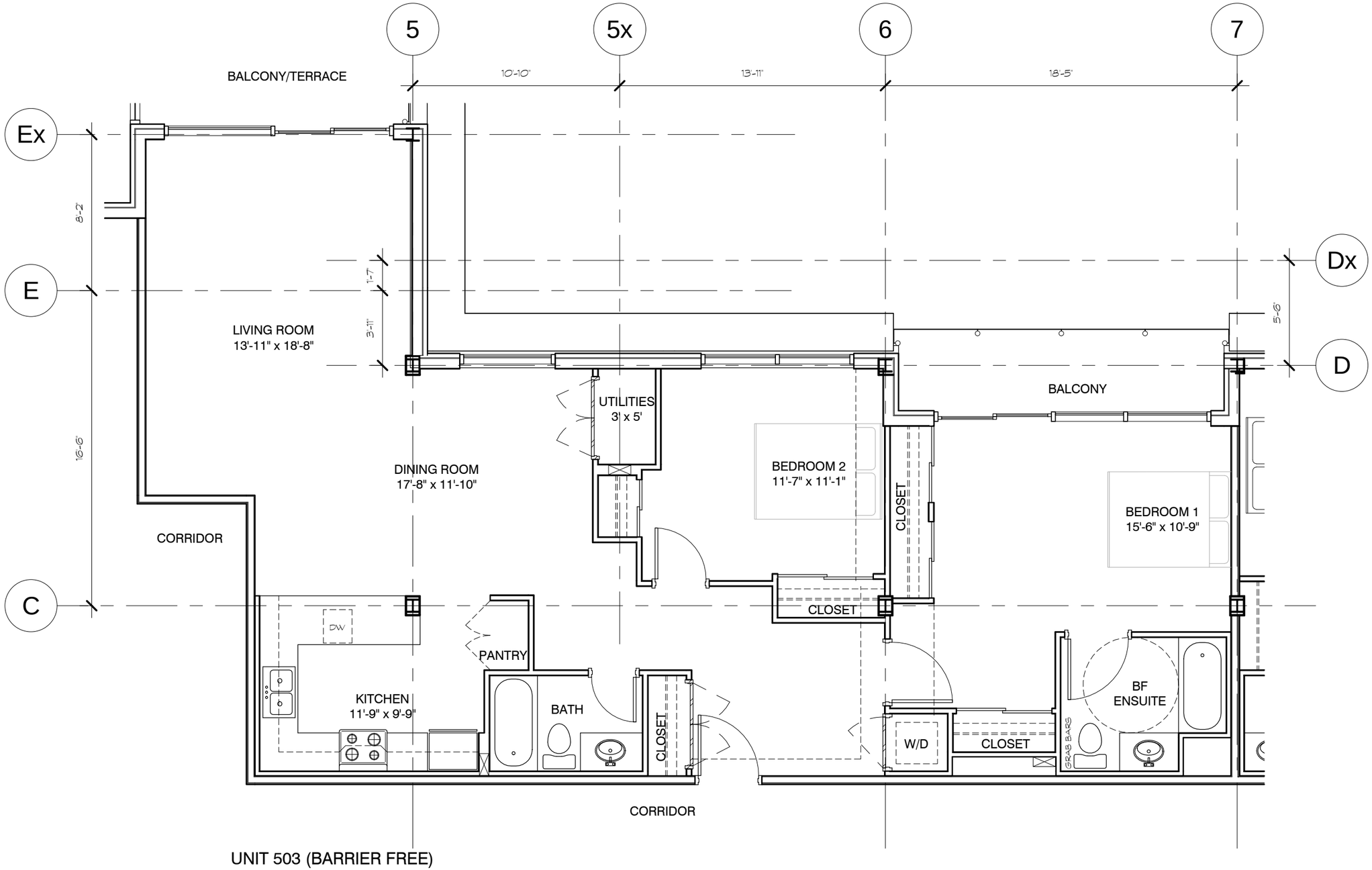
SCALE: 3/16" = 1'-0"

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 503 PLAN

SCALE: 3/16" = 1'-0"

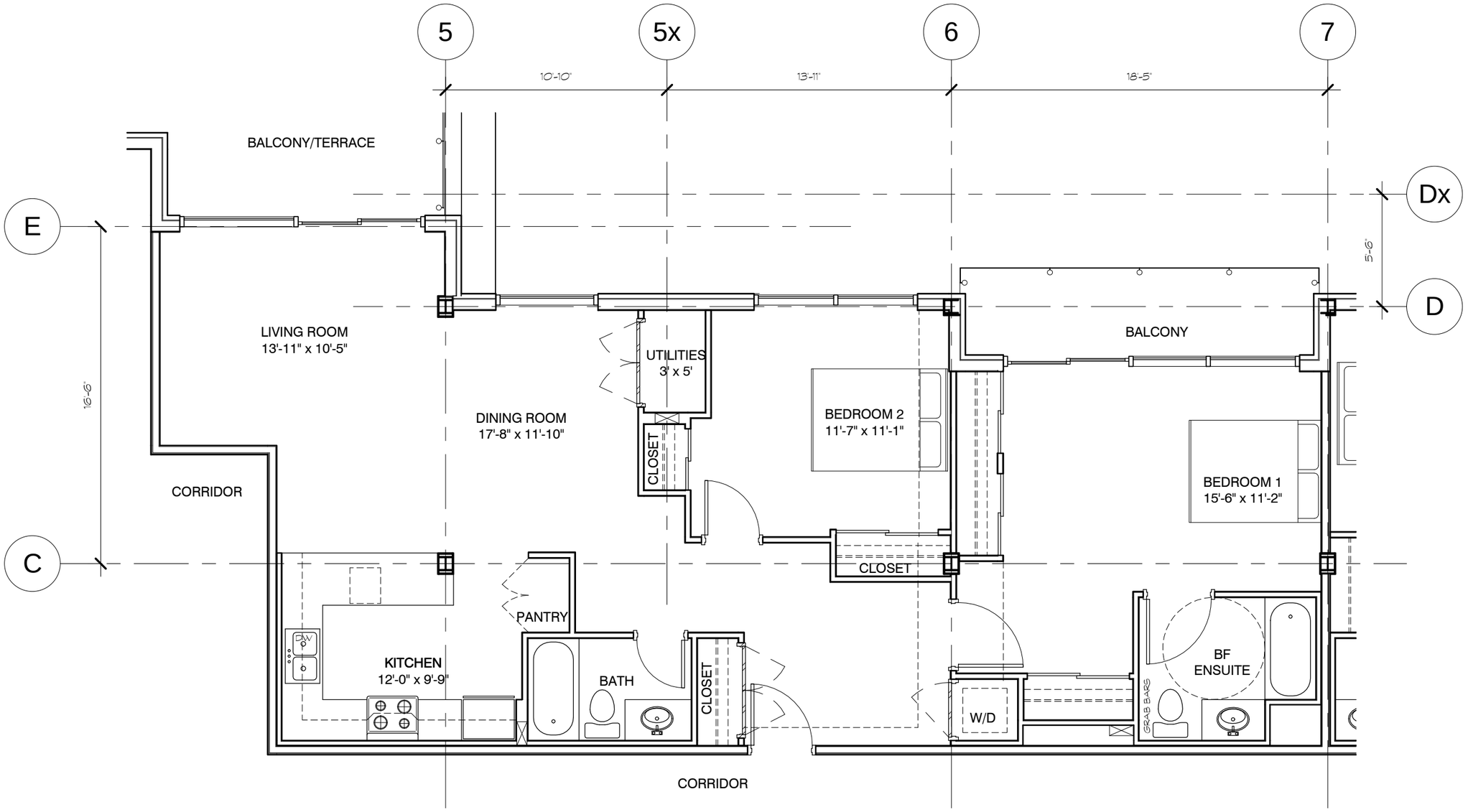
kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA



UNIT 603 (BARRIER FREE)

UNIT 603 PLAN

SCALE: 3/16" = 1'-0"

kwc

APARTMENT BUILDING

275 KING EDWARD AVE
OTTAWA, ON.

KWC ARCHITECTS INC.
22 MARCH 2016

1611–LKA

RECEIVER DATA TABLE

RECEIVER	RECEIVER INFORMATION						DISTANCES TO NOISE SOURCE (m)		
	UNITS			HEIGHT* (m)	FINISHED FLOOR (m)	ROAD ELEVATION (m)	KING EDWARD	MURRAY	ST. PATRICK
	GROUND	2nd - 4th Floors	5th - 6th Floors						
POW1A	-	x03	-	5.0/11.4	58.1	58.0	48	16	100
POW1B	-	x03	-	5.0/11.4	58.1	58.0	43	22	105
POW2	-	x02	x02	5.0/11.4/17.8	58.1	58.0	29	29	113
POW3	-	x02	x02	5.0/11.4/17.8	58.1	58.0	22	35	116
POW4	-	x01	x01	5.0/11.4/17.8	58.1	58.0	22	49	132
POW5	-	x06	x05	5.0/11.4/17.8	58.1	58.0	33	N/A	N/A
POW6	-	x07	x05	5.0/11.4/17.8	58.1	58.0	22	63	144
POW7	-	x07	x05	5.0/11.4/17.8	58.1	58.0	22	58	140
POW8	COMMERCIAL	-	-	1.5	58.1	58.0	27	29	113
POW9	COMMERCIAL	-	-	1.5	58.1	58.0	22	33	110
POW10	COMMERCIAL	-	-	1.5	58.1	58.0	22	64	146
OLA1	-	-	-	1.5	58.1	58.0	44	39	119

*RECEIVER HEIGHTS 5.0m = 2nd FLOOR, 11.4m = 4th FLOOR, 17.8m = 6th FLOOR

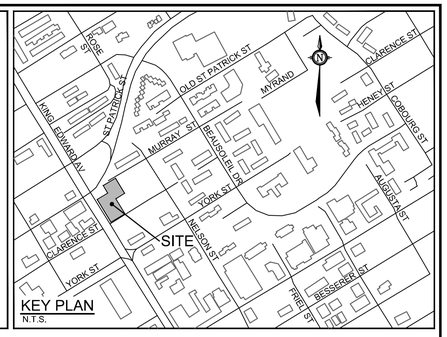
LEGEND

- PROPERTY LINE
- POW 1 — RECEIVER - PLANE OF WINDOW (POW)
- OLA 1 — RECEIVER - OUTDOOR LIVING AREA (OLA)
- (L) — INDICATES LOCAL ROAD
- (A) — INDICATES ARTERIAL ROAD

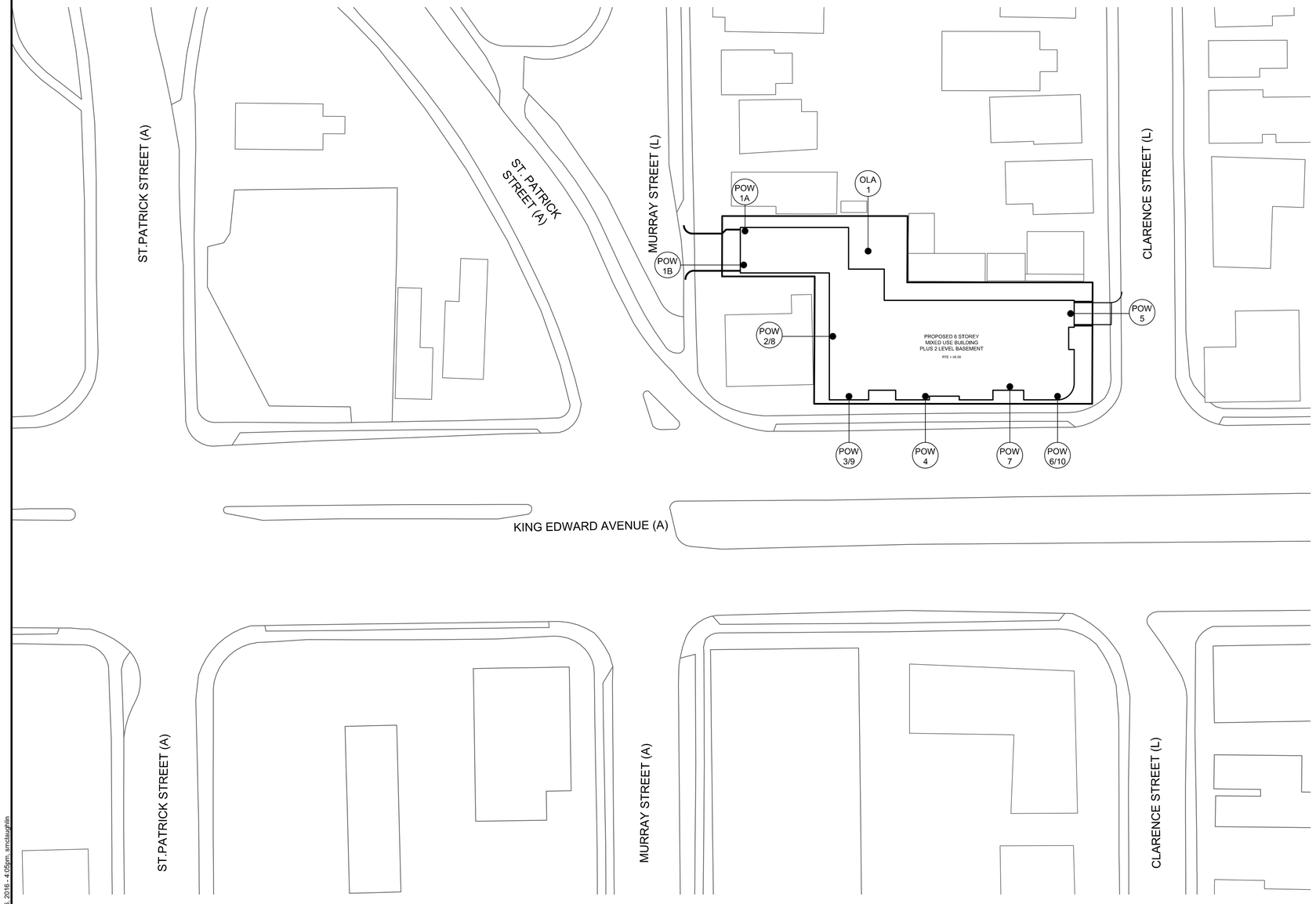
NOTES:

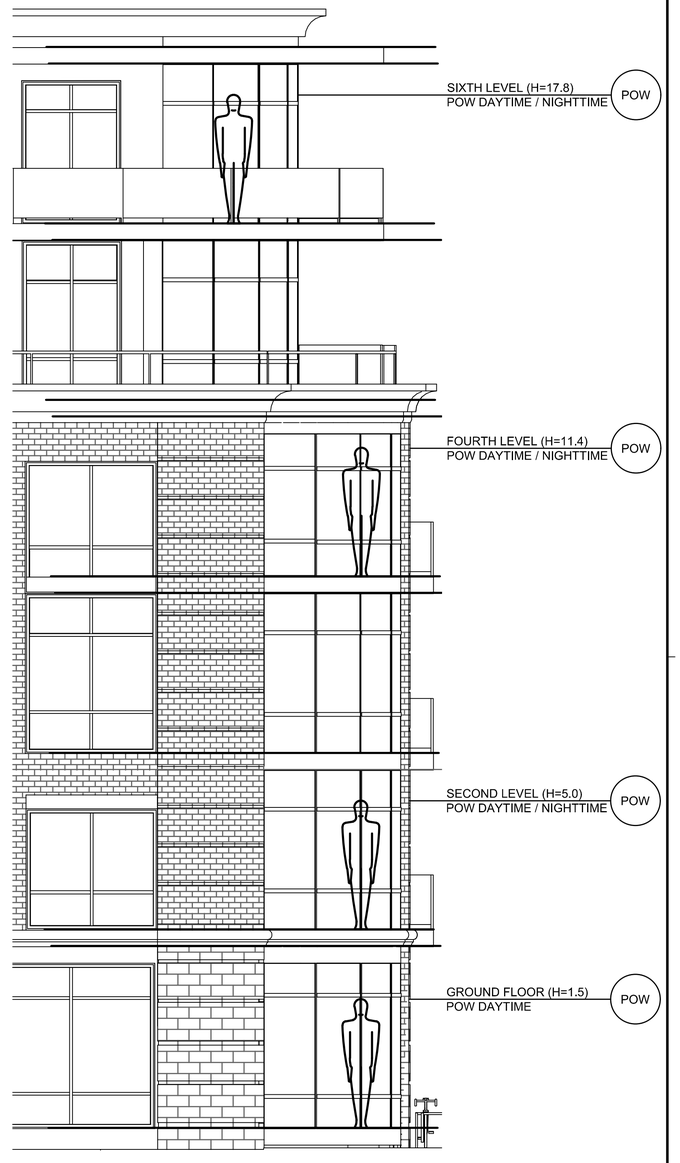
1. NOISE CONTROL PLAN TO BE READ IN CONJUNCTION WITH NOISE IMPACT ASSESSMENT (R-2016-039) PREPARED BY NOVATECH, REFER TO REPORT FOR THE TYPICAL WARNING CLAUSES TO BE REGISTERED ON TITLE AND PROPOSED NOISE MITIGATION MEASURES.
2. ROADWAY CLASSIFICATION AS PER CITY OF OTTAWA OFFICIAL PLAN, SCHEDULE F, CENTRAL AREA/INNER CITY NETWORK.

NORTH



KEY PLAN
N.T.S.





TYPICAL RECEIVER ELEVATION
SCALE : N.T.S.

NOTE:
TYPICAL RECEIVER ELEVATIONS

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
1.	ISSUED WITH NOISE IMPACT ASSESSMENT REPORT	APR 1/16	MWB

SCALE
1:400
1:400
0 4 8 12 16

DESIGN MWB
CHECKED MWB
DRAWN MF/SAM
CHECKED MWB
APPROVED MWB

FOR REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER
J.G. RIDDELL
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
261-271 KING EDWARD AVENUE

DRAWING NAME
NOISE CONTROL PLAN

PROJECT No. 112078-00
REV REV # 1
DRAWING No. 112078-NC

M:\2012\112078\CAD\Design\112078-NC.dwg, 112078-NC, Apr 06, 2016 - 4:05pm, smclaughlin

PLANAT.DWG - 84 hmm/304mm