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Noise Impact Study
Proposed Residential Development
3575 Kaneff Crescent
Mississauga, ON

Prepared for:

Kaneff Properties Limited
8501 Mississauga Road
Brampton, ON
L6Y 5G8

Prepared by

Harry Cai, PEng

Reviewed by

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July 12, 2023

HGC Project No: 01900761

VERSION CONTROL

Proposed Residential Development, 3475 Kaneff Crescent, Mississauga, Ontario

Ver.	Date	Version Description	Prepared By
1.0	May 20, 2020	Original Noise Feasibility Study to support plannings and approvals process	H. Cai
--	June 22, 2022	Addendum letter for review of floor plans and elevation drawings and to update road traffic noise assessment method to STAMSON	H. Cai
2.0	July 12, 2023	Updated study to include revised architectural drawings	H. Cai

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Table of Contents

1 Introduction and Summary

HGC Engineering was retained by Kaneff Properties Limited to conduct a noise impact study for a proposed high-rise residential development located at 3575 Kaneff Crescent in Mississauga, Ontario. The residential development will consist of a 40-storey residential building. The study is required by the City of Mississauga and the Region of Peel as part of the planning and approvals process.

This study is an update of our previous study, titled "Noise Feasibility Study, Proposed Residential Development 3575 Kaneff Crescent, Mississauga, Ontario" dated May 20, 2020, to include the latest architectural drawings.

The primary sources of noise are road traffic noise on Hurontario Street, Burnhamthorpe Road, Central Parkway East, Mississauga Valley Blvd, and Kaneff Crescent. Road traffic data was obtained from the City of Mississauga and was used to predict future traffic sound levels at the proposed building façades and outdoor living areas. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP), the Region of Peel, and the City of Mississauga to develop noise control recommendations.

The results of the study indicate that the proposed development is feasible with the noise control measures described in this report. An alternative means of ventilation to open windows will be required for the residential building. The installation of central air conditioning will meet and exceed ventilation requirements. Noise warning clauses are also required to inform future occupants of the traffic noise impacts and proximity to commercial uses. For all dwelling units, building constructions meeting the minimum requirement of the Ontario Building Code will provide sufficient acoustical insulation for the indoor spaces.

2 Site Description and Noise Sources

Figure 1 is a key plan indicating the location of the proposed site and project north arrow for reference. The site is located east of Kaneff Crescent and south of Mississauga Valley Boulevard. Figure 2 shows the typical floor plan taken from the Rezoning Submission Set by Turner Fleischer Architects Inc., last revised June 8, 2023. The proposed development will consist of a 40-storey residential building with underground parking and an outdoor amenity area on the fifth floor.

HGC Engineering personnel visited the site on February 4, 2020 to make observations of the acoustical environment. During the site visit, it was noted that the primary source of noise impacting the site was road traffic noise on Kaneff Crescent and Mississauga Valley Boulevard due to their close proximity to the site area, along with contribution from Hurontario Street, Burnhamthrope Road, and Central Parkway, which are further away from the site. The site is currently occupied by an outdoor parking lot, which will be removed for the construction of the proposed high-rise building. Areas around the site area are flat and mostly residential. Existing high-rise residential buildings surround the site area immediately to the north and east. A commercial plaza exists to the southeast of the site area. Although sound emissions from the commercial plaza were not discernible at the site area, it is recommended that a noise warning clause to identify that such commercial uses may be audible at times be included in the property and tenancy agreements.

There is a proposed future Light Rail transit (LRT) system along the centre of Hurontario Street. Information regarding the Huontario-Main LRT line was obtained from the report prepared for SNC-Lavalin Inc. in support of the Transit Project Assessment Project (TRAP) by J.E. Coulter Associates Ltd. The report states that the LRT line will run along the Hurontario Street corridor, beginning at the Port Credit GO Station and ending at the Brampton GO Transit Station. The findings of the report prepared by J.E. Coulter Associates Limited for the future Hurontario-Main Street LRT indicate that there will be no noticeable change in the sound levels along most parts of the corridor and that the contribution of the LRT in relation to the overall sound level from road traffic is negligible. Supporting documents from the report are attached in Appendix C.

3 Noise Level Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, release date October 21, 2013, and are listed in Table I below. The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table I: MECP Road Traffic Noise Criteria (dBA)

Area	Daytime $L_{EQ\ (16\ hour)}$ Road	Nighttime $L_{EQ\ (8\ hour)}$ Road
Outdoor Living Area	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00. Nighttime refers to the time period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace, or other area where passive recreation is expected to occur. Small balconies are not considered OLAs for the purposes of assessment. Terraces greater than 4 m in depth (measured perpendicular to the building façade) are considered to be OLAs. Generally, common outdoor amenity terraces are the only outdoor spaces that require consideration in multi-family buildings.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or greater for the Region of Peel or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at bedroom or living/dining room windows are in the range of 51 to 59 dBA or when daytime sound levels at bedroom or living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible noise excesses are also required when nighttime sound levels exceed 50 dBA at the plane of the bedroom or living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom or living/dining room window due to road traffic.

4 Traffic Sound Level Assessment

4.1 Road Traffic Data

Traffic data for all roads were obtained from the City of Mississauga in the form of ultimate Average Annual Daily Traffic (AADT) traffic values.

For Hurontario Street, an ultimate volume of 45 600 vehicles per day at an operating speed limit of 60 km/h was applied for the analysis. A commercial vehicle percentage of 2.75% for medium trucks and 2.25% for heavy trucks was applied. A day/night split of 90% /10% was used.

For Burnhamthorpe Road, an ultimate volume of 58 900 vehicles per day at an operating speed limit of 60 km/h was applied for the analysis. A commercial vehicle percentage of 2.75% for medium trucks and 2.25% for heavy trucks was applied. A day/night split of 90% / 10% was used.

For Central Parkway East, an ultimate volume of 24 000 vehicles per day at an operating speed limit of 50 km/h was applied for the analysis. A commercial vehicle percentage of 2.2% for medium trucks and 1.8% for heavy trucks was applied. A day/night split of 90% / 10% was used.

For Mississauga Valley Boulevard, an ultimate volume of 5 000 vehicles per day at an operating speed limit of 40 m/h was applied for the analysis. A commercial vehicle percentage of 1.65% for medium trucks and 1.35% for heavy trucks was applied. A day/night split of 90% / 10% was used.

For Kaneff Crescent, an ultimate volume of 5 000 vehicles per day at an operating speed limit of 40 km/h was applied for the analysis. A commercial vehicle percentage of 1.1% for medium trucks and 0.9% for heavy trucks was applied. A day/night split of 90% / 10% was used.

Road traffic data is provided in Appendix A and is summarized below in Table II.

Table II: Ultimate Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Hurontario Street	Daytime	38 988	1 129	923	41 040
	Nighttime	4 332	125	103	4 560
	Total	**43 320**	**1 254**	**1 026**	**45 600**
Burnhamthorpe Road East	Daytime	50 360	1 458	1 193	53 010
	Nighttime	5 596	162	133	5 890
	Total	**55 955**	**1 620**	**1 325**	**58 900**
Central Parkway East	Daytime	20 736	454	410	21 600
	Nighttime	2 304	50	46	2 400
	Total	**23 040**	**504**	**456**	**24 000**
Mississauga Valley Boulevard	Daytime	4 365	74	61	4 500
	Nighttime	485	8	7	500
	Total	**4850**	**83**	**68**	**5 000**
Kaneff Crescent	Daytime	4 410	50	41	4 500
	Nighttime	490	6	5	500
	Total	**5 900**	**55**	**45**	**5 000**

4.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the study area in the future, sound level predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Predictions of the traffic sound levels were chosen around the proposed residential building to obtain an appropriate representation of future sound levels at various façades. Sound levels were predicted at the plane of the top storey bedroom and/or living/dining room windows during daytime and nighttime hours to investigate ventilation and façade construction requirements. Sound levels were also predicted in possible OLA's to investigate the need for noise barriers. Figure 2 shows the typical floor plan with prediction locations. The results of these predictions are summarized below in Table III.

Table III: Predicted Road Traffic Sound Levels [dBA], Without Mitigation

Prediction Location	Description	Daytime – $L_{EQ\text{-}16\ hr}$	Nighttime – $L_{EQ\text{-}8\ hr}$
[A]	South façade facing Hurontario Street	62	56
[B]	West façade facing Kaneff Crescent	63	56
[C]	North façade facing Mississauga Valley Boulevard	60	54
[D]	East façade facing Central Parkway	60	53
[E]	3rd floor outdoor terrace+	55	--
[F]	5th floor outdoor amenity area+	54	--

Note: + 1.07 m high parapet wall included in the analysis

5 Discussions and Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at the proposed development. The following discussion outlines the recommendations for acoustic barrier requirements, ventilation requirements, upgraded building façade construction, and warning clauses to achieve the noise criteria stated in Table I.

5.1 Outdoor Living Areas

There is a proposed outdoor terrace on the 3rd floor that exceeds 4 m in depth, and a larger outdoor amenity area on the 5th floor. These areas are considered to be OLAs. The predicted daytime sound levels of the 3rd floor and 5th floor OLA will be up to 55 dBA, which is within the MECP sound level limit of 55 dBA. No physical noise mitigation is required.

The dwelling units in the proposed residential building have balconies that are less than 4 m in depth. These areas are not considered to be outdoor living areas under the MECP guidelines, and therefore are exempt from traffic noise assessment.

5.2 Indoor Living Areas and Ventilation Requirements

Provision for Air Conditioning

The predicted future sound levels outside all facades will be between 56 and 65 dBA during the daytime hours and/or between 51 to 60 dBA during the nighttime hours. To address these excesses, these dwelling units require provision for the future installation of central air conditioning systems so that windows may be kept closed. It is likely that the building or individual suites will include air

conditioning. In general, window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. Acceptable units are those that are housed in their own closet with an access door for maintenance. Any outdoor air conditioning unit or rooftop mechanical units should be located, installed, and selected with an appropriate sound emission rating to comply with MECP guidelines NPC-300.

5.3 Building Façade Constructions

The predicted sound levels at all façades of the building will not exceed 65 dBA daytime and 60 dBA nighttime, thus will not require detailed building envelope design to conform to noise criteria. Any exterior wall and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the interior spaces.

6 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses. The following noise warning clauses are required for specific dwellings as indicated in Table IV.

Suggested wording for future dwellings which have sound levels in excess of MECP criteria is given below.

Type A:

> Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording for future dwellings which include central air conditioning is given below.

Type B:

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

Suggested wording for future dwelling units in close proximity to commercial buildings is given below.

Type C:

> Purchasers are advised that due to the proximity of the existing commercial buildings, sound levels from the facilities may be at times be audible.

These sample clauses are provided by the MECP as examples, and can be modified by the Municipality as required.

7 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

8 Impact of the Development on the Environment

It is expected that any increase in local traffic associated with the development will not be substantial enough to affect noise levels significantly.

Sound levels from stationary (non-traffic) sources of noise such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception, to avoid complaints. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be 50 dBA or more during the day and 45 dBA or more at night. Thus, any electro-mechanical equipment associated with this development (e.g. emergency generator testing, fresh-air handling equipment, etc.) should be designed with these targets in mind such that they do not result in noise impact beyond these ranges.

9 Summary and Recommendations

The following list and Table IV summarize the recommendations made in this report. The reader is referred the previous sections of the report where these recommendations are applied and discussed in more detail.

1. An alternative means of ventilation to open windows will be required for the building. It is likely that the building will include central air conditioning, and this will meet and exceed this requirement.

2. The use of warning clauses in the property and tenancy agreements is recommended to inform future residents of traffic noise issues.

Table IV: Summary of Noise Control Requirements and Noise Warning Clauses

Description	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Building Construction Requirements
All residential units	--	Alternative means of ventilation to open windows	A, B, C	OBC

Notes:
* The installation of central air conditioning will meet and exceed ventilation requirements. The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
OBC – Ontario Building Code

9.1 Implementation

To ensure that the noise control recommendations outlined above are properly implemented, it is recommended that:

1. Prior to the issuance of occupancy permits for this development, the Municipality's building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly incorporated, installed, and constructed.

Figure 1: Key Plan

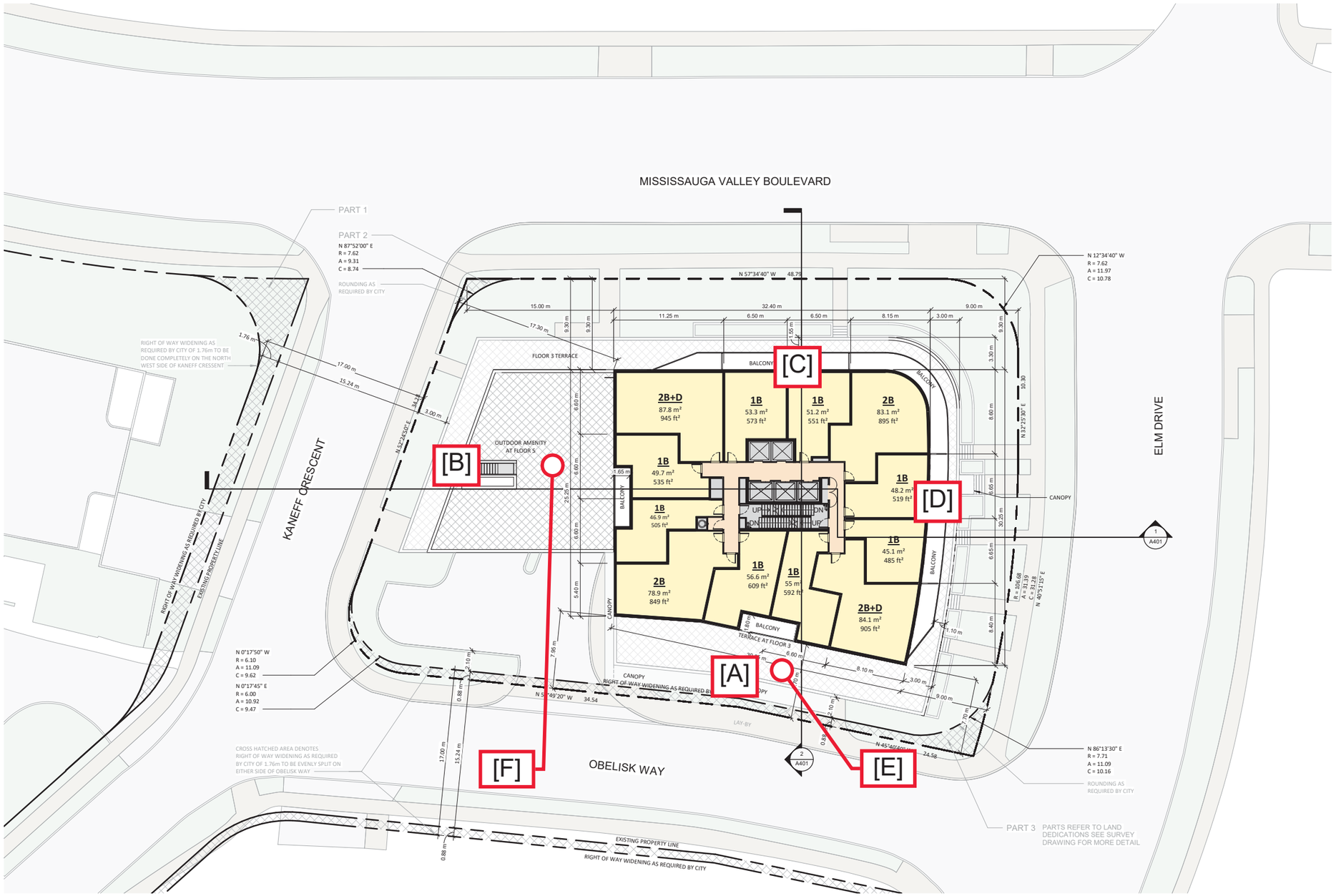

Figure 2: Typical Floor Plan Showing Prediction Locations

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
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#	DATE	DESCRIPTION	BY
4	2023-06-08	Issued for Rezoning Submission	TCH
3	2022-10-20	Issued for Rezoning	ORO
2	2022-04-22	Issued for SPA	TCH
1	2020-05-22	Issued for Rezoning Submission #1	LSW

PROJECT

PROPOSED RESIDENTIAL DEVELOPMENT

Kaneff Crescent and Mississauga Valley Boulevard, Mississauga, ON
City File NO. OZ 20/070

DRAWING

TYPICAL TOWER FLOOR

PROJECT NO.	16.286SPA
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200
DRAWING NO.	A156
REV.	4

2023-06-08 3:54:39 PM

Appendix A

Road Traffic Information

NOISE REPORT FOR PROPOSED DEVELOPMENT

Date (dd/mm/yy)	05-May-22

REQUESTED BY:

Name:	Harry Cai
Company:	HGC Engineering

PREPARED BY:

Name	Loudel Uy
Tel#:	(905) 615-3200

MISSISSAUGA

Location: Mississauga Valley Blvd- Arista Way to Central Parkway E
Kaneff Cres- Arista Way to Mississauga Valley
Hurontario Street- Burnhamthorpe Rd to Central Parkway
Burhnamthorpe Rd- Hurontario to Arista Way
Central Parkway- Hurontario St to Miss Valley

ID# 542

ON SITE TRAFFIC DATA

Specific	Street Names				
	Mississauga Valley	Kaneff Cres	Hurontario Street	Burnhamthorpe Rd E	Central Parkway
AADT:	5,000	5,000	45,600	58,900	24,000
# of Lanes:	2 lanes	2 lanes	4 lanes	6 lanes	4 lanes
% Trucks:	3%	2%	5%	5%	4%
Medium/Heavy Trucks Ratio:	55/45	55/45	55/45	55/45	55/45
Day/Night Split:	90/10	90/10	90/10	90/10	90/10
Posted Speed Limit:	40 km/h	40 km/h	60 km/h	60 km/h	50 km/h
Gradient Of Road:	<2%	<2%	<2%	<2%	<2%
Ultimate R.O.W:	27m	15m	50m	60m	35m

Comments:

Ultimate Traffic Data Only.

- There is a proposed LRT line along Hurontario Street. Existing lanes may be converted from 6 lanes to 4 lanes with 2 LRT lines in the middle. Please contact Farhad Shala @ (905) 615-3200 ext. 3377 or farhad.shala@mississauga.ca for more info regarding LRT.

Appendix B

Sample STAMSON Output

Table 1: Generic Corridor Description

From	To	Length[1]	Track Position	Land Uses[2]	Distance to Closest Sensitive Receptor[3]	Speed (km/h.)[8]	POR[4]
Park St.	Inglewood Dr.	370m	West	East Side = R, West = C	18m	40	1
Inglewood Dr.	QEW	1,400m	Centre	R +C	22m	50	2
QEW	Queensway West	900m	Centre	East Side = R West Side =C	29m	50	-
Queensway West	King St.	740m	Centre	R +C	24m	50	3
King St.	Agnes St.	380m	Centre	C	-	50	-
Agnes St.	CP Rail Galt Sub	560m	Centre	West Side = R + C + E, East Side = C	27m	50	-
CP Rail Galt Sub	Central Parkway	750m	Centre	R + C	22m	50	4
Central Parkway	Burnhamthorpe Rd.	970m	Centre	R + C	26m	60	5
Burnhamthorpe Rd.[5]	Highway 403	1,300m	Centre	R + C	35m	60	-
Hurontario St.[5]	Duke of York Blvd.	800m	Centre	R + C	31m	60	6
Burnhamthorpe Rd.[5]	Rathburn Rd.	800m	East	C + E	-	60	-
Duke of York Blvd.[5]	Hurontario Street	800m	North	C	-	60	-
Highway 403	Ceremonial Drive	1,200m	Centre	R + C	28m	60	7
Ceremonial Drive	Matheson Blvd.	1,600m	Centre	R + C	31m	60	8
Matheson Blvd.	Highway 401	1,600m	Centre	C + I	-	80	-
Highway 401	Ray Lawson Blvd.	4,500m	Centre	C + I	38m	80	9[6]
Ray Lawson Blvd.	Steeles Ave.	1,100m	Centre	R + C	26m	60	10
Steeles Ave.	Nanwood Dr.	1,600m	Centre	R + C	26m	60	11
Nanwood Dr.	Wellington St.	1,300m	Centre	R + C + E	16m	50	12
Wellington St.	GO Kitchener Rail	450m	Side/Split	2nd Storey R + C + E	5m	50	13[7]
Main Street	Brampton GO Station	270m	North	North Side = R	20m	40	14

Notes:
1. Lengths are approximate only
2. Land uses: C-Commercial, I-Industrial, R-Residential, E-Institutional
3. Distance is measured from the centreline of the closest set of tracks
4. Point of Reception within the segment of the LRT
5. These segments are within the Downtown Mississauga loop, where the LRT splits around Mississauga's City Centre
6. Though commercial, a motel/hotel has been selected for review, as it is a place where people may reside
7. Downtown Brampton includes an area where there are 1st-floor commercial and 2nd-/3rd-floor residential components.
8. Speed of LRT and traffic based on posted speed limits.

Table 5: Expected LRT Sound Levels and Impacts

POR	No Project Sound Levels (dBA)		With Project Sound Levels (dBA)						Impact (dB)	
			Daytime (16 hr L_{eq})			Night-time (8 hr L_{eq})				
	Daytime (16 hr L_{eq})	Night-time (8 hr L_{eq})	Traffic Only	LRT Only	TOTAL	Traffic Only	LRT Only	TOTAL	Daytime	Night-time
1	67	60	66	56	66	60	51	61	-1	1
2	67	61	67	59	68	60	54	61	1	0
3	67	61	65	59	66	58	54	59	-1	-2
4	68	62	67	59	68	61	54	62	0	0
5	68	62	67	59	68	60	54	61	0	-1
6	66	59	65	59	66	58	53	59	0	0
7	70	63	68	59	69	62	54	63	-1	0
8	68	61	66	59	67	59	54	60	-1	-1
9	70	63	68	60	69	62	55	63	-1	0
10	69	62	68	59	69	61	54	62	0	0
11	68	62	66	60	67	59	55	60	-1	-2
12	67	60	64	61	66	57	56	60	-1	0
13	68	61	62	63	66	56	58	60	-2	-1
14	55	50	53	58	59	46	53	54	4	4

Notes: The "With Project" sound levels have been divided into Traffic Only and LRT Only sound levels to show the relative significance of each. They are then added together to obtain the TOTAL sound level, which is used to determine the potential impact.

Appendix C

Supporting Documents

STAMSON 5.0 NORMAL REPORT Date: 12-07-2023 10:51:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: south.te Time Period: Day/Night 16/8 hours
Description: Pred. Loc. [A], south facade facing Hurontario

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

Car traffic volume : 20736/2304 veh/TimePeriod *
Medium truck volume : 475/53 veh/TimePeriod *
Heavy truck volume : 389/43 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): 24000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.20
Heavy Truck % of Total Volume : 1.80
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Central Pkw (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 240.00 / 240.00 m
Receiver height : 118.50 / 118.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 4410/490 veh/TimePeriod *
Medium truck volume : 50/6 veh/TimePeriod *
Heavy truck volume : 41/5 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): 5000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.10
Heavy Truck % of Total Volume : 0.90

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Kaneff Cres (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 : 30.00 / 30.00 m
Receiver height : 118.50 / 118.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 50360/5596 veh/TimePeriod *
Medium truck volume : 1458/162 veh/TimePeriod *
Heavy truck volume : 1193/133 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 58900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.75
Heavy Truck % of Total Volume : 2.25
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 3: Burnhamthrop (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 460.00 / 460.00 m
Receiver height : 118.50 / 118.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 38988/4332 veh/TimePeriod *
Medium truck volume : 1129/125 veh/TimePeriod *
Heavy truck volume : 923/103 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 45600
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.75
Heavy Truck % of Total Volume : 2.25
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 240.00 / 240.00 m
Receiver height : 118.50 / 118.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Central Pkw (day)

Source height = 1.16 m

ROAD (0.00 + 52.17 + 0.00) = 52.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	67.22	0.00	-12.04	-3.01	0.00	0.00	0.00	52.17

Segment Leq : 52.17 dBA

Results segment # 2: Kaneff Cres (day)

Source height = 0.98 m

ROAD (0.00 + 50.70 + 0.00) = 50.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	56.72	0.00	-3.01	-3.01	0.00	0.00	0.00	50.70

Segment Leq : 50.70 dBA

Results segment # 3: Burnhamthrop (day)

Source height = 1.22 m

ROAD (0.00 + 55.50 + 0.00) = 55.50 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 0 0.00 73.38 0.00 -14.87 -3.01 0.00 0.00 0.00 55.50

Segment Leq : 55.50 dBA

Results segment # 4: Hurontario (day)

Source height = 1.22 m

ROAD (0.00 + 60.22 + 0.00) = 60.22 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.00 72.26 0.00 -12.04 0.00 0.00 0.00 0.00 60.22

Segment Leq : 60.22 dBA

Total Leq All Segments: 62.28 dBA

Results segment # 1: Central Pkw (night)

Source height = 1.16 m

ROAD (0.00 + 45.63 + 0.00) = 45.63 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
0 90 0.00 60.68 0.00 -12.04 -3.01 0.00 0.00 0.00 45.63

Segment Leq : 45.63 dBA

Results segment # 2: Kaneff Cres (night)

Source height = 1.00 m

ROAD (0.00 + 44.37 + 0.00) = 44.37 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 0 0.00 50.39 0.00 -3.01 -3.01 0.00 0.00 0.00 44.37

Segment Leq : 44.37 dBA

Results segment # 3: Burnhamthrop (night)

Source height = 1.23 m

ROAD (0.00 + 48.97 + 0.00) = 48.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	66.85	0.00	-14.87	-3.01	0.00	0.00	0.00	48.97

Segment Leq : 48.97 dBA

Results segment # 4: Hurontario (night)

Source height = 1.23 m

ROAD (0.00 + 53.70 + 0.00) = 53.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.74	0.00	-12.04	0.00	0.00	0.00	0.00	53.70

Segment Leq : 53.70 dBA

Total Leq All Segments: 55.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.28
(NIGHT): 55.77

STAMSON 5.0 NORMAL REPORT Date: 12-07-2023 10:49:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 3rdola.te Time Period: 16 hours
Description: Pred. Loc. [E], 3rd floor terrace

Road data, segment # 1: Mississauga

Car traffic volume : 4365 veh/TimePeriod *
Medium truck volume : 74 veh/TimePeriod *
Heavy truck volume : 61 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Mississauga

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 m
Receiver height : 1.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 110.00 m
Elevation : 8.00 m
Barrier receiver distance : 4.00 m
Source elevation : 0.00 m
Receiver elevation : 8.00 m
Barrier elevation : 8.00 m
Reference angle : 0.00

Road data, segment # 2: Kaneff Cres

Car traffic volume : 4410 veh/TimePeriod *
Medium truck volume : 50 veh/TimePeriod *
Heavy truck volume : 41 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Kaneff Cres

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 m
Receiver height : 1.50 m
Topography : 4 (Elevated; with barrier)

Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.07 m
Elevation : 8.00 m
Barrier receiver distance : 10.00 m
Source elevation : 0.00 m
Receiver elevation : 8.00 m
Barrier elevation : 8.00 m
Reference angle : 0.00

Road data, segment # 3: Burnhamthrop

Car traffic volume : 50360 veh/TimePeriod *
Medium truck volume : 1458 veh/TimePeriod *
Heavy truck volume : 1193 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Burnhamthrop

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 3
House density : 25 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 460.00 m
Receiver height : 1.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.07 m
Elevation : 8.00 m
Barrier receiver distance : 15.00 m
Source elevation : 0.00 m
Receiver elevation : 8.00 m
Barrier elevation : 8.00 m
Reference angle : 0.00

Road data, segment # 4: Hurontario

Car traffic volume : 38988 veh/TimePeriod *
Medium truck volume : 1129 veh/TimePeriod *
Heavy truck volume : 923 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: Hurontario

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 25 %

Surface : 1 (Absorptive ground surface)
Receiver source distance : 230.00 m
Receiver height : 1.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.07 m
Elevation : 8.00 m
Barrier receiver distance : 2.00 m
Source elevation : 0.00 m
Receiver elevation : 8.00 m
Barrier elevation : 8.00 m
Reference angle : 0.00

Road data, segment # 5: Central Pkw

Car traffic volume : 20736 veh/TimePeriod *
Medium truck volume : 475 veh/TimePeriod *
Heavy truck volume : 389 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: Central Pkw

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 25 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 240.00 m
Receiver height : 1.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 1.07 m
Elevation : 8.00 m
Barrier receiver distance : 10.00 m
Source elevation : 0.00 m
Receiver elevation : 8.00 m
Barrier elevation : 8.00 m
Reference angle : 0.00

Results segment # 1: Mississauga

Source height = 1.08 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
---+---+---+---
1.08 ! 1.50 ! 0.83 ! 8.83

ROAD (0.00 + 32.48 + 0.00) = 32.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.64	0.00	-5.23	0.00	0.00	0.00	-19.93	32.48

Segment Leq : 32.48 dBA

Results segment # 2: Kaneff Cres

Source height = 0.98 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.98	1.50	-0.39	7.61

ROAD (0.00 + 41.29 + 0.00) = 41.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.37	56.72	0.00	-6.54	-0.92	0.00	0.00	-7.97	41.29

Segment Leq : 41.29 dBA

Results segment # 3: Burnhamthrop

Source height = 1.22 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.22	1.50	1.23	9.23

ROAD (0.00 + 47.10 + 0.00) = 47.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.43	73.38	0.00	-21.23	-1.04	0.00	-4.01	0.00	47.10
-90	90	0.36	73.38	0.00	-20.28	-0.91	0.00	0.00	-4.97	47.22*
-90	90	0.43	73.38	0.00	-21.23	-1.04	0.00	0.00	0.00	51.11

* Bright Zone !

Segment Leq : 47.10 dBA

Results segment # 4: Hurontario

Source height = 1.22 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.22	1.50	1.43	9.43

ROAD (0.00 + 53.19 + 0.00) = 53.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.43	72.26	0.00	-16.93	-1.04	0.00	-1.10	0.00	53.19
-90	90	0.36	72.26	0.00	-16.17	-0.91	0.00	0.00	-3.75	51.43*
-90	90	0.43	72.26	0.00	-16.93	-1.04	0.00	0.00	0.00	54.29

* Bright Zone !

Segment Leq : 53.19 dBA

Results segment # 5: Central Pkw

Source height = 1.16 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.16	1.50	1.15	9.15

ROAD (0.00 + 47.86 + 0.00) = 47.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.43	67.22	0.00	-17.22	-1.04	0.00	-1.10	0.00	47.86
-90	90	0.37	67.22	0.00	-16.45	-0.91	0.00	0.00	-4.99	44.88*
-90	90	0.43	67.22	0.00	-17.22	-1.04	0.00	0.00	0.00	48.96

* Bright Zone !

Segment Leq : 47.86 dBA

Total Leq All Segments: 55.26 dBA

TOTAL Leq FROM ALL SOURCES: 55.26