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PRELIMINARY ENVIRONMENTAL NOISE REPORT

PROPOSED STACKED TOWNHOUSE RESIDENTIAL DEVELOPMENT 64 TO 66 THOMAS STREET AND 65 TANNERY STREET CITY OF MISSISSAUGA REGION OF PEEL



Prepared for DeZen Realty Co. Ltd.

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TABLE OF CONTENTS

	SUMMARY	1				
1.0	INTRODUCTION	3				
2.0	NOISE SOURCES					
	2.1 Transportation Sources	4				
	2.1.1 Road and Rail	4				
	2.2 Stationary Sources	4				
	2.2.1 Stationary Sources within the					
	Development	4				
	2.2.2 Stationary Sources External					
	to the Development	4				
3.0	ENVIRONMENTAL NOISE CRITERIA	6				
	3.1 Transportation Sources	6				
	3.1.1 Indoors	6				
	3.1.2 Outdoors	6				
	3.2 Stationary Sources	7				
4.0	NOISE IMPACT ASSESSMENT	9				
	4.1 Transportation Sources	9				
	4.2 Stationary Sources	10				
5.0	NOISE ABATEMENT MEASURES	14				
	5.1 Transportation Sources	14				
	5.1.1 Indoors	14				
	5.1.2 Outdoors	15				
	5.2 Stationary Sources	16				
6.0	RECOMMENDATIONS	18				
7.0	CONCLUSIONS	19				
8.0	REFERENCES	20				

LIST OF TABLES

TABLE A	SUMMARY OF PREDICTED SOUND LEVELS DUE TO CONTINUOUS NOISE SOURCES WITHOUT MITIGATION MEASURES – CLASS 1 AREA EXCLUSION LIMITS	12
TABLE B	SUMMARY OF PREDICTED SOUND LEVELS DUE TO CONTINUOUS NOISE SOURCES WITHOUT MITIGATION MEASURES – CLASS 4 AREA EXCLUSION LIMITS	13
TABLE 1	SUMMARY OF TRAFFIC INFORMATION	21
TABLE 2	PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD AND RAIL TRAFFIC	22
TABLE 3	SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES DUE TO TRANSPORTATION NOISE SOURCES	23

LIST OF FIGURES

- FIGURE 1 KEY PLAN
- FIGURE 2 PLAN OF DEVELOPMENT
- FIGURE 3 PLAN SHOWING ANALYZED SOURCES OF CONTINUOUS NOISE AND PREDICTED SOUND LEVELS WITHOUT MITIGATION MEASURES
- FIGURE 4 PLAN SHOWING ANALYZED SOURCES OF CONTINOUS NOISE AND PREDICTED SOUND LEVELS WITH MITIGATION MEASURES TO MEET CLASS 1 SOUND LEVEL LIMITS
- FIGURE 5 PLAN SHOWING ANALYZED SOURCES OF CONTINOUS NOISE AND PREDICTED SOUND LEVELS WITH MITIGATION MEASURES TO MEET CLASS 4 SOUND LEVEL LIMITS

LIST OF APPENDICES

APPENDIX A	CORRESPONDENCE REGARDING TRAFFIC DATA	A-1
APPENDIX B	ENVIRONMENTAL NOISE CRITERIA	B-1
APPENDIX C	SAMPLE CALCULATION OF PREDICTED SOUND LEVELS DUE TO ROAD TRAFFIC	C-1
APPENDIX D	SAMPLE CALCULATION OF SOUND LEVELS DUE TO STATIONARY SOURCES - CADNAA	D-1
APPENDIX E	SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION	E-1
APPENDIX F	COMPLETED QUESTIONNAIRES BY NEIGHBOURING BUSINESSES	F-1

SUMMARY

The proposed residential development is located at 64 to 66 Thomas Street and 65 Tannery Street in the City of Mississauga. The proposed development includes eight (8) stacked townhouse blocks. The site is affected by road traffic noise, rail traffic noise and by existing commercial operations.

The environmental noise guidelines NPC-300 for transportation and stationary noise sources of the Ministry of the Environment, Conservation and Parks (MOE), set out sound level limits for both the indoor (transportation sources only) and outdoor space (both transportation and stationary sources). Sound levels due to the nearby roads, rail and the existing commercial sources were determined and compared to the MOE and Region of Peel/City of Mississauga guidelines to determine the appropriate mitigation measures.

Using road traffic data obtained from the City of Mississauga and rail traffic data from CP and Metrolinx, the sound levels for various locations in the residential development were determined. The analysis of the noise sources associated with the commercial developments was based on information collected by Jade Acoustics Inc. during site visits and from other similar facilities available in Jade Acoustics Inc. files.

To address road and rail traffic noise, central air conditioning, upgraded exterior wall, exterior door and window construction will be required for some buildings. When final building plans are available, sound level predictions and architectural requirements should be verified, to ensure applicable guidelines are met.

The mechanical drawings and detailed information regarding the mechanical equipment associated with the proposed development, including but not limited to garage exhaust fans were not available at the time of preparation of this noise report. Once mechanical drawings are available, additional noise analysis will need to be conducted to determine if the selected mechanical equipment requires noise mitigation measures.

Several options have been investigated in this preliminary report to address the stationary noise sources. Section 5.2 provides details.

The proposed residential development was evaluated using the MOE noise criteria for stationary sources applicable to both a Class 1 area and a Class 4 area.

Currently, the proposed site is considered to be a Class 1 area; therefore, if the Class 4 option is chosen, the land use planning authority would need to approve the new classification based on the noise analysis and incorporate a Class 4 designation in a site specific zoning by-law or alternate planning document, as determined by the City.

Where minor excesses exist and noise mitigation measures are required, future occupants will be advised through the use of warning clauses.

1.0 INTRODUCTION

Jade Acoustics Inc. was retained by DeZen Realty Co. Ltd. to prepare a Preliminary Environmental Noise Report, to investigate the potential noise impact on the proposed residential development to the satisfaction of the City of Mississauga and Regional Municipality of Peel.

An evaluation of the potential acoustic impact between the stacked townhouse units and all internal acoustic matters is outside of the scope of work of this report.

The proposed site is identified as:

64 to 66 Thomas Street and 65 Tannery Street City of Mississauga Region of Peel

The proposed residential development is located at the northeast quadrant of Joymar Drive and Thomas Street. Surrounding land uses are existing and future residential and existing commercial developments.

The proposed development is not affected by aircraft traffic.

The analysis was based on:

- Site plan prepared by 4 Architecture Inc. dated May 24, 2019, received June 6, 2019;
- Road traffic information provided by the City of Mississauga;
- Rail traffic information provided by CP and Metrolinx; and
- Site visits conducted by Jade Acoustics Inc. on December 20, 2018 and April 25, 2019.

A Key Plan is attached as Figure 1.

Figure 2 shows the proposed residential development which includes eight (8) stacked townhouse blocks and outdoor at grade amenity spaces, areas to be re-naturalized and new internal roads.

2.0 NOISE SOURCES

2.1 Transportation Sources

2.1.1 Road and Rail

The primary ground transportation noise sources of potentially adverse impact are the road traffic on Joymar Drive, Thomas Street and Tannery Street and rail traffic on the CP Galt Subdivision.

The ultimate road traffic data for Joymar Drive, Thomas Street and Tannery Street was provided by the City of Mississauga.

Rail traffic information for the CP Galt Subdivision was provided by CP and Metrolinx.

See Appendix A for correspondence regarding the road and rail traffic information and Table 1 for a summary of traffic information.

This site is not impacted by aircraft traffic or existing industrial noise sources.

2.2. Stationary Sources

2.2.1 Stationary Sources within the Development

The identified mechanical sources of noise which may acoustically impact the adjacent residential developments include, but may not be limited to garage exhaust fans. These potential noise sources will be addressed in a detailed noise report when information becomes available, through the building permit process.

2.2.2 Stationary Sources External to the Development

There are several existing commercial buildings located to the northeast of the proposed site. The commercial buildings are shown on Figures 1 and 3 to 5 and include:

- Spot Free Car Wash;
- TLK Towing;
- Limitless Motorsports;
- Mississauga Engines;
- Krown Rust Control;
- Ontario Premium Motors;

- J.A.N.A.; and
- Beyond the Leash K-9 Training.

Questionnaires were provided to the above noted businesses with potential to have an acoustical impact on the subject site, in order to gain a better understanding of their operations. Where a response was provided, the completed questionnaires have been included in Appendix F.

A site visit was conducted on April 25, 2019 by Jade Acoustics Inc. staff in order to perform sound measurements of the Spot Free Car Wash operations. The car wash sequence and the operation of vacuums were measured and the results were used in the preparation of the acoustic model used to assess the neighbouring existing commercial operations.

Information from completed questionnaires and from Jade Acoustics Inc. files for similar facilities has been used to represent the other existing commercial businesses noted above.

There are other existing commercial operations located immediately west of the facilities noted above, in the vicinity of the subject site. It is our understanding that these lands will be redeveloped for residential purposes; therefore, existing commercial operations to the northwest of those noted above have not been considered further in this report.

Streetsville Secondary School is adjacent to the west portion of the proposed residential development. The potential noise sources associated with the school are rooftop mechanical equipment. Existing residential dwellings are located adjacent to the school on all sides. Due to the type of use and noise sources, the school is expected to be acoustically insignificant at the proposed site and was not analyzed further.

Section 4.2 includes details of the noise assessment.

3.0 ENVIRONMENTAL NOISE CRITERIA

The environmental noise criteria used for residential developments in the City of Mississauga, Region of Peel and the Ontario Ministry of the Environment, Conservation and Parks (MOE) environmental noise criteria are contained in Appendix B and summarized below.

The Ontario Ministry of the Environment, Conservation and Parks document "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", dated August 2013, released October 21, 2013, (updated final version # 22) has been used in this assessment.

3.1 Transportation Sources

3.1.1 Indoors

If the nighttime (11:00 p.m. to 7:00 a.m.) sound level in terms of Leq at the exterior face of a bedroom or living/dining room window is equal to or greater than 60 dBA and/or if the daytime (7:00 a.m. to 11:00 p.m.) sound level in terms of Leq at the exterior face of a living/dining room or bedroom window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For nighttime sound levels (LeqNight) greater than 50 dBA to less than or equal to 59 dBA on the exterior face of a bedroom or living/dining room window or daytime sound levels (LeqDay) greater than 55 dBA to less than or equal to 65 dBA on the exterior face of a bedroom or living/dining room window, there need only be the provision for adding central air conditioning by the occupant at a later date. This typically involves a ducted heating system sized to accommodate the addition of central air conditioning by the occupant at a later date. A warning clause advising the occupant of the potential interference with some activities is also required.

As required by the MOE, to determine the building component requirements the indoor noise criteria for road traffic noise is 40 dBA (Leq8hour) for the bedrooms during nighttime hours, 45 dBA (Leq8hour) for the living/dining rooms during nighttime hours and 45 dBA (Leq16hour) for the living/dining rooms and bedrooms during daytime hours. These criteria are used to determine the architectural requirements. The MOE guidelines for rail noise are 5 dB more stringent to account for the low frequency component of rail noise. These criteria are used to determine the architectural requirements.

3.1.2 Outdoors

For the outdoor amenity areas, a design goal of 55 dBA daytime (7:00 a.m. to 11:00 p.m.) sound level is used for road and rail traffic. In some cases an excess not exceeding 5 dB is considered acceptable. Where the unmitigated sound levels during the day exceed 55 dBA (Leq16hour, daytime) but are less than 60 dBA (Leq16hour, daytime), a warning clause is

required and mitigation should be considered. Where the unmitigated sound levels during the daytime hours exceed 60 dBA, mitigation measures and a warning clause are required.

The definition of outdoor amenity area as defined by the MOE is given below.

"Outdoor Living Area (OLA)

(applies to impact assessments of transportation sources) means that part of a noise sensitive land use that is:

- intended and designed for the quiet enjoyment of the outdoor environment; and
- readily accessible from the building.

The OLA includes:

- backyards, front yards, gardens, terraces or patios;
- balconies and elevated terraces (e.g. rooftops), with a minimum depth of 4 metres, that are not enclosed, provided they are the only outdoor living area (OLA) for the occupant; or
- common outdoor living areas (OLAs) associated with high-rise multi-unit buildings."

In this case all proposed balconies of the residential units are less than 4.0 m deep and as such are not considered to be noise sensitive receptors.

For both the indoor and outdoor conditions where the acoustical criteria are exceeded, warning clauses must be placed in offers of purchase and sale and/or lease agreements and included in the development agreement.

3.2 Stationary Sources

The guidelines of the Ontario Ministry of the Environment, Conservation and Parks (MOE) for stationary sources are to be used for the commercial facilities.

The MOE has recently published the document NPC-300 titled "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning".

The MOE also has vibration guidelines with respect to stationary sources, NPC-207. These guidelines require that the peak vibration velocities not exceed 0.3 mm/s at the point of reception during the day or night.

The MOE recognizes the need for back-up beepers/alarms as safety devices and as such does not have any guidelines or criteria to address these sources.

It should be noted that the MOE guidelines do not require that the source be inaudible, but rather that specific sound level limits be achieved.

With respect to stationary sources of noise in urban areas, the MOE guidelines require that the sound level due to the stationary source at the building façade and outdoor amenity spaces not exceed the sound level due to road traffic and in certain situations due to rail traffic in any hour of source operation, subject to specific exclusions. Tables C-5, C-6, C-7 and C-8 included in Appendix B provided the exclusion limit values of one-hour equivalent sound level (Leq,dBA) and impulsive sound level (L_{Im} ,dBAI).

In general, if the criteria for a stationary source of noise are exceeded, the MOE recommends that control be implemented at the source rather than at the receiver. Alternatively, if the receiver is set back from the source or if a physical barrier is constructed so that the criteria can be met at the receiver, no additional mitigative measures are required. In addition, a warning clause in offers of purchase and sale and/or lease agreements noting the proximity of dwellings to such a source should be considered. Treatment of the receptor building by the use of suitable exterior wall and window construction and central air conditioning to keep windows closed is not an acceptable solution to the MOE in Class 1 and 2 areas (urban). In addition, a warning clause in offers of purchase and sale and/or lease agreements noting the proximity the proximity of dwellings to such a source should be considered.

A Class 4 designation of a proposed residential use can be used to permit higher sound levels from neighbouring stationary sources. Based on the NPC-300 guidelines, Class 4 areas can only be established in Class 1 or 2 areas in proximity to existing, lawfully established stationary sources. This is not applicable in areas with existing noise sensitive land use(s) unless they are redeveloped/rezoned/replaced with new noise sensitive land use(s). Classification of a Class 4 area is subject to formal confirmation from the land use planning authority and continues as long as the stationary source(s) can potentially operate (i.e. until change in zoning).

Class 4 does not exempt the evaluation of the noise impact of the noise sources associated with the proposed building on the noise sensitive receptors within the proposed building.

Limits for Class 4 areas shown in Tables C-5, C-6, C-7 and C-8 assume closed windows together with a ventilation system which is in most situations, central air conditioning.

4.0 NOISE IMPACT ASSESSMENT

4.1 Transportation Sources

Sound levels at the outdoor amenity spaces and at the building envelopes of the proposed residential dwellings in terms of Leq, the energy equivalent continuous sound levels for both day (16 hours) and night (8 hours) were predicted using ORNAMENT and STEAM, the MOE Traffic Noise Prediction Models for road and rail traffic, respectively. See Table 2 for a detailed summary. Appendix C contains sample calculations of the predicted sound levels.

Due to the small separation distance from Joymar Drive to some stacked townhouse blocks, it was necessary to double the source-receiver distance in order to conduct the analysis using the ORNAMENT prediction model. Where necessary, the predicted sound levels due to Joymar Drive were subsequently reduced by 3 dB to reflect the true source-receiver distance. Details are noted in Appendix C.

Where applicable, screening by the existing commercial developments surrounding the proposed site was included in the predictions. It is our understanding that the rooftop terraces associated with the townhouse blocks will be provided with parapets around the perimeter; the proposed parapet heights were not provided at this time. In conducting the analysis, a 1.4 m high brick veneer parapet has been assumed around the perimeter of the roof of each townhouse block.

For Block 2, northeast corner, top residential floor, the unmitigated sound levels at the façade are predicted to be uр to 61 dBA for the daytime period (16 hours) between 7:00 a.m. and 11:00 p.m. and up to 63 dBA for the nighttime period (8 hours) between 11:00 p.m. and 7:00 a.m. The unmitigated sound level at the rooftop terrace is predicted to be up to 55 dBA during the daytime period.

For Block 4, northeast corner, top residential floor, the unmitigated sound levels at the façade are predicted to be up to 66 dBA for the davtime period (16 hours) between 7:00 a.m. and 11:00 p.m. and up to 64 dBA for the nighttime period (8 hours) between 11:00 p.m. and 7:00 a.m. The unmitigated sound level at the rooftop terrace is predicted to be up to 56 dBA during the daytime period.

For Block 4, southeast corner, top residential floor, the unmitigated sound levels at the façade are predicted to be up to 65 dBA for the daytime period (16 hours) between 7:00 a.m. and 11:00 p.m. and up to 61 dBA for the nighttime period (8 hours) between 11:00 p.m. and 7:00 a.m.

For the at grade outdoor amenity area located to the southeast of Block 2, the unmitigated sound level is predicted to be up to 56 dBA during the daytime period (16 hours) between 7:00 a.m. and 11:00 p.m.

Where the sound level limits are expected to be exceeded, mitigative measures and warning clauses are required.

Due to the distance separation from the CP Galt Subdivision of over 150 m with intervening developments, groundborne railway vibration investigation was not warranted.

4.2 Stationary Sources

At the time of completion of this report, contact with the neighbouring commercial businesses was completed and investigation into associated noise sources was conducted. Sound measurements of the operations at Spot Free Car Wash were conducted. The noise sources and approach to modelling are based on the sound measurements completed as well as information collected through questionnaires and information from Jade Acoustics Inc. files. As noted in Section 2.2, questionnaires were provided to the existing neighbouring businesses.

Potentially significant noise sources associated with the neighbouring commercial businesses included in the analysis are:

- rooftop HVAC units;
- auto mechanic bays;
- non-refrigerated tractor trailer manoeuvering;
- car wash bays; and
- car wash vacuums.

Appendix D includes information regarding the sound power levels used in the calculations.

Figures 3 to 5 show the location of the commercial buildings and noise sources analyzed.

For the rooftop HVAC units, duty cycles of 100% (daytime), 70% (evening) and 40% (nighttime) were accounted for in the analysis.

For the car wash vacuums, a duty cycle of fifteen (15) minutes (daytime), ten (10) minutes (evening) and five (5) minutes (nighttime) of a full hour were accounted for in the analysis; the sound power level of each vacuum was penalized by 5 dB in order to account for the tonality of the noise sources.

For the car wash bays, a duty cycle of forty-five (45) minutes (daytime), twenty-five (25) minutes (evening) and ten (10) minutes (nighttime) of a full hour were accounted for in the analysis; the sound power level of the bays was also penalized by 5 dB in order to account for the tonality of the noise source.

Traffic counts obtained from the City of Mississauga were used to predict ambient sound levels at the proposed residential buildings due to vehicle passbys on Thomas Street. Similar information for Tannery Street and Joymar Drive was not available. As the ambient sound levels predicted during the quietest hours at many noise sensitive receptors do not exceed the MOE exclusion sound level limits for the Class 1 area, the MOE exclusion limits were considered applicable for the noise analysis for all receptors at this time as acoustically shielded building façades exist. Therefore, the predicted sound levels due to the stationary sources were compared with the MOE exclusion sound level limits of 50 dBA (daytime and evening hours) and 45 dBA (nighttime hours) to assess compliance with the Class 1 requirements.

The unmitigated sound levels in terms of one hour Leq were calculated for the façades (and relevant outdoor amenity areas) of all proposed buildings using the CadnaA 2018MR1 computer program, which uses International Standard Analytical Code ISO 9613-2. As the existing topography has no significant ground elevation changes, flat ground was used in the calculations. As with the analysis of transportation sources, a 1.4 m high brick parapet has been assumed along the perimeter of the stacked townhouse block rooftops.

Tables A and B were prepared showing the results of the analysis at the worst case building façades, for each of the buildings. Figure 3 shows the predicted unmitigated sound levels at all building façades, and outdoor amenity spaces.

As shown in Table A, the predicted sound levels at some of the proposed buildings exceed the Class 1 sound level limits; therefore, mitigation measures are required.

The predicted sound levels were also compared with the MOE Class 4 exclusion sound level limits of 60 dBA (daytime and evening hours) and 55 dBA (nighttime), for completeness. As shown in Table B, exceedances were predicted; therefore, mitigation measures are required to meet the Class 4 sound level limits.

Due to the configuration of the buildings in the neighbouring commercial site, nature of the businesses and based on the information provided in completed questionnaires, impulsive noise sources were considered at this time to be acoustically insignificant and not investigated further.

TABLE A

SUMMARY OF PREDICTED SOUND LEVELS DUE TO CONTINUOUS NOISE SOURCES <u>WITHOUT</u> MITIGATION MEASURES – CLASS 1 AREA EXCLUSION LIMITS

Worst Case	Case Predicted Sound Level (dBA)								
Receptor*	Daytime			Evening			Nighttime		
On	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
Block 1	52	50**	Yes	50	50**	No	47	45**	Yes
Block 2	58	50**	Yes	56	50**	Yes	52	45**	Yes
Block 3	60	50**	Yes	58	50**	Yes	55	45**	Yes
Block 4	60	50**	Yes	58	50**	Yes	55	45**	Yes
Block 5	39	50**	No	38	50**	No	34	45**	No
Block 6	49	50**	No	48	50**	No	43	45**	No
Block 7	57	50**	Yes	55	50**	Yes	51	45**	Yes
Block 8	59	50**	Yes	57	50**	Yes	53	45**	Yes
At Grade									
Outdoor									
Amenity	59	50**	Yes	57	50**	Yes	N/A***	N/A***	N/A***
Area (East									
of Block 2)									

* Building façade receptors except as noted.

** Class 1 exclusion sound level limit.

*** There are no nighttime sound level limits for outdoor living areas.

Note:	Daytime	07:00 to 19:00
	Evening	19:00 to 23:00
	Nighttime	23:00 to 07:00

TABLE B

SUMMARY OF PREDICTED SOUND LEVELS DUE TO CONTINUOUS NOISE SOURCES <u>WITHOUT</u> MITIGATION MEASURES – CLASS 4 AREA EXCLUSION LIMITS

Worst Case	Predicted Sound Level (dBA)								
Receptor*	Daytime			Evening			Nighttime		
On	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
Block 1	52	60**	No	50	60**	No	47	55**	No
Block 2	58	60**	No	56	60**	No	52	55**	No
Block 3	60	60**	No	58	60**	No	55	55**	No
Block 4	60	60**	No	58	60**	No	55	55**	No
Block 5	39	60**	No	38	60**	No	34	55**	No
Block 6	49	60**	No	48	60**	No	43	55**	No
Block 7	57	60**	No	55	60**	No	51	55**	No
Block 8	59	60**	No	57	60**	No	53	55**	No
At Grade Outdoor Amenity Area (East of Block 2)	59	55**	Yes	57	55**	Yes	N/A***	N/A***	N/A***

^{*} Building façade receptors except as noted.

** Class 4 exclusion sound level limit.

*** There are no nighttime sound level limits for outdoor living areas.

Note:	Daytime	07:00 to 19:00
	Evening	19:00 to 23:00
	Nighttime	23:00 to 07:00

5.0 NOISE ABATEMENT MEASURES

5.1 Transportation Sources

5.1.1 Indoors

Architectural Component Requirements

Indoor sound level criteria for road and rail traffic can be achieved in all cases by using appropriate architectural elements for external wall, roof, window and exterior door construction. MOE indoor criteria for road traffic noise are 40 dBA (Leq8hour) for the bedrooms during nighttime hours, 45 dBA (Leq8hour) for the living/dining rooms during nighttime hours and 45 dBA (Leq16hour) for the living/dining rooms and bedrooms during daytime hours. As noted in Section 3.1.1, the MOE guidelines for rail noise are 5 dB more stringent. These criteria have been used in this report. The characteristic spectra for the noise sources have been accounted for in the determination of the architectural components. Appendix E contains a sample calculation of architectural component selection.

Once final dwelling plans become available, the noise control requirements should be reevaluated.

In determining the architectural requirements, it is assumed that the worst case residential condition would involve a corner living/dining room. The exterior walls would be 55% and the windows 25% of the associated floor area for both the wall perpendicular to the noise source and the wall parallel to the noise source.

Based on the preliminary analysis, for the worst case receptors, windows and exterior doors need to be STC 34 and exterior walls need to be STC 45 to provide the mitigation required for noise due to road, and rail traffic.

An STC 34 rating for windows and exterior doors and an STC 45 rating for exterior walls are upgrades above the minimum structural and safety requirements of standard construction.

The acoustical performance of a window as a whole depends on glass configuration/thickness, air space, material used for frames and construction details including seals. Therefore, the acoustical performance of the glass configuration alone expressed as a sound transmission class (STC) rating, generally available in the literature, does not address the STC rating of the whole window. Glass configurations with different frame materials and/or construction details often produce different STC ratings. Therefore, it is recommended that prior to installation the window manufacturers provide proof (STC test results of window configuration from an accredited laboratory) that their windows meet the required STC ratings.

Ventilation Requirements

Where the sound level is equal to or greater than 60 dBA (at night) at the outside face of a bedroom window or living/dining room window or exceeds 65 dBA (during the day) on the outside face of a bedroom window or living/dining room window, the indoor noise criteria would not be met with open windows and provisions must be made to permit the windows to remain closed. The MOE requires central air conditioning. In addition, a warning clause is needed. Based on the analysis, most buildings require central air conditioning. See Table 3 and Figure 2.

Where the sound level is exceeded by 1 dB to 10 dB (i.e. LeqNight greater than 50 dBA to less than or equal to 59 dBA and LeqDay greater than 55 dBA to less than or equal to 65 dBA), the provision for adding central air conditioning by the occupants and a warning clause is required. This is not practicable in multi-tenant dwellings. Therefore, central air conditioning is generally used. Provision for adding central air conditioning is required for the some stacked townhouse blocks. See Table 3 and Figure 2.

The proponent has indicated that all residential units will be provided with central air conditioning; thereby, satisfying the acoustical requirements.

Warning clauses will also be required to be placed in offers of purchase and sale, lease agreements and included in the subdivision agreement for all relevant dwelling units to make future occupants aware of the potential noise situation. All blocks (units) within 300 m of the CP Galt Subdivision will also require a warning clause to advise of the proximity to the rail line. See Table 3 for details.

See Table 3 and notes to Table 3 for details of minimum noise abatement measures required.

5.1.2 Outdoors

The outdoor amenity area is required to be exposed to a sound level of 55 dBA or less during the day. A 5 dBA increase is considered acceptable in certain situations. Typically, if the sound level is above 55 dBA, some form of mitigation is recommended and warning clauses are required. Where the sound levels exceed 60 dBA, mitigation and warning clauses are required.

Accounting for the assumed 1.4 m high brick parapet along the perimeter of all stacked townhouse blocks, the predicted sound levels at all rooftop terraces is less than 60 dBA.

In all cases, sound levels less than 60 dBA are predicted at the common outdoor amenity areas as noted in Section 4.1 and Table 2.

Since the predicted sound levels are less than 60 dBA at the common outdoor amenity areas and all rooftop terraces, additional sound barriers are not required and are therefore not proposed for these areas to address transportation noise sources.

Once the final outdoor amenity space layouts are available, the required mitigation measures, if required can be determined.

All balconies and other private terraces which are less than 4.0 m in depth are not considered a noise sensitive space that require mitigation.

Where an excess will remain or where mitigation measures are required, a warning clause should be placed in offers of purchase and sale and/or lease agreements and in the development agreement. Warning clause requirements are listed in Table 3 and specific wording is included in the Notes to Table 3.

5.2 Stationary Sources

As discussed in Section 4.2, based on the stationary noise source review, noise mitigation measures are required to achieve the MOE sound level limits.

Based on the analysis, the Class 1 and Class 4 sound level limits will not be met without the use of physical mitigation measures; therefore, the Class 4 sound level limits and mitigation have been assessed. The following options to address the stationary noise sources have been considered in this preliminary report:

- Option 1 The use of physical mitigation measures in the form of an acoustic barrier installed along the side and rear property lines of the car wash, as shown on Figure 4, to achieve the MOE Class 1 sound level limits; or
- Option 2 Designation of the new residential development as Class 4 and the use of physical mitigation measures in the form of acoustic barriers at select outdoor amenity areas and terraces (see Figure 5).

Based on the MOE NPC-300 guidelines, Class 4 designation can be used for new sensitive land uses adjacent to lawfully established stationary sources if approved by the municipality. Mandatory central air conditioning would also be required to satisfy the Class 4 requirements.

Currently, the proposed site is considered to be a Class 1 area; therefore, the land use planning authority would need to approve the new classification based on the noise analysis and incorporate Class 4 designation in a site specific zoning by-law or alternative planning document that remains registered, as approved by the City of Mississauga.

More details regarding each of the options is summarized below. The options would need to be reviewed with the City of Mississauga to determine the preferred approach. Typically, the entire site is designated as Class 4; however, the municipality can indicate that only specific buildings be designated Class 4, if the predicted sound levels only at those buildings exceed the Class 1 sound level limits.

Option 1

This option would include the use of physical mitigation at sources associated with the commercial development as noted in Section 4.2.

Mitigation measures would include a 7.0 m high acoustic barrier along the side and rear property lines of the existing car wash.

If this option is chosen, discussions will need to be conducted with the owner of the car wash.

Option 2

This option would include, the incorporation of the Class 4 designation at the site (or partial designation) by the City as well as additional mitigative measures where the Class 4 sound level limits are exceeded; proposed is the use of acoustic barriers at select outdoor amenity areas and rooftop terraces.

The required acoustic barriers would include the assumed 1.4 m high brick parapet along the perimeter of the rooftops of all stacked townhouse blocks, as well as a 1.8 m high acoustic barrier at the common outdoor amenity area to the southeast of Block 2 (see Figure 5).

Due to their proximity to the existing commercial buildings, all proposed dwelling units should be provided with a proximity warning clause notifying the purchasers/tenants that the activities and/or equipment associated with the commercial buildings may at times be audible. See Table 3 and Notes to Table 3.

6.0 **RECOMMENDATIONS**

- 1. The requirements as stipulated in Table 3 should be incorporated in the development.
- 2. The mitigation options to address the stationary sources should be reviewed with the City of Mississauga to determine the preferred approach prior to implementation.
- 3. A detailed environmental noise report should be prepared once the final site plan, architectural plans, mechanical plans and grading plan are available to ensure the appropriate criteria are achieved.

7.0 CONCLUSIONS

Based on the acoustical analysis, with the incorporation of the appropriate acoustical abatement measures, it is feasible to develop these lands for residential use. In accordance with City and Ministry implementation guidelines, where mitigation is required, future purchasers will be advised through the use of warning clauses.

PROFESSIONAL FL

100069415

BOUNCE OF ONT

Respectfully submitted,

JADE ACOUSTICS INC.

Per:

Michael Bechbache, E.I.T.

Per:

Chris B. Kellar P.Eng.

MB/CK/jg J:\Reports\18-185 Jul 2-19 64 to 66 Thomas Street & 65 Tannery Street.doc

8.0 REFERENCES

- 1. "Model Municipal Noise Control By-Law", Final Report, by the Ontario Ministry of the Environment, August, 1978.
- 2. ORNAMENT "Ontario Road Noise Analysis Method for Environment and Transportation", Ontario Ministry of the Environment, October, 1989.
- 3. "STEAM" Sound from Trains Environmental Analysis Method", Ontario Ministry of the Environment, July, 1990.
- 4. "Building Practice Note No. 56: Controlling Sound Transmission into Buildings", by J.D. Quirt, Division of Building Research, National Research Council of Canada, September, 1985.
- 5. "Environmental Noise Guideline Stationary and Transportation Sources Approval and Planning", Ontario Ministry of the Environment and Climate Change, Publication NPC-300, August, 2013, released October 21, 2013 (updated final version #22).
- 6. "Impulse Vibration Residential Buildings", Ontario Ministry of Environment, Publication NPC-207 (Draft), November, 1983.
- 7. "General Guidelines for the Preparation of Acoustical Reports in the Region of Peel", Region of Peel, November, 2012.

TABLE 1 PROPOSED RESIDENTIAL DEVELOPMENT 64 TO 66 THOMAS STREET AND 65 TANNERY STREET

CITY OF MISSISSAUGA

SUMMARY OF TRAFFIC INFORMATION

A. Road Traffic

*

ROAD	Tannery Street	Thomas Street	Joymar Drive
AADT* (Ultimate)	4,000	23,500	5,000
No. of Lanes	2	4	2
Speed (km/hr)	50	50	40
Medium Trucks (%)	1.1	1.65	1.1
Heavy Trucks (%)	0.9	1.35	0.9
Gradient (%)	<2	<2	<2
Day/Night Split (%)	90/10	90/10	90/10

AADT: Annual Average Daily Traffic.

B. Rail Traffic (Galt Subdivision)

	FRE	EIGHT#	GC	##
	DAY	NIGHT	DAY	NIGHT
No. of Trains	9	8	19	1
Average No. of Locomotives	4	4	1	1
Average No. of Cars	151	151	12	12
Speed (km/h)	80	80	80	80

[#] This data has been escalated by 2.5% annually to the Year 2031 for use in the analysis.

^{##} Projected data. No escalation factor used in the analysis.

TABLE 2

PROPOSED RESIDENTIAL DEVELOPMENT

64 TO 66 THOMAS STREET

AND 65 TANNERY STREET

CITY OF MISSISSAUGA

PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD AND LIGHT RAIL TRAFFIC

				Leq (dBA)				
Block	Location*	Source	Distance (m)	Day (7:00 a.m. to 11: 00 p.m.)		Night (11:00 p.m. to 7:00 a.m.)		
				Separate	Combined	Separate	Combined	
Block 2	Northeast	CP Galt Subdivision	162	61	61	63	63	
BIOCK 2	Corner	Thomas Street	151	49	01	43	03	
Block 4	Southeast Corner	CP Galt Subdivision	210	57		58	61	
		Thomas Street	21	64	65	57		
		Joymar Drive	12	47		41		
	Northeast	CP Galt Subdivision	174	61	66	62	64	
	Corner	Thomas Street	18	64	00	58	04	
N1/A	At Grade Outdoor	CP Galt Subdivision	175	56	50			
N/A	Amenity Area (East of Block 2)	Thomas Street	138	43	56			

* Wall receiver is top residential storey. The rooftop terrace receiver is located at a height of 1.5 m above the terrace; the at grade receiver is located at a height of 1.5 m above the ground.

TABLE 3

PROPOSED RESIDENTIAL DEVELOPMENT

64 TO 66 THOMAS STREET

AND 65 TANNERY STREET

CITY OF MISSISSAUGA

SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES DUE TO TRANSPORTATION NOISE SOURCES

Blocks (Units)	Air Conditioning (1)	Exterior Wall STC Rating (2)	Window STC Rating (3)	Sound Barrier (4)	Warning Clause (5)
All Blocks (Units)	Mandatory*	Up to STC 45**	Up to STC 34**	Yes***	A, B, C, D, E#

- * See Section 5.1.2 for details. Dwelling designs are anticipated to include central air conditioning. Mandatory central air conditioning would be required if Class 4 is applied.
- ** Denotes construction that exceeds minimum structural and safety requirements of standard construction to address transportation sources.
- *** See Section 5.1.2 for details regarding sound barriers. A 1.4 m high parapet was assumed around all rooftop terraces.
- # Warning clause "E" will be needed if the development is designated as Class 4.

See Notes to Table 3 on following pages. See Section 5.2 for discussions regarding noise mitigation measures required to address stationary noise sources.

NOTES TO TABLE 3

- 1. Means must be provided to allow windows to remain closed for noise control purposes.
- 2. STC Sound Transmission Class Rating (Reference ASTM-E413). Values shown are based on preliminary calculations using standard assumptions. See text for details.
- STC Sound Transmission Class Rating (Reference ASTM-E413). Values shown are based on preliminary calculations using standard assumptions. See text for details. A sliding glass walkout door should be considered as a window and be included in the percentage of glazing. Requirements are to be finalized once building plans are available.
- 4. Suggested warning clauses to be included in the development agreement and to be included in offers of purchase and sale or lease agreements on designated buildings (suites):

A. "Purchasers/tenants are advised that despite the inclusion of noise control features in this development area and within the dwelling units, noise due to increasing road and rail traffic may continue to be of concern, occasionally interfering with the activities of the occupants as the sound level may exceed the noise criteria of the Municipality and the Ontario Ministry of the Environment, Conservation and Parks. I, the purchaser hereby agree to place this clause in all subsequent offers of purchase and sale when I sell the property."

B. "Purchasers/tenants are advised that the dwelling unit was fitted with a central air conditioning system in order to permit closing of windows for noise control."

C. "Purchasers/tenants are advised that this residential unit is in proximity to the existing commercial buildings whose activities may at times be audible."

D. "Warning: Canadian Pacific Railway Company or its assigns or successors in interest has or have a right-of-way and facilities within 300 m from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CP Rail will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid facility and right-of-way".

E. "Purchasers/tenants are advised that sound levels due to the adjacent commercial buildings are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed. The residential area has been designated Class 4 as defined by the Ministry of the Environment, Conservation and Parks guidelines."



EXISTING COMMERCIAL FUTURE RESIDENTIAL MULLET CREEK OUTDOOR AMENITY AREA (PARK) IANNERY STREE EXISTING RESIDENTIAL 6666 JOYMAR DRIVE STREETSVILLE SECONDARY FUTURE RESIDENTIAL SCHOOL EXISTING RESIDENTIAL









APPENDIX A

CORRESPONDENCE REGARDING TRAFFIC DATA



800 - 1290 Central Parkway West Mississauga, Ontario Canada L5C 4R3 **T** 905 803 3429 **E** josie_tomei@cpr.ca

January 2, 2019

Via email: nik@jadeacoustics.com

Nik Vogel Jade Acoustics Inc. 411 Confederation Parkway Unit 19 Concord, ON L4K 4H1

Dear Sir/Madam:

Re: Rail Traffic Volumes, CP Mileage 20.75, Galt Subdivision, Tannery Street at CP Tracks, Mississauga

This is in reference to your request for rail traffic data in the vicinity of Tannery Street at CP Tracks in the City of Mississauga. The study area is located at mile 20.75 of our Galt Subdivision, which is classified as a Principal Main Line line.

The information requested is as follows:

1.	Number of freight trains between 0700 & 2300: Number of freight trains between 2300 & 0700:	9 8
2.	Maximum cars per train freight:	151
3.	Number of locomotives per train:	2 (4 max.)
4.	Maximum permissible freight train speed:	50 mph

- 5. There are 2 public grade crossings in the study area at Thomas Street and Tannery Street. The whistle signal is prohibited approaching all public grade crossings in the area, however, the whistle may be sounded if deemed necessary by the train crew for safety reasons at any time.
- 6. There are 2 main line tracks at this location, both with continuously welded rail.
- 7. Note, the above data is for freight only. Please contact Metrolinx directly for GO traffic data.

The information provided is based on recent rail traffic. Variations of the above may exist on a day-today basis. Specific measurements may also vary significantly depending on customer needs.

Yours truly,

Josie Tomei SR/WA Specialist Real Estate Sales & Acquisitions – Ontario

Michael Bechbache

From:	Rail Data Requests <raildatarequests@metrolinx.com></raildatarequests@metrolinx.com>
Sent:	Tuesday, January 22, 2019 3:56 PM
То:	Michael Bechbache
Cc:	Brandon Gaffoor; Chris Kellar; Nik Vogel
Subject:	RE: Jade File # 18-185 - Rail traffic data request

Good Afternoon Michael,

Further to your request dated December 19, 2018 (attached below), the subject site (described as north of Joymar Drive, between Tannery Street and Thomas Street, Mississauga), we note the subject site is located within 300 metres of Streetsville GO Station and CPR's Galt Subdivision (which carries Milton GO train service). We note that we do not maintain information pertaining to the idling activities at stations – that would be up to the consultant to collect that information for a typical weekday period.

It's anticipated that GO service on this line will be comprised of diesel trains within (at least) a 10-year time horizon. The combined preliminary midterm weekday train volume forecast at this location, including both revenue and equipment trips is in the order of 20 trains (19 day, 1 night). Trains will be comprised of a single locomotive and up to 12 passenger cars.

The current maximum speed on this corridor is 50 mph (80 km/h).

An anti-whistle by-law is in effect at Tannery Street and Thomas Street.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability, and passenger demand.

It should be noted that CPR is the owner of the rail corridor in this location and it would be prudent to contact them directly for rail traffic and right-of-way information, such as track alignment and gradient.

I trust this information is useful. Should you have any questions, do not hesitate to contact me.

Best Regards,

IVAN CHEUNG, M.Sc, B.URPI Intern Metrolinx Pre-Construction Services | Capital Projects Group 20 Bay Street, Suite 600 | Toronto | Ontario | M5J 2W3 T: 416-202-5920

From: Michael Bechbache [mailto:michael@jadeacoustics.com]
Sent: January-22-19 12:20 PM
To: Rail Data Requests
Cc: Brandon Gaffoor; Chris Kellar; Nik Vogel
Subject: FW: Jade File # 18-185 - Rail traffic data request

Hello,

Please see the request for rail traffic information below (and the attached image), which was originally sent to Brandon Gaffoor.

Please provide the below noted information at your earliest availability.

Thank you in advance for your time and efforts.

Regards,

Mike Bechbache, E.I.T. Jade Acoustics Inc. <u>michael@jadeacoustics.com</u> T: 905-660-2444 F: 905-660-4110



From: Nik Vogel
Sent: Wednesday, December 19, 2018 12:55 PM
To: brandon.gaffoor@metrolinx.com
Cc: Michael Bechbache <michael@jadeacoustics.com>; Chris Kellar <chris@jadeacoustics.com>
Subject: Jade File # 18-185 - Rail traffic data request

Hi Brandon,

We have been requested to prepare an Environmental Noise Report for a proposed development north of Joymar Drive between Tannery Street and Thomas Street in the City of Mississauga. The site is also in the vicinity of the Streetsville GO Station.

I kindly request the following information (existing and ultimate) with the day/night split for the rail operations on the subject rail corridor:

- number of trains;
- number of locomotives per train;
- number of cars per train;
- train speed;
- track gradient;
- whistle locations;
- right-of-way width (R.O.W.);
- track alignment on R.O.W.; and
- if no ultimate data is available, then annual percent increase and number of years of growth.

If you are aware of a noise report that was prepared for the Streetsville GO Station, please provide me with a copy.

Please reply at your earliest convenience. If there are any questions, please do not hesitate to call.

Regards,

Nik Vogel Jade Acoustics Inc. nik@jadeacoustics.com T: 905-660-2444 F: 905-660-4110



This e-mail is intended only for the person or entity to which it is addressed. If you received this in error, please contact the sender and delete all copies of the e-mail together with any attachments.

Date:	2	Dec-18 NOISE REPORT FOR PROPOSED DEVELOPMENT				
	REQUESTED BY:					
Name:	Nik Vogel		\sim			
Company	Jade Accoustics			MISSISSAUGA		
		Location	Tappary Street F	aat of Joymor Dr		
:hvestileestspur	PREPARED BY:		- Thomas Street East of Joymar Dr			
Name:	Loudel Uy		- Joymar Dr betwe	en Tannery Dr and T	homas Street	
Tel#:	(905) 615-3200	Look Up ID	#: 397			
		OI	N SITE TRAF	FIC DATA		
	Specific			Street Names		
		Tannery Street	Thomas Street	Joymar Drive		
AADT:		4,000	23,500	5,000		
# of Lane	s:	2 lanes	4 lanes	2 lanes		
% Trucks	:	2% 3%		2%		
Medium/H	leavy Trucks Ratio:	55/45	55/45	55/45		
Day/Night	t Traffic Split:	90/10	90/10	90/10		
Posted Sp	peed Limit:	50 km/h	50km/h	40km/h		
Gradient	of Road:	<2%	<2%	<2%		
Ultimate F	R O W:	20m	23m	20m		
1998) per 1997 C	omments:	Ultimate Traffic Data	Only			
		NERTHER CONTRACTORS STREET FOR ESS.		use sectores and the sector of the same	er no esta socialitzatione de la companya de la com	
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			a company any supervision of the state of th	and a factor of the second		ala teleparte Vicenterativa parte interativa

APPENDIX B

ENVIRONMENTAL NOISE CRITERIA

ONTARIO MINISTRY OF THE ENVIRONMENT (MOE)

Reference: "Environmental Noise Guidelines Stationary and Transportation Sources – Approval and Planning", Publication NPC-300, August, 2013, released October 21, 2013 (updated final version # 22).

SOUND LEVEL CRITERIA FOR ROAD AND RAIL NOISE

TABLE C-1

Sound Level Limit for Outdoor Living Areas

Road and Rail

Time Period	L _{eq} (16) (dBA)
16 hr, 07:00 - 23:00	55

TABLE C-2

Indoor Sound Level Limits Road and Rail

Tuno of Space	Time Deried	L _{eq} (dBA)	
Type of Space	Time Fenou	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
	07:00 - 23:00	45	40
Sieeping quarters	23:00 - 07:00	40	35

SOUND LEVEL CRITERIA FOR AIRCRAFT NOISE

TABLE C-3

Outdoor Aircraft Noise Limit

Time Period	NEF/NEP
24-hour	30

TABLE C-4

Indoor Aircraft Noise Limit (Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
Living/dining/den areas of residences, hospitals, nursing/retirement homes, schools, daycare centres, etc.	5
Sleeping Quarters	0

* The indoor NEF/NEP values in Table C-4 are used to determine acoustical insulation requirements based on the NEF/NEP contour maps.

SOUND LEVEL CRITERIA FOR STATIONARY SOURCES

TABLE C-5

Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA) Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 - 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

TABLE C-6

Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA) Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 - 07:00	45	45	40	55

TABLE C-7

Exclusion Limit Values for Impulsive Sound Level (L_{LM}, dBAI) Outdoor Points of Reception

Time of Day	Actual Number of Impulses in Period of One-Hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
	9 or more	50	50	45	55
07:00 – 23:00	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

TABLE C-8

Exclusion Limit Values of Impulsive Sound Level (L_{LM}, dBAI) Plane of Window - Noise Sensitive Spaces (Day/Night)

Actual Number of Impulses in Period of One-Hour	Class 1 Area (07:00-23:00) / (23:00-07:00)	Class 2 Area (07:00-23:00) / (23:00-07:00)	Class 3 Area (07:00-19:00) / (19:00-07:00)	Class 4 Area (07:00-23:00) / (23:00-07:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

SUPPLEMENTARY SOUND LEVEL LIMITS

Indoor limits for transportation sources applicable to noise sensitive land uses are specified in Table C-2 and Table C-4. Table C-9 and Table C-10 are expanded versions of Table C-2 and Table C-4, and present guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The specified values are maximum sound levels and apply to the indicated indoor spaces with the windows and doors closed. The sound level limits in Table C-9 and Table C-10 are presented as information, for good-practice design objectives.

TABLE C-9

L_{eq} (Time Period) (dBA) **Type of Space Time Period** Road Rail General offices, reception areas, retail stores, 16 hours between 50 45 etc. 07:00 - 23:00Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare 16 hours between centres, theatres, places of worship, libraries, 45 40 07:00 - 23:00individual or semi-private offices, conference rooms, reading rooms, etc. 8 hours between 45 40 Sleeping quarters of hotels/motels 23:00 - 07:00Sleeping quarters of residences, hospitals, 8 hours between 40 35 nursing/retirement homes, etc. 23:00 - 07:00

Supplementary Indoor Sound Level Limits Road and Rail

TABLE C-10

Supplementary Indoor Aircraft Noise Limit (Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

ENVIRONMENTAL NOISE CRITERIA

REGION OF PEEL

Reference: "General Guidelines for the Preparation of Acoustical Reports in the Region of Peel", November, 2012.

ROAD TRAFFIC NOISE

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TYPE OF SPACE	TIME PERIOD	SOUND LEVEL LIMIT Leq*
Outdoor living area	7:00 a.m. – 11:00 p.m.	Leq (16 hr) = 55 dBA
Outside bedroom window	11:00 p.m. – 7:00 a.m.	Leq $(8 hr) = 50 dBA$
Indoor (bedrooms, hospitals)	11:00 p.m. – 7:00 a.m.	Leq $(8 hr) = 40 dBA$
Indoor (living rooms, hotels, private offices, reading rooms)	7:00 a.m. – 11:00 p.m.	Leq (16 hr) = 45 dBA
Indoor (general offices, shops)	7:00 a.m. – 11:00 p.m.	Leq (16 hr) = 50 dBA

* Leq, measured in A-weighted decibels (dBA), is the value of the constant sound level which would result in exposure to the same total sound level as would the specified time varying sound, if the constant sound level persisted over an equal time interval.

APPENDIX C

SAMPLE CALCULATION OF PREDICTED SOUND LEVELS DUE TO ROAD TRAFFIC

APPENDIX C-1 SAMPLE CALCULATION OF PREDICTED SOUND LEVELS

FILE: 18-185 NAME: 64 to 66 Thomas Street and 65 Tannery Street REFERENCE DRAWINGS: Site Plan LOCATION: Block 4, Southeast Corner, top residential floor

Noise Source:	Galt Sul (CP ar Locomotive	bdivision nd GO) Wheel	Thomas Street	Joymar Drive
Segment Angle:	0 to 90	0 to 90	-90 to 90	0 to 90
Time Period:	16 hr. (day)	16 hr. (day)	16 hr. (day)	16 hr. (day)
Distance (m):	210	210	21	24
CALCULATION OF PREDICTED SO	OUND LEVELS	*		
Reference Leq (dBA)*:	74.81	68.01	66.87	54.14
Distance Correction (dBA):	-15.23	-15.23	-2.02	-2.93
Finite Element Correction (dBA):	-3.85	-3.85	-1.05	-4.06
Allowance for Future Growth (dBA):	incl.	incl.	incl.	incl.
LeqDay (dBA):	55.74	48.94	63.81	47.14
Combined LeqDay (dBA)		64	1.63	

* Leq determined using the computerized model of the Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT and STEAM). See attached printouts.

APPENDIX C-2 SAMPLE CALCULATION OF PREDICTED SOUND LEVELS

FILE: 18-185 NAME: 64 to 66 Thomas Street and 65 Tannery Street REFERENCE DRAWINGS: Site Plan LOCATION: Block 4, Southeast Corner, top residential floor

Noise Source:	Galt Su (CP at Locomotive	bdivision nd GO) Wheel	Thomas Street	Joymar Drive
Segment Angle:	0 to 90	0 to 90	-90 to 90	0 to 90
Time Period:	8 hr. (night)	8 hr. (night)	8 hr. (night)	8 hr. (night)
Distance (m):	210	210	21	24
CALCULATION OF PREDICTED S	OUND LEVELS	5*		
Reference Leq (dBA)*:	76.72	70.02	60.63	50.82
Distance Correction (dBA):	-15.23	-15.23	-2.02	-2.93
Finite Element Correction (dBA):	-3.85	-3.85	-1.05	-4.06
Allowance for Future Growth (dBA):	incl.	incl.	incl.	incl.
LeaNight (dBA):	57 64	50 94	57 29	40.83
Combined LegNlight (dDA)	01.04	00.07	07.20	+0.00
Complined Legivight (dBA)		60	1.90	

* Leq determined using the computerized model of the Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT and STEAM). See attached printouts. STAMSON 5.0 NORMAL REPORT Date: 09-04-2019 16:04:53 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: blk4wbr.te Time Period: Day/Night 16/8 hours Description: Block 4 West Unit Building Requirement

Rail data, segment # 1: CP GALT (day/night) _____ ____ Train ! Trains ! Speed !# loc !# Cars! Eng !Cont !(km/h) !/Train!/Train! type !weld 1 Туре _____ ! 12.1/10.8 ! 80.0 ! 4.0 !151.0 !Diesel! Yes * 1. * The identified number of trains have been adjusted for future growth using the following parameters: ! Unadj. ! Annual % ! Years of ! ! Trains ! Increase ! Growth ! Train type: No Name -----+ 1. ! 9.0/8.0 ! 2.50 ! 12.00 ! Data for Segment # 1: CP GALT (day/night) -----Angle1Angle2:0.00 deg90.00 degWood depth:0(No woods)No of house rows:0 / 0Surface:1(Absorptive) (No woods.) (Absorptive ground surface) Receiver source distance : 209.50 / 209.50 m Receiver height : 9.50 / 9.50 m Topography : 0 (Def (Define your own alpha.) Topography No Whistle Barrier angle1 : 0.00 deg Angle2 : 90.00 deg Barrier height : 0.01 m Barrier height : 0.01 m Barrier receiver distance : 0.10 / 0.10 m Source elevation : 0.00 m : Receiver elevation 0.50 m Barrier elevation 0.00 m : Alpha : 0.33 0.00 Reference angle : Rail data, segment # 2: GO GALT (day/night) ------! Trains ! Speed !# loc !# Cars! Eng !Cont ! !(km/h) !/Train!/Train! type !weld Train Type * 1. ! 19.0/1.0 ! 80.0 ! 1.0 ! 12.0 !Diesel! Yes * The identified number of trains have been adjusted for future growth using the following parameters: Train type: ! Unadj. ! Annual % ! Years of ! No Name ! Trains ! Increase ! Growth ! ! 19.0/1.0 ! 0.00 ! 12.00 ! 1.

Data for Segment # 2: GO GALT (day/night) ------Angle1 Angle2 : 0.00 deg 90.00 deg (No woods.) : 0 Wood depth No of house rows : 0 / 0 1 (Absorptive ground surface) Surface : Receiver source distance : 209.50 / 209.50 m Receiver height : 9.50 / 9.50 m : 0 (Define your own alpha.) Topography No Whistle Barrier angle1 : 0.00 deg Angle2 : 90.00 deg Barrier height : 0.01 m Barrier receiver distance : 0.10 / 0.10 m Source elevation : 0.00 m Receiver elevation : 0.50 m 0.00 m Barrier elevation : Alpha 0.33 : Reference angle : 0.00 Results segment # 1: CP GALT (day) _____ Barrier height for grazing incidence -----Source ! Receiver ! Barrier ! Elevation of Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

 4.00 !
 9.50 !
 10.00 !
 10.00

 0.50 !
 9.50 !
 10.00 !
 10.00

 LOCOMOTIVE (0.00 + 55.09 + 0.00) = 55.09 dBAAngle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----____ _____ ____ 0 90 0.33 74.16 -15.23 -3.85 0.00 0.00 -0.01 55.08* 90 0.33 74.16 -15.23 -3.85 0.00 0.00 0.00 55.09 _____ * Bright Zone ! WHEEL (0.00 + 48.40 + 0.00) = 48.40 dBAAngle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq 0 90 0.33 67.47 -15.23 -3.85 0.00 0.00 -0.01 48.39* 90 0.33 67.47 -15.23 -3.85 0.00 0.00 0.00 48.40 0

* Bright Zone !

Segment Leq : 55.93 dBA

Results segme	ent # 2: GO	GALT (day))				
Barrier heigh	t for graz	ing incide	nce				
Source ! Height (m) !	Receiver Height (! Barrie m) ! Height	er ! t (m) !	Elevati Barrier	on of Top	(m)	
4.00 ! 0.50 !	9. 9.	50 ! 50 !	10.00 ! 10.00 !		10.00 10.00		
LOCOMOTIVE (0 Angle1 Angle2	.00 + 47.1 Alpha Re	6 + 0.00) = fLeq D.Ad	= 47.16 j F.Adj	dBA W.Adj	H.Adj	B.Adj	SubLeq
0 90 0 90	0.33 6 0.33 6	6.24 -15.23 6.24 -15.23	3 -3.85 3 -3.85	0.00	0.00	-0.01 0.00	47.16* 47.16
* Bright Zon	e!						
WHEEL (0.00 + Angle1 Angle2	39.59 + 0 Alpha Re	.00) = 39.5 fLeq D.Ad	59 dBA j F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0 90 0 90	0.33 5 0.33 5	8.67 -15.23 8.67 -15.23	3 -3.85 3 -3.85	0.00 0.00	0.00 0.00	-0.01 0.00	39.58* 39.59
* Bright Zon	e!						
Segment Leq :	47.86 dBA						
Total Leq All	Segments:	56.56 dBA					
Results segme	ent # 1: CP	GALT (nig)	nt)				
Barrier heigh	t for graz	ing incide	nce				
Source ! Height (m) !	Receiver Height (! Barrie m) ! Height	er ! t (m) !	Elevati Barrier	on of Top	(m)	
4.00 ! 0.50 !	9. 9.	50 ! 50 !	10.00 ! 10.00 !		10.00 10.00		
LOCOMOTIVE (0 Angle1 Angle2	.00 + 57.6 Alpha Re	0 + 0.00) = fLeq D.Ad	= 57.60 j F.Adj	dBA W.Adj	H.Adj	B.Adj	SubLeq
0 90 0 90	0.33 7 0.33 7	6.68 -15.23 6.68 -15.23	3 -3.85 3 -3.85	0.00	0.00	-0.01	57.60* 57.60
* Bright Zon	e!						
WHEEL (0.00 + Angle1 Angle2	50.91 + 0 Alpha Re	.00) = 50.9 fLeq D.Ad	91 dBA j F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0 90 0 90	0.33 6 0.33 6	9.99 -15.23 9.99 -15.23	3 -3.85 3 -3.85	0.00	0.00	-0.01 0.00	50.90* 50.91
* Bright Zon	e!						_
Segment Leq :	58.44 dBA						

Results segment # 2: GO GALT (night) _____ Barrier height for grazing incidence -----_____ Source ! Receiver ! Barrier ! Elevation of Height (m) ! Height (m) ! Height (m) ! Barrier Top (m) 4.00 !9.50 !10.00 !10.000.50 !9.50 !10.00 !10.00 LOCOMOTIVE (0.00 + 37.39 + 0.00) = 37.39 dBAAngle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq _____ _____ 0 90 0.33 56.46 -15.23 -3.85 0.00 0.00 -0.01 37.38* 0 90 0.33 56.46 -15.23 -3.85 0.00 0.00 0.00 37.39 * Bright Zone ! WHEEL (0.00 + 29.81 + 0.00) = 29.81 dBAAngle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq _____ 0 90 0.33 48.89 -15.23 -3.85 0.00 0.00 -0.01 29.81* 90 0.33 48.89 -15.23 -3.85 0.00 0.00 0.00 29.81 0 _____ * Bright Zone ! Segment Leg : 38.09 dBA Total Leq All Segments: 58.48 dBA Road data, segment # 1: THOMAS (day/night) _____ Car traffic volume : 20516/2280 veh/TimePeriod * Medium truck volume : 349/39 veh/TimePeriod * Heavy truck volume : 286/32 Posted speed limit : 50 km/h Road gradient : 2 % veh/TimePeriod * Road pavement 1 (Typical asphalt or concrete) : * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 23500 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Number of Years of Growth Medium Truck % of Total Volume : 1.65 Heavy Truck % of Total Volume : 1.35 Day (16 hrs) % of Total Volume : 90.00 Data for Segment # 1: THOMAS (day/night) _____ Angle1Angle2: -90.00 deg90.00 degWood depth: 0(No woodsNo of house rows: 0 / 0 (No woods.) 0 / 0 1 Surface (Absorptive ground surface) : Receiver source distance : 20.75 / 20.75 m Receiver height:9.50 / 9.50 mTopography:1 (FlatReference angle:0.00 1 (Flat/gentle slope; no barrier) Road data, segment # 2: JOYMAR (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 : 2 % 1 (Typical asphalt or concrete) Road pavement : * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 5000 Percentage of Annual Growth : 0.00 : 0.00 Number of Years of Growth Medium Truck % of Total Volume: 1.10Heavy Truck % of Total Volume: 0.90Day (16 hrs) % of Total Volume: 90.00 Data for Segment # 2: JOYMAR (day/night) Angle1 Angle2 : 0.00 deg 90.00 deg : 0 : 0 / 0 : 1 Wood depth (No woods.) No of house rows Surface (Absorptive ground surface) Receiver source distance : 24.00 / 24.00 m Receiver height : 9.50 / 9.50 m Topography : 1 (Flat/gentle slope; no barrier) 0.00 Reference angle Results segment # 1: THOMAS (day) _____ Source height = 1.08 m ROAD (0.00 + 63.81 + 0.00) = 63.81 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------------_____ -90 90 0.43 66.87 0.00 -2.02 -1.05 0.00 0.00 0.00 63.81 _____ Segment Leg : 63.81 dBA Results segment # 2: JOYMAR (day) Source height = 0.98 m ROAD (0.00 + 50.14 + 0.00) = 50.14 dBA Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq _____ 0 90 0.44 57.14 0.00 -2.93 -4.06 0.00 0.00 0.00 50.14 _____

Segment Leq : 50.14 dBA - 3 dB = 47.14 dBA to account for the doubled source-receiver distance.

Total Leq All Segments: 63.90 dBA

Results segment # 1: THOMAS (night) _____ Source height = 1.08 mROAD (0.00 + 57.29 + 0.00) = 57.29 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq _____ _____ ____ _____ _____ -90 90 0.43 60.36 0.00 -2.02 -1.05 0.00 0.00 0.00 57.29 _____ Segment Leq : 57.29 dBA Results segment # 2: JOYMAR (night) -----Source height = 1.00 mROAD (0.00 + 43.83 + 0.00) = 43.83 dBA Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq _____ ----------0 90 0.44 50.82 0.00 -2.93 -4.06 0.00 0.00 0.00 43.83 _____ Segment Leg : 43.83 dBA - 3 dB = 40.83 dBA to account for the doubled source-receiver distance.

Total Leq All Segments: 57.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.63 (NIGHT): 60.98

APPENDIX D

SAMPLE CALCULATION OF SOUND LEVELS DUE TO STATIONARY SOURCES - CADNAA

Name	ID	R	esult. PW	/L		Lw / Li	Operating Time			K0	Direct.	Height	:	C	Coordinates	
		Day	Evening	Night	Туре	Value	Day	Special	Night					Х	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603794.55	4825864.72	1.50
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603799.84	4825871.82	1.50
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603805.08	4825878.10	1.50
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603810.28	4825884.87	1.50
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603795.75	4825863.69	1.50
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603800.92	4825870.75	1.50
Car Wash Vacuum	!0000!	103.2	103.2	103.2	Lw	VAC+5	15.00	10.00	5.00	0.0	(none)	1.50	r	603806.20	4825877.31	1.50
100 Emby RTU	!0000!	81.4	81.4	81.4	Lw	LGH060072	60.00	42.00	24.00	0.0	(none)	1.20	g	603747.08	4825907.24	5.20
44 Thomas RTU	!0000!	81.4	81.4	81.4	Lw	LGH060072	60.00	42.00	24.00	0.0	(none)	1.20	g	603829.89	4825886.83	4.70

Name	M.	ID	R	esult. PV	٧L	R	esult. PW	/L'	Lw /	Li	(Correctio	n	K0		Moving	Pt. Src	
			Day	Evening	Night	Day	Evening	Night	Туре	Value	Day	Evening	Night			Number		Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	(dB)	Day	Evening	Night	(km/h)
100 Emby Truck Route		!0001!	81.1	81.1	81.1	58.9	58.9	58.9	PWL-Pt	TP	0.0	0.0	0.0	0.0	1.0	1.0	1.0	10.0

Name	M.	ID	Re	esult. PV	/L	Re	esult. PW	′L''		Lw / Li	Ope	erating Ti	ime	K0	Freq.	Direct.
			Day	Evening	Night	Day	Evening	Night	Туре	Value	Day	Special	Night			
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)	(Hz)	
100 Emby Bay Door		!0003!	82.0	82.0	82.0	71.2	71.2	71.2	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	72.5	72.5	72.5	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	72.5	72.5	72.5	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	72.5	72.5	72.5	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	72.5	72.5	72.5	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	72.5	72.5	72.5	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	71.1	71.1	71.1	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	74.1	74.1	74.1	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	73.7	73.7	73.7	Lw	ARS	30.00	30.00	30.00	0.0		(none)
100 Emby Bay Door		!0003!	82.0	82.0	82.0	72.5	72.5	72.5	Lw	ARS	30.00	30.00	30.00	0.0		(none)
44 Thomas Bay Door	r	!0003!	82.0	82.0	82.0	74.1	74.1	74.1	Lw	ARS	30.00	30.00	30.00	0.0		(none)
44 Thomas Bay Door	r	!0003!	82.0	82.0	82.0	74.1	74.1	74.1	Lw	ARS	30.00	30.00	30.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)
Car Wash Bay		!0003!	98.7	98.7	98.7	89.1	89.1	89.1	Lw	CARWASH+5	45.00	25.00	10.00	0.0		(none)

Name	M.	ID	RB	Residents	Absorption	Height	t
						Begin	
						(m)	
100 Emby		!02!		0	0.37	4.00	r
100 Emby High Roof		!02!		0	0.37	2.00	g
56 Thomas Car Wash		!02!		0	0.37	4.00	g
44 Thomas Vacant		!02!		0	0.37	3.50	g
44 Thomas High Roof Vacan		!02!		0	0.37	2.50	g
Block 4		!02!	х	0	0.37	11.40	r
Block 3		!02!	Х	0	0.37	11.40	r
Block 1		!02!	х	0	0.37	11.40	r
Block 2		!02!	х	0	0.37	11.40	r
Block 8		!02!	х	0	0.37	11.40	r
Block 7		!02!	х	0	0.37	11.40	r
Block 6		!02!	х	0	0.37	11.40	r
Block 5		!02!	Х	0	0.37	11.40	r

Name	M.	ID		Level I	_r	Limit. Value			Land Use			Land Use Height			oordinates	
			Day	Night	Evening	Day	Night	Evening	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
R1		!01!	54.6	49.2	52.5	0.0	0.0	0.0		х	Total	1.50	r	603671.96	4825863.77	1.50
R2		!01!	41.8	36.5	39.8	0.0	0.0	0.0		х	Total	1.50	g	603568.75	4825917.50	12.90
R3		!01!	51.1	45.7	49.0	0.0	0.0	0.0		х	Total	1.50	g	603721.97	4825807.89	12.90
R4		!01!	51.4	45.9	49.2	0.0	0.0	0.0		х	Total	1.50	g	603745.42	4825788.07	12.90
R5		!01!	50.4	45.0	48.3	0.0	0.0	0.0		х	Total	1.50	g	603691.21	4825811.62	12.90
R6		!01!	48.5	43.3	46.5	0.0	0.0	0.0		х	Total	1.50	g	603652.01	4825846.70	12.90
R7		!01!	50.6	45.2	48.5	0.0	0.0	0.0		х	Total	1.50	g	603665.05	4825882.65	12.90
R8		!01!	53.0	47.8	51.1	0.0	0.0	0.0		х	Total	1.50	g	603625.58	4825917.20	12.90
R9		!01!	43.7	38.4	41.7	0.0	0.0	0.0		Х	Total	1.50	g	603608.97	4825881.65	12.90

APPENDIX E

SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION

APPENDIX E-1 SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION*

FILE: 18-185 NAME: 64 to 66 Thomas Street and 65 Tannery Street REFERENCE DRAWINGS: Site Plan LOCATION: Block 4, Northeast Corner, top residential floor

Room:	Corner Living Room								
Wall area as	a percentage of floor	area:	:	Southeast: Northeast:	55% 55%				
Window area	a as a percentage of fl	oor area:	:	Southeast: Northeast:	25% 25%				
Number of c	omponents:	4							
Outdoor Day	/time Leq:	Southeast: Northeast:	58 55	(+3 for reflecti (+3 for reflecti	ons) = 61 dBA ons) = 58 dBA				
Indoor Leq:		40							
Noise Redu	ction (dBA):	Southeast: Northeast:	21 18						
Noise Spect	rum:	Mixed Road a	nd	Distant Aircra	ft				
Absorption:		Intermediate							

APPROPRIATE ELEMENTS

STC Rating

Exterior Wall	Southeast Northeast	STC 32 STC 29
Window	Southeast Northeast	STC 24 STC 21

* Based upon "Controlling Sound Transmission into Buildings", Building Practice Note 56 by National Research Council of Canada, September, 1985.

ROAD

APPENDIX E-2 SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION*

FILE: 18-185 NAME: 64 to 66 Thomas Street and 65 Tannery Street REFERENCE DRAWINGS: Site Plan LOCATION: Block 4, Northeast Corner, top residential floor

Room:	m: Corner Living Room									
Wall area as	a percentage of floor	area:	Southeast: Northeast:	55% 55%						
Window area	a as a percentage of f	loor area:	Southeast: Northeast:	25% 25%						
Number of c	omponents:	4								
Outdoor Day	/time Leq:	Southeast: Northeast:	62 (+3 for reflections) = 65 dBA 59 (+3 for reflections) = 62 dBA							
Indoor Leq:		35								
Noise Redu	ction (dBA):	Southeast: Northeast:	30 27							
Noise Spect	rum:	Diesel Locom	otive							
Absorption:		Intermediate								

APPROPRIATE ELEMENTS

STC Rating

Exterior Wall	Southeast Northeast	STC 44 STC 41
Window	Southeast Northeast	STC 34 STC 31

* Based upon "Controlling Sound Transmission into Buildings", Building Practice Note 56 by National Research Council of Canada, September, 1985.

RAIL

APPENDIX E-3

SUMMARY OF COMBINED STC RATING REQUIREMENTS

BLOCK 4 – NORTHEAST CORNER

CORNER LIVING ROOM

COMBINED	REQUIRED STC BASED ON ROAD TRAFFIC ONLY	REQUIRED STC BASED ON RAIL TRAFFIC ONLY	COMBINED REQUIRED STC RATING*		
Southeast Wall	32	44	45		
Northeast Wall	29	41	42		
Southeast Window	24	34	34		
Northeast Window	21	31	31		

* An STC 34 rating for the window and an STC 45 rating for the exterior wall construction are better than constructions complying with Standard Construction practices.

APPENDIX F

COMPLETED QUESTIONNAIRES BY NEIGHBOURING BUSINESSES

Consulting Jade Engineers Acoustics Inc.

Tel: (905) 660-2444 411 Confederation Parkway Fax: (905) 660-4110

January 24, 2019

Spot Free Car Wash 56 Thomas Street Mississauga, Ontario L5M 1Y7

To Whom It May Concern:

Unit 19

L4K 0A8

Concord, Ontario



Information Request Re: Proposed Residential Development 65 to 95 Joymar Drive City of Mississauga Our File: 18-185

As requested by the owner of the property west of Mullet Creek and required by the City of Mississauga, we are conducting a noise study for the above mentioned development, which is proposed for residential re-development. As part of the noise study, we are required by the Ministry of the Environment, Conservation and Parks to identify and quantify all potential noise sources. In order to do this adequately we have summarized the information we require regarding your operations. Please complete and return this form by fax or email. We will then contact you regarding a time and date to complete sound measurements (if required).

What are your l	hours of operation?		24	HAS		
How many days	s per week?		ZDAY	5		1
ls vour operat	ion seasonal? If	so describe	the opera	tions assoc	ciated with	diffe
seasons.	Ala		une opere			

Page 1 of 3

If not, when do you anticipate being at full operating capacity? <u>DRC-MAAGA</u> 5. What noise producing equipment do you have located: ______ 6. (a) internally? _____ (b) internally but exhausting/intaking to the exterior? JADE ACUMMS (c) externally? 7. Does your company have any outside storage? If so, are there any activities such as forklifts or transport trucks which access the storage area? How many trucks use the shipping area during the day and at night? 8. Are shipping doors left open during the summer? Where are they located? 9. NIA Are there any planned modifications/expansions to your facility? 10. Does your company have a valid Certificate of Approval (C of A) or Environmental 11. Compliance Approval (ECA) from the Ministry of the Environment and Climate Change which includes a noise assessment and noise mitigation measures, if required? If yes, please provide us with a copy of the Approvals documentation and copy of the noise assessment report. ______

Page 2 of 3

12. Other information

13.	Contact Information	As an an an an an an
	Name:	PAUL ARSINI
	Position:	OUNKR
	Telephone No.:	416 949 5195
	Fax No.:	Hard and a string of again
	E-mail:	KNEWT55C GMAIL, COM



If you have any questions, please contact the undersigned. Thank you in advance for your assistance.

Yours truly,

JADE ACOUSTICS INC.

2 0 Per: 7 Michael Bechbache, E.I.T.

michael@jadeacoustics.com

MB/CK/jg J:Letters\2018\18-185 Jan 24-19 65 to 95 Joymar Drive (Spot Free Carwash).doc

Page 3 of 3