Jade Acoustics Inc. Consulting Engineers
411 Confederation Parkway
Unit 19
Concord, Ontario
L4K 0A8
Tel: (905) 660-2444
Fax: (905) 660-4110

PRELIMINARY ENVIRONMENTAL NOISE AND VIBRATION REPORT

PROPOSED MIXED-USE DEVELOPMENT
LOUIS ST. LAURENT AVENUE AND
BRONTE STREET SOUTH
SOUTHWEST CORNER
FIELDGATE BOYNE WEST
TOWN OF MILTON

PREPARED FOR
1000118982 Ontario Limited
(Formerly 1045502 Ontario Limited and
1048605 Ontario Limited)

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SUMMARY

The proposed mixed-use development is located on the south side of Louis St. Laurent Avenue between the CN rail corridor and Bronte Street South in the Town of Milton. It is subject to road traffic noise from Louis St. Laurent Avenue, Bronte Street South and two internal collector roads, Street A and Street B and rail traffic noise and vibration from the CN Halton Subdivision. Additionally, potential noise associated with the future Canadian National rail yard (Milton Logistics Hub) has been addressed.

The proposed development includes commercial buildings within the north portion, townhouse blocks (units) south of the commercial use, three 15-storey residential buildings within Block 43 (high density block) located along the rail corridor south of the commercial use and a park and other blocks not intended for construction within the south portion of the subject site. Potential noise impact of the proposed commercial buildings on the proposed residential use and under construction/future residential use on the west side of the CN rail corridor has also been addressed in a preliminary fashion in the report.

The environmental noise guidelines of the Town of Milton, the Region of Halton, the Ontario Ministry of the Environment, Conservation and Parks (MECP), and Canadian National Railway Company (CN) set out sound level limits for both indoor and outdoor space.

Sound levels due to the adjacent roads and rail (transportation noise sources) were determined using ORNAMENT, the MECP noise prediction model for road traffic and STEAM, the MECP noise prediction model for rail traffic.

Sound levels due to the proposed commercial buildings and future CN Milton Logistics Hub (stationary noise sources) were predicted using the CadnaA computer program Version 2025 (Build: 209.5501) which uses International Standard Analytical Code ISO 9613-2 (1996).

Railway ground-borne vibration has been assessed using the CN vibration guidelines which set the vibration velocity limits. Ground-borne vibration velocities were determined by conducting vibration measurements of train passing by on the CN Halton Subdivision (existing CN corridor).

Using the road traffic data obtained from TYLin and the rail traffic data obtained from CN, the sound levels for various locations within the residential portion of the proposed mixed-use development were determined.

It was found that with appropriate mitigative measures, the proposed residential blocks (units) and buildings will meet the noise and vibration guidelines.

All townhouse blocks (units) located within 165 m from the rail right-of-way and along Bronte Street South and the three 15-storey buildings along the rail corridor require central air conditioning and a warning clause. All other townhouse blocks (units) require provision for adding central air conditioning by homeowners at a later date and a warning clause. Table 3 and Figure 5 show the air conditioning requirements.

A 2.4 m high acoustic fence is required for the ground level outdoor amenity spaces associated with the three 15-storey buildings in Block 43 along the rail corridor and the rear yards of Block 18 (east unit) and Block 19 (east unit) to achieve a mitigated sound level of 57 dBA or less.

All balconies/elevated terraces associated with the proposed high-rise buildings and dual frontage and back-to-back townhouses are expected to be less than 4.0 m deep and, as such, based on the MECP guidelines, they are not noise sensitive spaces that require protection. Also, no rooftop terraces are proposed for any of the townhouse blocks (units).

Better than standard exterior wall, exterior door and window construction is required for all proposed high-rise buildings and townhouse blocks (units) along the rail corridor that require central air conditioning. Prior to issuance of building permits, the acoustical requirements should be reviewed to ensure compliance with the applicable guidelines. Prior to final occupancy, the apartment buildings should be inspected by an acoustical consultant to ensure the required mitigative measures have been incorporated.

Where minor excesses exist or mitigation is required, future occupants will be advised through the use of warning clauses.

The proposed mixed-use development was evaluated using the MECP criteria applicable to both a Class 1 area and a Class 4 area for the stationary sources.

The north portion of the proposed site will be developed for commercial use. The acoustically most significant commercial buildings with respect to the proposed high-rise buildings and townhouse blocks (units) and under construction/future residential development on the west side of the rail corridors are one large scale building, Building A, expected to be a grocery store located along the rail corridor and several commercial buildings, Buildings B, H and I located in close proximity of the proposed and townhouse blocks (units). Twol options with respect to location of the loading area at commercial Building A have been investigated. Noise mitigation measures in the form of a wing wall at the Building A loading bays, a noise wall and rooftop parapets are required to achieve the applicable Class 1 sound level limits at the proposed townhouse blocks (units). Section 5.2 includes more details.

Mitigation measures required to meet the MECP Class 1 sound level limits within the high-density Block 43 have been investigated and deemed not feasible/practicable.

In NPC-300, the MECP has defined a new class of land that was not previously available. A Class 4 area is defined as an area or site which is intended for development with a new noise sensitive land use that is in proximity to existing stationary noise sources, where mitigation may not be practicable or feasible. The proposed commercial buildings are expected to be constructed prior to the three 15-storey buildings in Block 43.

In addition to the physical noise mitigation requirements mentioned above, a Class 4 designation is required for the Block 43 buildings to be in compliance with the noise guidelines. See Section 5.2 for details.

Currently, the proposed Block 43 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 a Class 4 designation in a site specific zoning by-law or alternate planning document as determined by the Town.

Additional noise analyses would need to be prepared once more detailed information regarding the commercial buildings, operations and mechanical equipment become available. Also, separate noise reports will need to be prepared at the time of site plan applications for the proposed commercial buildings.

A warning clause advising of the proximity of the proposed commercial buildings is required for the proposed townhouse blocks (units) within the north portion of the residential development and the high-rise buildings in Blocks 43.

Canadian National Railway Company (CN) is proposing to construct an intermodal rail yard adjacent to the existing CN's Halton main line south of Britannia Road. The rail yard is currently under construction. Based on the information available at this time, the future CN operation is not predicted to exceed the applicable Class 1 sound level limits at the proposed site; therefore, physical noise mitigation measures are not required.

A warning clause advising of the proximity of the future CN Intermodal rail yard (Milton Logistic Hub) is required for all proposed high-rise buildings in Block 43.

Due to a separation distance of approximately 1,750 m, the Halton Waste Management site is not expected to be acoustically significant at the proposed residential development; therefore, noise mitigation measures are not required.

The railway ground-borne vibration velocities measured by Jade Acoustics Inc. are lower than the applicable CN vibration velocity limit of 0.14 mm/s; therefore, vibration mitigation measures are not required.

1.0 INTRODUCTION

Jade Acoustics Inc. has been retained by 1000118982 Ontario Limited (Fieldgate Developments) to assist in obtaining the necessary approvals to permit the Proposed Development of the property generally located on the south side of Louis St. Laurent and west side of Bronte Street South, east of the Canadian National Railway tracks. The Subject Lands are legally described as Part of Lots 7 & 8, Concession 1, New Survey. The entire Draft Plan of Subdivision lands which were Draft Plan Approved in January 2024 and which are subject to the proposed red lined revision consist of 36.5 ha (90.19 acres) and the portion of the Subject Lands that are subject to the proposed Official Plan Amendment and Zoning By-Law Amendment (northern portion of Draft Plan of Subdivision) have an area of 14.74 hectares (36.42 acres). All lands are currently vacant.

Applications were previously processed and approvals were granted for these lands related to an Official Plan Amendment (OPA No. 77 enacted in March 2023), Zoning By-Law Amendment (By-Law No. 018-2023 enacted in March 2023) and Draft Approved Plan of Subdivision (24T-21005/M approved in January 2024) to permit the development of high density residential uses, townhouse residential uses, commercial uses (all inside of the Secondary Mixed-Use Node), a district park, active transportation link, NHS channel, related NHS buffers, and the servicing and stormwater management blocks.

This report has been prepared to support the applications which seek to modify the Draft Approved Plan of Subdivision through a red line revision to create a resized 'Secondary Mixed-Use Node' (SMUN) consisting of a commercial component and a high-density residential component. Specifically, the SMUN is proposed to consist of three blocks comprised of two (2) commercial blocks and one high density residential block, consisting of 6.33 ha (15.64 ac) in total. The applications also seek to facilitate ground-related townhouse development beyond the limits of the SMUN on a new public road network within the northern portion of the Draft Plan of Subdivision.

The proposed resized SMUN and reconfiguration of the townhouse development beyond the limits of the SMUN requires an Official Plan Amendment and Zoning By-Law Amendment. Overall, the development proposal in the northern portion of the Draft Plan of Subdivision consists of townhouses, high-density residential uses, and commercial uses. The modification of the SMUN will now exclude the grade related residential units. The southern portion of the Draft Plan of Subdivision (consisting of the district park, active transportation link, NHS channel, related NHS buffers, and the servicing and stormwater management blocks) is not proposed to be changed through this application.

In the process of preparing this report, Jade Acoustics Inc. has revised the Preliminary Environmental Noise and Vibration Report dated July 15, 2021 to incorporate the

updated draft and site plans of the proposed mixed-use development. The revised report supersedes the Addendum Letter dated April 8, 2022 prepared by Jade Acoustics Inc.

As in the original report, the revised report investigates the potential impact of noise and railway ground-borne vibration on the proposed development of the secondary mixed-use node to the satisfaction of the Town of Milton, the Region of Halton and CN. The node includes a mixed-use development with commercial and residential portions.

The revised report is prepared in accordance with the requirements included in the Town of Milton's publication titled "Terms of reference: Noise and Vibration Study", dated January, 2023.

A Preliminary Environmental Noise and Vibration Report dated December 20, 2013, was prepared by Jade Acoustics Inc. for the Boyne Survey Secondary Plan Phase III West Tertiary Plan.

The proposed site is identified as:

Part of Lots 7 and 8, Concession 1, New Survey
Town of Milton
Regional Municipality of Halton

The proposed site is bound by Louis St. Laurent Avenue to the north, CN rail corridor to the west, Bronte Street South to the east and a secondary school and residential development to the south.

Surrounding land uses include existing and future residential developments, and existing and future commercial developments and schools.

A Key Plan is attached as Figure 1.

The analysis was based on:

- Draft plan of Subdivision prepared by Glen Schnarr & Associates Inc., dated June 16, 2025;
- Concept Plan for Block 43 (high density block) prepared by Glen Schnarr & Associates Inc., dated June 11, 2025;
- Site plan for the commercial portion of the proposed mixed-use development prepared by Turner Fleischer Architects Inc., dated June 17, 2025, received on August 12, 2025;

- Information regarding Building A (grocery store) and typical commercial buildings used in the July 15, 2021 Preiminary Environmental Noise and Vibration Report prepared by Jade Acoustics Inc. and provided by Fieldgate Commercial in August 2025;

- Road traffic information provided by TYLin and rail traffic information provided by CN (see Appendix A);

- Report titled "Milton Logistics Hub, Environmental Impact Statement", dated December 7, 2015, prepared by Stantec Consulting Ltd. for the Canadian National Railway Company; and

- Report titled "Milton Logistics Hub Technical Data Report, Noise Effects Assessment (Appendix E-10)" dated December 7, 2015, prepared by Stantec Consulting Ltd. for the Canadian National Railway Company.

The proposed mixed-use development is comprised of a residential portion which includes 42 townhouse blocks (Blocks 1 to 42), one high-rise residential block (Block 43) with three 15-storey buildings, two commercial blocks (Blocks 44 and 45) with 9 commercial buildings, one district park block, one active transportation link block, one servicing block, three channel buffer blocks, one stormwater management pond and one stormwater management buffer block.

Figures 2, 3 and 4 show the draft, concept and site plans of the proposed mixed-use development. Figure 5 shows the residential portion of the proposed mixed-use development.

All townhouse blocks are proposed to include 2-storey units.

As noted above, Block 43 is proposed to include three 15-storey residential buildings, Buildings A, B and C. These buildings are expected to be constructed much later than the proposed townhouse blocks (units).

2.0 NOISE AND VIBRATION SOURCES

2.1 Transportation Sources

The road traffic on Louis St. Laurent Avenue, Bronte Street South, Street A and Street B and the rail traffic on the CN Halton Subdivision are noise sources with potential to impact the proposed mixed-use development. Due to low traffic volumes, all other internal roadways are considered to be acoustically insignificant. The CN rail corridor is also the source of rail ground-borne vibration.

Britannia Road West and Tremaine Road are located approximately 600 m and 950 m, respectively from the proposed development. Due to the separation distance, the road traffic on these two roads is acoustically insignificant at the proposed townhouse blocks (units) and high-rise buildings. As such, Britannia Road West and Tremaine Road were not considered further in the report.

The 2032 horizon year annual average daily traffic (AADT) volumes for the roadways mentioned above provided by TYLin were used in the noise calculations. These volumes were projected to the 2035 horizon year using a 2.45% annual growth rate for Louis St. Laurent Avenue and a 3.00% annual growth rate for Bronte Street South provided by TYLin. As these volumes represent a 10-year projected road traffic data, they satisfy the time frame requested by the Town of Milton to be used in the noise analysis. The percentage of commercial vehicles, medium and heavy trucks, were determined using the 2025 traffic counts provided by TYLin. The posted speed limits of 60 km/h for Louis St. Laurent Avenue and Bronte Street South were also provided by TYLin and used in the noise calculations. A speed limit of 50 km/h was assumed for Street A and Street B.

CN had been contacted and provided rail traffic data applicable to the year 2025. As required by CN, an escalation factor of 2.5% per annum and a time period of ten years were used to escalate the train volumes to the year 2035. The 2035 rail traffic data was used in the noise calculations.

Road and rail traffic information is summarized in Table 1. Correspondence regarding the road and rail traffic data is included in Appendix A.

The site is not affected by aircraft traffic.

2.2 Stationary Sources

Proposed Commercial Buildings

Commercial buildings are proposed to be constructed in Block 44 and Block 45 located within the north portion of the subject mixed-use development. One large scale building, Building A, is expected to be a grocery store. There are also 8 one-storey commercial buildings proposed to be located throughout these two commercial blocks.

Building A with loading areas fully exposed to the residential development under construction on the west side of the CN rail corridor and the high-density Block 43 and partially exposed to the proposed townhouse blocks (units) and Buildings B and C within Block 43 is planned to be situated immediately east of the rail line. Noise calculations prepared for this building were based on the information and drawings for a similar commercial building and information provided by the proponent of the proposed mixed-use development and Fieldgate Commercial.

The other proposed commercial buildings are located within the north portion of the proposed mixed-use development, between Building A and Bronte Street South. Noise calculations prepared for the commercial buildings were based on the information and drawings for similar commercial buildings provided by the proponent of the subject mixed-use development.

More details are provided in Section 4.2.

Future CN Milton Logistics Hub

Canadian National Railway Company (CN) is proposing to construct an intermodal rail yard south of Britannia Road (the Milton Logistics Hub) in the Town of Milton, adjacent to an existing rail line. The application for the intermodal rail yard has been reviewed by the Canadian Transportation Agency (CTA) and Impact Assessment Agency of Canada (CEAA). In January 2021, the federal government approved the intermodal yard to proceed. The yard will be bounded by Britannia Road to the north, Bronte Street South (First Line) to the east, Tremaine Road to the west and Lower Baseline to the south. The rail yard is currently under construction. See Figure 6.

It should be noted that there is an extensive amount of legal, consultant and review agency documentation regarding the approval of the Milton Logistics Hub.

As required by the Town of Milton, the potential acoustic impact of the CN rail yard operations have been assessed in this report.

In general, the noise and vibration information utilized for this report has been based on the work/reports completed by CN's consultants that lead to the federal approval of the rail yard.

Based on the report dated December 7, 2015, prepared by Stantec Consulting Ltd., the rail yard will handle intermodal containers between trucks and rail cars. It is anticipated that operations will include four intermodal trains (two existing and two additional) and 800 trucks per day entering and subsequently exiting the hub when the facility is at full operation. It is estimated that approximately 85% of truck movements will occur between 6:00 a.m. and 9:00 p.m. The rail yard will operate 24 hours a day, seven days a week.

The new facility will include six (6) yard tracks (3 pad tracks and 3 service tracks) and the realignment/extension of the existing mainlines. The hub functions will be truck operations, train operations, lift operations and equipment maintenance.

It is expected that trucks will enter/exit the hub using a CN owned private access road with an overpass at the mainlines connecting Britannia Road and the main operation area (hub) where containers will be unloaded and loaded from rail cars and chassis by rubber-tired cranes. The hub will consist of six rail tracks in the rail yard running parallel to the mainlines and three paved work pads that will be used to load/unload intermodal cars and hold and switch rail cars.

Buildings proposed for the intermodal facility will include an administration building and an attached maintenance garage. The garage with three reach stacker bays, two truck bays and one cistern for rainwater collection will be used for maintenance and washing of yard equipment and vehicles. No on-site maintenance of locomotives is planned.

The following equipment will be used as part of the hub operations:

- 8 to 12 reach stacker cranes;
- 8-yard to 10-yard tractors;
- 3 to 4 light vehicles including pick-up trucks and vans; and
- 3 to 4 maintenance vehicles including a welding truck, a forklift and a front-end loader.

The report dated December 7, 2015 prepared by Stantec Consulting Ltd. recommends mitigation measures to be implemented by CN within the future rail yard to address the closest existing residential receptors to the west, east and south of the rail yard. As the proposed residential development is located north of Britannia Road, the recommended mitigation measures will not provide any attenuation and were not included in the analysis prepared for this report.

More details are provided in Section 4.2.

Existing Halton Waste Management

Halton Waste Management site is located on the east side of Bronte Street South (First Line), south of Britannia Road at a distance of approximately 1,750 m from the proposed residential development. Due to the separation distance, this facility is expected to be acoustically insignificant; therefore, noise mitigation measures are not required.

Existing Schools

The St. Francis Xavier Catholic Secondary School is located at the southeast corner of Louis St. Laurent Avenue and Bronte Street South, approximately 120 m from the closest proposed townhouse blocks (units).

The Elsie MacGill Secondary School is located south of the proposed mixed-use development at a separation distance of approximately 430 m from the townhouse blocks (units) located immediately north of Street A.

Due to the separation distances and noise sources typically associated with school uses, the existing schools will be acoustically insignificant at the residential portion of the proposed development.

Existing and Future Commercial Developments

An existing commercial development (Sherwood North) is located at the northeast corner of Louis St. Laurent Avenue and Bronte Street South, approximately 220 m from the closest townhouse units. Due to the separation distance, the existing commercial development will be acoustically insignificant.

A future commercial development is expected to be located at the northwest corner of Louis St. Laurent Avenue and Bronte Street South with existing residential lots situated in a westerly direction. As achieving the applicable noise guidelines at the existing lots also address the proposed development, further noise assessment of the future commercial development in this report is not warranted. Mitigation measures (if any) to achieve compliance at the existing residential receptors are expected to be sufficient to achieve compliance at the proposed 15-storey buildings in Block 43.

3.0 ENVIRONMENTAL NOISE AND VIBRATION CRITERIA

The MECP 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) was used in the analysis.

The following Town of Milton and Region of Halton documents were also consulted in the preparation of the report:

- Town of Milton, Noise By-law dated October 29, 2012;
- Town of Milton, Engineering and Parks Standards Manual dated September, 2024;
- Region of Halton, Noise Abatement Guidelines dated June 18, 2014; and
- Region of Halton, Land Use Compatibility Guidelines dated June 18, 2014.

A brief summary of the NPC-300 guidelines is given in Appendix B. The guidelines are also summarized below.

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 greater than 60 dBA 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 bedroom or living/dining room 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 60 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.

For the proposed townhouse blocks (units), the air-cooled condenser units must not exceed the limits included in NPC-216. The air-cooled condenser units must be sited in accordance with the zoning by-laws with respect to setbacks as well as location.

For the proposed three 15-storey residential buildings, the mechanical (ventilation) equipment must not exceed the limits included in NPC-300.

As required by the MECP, the indoor noise 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. The MECP guidelines for rail noise are 5 dB more stringent to account for the low frequency components of rail noise. These criteria are used to determine the architectural requirements.

3.1.2 Outdoors

The definition of outdoor amenity area as defined by the MECP 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."

For the outdoor amenity areas, a design goal of 55 dBA for the daytime period between 7:00 a.m. to 11:00 p.m. is used for road and rail traffic. In some cases, an excess not exceeding 5 dBA is considered acceptable. Where the unmitigated sound levels during the day exceed 55 dBA (Leq16hour, daytime) but are less than 60 dBA (Leq16hours, daytime), a warning clause is required and mitigation should be considered. Where the unmitigated daytime sound levels exceed 60 dBA, sound barriers and warning clauses are generally required to achieve as close to 55 dBA as is technically, economically and administratively feasible.

Based on the Town of Milton's Engineering and Parks Standards Manual dated September, 2024, the maximum acoustic fence height is 2.4 m, although greater heights can be obtained using a combination of berm and acoustic fence. The maximum height of the acoustic fence adjacent to rail lines is 3.0 m.

Based on information provided by the Region of Halton, Transportation Planning, Infrastructure Planning and Policy, the height of sound barriers comprised of a berm and acoustic fence combination or an acoustic fence alone is limited to 3.3 m. Lower than 3.3 m heights can be used if a sound level of 55 dBA is achieved in rear yards. This is not applicable for the proposed development as Louis St. Laurent Avenue and Bronte Street South are municipal roads.

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

3.1.3 CN Guidelines

CN has guidelines which apply to residential developments adjacent to their rights-of-way. In general, the railway guidelines follow the MECP guidelines for the indoor and outdoor sound level limits.

In addition, the railways require that for a principal main line:

- a minimum setback of 30 m from the right-of-way be maintained;
- a safety berm/sound barrier be constructed along the CN right-of-way;
- regardless of whether the noise level exceeds the 60 dBA level set by MECP, as a minimum, brick veneer or acoustically equivalent masonry construction for the first row of dwellings facing the railway right-of-way;
- vibration mitigation be incorporated in the building design for all residential units within 75 m of the right-of-way or alternatively on-site vibration measurements be conducted to determine if an excess exists; and
- all residential units within 300 m of the right-of-way have a warning clause placed in offers of purchase and sale, in lease agreements and in the subdivision agreement, making future residents aware of the existence of the railway.

3.2 Railway Vibration

CN has vibration guidelines which apply to new residential development adjacent to railway lines. These guidelines state that for any residential dwellings within 75 m of the railway right-of-way, an overall vertical vibration velocity limit of 0.14 mm/s between 4 Hz and 200 Hz is applicable. These guidelines have been used in the analysis.

3.3 Stationary Sources

The NPC-300 guidelines of the Ontario Ministry of the Environment, Conservation and Parks (MECP) for stationary sources are to be used for the commercial/industrial facilities.

The MECP 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 MECP 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 MECP 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 MECP 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 of NPC-300 included in Appendix B provided the exclusion limit values of one-hour equivalent sound level (Leq,dBA) and impulsive sound level (L_{lm},dBAI).

Based on the MECP guidelines, the sound level limits for noise produced by emergency equipment operating in non-emergency situations, are 5 dB greater with respect to the sound level limits generally used for stationary sources. Therefore, for Class 1 area, exclusion sound level limits of 55 dBA (daytime and evening) and 50 dBA (night-time) apply. This is applicable to emergency generators associated with pumping stations. Sound level limits do not apply to emergency equipment operating in emergency situations.

In addition, the MECP guidelines require that most industries have a valid Environmental Compliance Approval (ECA) or its precursor, a Certificate of Approval (C of A) to operate.

In general, if the criteria for a stationary source of noise are exceeded, the MECP 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 agreement noting the proximity of houses to such a source should be considered. Treatment of the receptor building by the use of suitable wall and window construction and central air conditioning to keep windows closed is not an acceptable solution to the MECP in Class 1 and 2 areas (urban).

Based on the NPC-300 document, 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).

Limits for Class 4 area 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.

The Town of Milton has indicated that the CN Intermodal rail yard needs to be assessed at the proposed mixed-use development using the MECP guidelines.

3.4 Town of Milton's Noise By-law

The Town of Milton has By-law No. 133-2012 dated October 29, 2012 (Consolidated Version – Amended by By-law: 083-2021) that prohibits and regulates noise within the Town. It regulates sound ratings and locations of installation of air-cooled condenser units by referring to sound level limits in the MECP Publication NPC-216. In addition, the by-law refers to MECP publications NPC-101, NPC-102, NPC-103, NPC-104, NPC-205, NPC-206 and NPC-232. It also provides qualitative and quantitative information with respect to other noise sources. Prohibitions by time and place are included in the by-law.

3.5 Region of Halton Guidelines

As previously mentioned, the Region of Halton has two guideline documents related to noise, Noise Abatement Guidelines and Land Use Compatibility Guidelines both dated June 18, 2014. They outline methods and requirements for the assessment of proposed residential developments and include references to traffic noise predictions, design criteria and noise control measures.

4.0 NOISE AND VIBRATION IMPACT ASSESSMENT

4.1 Transportation Sources

For road and rail traffic noise, the sound levels in terms of Leq, the energy equivalent continuous sound levels for both day (Leq16hour, daytime) and night (Leq8hour, night-time), were determined using the MECP Traffic Noise Prediction Models, ORNAMENT (road traffic) and STEAM (rail traffic).

The topography between the source and the receiver has been taken into account. Shielding provided by the buildings has also been accounted for in the analysis. The rear yard receiver was assumed to be 3 m from the centre of the rear wall of the house.

As grading plans are not available at this stage of the project, the noise calculations assumed the base of receptor (rear yard or ground level outdoor amenity space) elevation 0.5 m higher than the base of source (rail track or road centreline) elevation and base of barrier (property line) elevation.

Where applicable, the sound levels were calculated using an absorption coefficient of 0.33 to account for the reduced ground absorption across areas with less grass such as a single loaded road.

The low-rise residential portion is comprised of 42 townhouse blocks which include street, dual frontage and back-to-back townhouses. The street townhouses are expected to have ground level amenity spaces in the form of a rear yard which are noise sensitive receptors included in the noise calculations in addition to the façade locations. These include Blocks 1 to 20. The rest of the townhouse units do not have ground level amenity spaces and, as such, sound levels are predicted only at façade locations. Based on information available at this time, all balconies and/or elevated terraces will be less than 4.0 m deep. As per the MECP guidelines, these areas are not considered to be noise sensitive receptors that require mitigation. No rooftop terraces are proposed for any of the townhouse blocks (units).

Three 15-storey residential buildings with ground level outdoor amenity spaces located between the buildings are proposed to be constructed within Block 43, immediately adjacent to the rail corridor. As the outdoor amenity spaces are considered to be noise sensitive receptors, sound levels due to the transportation sources are predicted at these locations.

It is expected that all balconies/terraces associated with the high-rise buildings will be less than 4.0 m deep. No noise sensitive outdoor amenity areas in addition to the above-mentioned have been proposed for any of the high-rise buildings. Therefore, based on the MECP guidelines, sound levels due to the transportation sources are also predicted at the façade locations.

The highest sound levels were predicted for the noise sensitive receptors, the three high-rise Buildings A, B and C, located along the CN rail corridor. The unmitigated sound levels due to the rail traffic of up to 65 dBA during the daytime and up to 72 dBA during the nighttime hours are predicted at the building envelopes. The unmitigated daytime sound levels of up to 59 dBA are predicted within the ground level outdoor amenity spaces associated with the high-rise buildings.

As the proposed townhouse blocks (units) are expected to be constructed before the high-density Block 43, the potential screening of rail traffic provided by Buildings A, B and C was not included in the noise calculations prepared for the townhouse blocks (units) immediately east of Block 43. As the rear yards of these units are well screened by the dwellings themselves, the unmitigated sound levels in the rear yards are predicted to be less than 55 dBA. The unmitigated sound levels at the building envelopes are predicted to be up to 59 dBA for the daytime hours and up to 66 dBA for the nighttime hours.

For the east units of Blocks 18 and 19 flanking Bronte Street South, the unmitigated daytime sound level in the rear yards is predicted to be 63 dBA. The unmitigated sound levels at the side wall are predicted to be 65 dBA (daytime) and 59 dBA (nighttime).

Based on the analysis, all townhouse blocks (units) located within 165 m from the rail right-of-way are predicted to be exposed to nighttime sound levels exceeding 60 dBA. All other townhouse blocks (units) are predicted to be exposed to daytime sound levels between 55 dBA and 65 dBA and nighttime sound levels between 50 dBA and 60 dBA.

Table 2 provides a summary of the predicted sound levels outdoors due to road traffic at specific locations without any mitigative measures. Appendix C gives sample calculations.

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

4.2 Stationary Sources

Proposed Commercial Buildings

Commercial buildings are proposed to be constructed within Block 44 and Block 45 located within the north portion of the subject mixed-use development. One large scale building, Building A is expected to be a grocery store. There are also 8 one storey commercial buildings proposed to be located throughout these two commercial blocks.

As noted in Section 2.2, the noise calculations completed for Building A were based on the drawings mentioned in Section 1.0 and drawings and other information used in the July 15, 2021 noise report and the April 8, 2022 addendum letter both prepared by Jade Acoustics Inc. The site

plan for the two commercial blocks shows a loading area with two loading bays on the west side of Building A, oriented in a southerly direction. Garbage and cardboard compactors are proposed to be located within a fully enclosed refrigerated room located north of the loading area and, as such are not considered to be significant noise sources with respect to outdoor propagation of noise. Both regular and refrigerated trucks are expected to be used to deliver goods to the food store. As recommended by the MECP, the operation during the worst case one-hour period was accounted for in the analysis. The following noise sources were included:

- Two full size refrigerated trucks at the south loading bays. They are expected to use the eastern loading bay, have delivery operations with a duration of 30 minutes each and trailer mounted refrigeration units operating with a duty cycle of 100%;

- Two full size refrigerated trucks driving along the north limit of the proposed mixed-use development from the north entrance at Louis St. Laurent Avenue to Building A, manoeuvring within the area west of Building A and south of the loading bays, parking at the loading bays and, after delivery, leaving the site by driving again along the north limit of the subject site and exiting on Louis St. Laurent Avenue;

- Rooftop mechanical equipment including refrigeration, heating, cooling and ventilation units with duty cycles of 100% and 50% (see Appendix D for details);

- One rooftop back-up generator with a duty cycle of 100% being tested only during the daytime hours;

- Loading/unloading impulses associated with the operations at the southerly oriented loading bays; and

- People talking at the outdoor patio located at the northeast corner of Building A during daytime and evening hours.

Based on information provided by Fieldgate Commercial in August 2025, truck deliveries will take place during the daytime and evening, but no nighttime hours. Therefore, the noise calculations included delivery operations between 7:00 a.m. and 11:00 p.m. with no deliveries between 11:00 p.m. and 7:00 a.m.

Based on the previously provided information, the westerly loading bay is expected to be used for a semi-permanent full size refrigerated trailer parked and used for storage on the outside loading area with a refrigeration unit operating for extended periods of time. However, under the Milton Noise By-law, this may not be permitted as it constitutes outdoor storage. Therefore, this noise source was not included in the analysis.

For Buildings B, C, D, E, F, G, H and I, which are the other commercial buildings located between Building A and Bronte Street South, north of the proposed townhouse blocks (units), the noise calculations were based on the site plan mentioned in Section 1.0 and information for typical commercial buildings provided by the proponent.

The following noise sources associated with Building E were included in the analysis:

- One full size refrigerated truck at the loading bay located on the east side of Building E with a trailer mounted refrigeration unit with a duty cycle of 17% (operating 10 minutes within each hour) during the daytime and evening hours;

- One full size refrigerated truck driving from Louis St. Laurent Avenue, along Street B and south of Building E and leaving the site the same way;

- A garbage compactor located on the east side of Building E with a duty cycle of 33% (operating 20 minutes within each hour) during the daytime, evening and nighttime hours;

- Rooftop mechanical equipment including refrigeration, heating, cooling and ventilation units with duty cycles of 100% and 50% (see Appendix D for details); and

Loading/unloading impulses associated with the operations at the Building E loading bay were considered to be infrequent and, as such, not included in the noise calculations.

The following noise sources associated with Buildings B, C, D, F, G, H and I were included in the analysis:

- Rooftop mechanical equipment including refrigeration, heating, cooling and ventilation units with duty cycles of 100% and 50% (see Appendix D for details); and

- People talking at the proposed outdoor patios during daytime and evening hours.

Sound power levels for the analyzed rooftop mechanical equipment were based on data obtained from the manufacturer's web sites and from other Jade Acoustics Inc. files. Sound power levels for other analyzed noise sources were based on Jade Acoustics Inc. files prepared for similar commercial developments. The information regarding the noise sources analyzed and sound power level (PWL) data used is included in Appendix D. The noise sources included in the calculations are shown on Figures 7, 8 and 9.

The sound levels in terms of Leq (one-hour continuous noise sources) and Llm (impulsive noise sources) were determined for the critical residential noise sensitive receptors. The CadnaA

computer program Version 2025 (build: 209.5501), which is based on International Standard Analytical Code ISO 9613-2 (1996), was used for the analysis.

The MECP noise guidelines require that the sounds from the proposed commercial development not exceed the existing ambient Leq due to road traffic in any hour of operation or the exclusion limits discussed in Section 3.4. The MECP Class 1 exclusion limits of 50 dBA the daytime and evening hours between 7:00 a.m. and 11:00 p.m. and 45 dBA for the night-time hours between 11:00 p.m. and 7:00 a.m. for the non-emergency equipment and operations and 55 dBA (daytime hours) for the emergency equipment were considered to be the applicable sound level limits and, as such, used in the noise assessment.

As per the MECP guidelines, continuous (non-emergency equipment and operations), continuous (emergency equipment) and impulsive noise sources were analyzed separately and compared with the applicable Class 1 sound level limits. Figures 10, 11 and 12 show the results of the analysis without mitigation measures.

Figure 10 shows the unmitigated sound levels due to the stationary sources of continuous noise predicted at the most affected noise sensitive receptors including the proposed residential blocks (units) on the east side and residential blocks (units) on the west side of the CN rail corridor. As can be seen, they exceed the Class 1 sound level limits mentioned above; therefore, noise mitigation measures are required.

Figure 11 shows the predicted unmitigated sound levels due to the stationary sources of continuous noise associated with the emergency equipment which are less than the applicable sound level limit of 55 dBA mentioned above. This means that compliance is achieved and noise mitigation measures are not required for the emergency equipment.

The unmitigated sound levels due to the stationary sources of impulsive noise predicted at the most affected noise sensitive receptors are shown on Figure 12. As can be seen, similar to the stationary sources of continuous noise, they exceed the Class 1 sound level limits mentioned above; therefore, noise mitigation measures are required.

Future CN Milton Logistics Hub

As discussed in Section 2.2, the CN Intermodal rail yard is proposed to be located south of Britannia Road between Tremaine Road and Bronte Street South (First Line) and it is currently under construction.

The Stantec report dated December 7, 2015, which is still an applicable document, and information available in Jade's files were used to investigate the potential noise impact of the future CN rail yard on the proposed residential development using the MECP guidelines.

Based on the report mentioned above, construction equipment expected to operate from initial site preparation to completion of construction include excavators, dozers, graders, loaders, backhoe, dump trucks, compactors, rollers, gensets, scrapers, augers/drill rigs, water pumps and water trucks. Construction noise is temporary and, typically, reasonable measures are required to be implemented by CN to limit its impact.

After the construction phase when the rail yard including the logistics hub becomes operational, the main noise source will be the operation of on-site equipment including reach stackers (container handling equipment), hostlers (trucks for transporting containers between tracks and storage areas) and power generators, international reefers (electricity powered heat controlled containers), domestic reefers (diesel powered heat controlled containers), locomotive and railcar activities including entering, exiting and idling and truck traffic. It is expected that container stacking and shunting/train assembly operations will generate impulsive noise. The CN rail yard will operate 24 hours a day, seven days a week.

The closest point of the hub operation area will be located approximately 1,200 m from the residential portion of the proposed mixed-use development.

The noise sources analyzed in this report were based on information included in the December 7, 2015 report prepared by Stantec Consulting Ltd. The most significant sources outlined in the Stantec report have been analyzed; other less significant noise sources were not considered further in the analysis prepared by Jade Acoustics Inc.

A list of the noise sources analyzed and the sound power level (PWL) information used for each source were summarized in Table A below. The overall PWL for all noise sources except for locomotive idling and moving operations were based on the December 7, 2015 report. Information regarding the analyzed locomotive operations and frequency spectrums for all noise sources was based on the data from other Jade Acoustics Inc. files.

TABLE A

Sound Power Levels of Analyzed Sources

Noise Source	Sound Power Level (PWL) re: 10^{-12} watts
Generator Set	126 dBA
Hostler Operation	116 dBA
Reach Stacker Loading and Unloading	119 dBA
Reach Stacker Moving	114 dBA
Truck Idling	107 dBA
Truck Moving	106 dBA
Locomotive Idling	101 dBA
Locomotive Moving	116 dBA
Heated Containers	114 dBA
International Reefers	106 dBA
Domestic Reefers	104 dBA
Switch Heaters	88 dBA
Train Shunting/Assembly Impulses	113 dBAI

All noise sources included in Table A, except switch heaters, will be located within the future CN rail yard south of Britannia Road and represent the main hub operations. The switch heaters will be located within the future CN rail yard south of Britannia Road and within the existing rail corridor between Britannia Road and Louis St. Laurent Avenue. These switch heaters were included in the analysis.

Based on the Environmental Impact Statement dated December 7, 2015, prepared by Stantec Consulting Ltd., rail car switching operations will be minimal and will occur within the proposed rail yard. Therefore, the analysis included switching impulse originating within the future CN rail yard south of Britannia Road.

Figures 13 and 14 show the analyzed continuous and impulsive noise sources, respectively and sound levels predicted using CadnaA computer program Version 2025 (build: 209.5501) which uses International Standard Analytical Code ISO 9613-2 (1996).

As can be seen on Figures 13 and 14, sound levels of up to 44 dBA or less (continuous noise) and up to 33 dBAI (impulsive noise) are predicted at the proposed high-rise buildings along the rail corridor and the closest 2-storey townhouse blocks (units), which are the worst-case noise sensitive receptors relative to the operations and equipment associated with the future rail yard. This analysis did not include screening by the future intervening residential development.

The predicted sound levels are lower than the MECP exclusion limit of 50 dBA for the daytime and evening hours between 7:00 a.m. and 11:00 p.m. and 45 dBA for the night-time hours between 11:00 p.m. and 7:00 a.m. considered applicable for the analyzed noise sensitive receptor locations in Class 1 areas; therefore, noise mitigation measures are not required.

4.3 Railway Vibration

Ground-borne railway vibration measurements conducted by Jade Acoustics Inc. on May 27, 2021 and included in the July 15, 2021 preliminary environmental noise and vibration report were used to investigate the potential vibration impact of the freight trains operating on the CN Halton Subdivision. Figure 5 shows the location of the conducted vibration measurements with respect to the proposed Block 43, a high-density block along the rail corridor. As the distances between the CN right-of-way and vibration measurement locations are similar to the setback distances of the proposed 15-storey buildings, the 2021 vibration measurements were considered to be still valid and, as such, used to assess compliance.

Vibration measurements were made using Endevco accelerometers feeding into a Crystal Instruments Spider 20 dynamic signal analyzer and digital data recorder. Each accelerometer was connected to a 3½" x 3½" x ¾" wood plate. For all locations the topsoil was removed, and the plate was placed at the bottom of the hole, which was approximately one foot deep. Metal rods (6 inch long) were driven into the ground to obtain proper connection with the soil. The recorded signal (vertical acceleration) was analyzed using a Crystal Instruments software suite set for a maximum one second (averaging time) overall rms vibration velocity in mm/s.

Train speeds were measured using a radar gun.

The results of the measurements are summarized in Table B.

TABLE B

Summary of Vibration Measurements of Freight Train Pass-by

Train Time	Train Direction	Train Speed (km/h)	Number of Locomotives	Number of Rail Cars	Overall Vertical Vibration Velocity (mm/s)			
					Location E*	Location F*	Location G*	Location H*
May 27, 2021								
12:43 p.m.	Northbound	40	2	146	0.015	0.014	0.014	0.013
1:35 p.m.	Southbound	40	3	123	0.019	0.014	0.012	0.013
2:18 p.m.	Northbound	40	2	13	0.014	0.012	0.011	0.011
2:52 p.m.	Southbound	40	3	130	--**	0.016	0.016	0.021

* Locations A, B, C and D positioned 45 m from CN right-of-way (setback distance proposed for Block 43 15-storey buildings). See Figure 5.

** Not recorded.

As can be seen from Table B, the measured vibration velocities are lower than the CN guideline of 0.14 mm/s at all measurement locations and for all measured train movements; therefore, vibration mitigation measures are not required.

As reported in Table B, the train speeds during the vibration measurements were 40 km/h which is lower than the maximum speed of 80 km/h provided by CN. Accounting for a train speed relationship of 20 x Log (speed/reference speed), the adjustment for a speed of 80 km/h relative to a speed of 40 km/h was calculated to be 6 dB. This adjustment was added to the measured vibration velocity of 0.021 mm/s, which is the maximum vibration velocity measured, using a reference vibration velocity of 1×10^{-5} mm/s to predict a vibration velocity of 0.040 mm/s applicable for a train speed of 80 km/h. As this vibration velocity is less than the CN guideline of 0.14 mm/s, vibration mitigation measures are not expected to be needed for freight trains travelling at a maximum speed of 80 km/h.

5.0 NOISE AND VIBRATION ABATEMENT REQUIREMENTS

The noise mitigation requirements for both the indoor and outdoor locations are detailed below. Table 3 and Figures 5, 15 and 16 provide a summary of the acoustical mitigative requirements for the proposed mixed-use development.

5.1 Transportation Sources

5.1.1 Indoors

Architectural Requirements

The indoor sound level criteria for road and rail traffic can be achieved in all cases by using appropriate architectural elements for external walls, windows, exterior doors, and roof construction. The indoor sound level limits for road traffic noise are 40 dBA (Leq8hour) for the bedrooms during night-time hours, 45 dBA (Leq8hour) for the living/dining rooms during night-time hours and 45 dBA (Leq16hour) for the living/dining rooms and bedrooms during daytime hours. These criteria have been used in this analysis. For rail traffic, the indoor sound level limits are 5 dB lower when compared with the indoor sound level limits for road traffic. The characteristic spectrum for road and rail traffic has been accounted for in the determination of the architectural components. Appendix E contains a sample calculation of the architectural component selection.

In determining the architectural requirements, top storey bedrooms have been assumed and the worst case would involve a corner bedroom.

For the 15-storey residential buildings, the exterior walls were assumed to be 45% of the associated floor area for the wall parallel to the noise source and the wall perpendicular to the noise source. The windows/exterior doors were assumed to be 35% of the associated floor area and located on both walls parallel and perpendicular to the noise source.

For the townhouse units, the exterior walls were assumed to be 55% of the associated floor area for the wall parallel to the noise source and the wall perpendicular to the noise source. The windows/exterior doors were assumed to be 25% of the associated floor area and located on both walls parallel and perpendicular to the noise source.

For residential buildings along rail lines that are proposed to be located within 100 m of the right-of-way and have an Leq (24hours) of more than 60 dBA at the building envelope, the MECP requirements indicate that all exterior walls (including all non-glazed areas) are to be constructed of brick veneer or masonry equivalent construction from the foundations to the roof. CN has the same requirements for the first row of dwellings regardless of the predicted sound level. The

proposed three 15-storey buildings included in Block 43 along the rail corridor, Buildings A, B and C and some townhouse blocks (units) east of Block 43 require brick veneer or masonry equivalent construction for all exterior walls exposed to rail traffic. See Table 3 for details.

Accounting for the required exterior wall construction having an STC 54 rating, all windows and exterior doors of the 15-storey residential buildings facing north, west and south need to be up to STC 45. An STC 34 rating is required for north, west and south facing windows and exterior doors associated with the townhouse blocks (units) east of Block 43.

These windows and exterior walls and doors are significantly better than standard construction which complies with the minimum structural and safety requirements.

Exterior doors having STC 45 rating may not be available; therefore, exterior doors should not be proposed for any bedrooms associated with 15-storey residential Buildings A, B and C in Block 43 facing the CN corridor. Also, in order to reduce the window STC rating, it is recommended that, corner bedrooms be avoided for these three residential buildings.

For the townhouse blocks (units) closest to the rail corridor, our recommendation is that bedrooms be with no exterior doors and corner bedrooms have windows only installed on the façades perpendicular to the rail corridor.

The window ratings of up to STC 45 are significant acoustical requirements that warrant special window glazing combinations involving thicker laminated glass and larger air space installed in high performance frames. Builders will need to ensure that windows which satisfy the acoustical requirements are available. If not, window dimensions may need to be reduced to achieve the applicable indoor sound level limits.

Standard window, exterior door, and exterior wall construction is acoustically sufficient for all townhouse blocks (units) within the east portion of the proposed development.

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. Same 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.

Since house/floor plans are not yet available, the final architectural choices cannot be made. Once house plans are available, the noise control requirements should be re-evaluated.

Ventilation Requirements

Where the sound level from road and rail traffic is greater than 60 dBA (LeqNight) or greater than 65 dBA (LeqDay) on the outside face of a bedroom or living/dining room window, the indoor sound level criteria would not be met with open windows and provisions must be met to permit the windows to remain closed. The MECP guidelines require central air conditioning. Based on the analysis, all proposed 15-storey residential buildings and all townhouse blocks (units) located within 165 m from the rail right-of-way require central air conditioning. Due to their location, central air conditioning is recommended for all townhouse units located immediately adjacent to Bronte Street South.

All other townhouse blocks (units) require provision for adding central air-conditioning by the occupants at a later date if road and/or rail traffic noise interferes with the indoor activities.

Table 3 and Figure 5 provide details of the ventilation requirements.

It is expected that all high-rise buildings will be designed with central air conditioning systems. All mechanical units included in these systems must be designed to meet the MECP NPC-300 noise guideline limits. Once mechanical drawings and design details for these systems and any other mechanical units including underground garage exhaust fans become available, separate noise reports will need to be prepared to ensure that the applicable sound level limits are achieved at each building itself and any other adjacent noise sensitive receptors. This is typically done at the site plan approval stage.

For the townhouse blocks (units), the air-cooled condenser units should be placed in a noise insensitive location which complies with municipal by-laws and comply with the MECP NPC-216 document.

Warning clauses will also be required to be placed in offers of purchase and sale, rental or lease agreements for all residential units to make future occupants are aware of the potential noise situation. See Table 3 and Notes to Table 3 for details.

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 is required.

As shown in Section 4.1, the unmitigated sound levels due to road traffic are predicted to exceed 60 dBA in the rear yards of Block 18 and 19 along Bronte Street South. A 2.4 m high acoustic fence installed along the side property line of Block 18 (east unit) and Block 19 (east unit) and

returned to the side walls on the respective units is predicted to achieve a mitigated sound level of 57 dBA.

As detailed grading information is not available at this time, the assumed base of receiver, source and barrier elevations used for the noise calculations prepared to determine the sound barrier requirements mentioned above were noted in Section 4.1. Accounting for flat topography, a 2.4 m high acoustic fence is predicted to achieve 55 dBA in the rear yards of Blocks 18 and 19.

A 2.4 m high acoustic fence is proposed for the ground level outdoor amenity spaces associated with Buildings A, B and C in Block 43. The mitigated sound levels are predicted to be 55 dBA or less.

See Table 3 and Figure 5 for details. Appendix F includes the calculations.

Based on the Town of Milton's Engineering and Parks Standards Manual dated September, 2024, No.1 grade western cedar should be used for the construction of the acoustic fence. The Town of Milton requires 54 mm thick tongue and groove vertical boards. Appendix G includes wood acoustic fencing (with metal post) details drawing (Standard No. 10-03.02) from the Town of Milton's Engineering and Parks Standards Manual. Appropriate treatment of the sound barrier at all discontinuities and points of termination would be required to ensure that the sound barrier is effective.

Note that any openings under the acoustic fence for drainage must be kept to a minimum. If drainage under the acoustic fence is intended, an acoustical engineer should be consulted.

An existing channel is expected to be sufficient to address the safety requirements. CN should review this and provide comments. If the existing channel is not acceptable, a 2.5 m high safety berm should be constructed along the west limit of Block 43 (high density residential block).

A 1.83 m high chain link fence should be installed along the west limit of Block 43 (high density residential block) and extended along the west limit of Block 44 which is the commercial block north of Block 43. See Figure 5.

A safety berm along the rail corridor is not expected to be required for Block 44 (commercial block).

5.2 Stationary Sources

Proposed Commercial Buildings

The MECP Publication NPC-300 was used for the review of compliance. The proposed development was evaluated using the criteria applicable to both a Class 1 area and a Class 4 area.

Based on the analysis, noise mitigation measures are required for some of the proposed commercial buildings to achieve the applicable sound level limits at the noise sensitive receptors associated with the proposed residential development and residential development located on the west side of the CN rail corridor.

The following two options with respect to the orientation of loading area at Building A (grocery store) have been investigated:

- Loading oriented to the south, as shown on the current site plan; and
- Loading oriented to the north.

As per the information provided by Fieldgate Commercial mentioned in Section 4.2, truck deliveries at Building A were taken to occur during the daytime and evening hours between 7:00 a.m. and 11:00 p.m. with no deliveries during the nighttime hours between 11:00 p.m. and 7:00 a.m.

Based on the preliminary analysis, the following physical mitigation measures are required for the current option with the loading area oriented to the south:

- a 4.5 m high and approximately 25 m long wing wall at the loading bays associated with commercial Building A;
- a 3.5 m high and approximately 43 m long noise wall along the south limit of the truck manoeuvring area associated with commercial Building A;
- a 2.5 m high parapet along the south, east and west roof edge of commercial Building A;
- a 2.0 m high parapet along the south, east and west roof edge of commercial Buildings B, C and H; and
- a 2.0 m high parapet along the south and west roof edge of commercial Buildings E and I.

The required noise mitigation measures and the predicted mitigated sound levels for the option with the loading area oriented to the south are shown on Figure 15.

Based on the preliminary analysis, the following physical mitigation measures are required for the option with the loading area oriented to the north:

- a 6.5 m high and approximately 35 m long wing wall at the loading bays associated with commercial Building A;

- a 2.5 m high parapet along the south, east and west roof edge of commercial Building A;
- a 2.0 m high parapet along the south, east and west roof edge of commercial Buildings B, C and H; and
- a 2.0 m high parapet along the south and west roof edge of commercial Buildings E and I.

The required noise mitigation measures and the predicted mitigated sound levels for the option with the loading area oriented to the north are shown on Figure 16.

In addition, for both options discussed above, regular and/or refrigerated trucks are not permitted to idle outside the loading area.

The required wing walls should have a minimum surface density of 20 kg/m^2 and be of continuous construction with no gaps. Surface densities between 10 kg/m^2 and 20 kg/m^2 are acoustically acceptable for the rooftop parapets.

The noise mitigation measures outlined above are predicted to meet the Class 1 sound level limits at all affected noise sensitive receptors except at the 15-storey residential buildings proposed to be located within Block 43.

To achieve Class 1 compliance at the three 15-storey residential buildings within Block 43 for the option with the loading area oriented to the south, the building heights would need to be reduced in addition to the physical mitigation measures mentioned above. Buildings A, B and C would need to be 2-storey, 4-storey and 6-storey structures, respectively. Also, the 3.5 m high noise wall mentioned above would need to be replaced with a 6.5 m high noise wall.

To achieve Class 1 compliance for the option with the loading area oriented to the north, Building A within Block 43 would need to be a 2-storey structure. No change would be needed for Buildings B and C within Block 43; they would remain as 15-storey structures.

At this time, the significant height reduction requirements for Buildings A, B and C are not desirable/practicable; therefore, a Class 4 designation was considered for Block 43.

Currently, Block 43 is considered to be a Class 1 area; therefore, the land use planning authority would need to approve the new classification based on this noise report and incorporate Class 4 in a site specific zoning by-law or alternative planning document that remains registered, as approved by the Town.

The following NPC-300 requirements for the proposed site should be implemented following the approval for classification as a Class 4 area:

- Prospective purchasers should be informed that this dwelling is located in a Class 4 area through appropriate means and informed of the agreements for noise mitigation;

- Registration on title of the agreement for noise mitigation is recommended;

- Registration on title of an appropriate warning clause to notify purchasers that the applicable Class 4 area sound level limits for this dwelling are protective of indoor areas and are based on the assumption of closed windows is also recommended;

- The proponent of the subject site or the land use planning authority should provide a copy of the approved noise impact study for the noise sensitive land use to the owners of the stationary source(s);

- The formal confirmation of the area classification from the land use planning authority should also be provided to the owners of the stationary source(s); and

- Any final agreements for noise mitigation and all other relevant documentation including a copy of the formal confirmation of the Class 4 area classification from the land use planning authority are to be submitted to the MECP by the stationary source owner(s) if/ when applying for an MECP approval.

Additional noise analyses would need to be prepared once more detailed information regarding the commercial buildings, operations and mechanical equipment become available. Also, separate noise reports will need to be prepared at the time of site plan applications for the proposed commercial buildings.

A warning clause advising of the proximity of the commercial buildings and operations is required for all townhouse blocks (units) in the vicinity of the commercial Blocks 44 and 45 and the three high-rise building in Block 43. Table 3 and Figure 5 show details.

Milton Logistics Hub

Based on the analysis prepared for this report and discussed in Section 4.2, noise mitigation measures are not required.

A warning clause advising of the proximity of the future CN Milton Logistics Hub facility is required for all proposed high-rise buildings in Block 43. See Table 3 and Figure 5 for details.

5.3 Railway Vibration

Based on the vibration measurements described in Section 4.3, vibration mitigation measures are not required.

6.0 CONCLUSIONS

Based on the preliminary analysis, with the incorporation of the items discussed (see Table 3, Notes to Table 3 and Figure 5), the sound levels at the townhouse blocks (units) will be within the NPC-300 Class 1 noise guidelines and the high-rise buildings in Block 43 within the NPC-300 Class 4 guidelines. In accordance with the applicable implementation guidelines where mitigation is required, future occupants will be advised through the use of warning clauses.

A detailed environmental noise and vibration report will need to be prepared for the commercial blocks site plan once detailed architectural and grading plans for the subject development are available to ensure the appropriate criteria are achieved.

Prior to issuance of building permits, the acoustical requirements should be reviewed by an acoustical consultant to ensure compliance with the applicable guidelines.

Prior to issuance of occupancy permits, an acoustical consultant shall confirm that the acoustical requirements are in compliance with the acoustical report.

Respectfully submitted,

JADE ACOUSTICS INC.

Per: _____
Davor Sikic, P.Eng.

LICENSED PROFESSIONAL ENGINEER
Aug. 15, 2025
D. SIKIC
100026328
PROVINCE OF ONTARIO

Per: _____
Dalila C. Giusti, P.Eng.

LICENSED PROFESSIONAL ENGINEER
Aug. 15, 2025
D. C. GIUSTI
16267304
PROVINCE OF ONTARIO

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7.0 REFERENCES

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4. "Building Practice Note No. 56: Controlling Sound Transmission into Buildings", 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, Publication NPC-300, August, 2013, released October 21, 2013 (updated final version # 22).

6. "Impulse Vibration in Residential Buildings", Ontario Ministry of the Environment, Publication NPC-207 (Draft), November, 1983.

7. "By-law Number 133-2012", being a by-law to prohibit and regulate noise, Town of Milton, October 29, 2012, Consolidated Version – Amended by By-law: 083-2021.

8. "Engineering and Parks Standards Manual", Town of Milton, Setember, 2024.

9. "Terms of Reference: Noise and Vibration Study", Town of Milton, January, 2023.

10. "Noise Abatement Guidelines", Regional Official Plan Guidelines, Halton Region, Version 1.0, June 18, 2014.

11. "Land Use Compatibility Guidelines", Regional Official Plan Guidelines, Halton Region, Version 1.0, June 18, 2014.

12. "Preliminary Environmental Noise and Vibration Report", Jade Acoustics Inc., December 20, 2013.

13. "Milton Logistics Hub – Technical Data Report, Noise Effects Assessment (Appendix E-10)", Stantec Consulting Ltd., December 7, 2015.

14. "Milton Logistics Hub, Environmental Impact Statement", Stantec Consulting Ltd., December 7, 2015.

TABLE 1

PROPOSED MIXED-USE DEVELOPMENT

LOUIS ST. LAURENT AVENUE AND BRONTE STREET SOUTH

SOUTHWEST CORNER

FIELDGATE BOYNE WEST

TOWN OF MILTON

SUMMARY OF TRAFFIC DATA

A. Road Traffic

Road		Louis St. Laurent Avenue	Bronte Street South	Street A	Street B
AADT*	Daytime	23,940	21,780	6,606	3,141
	Nighttime	2,660	2,420	734	349
	Total	26,600	24,200	7,340	3,490
Day/Night Split (%)		90/10**	90/10**	90/10**	90/10**
Cars		26.121 (98.2%)	23,740 (98.1%)	7,201 (98.1%)#	3,424 (98.1%)#
Medium Trucks		106 (0.4%)	73 (0.3%)	22 (0.3%)#	10 (0.3%)#
Heavy Trucks		373 (1.4%)	387 (1.6%)	117 (1.6%)#	56 (1.6%)#
No. of Lanes		4	4	2	2
Posted Speed		60	60	50##	50##
Gradient (%)		up to 5	1	1##	1##
R.O.W. Width (m)		35	35	--	--

* AADT: Annual Average Daily Traffic. 2035 AADT based on information provided by TYLin on June 26, 2025 and July 4, 2025.

** Typical day/night split.

Percentage assumed to be same as for Bronte Street South.

Assumed.

TABLE 1 - Continued

PROPOSED MIXED-USE DEVELOPMENT

LOUIS ST. LAURENT AVENUE AND BRONTE STREET SOUTH

SOUTHWEST CORNER

FIELDGATE BOYNE WEST

TOWN OF MILTON

SUMMARY OF TRAFFIC DATA

B. Rail Traffic[#] - CN Halton Subdivision

CN RAIL	FREIGHT TRAINS	
	DAY (7:00 a.m. to 11:00 p.m.)	NIGHT (11:00 p.m. to 7:00 a.m.)
No. of Trains	4	10
Maximum No. of Cars	140	140
Maximum No. of Locomotives	4	4
Maximum Speed (km/hr)	80	80
CN RAIL	**WAY FREIGHT TRAINS**	
	DAY (7:00 a.m. to 11:00 p.m.)	**NIGHT (11:00 p.m. to 7:00 a.m.)**
No. of Trains	0	2
Maximum No. of Cars	25	25
Maximum No. of Locomotives	4	4
Maximum Speed (km/hr.)	80	80

[#] Data applicable to the year 2025. These data have been escalated by 2.5% per annum for 10 years (2035) for use in the analysis.

TABLE 2

PROPOSED MIXED-USE DEVELOPMENT

LOUIS ST. LAURENT AVENUE AND BRONTE STREET SOUTH

SOUTHWEST CORNER

FIELDGATE BOYNE WEST

TOWN OF MILTON

SAMPLE OF PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD AND RAIL TRAFFIC

Blocks/Buildings (Units)*	Location**	Source	Distance (m)	Leq (dBA)			
				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 1 (south unit)	Rear Yard	Halton Subdivision	125.0	51	--	--	--
Block 1 (south unit)	Front Wall	Halton Subdivision	105.0	59	--	66	--
Block 16 (west unit)	Rear Yard	Street B	15.5	55	--	--	--
Block 16 (west unit)	Side Wall	Street B	12.5	68	--	52	--
Block 18 (east unit)	Rear yard	Bronte St. S. SB	19.5	61	63	--	--
		Bronte St. S. NB	27.5	59		--	
Block 18 (east unit)	Side Wall	Bronte St. S. SB	16.5	63	65	57	59
		Bronte St. S. NB	24.5	61		54	

* See Figures 2, 3 and 5 for block, building and townhouse unit locations.

** For Blocks 16 and 18, wall locations were taken at 4.5 m above ground for 2nd floor windows and 1.5 m above ground and 3.0 m from the center of rear wall for rear yard locations. For Blocks 1, 31 and 36, wall locations were taken at 4.5 m above ground for 2nd floor windows. For Block 43, Building A, wall locations were taken at 45.0 m above ground for 15th floor windows.

TABLE 2 - Continued

PROPOSED MIXED-USE DEVELOPMENT

LOUIS ST. LAURENT AVENUE AND BRONTE STREET SOUTH

SOUTHWEST CORNER

FIELDGATE BOYNE WEST

TOWN OF MILTON

SAMPLE OF PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD AND RAIL TRAFFIC

Blocks/Buildings (Units)*	Location**	Source	Distance (m)	Leq (dBA)			
				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 31 (east unit)	Side Wall	Bronte St. S. SB	19.5	62	64	56	58
		Bronte St. S. NB	27.5	60		53	
Block 36 (east unit)	Side Wall	Bronte St. S. SB	33.5	60	62	53	56
		Bronte St. S. NB	41.5	59		52	
Block 43 Building A	West Wall	Halton Subdivision	60.0	65	65	72	72
		L. St. Laurent Ave.	191.0	56		49	
Block 43 Building A	North Wall	Halton Subdivision	60.0	62	63	69	69
		L. St. Laurent Ave.	191.0	59		51	
Block 43 Building A	Outdoor Amenity	Halton Subdivision	73.5	59	--	--	--

* See Figures 2, 3 and 5 for block, building and townhouse unit locations.

** For Blocks 16 and 18, wall locations were taken at 4.5 m above ground for 2nd floor windows and 1.5 m above ground and 3.0 m from the center of rear wall for rear yard locations. For Blocks 1, 31 and 36, wall locations were taken at 4.5 m above ground for 2nd floor windows. For Block 43, Building A, wall locations were taken at 45.0 m above ground for 15th floor windows.

TABLE 3

PROPOSED MIXED-USE DEVELOPMENT

LOUIS ST. LAURENT AVENUE AND BRONTE STREET SOUTH

SOUTHWEST CORNER

FIELDGATE BOYNE WEST

TOWN OF MILTON

SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES*

Blocks/Buildings (Units)	Air Conditioning(1)	Exterior Wall(2)	Window STC Rating(3)	Sound Barrier(4)	Warning Clause(5)
Block 43, Buildings A, B and C (all units)	Mandatory	Brick Veneer**	Up to STC 45***	2.4 m#	A, B, D, E, F, G, H
Blocks 1 and 2 (all units)	Mandatory	Brick Veneer**	Up to STC 34	No	A, B, F, G
Blocks 10 and 12 (all units)	Mandatory	Brick veneer**	Up to STC 34	No	A, B, G
Blocks 3, 4, 8 and 9 (all units)	Mandatory	STC 54	Standard	No	A, B, F, G
Blocks 11, 15 and 41 (all units)	Mandatory	STC 54	Standard	No	A, B, G
Blocks 18 (east unit) and 19 (east unit)	Mandatory	Standard	Standard	2.4 m#	A, B, D
Blocks 21 (east unit) and 36 (two east units)	Mandatory	Standard	Standard	No	A, B, F
Blocks 31 (east unit), 32 (all east units) and 33 (two east units)	Mandatory	Standard	Standard	No	A, B

* See Figure 5. Also, see Section 5.2 and Figures 15 and 16 for mitigation measures to address stationary sources of noise. Class 4 area has been proposed for Block 43 to address the adjacent stationary sources. The land use planning authority would need to approve the new classification and incorporate Class 4 in a site specific zoning by-law or alternative planning document as approved by the Town.

** Brick veneer or masonry equivalent construction. See text for details.

*** See Section 5.1.1 for additional requirements.

2.4 m high acoustic fence. See Section 5.1.2 and Figure 5 for details.

TABLE 3 - Continued

PROPOSED MIXED-USE DEVELOPMENT

LOUIS ST. LAURENT AVENUE AND BRONTE STREET SOUTH

SOUTHWEST CORNER

FIELDGATE BOYNE WEST

TOWN OF MILTON

SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES*

Blocks/Buildings (Units)	Air Conditioning(1)	Exterior Wall(2)	Window STC Rating(3)	Sound Barrier(4)	Warning Clause(5)
Blocks 5 to 7 (all units), 22 (three east units), 23 (all units), 24 (all units) and 38 (two west units)	Provision for Adding	Standard	Standard	No	A, C, F, G
Blocks 12 to 14 (all units), 25 to 27 (all units), 39 (all units) and 40 (all units)	Provision for Adding	Standard	Standard	No	A, C, G
Blocks 21 (all units except east unit), 22 (all units except three east units), 36 (all units except two east units), 37 (all units) and 38 (all units except two west units)	Provision for Adding	Standard	Standard	No	A, C, F
Blocks 16 (all units), 17 (all units), 18 (all units except east unit), 19 (all units except east unit), 20 (all units), 28 to 30 (all units), 31 (all units except east unit), 32 (all west units), 33 (all units except two east units), 34 (all units) and 35 (all units)	Provision for Adding	Standard	Standard	No	A, C

* See Figure 5. Also, see Section 5.2 and Figures 15 and 16 for mitigation measures to address stationary sources of noise. Class 4 area has been proposed for Block 43 to address the adjacent stationary sources. The land use planning authority would need to approve the new classification and incorporate Class 4 in a site specific zoning by-law or alternative planning document as approved by the Town.

** Brick veneer or masonry equivalent construction. See text for details.

*** See Section 5.1.1 for additional requirements.

\# 2.4 m high acoustic fence. See Section 5.1.2 and Figure 5 for details.

See Notes to Table 3 on following pages.

NOTES TO TABLE 3

1. Means must be provided to allow windows to remain closed for noise control purposes. The proposed building will be provided with a central air conditioning system. All mechanical units included in the ventilation system must be designed to meet the MECP NPC-300 noise guideline limits. Means must be provided to allow windows to remain closed for noise control purposes. The air-cooled condenser units should be placed in a noise insensitive location which complies with municipal by-laws and comply with NPC-216.

   Provision for adding central air conditioning would involve a ducted heating system sized to accommodate the addition of central air conditioning by the occupant at a later date. The air-cooled condenser unit AHRI sound rating must not exceed 7.6 bels and should be placed in a noise insensitive location which complies with municipal by-laws and NPC-216..

2. STC – Sound Transmission Class Rating (Reference ASTM-E413). See Section 5.1.1 for details.

3. STC – Sound Transmission Class Rating (Reference ASTM-E413). See Section 5.1.1 for details.

4. Sound barriers must be of solid construction with no gaps and have a minimum surface density of 20 kg/m^2. No. 1 grade western cedar should be used for the construction of the acoustic fence. Earthen berms, solid walls/fences of adequate density or combinations of berms and walls/fences may be used. See text for details.

5. Warning Clauses to be included in offers of purchase and sale or lease agreements on all residential units of designated buildings:

   A. "Purchasers and/or 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/or rail traffic may continue to be of concern, occasionally interfering with the activities of the dwelling occupants as the noise levels may exceed the noise criteria of the Municipality and the Ontario Ministry of the Environment, Conservation and Parks."

   B. "Purchasers and/or tenants are advised that the dwelling unit has been or will be fitted with a central air conditioning system which will enable occupants to keep windows and exterior doors closed if road traffic noise interferes with their indoor activities."

C. “Purchasers and/or /tenants are advised that the residential unit can be fitted with a central air conditioning system at the owner’s option and expense which will enable occupants to keep windows closed if road and/or rail traffic noise interferes with the indoor activities. If central air conditioning is installed, the air-cooled condenser unit shall have a sound rating not exceeding 7.6 bels and shall be located so as to have the least possible noise impact on outdoor activities of the occupants and their neighbours.”

D. “Purchasers and/or tenants are advised that the acoustical berm and/or barrier as installed shall be maintained, repaired or replaced by the owner. Any maintenance repair or replacement shall be with the same material, to the same standards, and having the same colour and appearance of the original."

E. “Purchasers and/or tenants are advised that this residential dwelling is in proximity to the future CN Milton Logistic Hub whose activities may at times be audible.”

F. “Purchasers and/or tenants are advised that this residential building is in proximity to the future commercial buildings whose activities may at times be audible.”

G. “Warning: CN 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). CN 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.”

H. Purchasers/tenants are advised that sound levels due to the adjacent industries and commercial developments 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.”

6. Conventional ventilated attic roof construction meeting typical construction practices is satisfactory in all cases.

N.T.S.

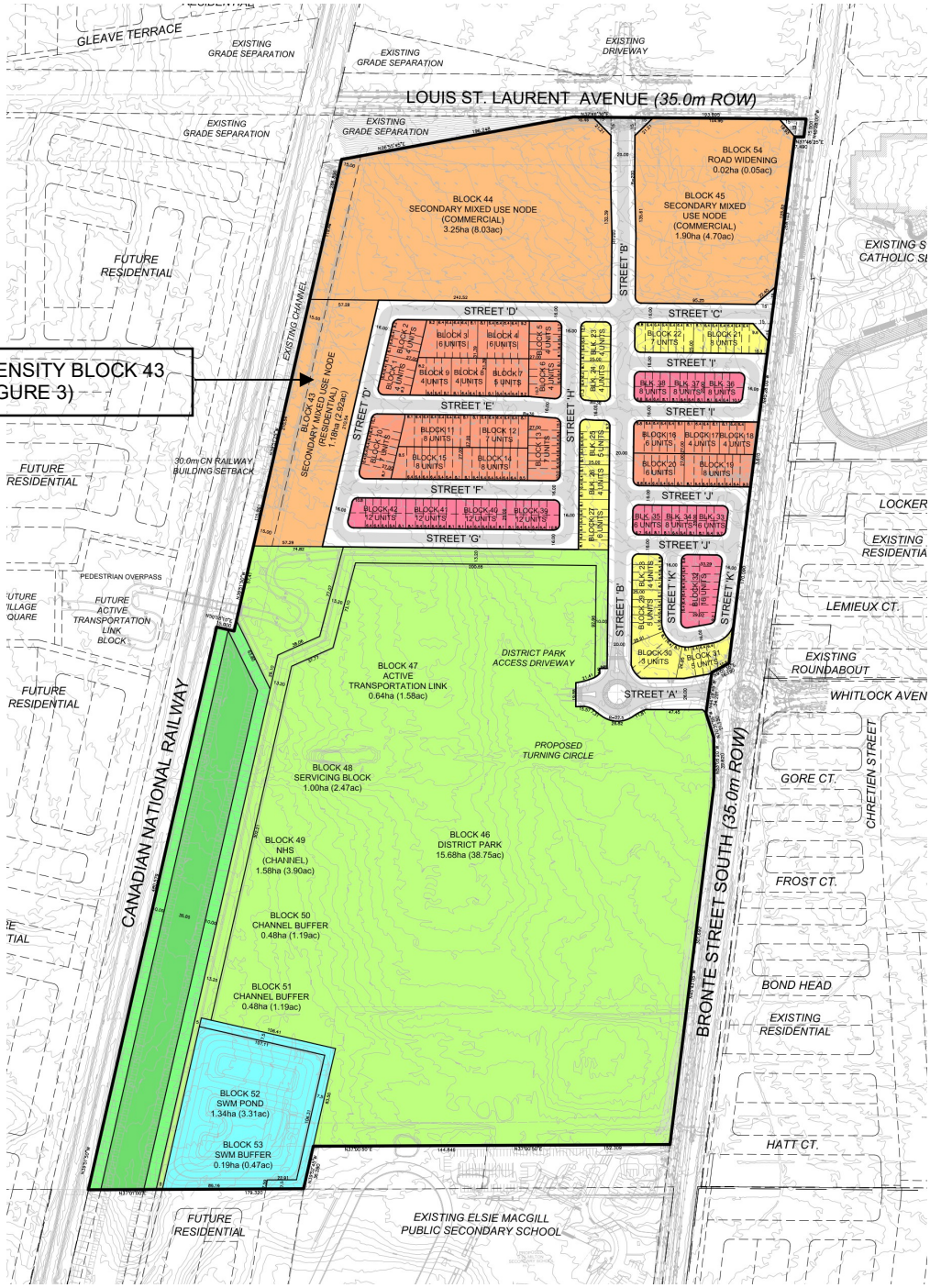
Proposed Mixed-Use Development
Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
Fieldgate Boyne West
Town of Milton

Date: August 2025 **File: 12-048-17**

KEY PLAN

FIGURE 1

JADE ACOUSTICS



N.T.S.

Proposed Mixed-Use Development
Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
Fieldgate Boyne West
Town of Milton

Date: August 2025 **File: 12-048-17**

DRAFT PLAN OF PROPOSED MIXED-USE DEVELOPMENT

FIGURE 2

JADE ACOUSTICS

N.T.S.

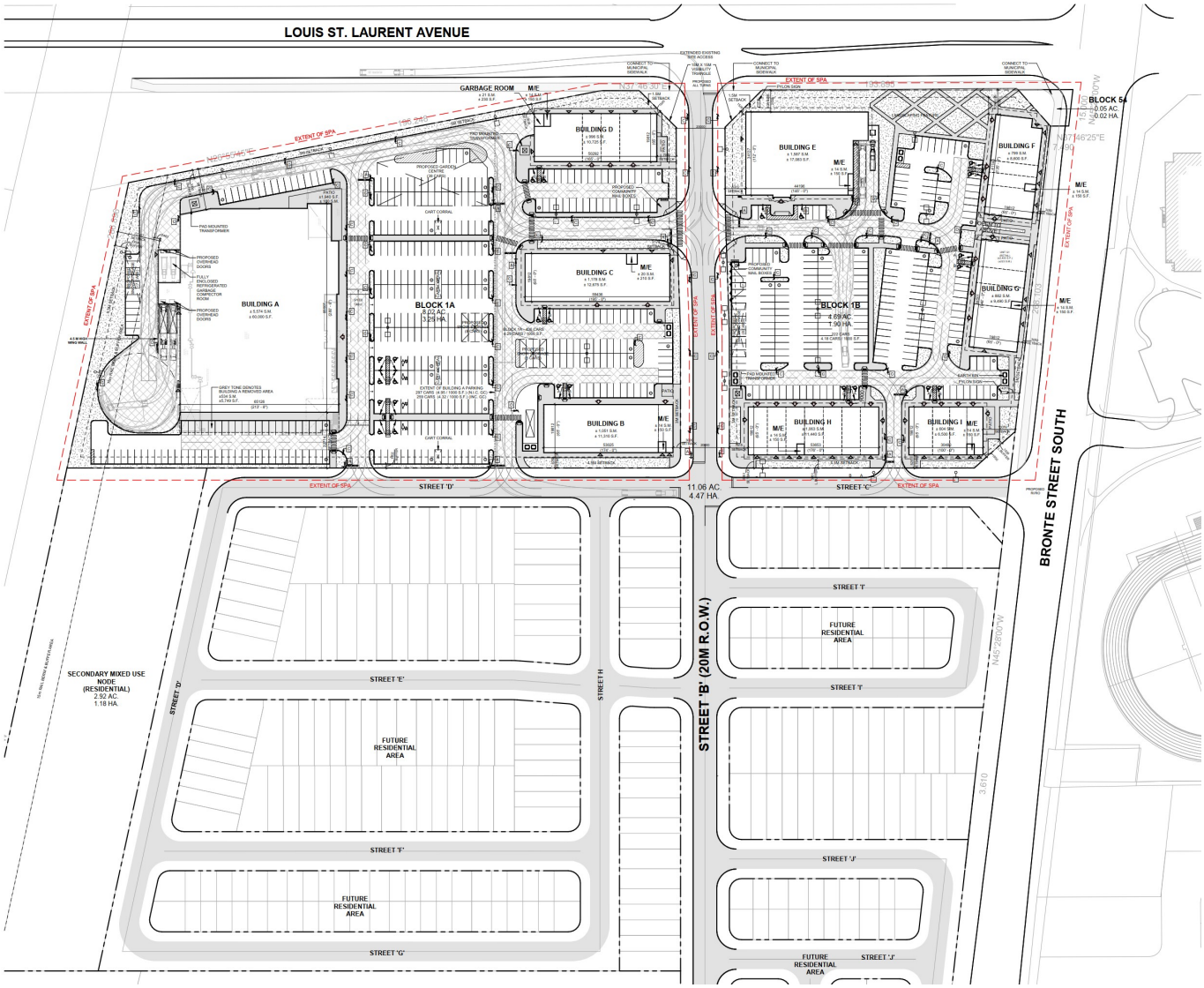
Proposed Mixed-Use Development
Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
Fieldgate Boyne West
Town of Milton

Date: August 2025 **File: 12-048-17**

CONCEPT PLAN OF PROPOSED HIGH-DENSITY BLOCK 43 DEVELOPMENT

FIGURE 3

JADE ACOUSTICS



Proposed Mixed-Use Development
Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
Fieldgate Boyne West
Town of Milton

Date: August 2025 **File: 12-048-17**

SITE PLAN OF PROPOSED COMMERCIAL DEVELOPMENT

FIGURE 4

JADE ACOUSTICS

BLOCK 44
SECONDARY MIXED USE NODE
(COMMERCIAL)
3.25ha (8.03ac)

BLOCK 45
SECONDARY MIXED
USE NODE
(COMMERCIAL)
1.90ha (4.70ac)

SAFETY BERM AND
1.83 M HIGH CHAIN LINK FENCE

BLOCK 43
SECONDARY MIXED USE NODE
(RESIDENTIAL)
1.18ha (2.92ac)

FUTURE RESIDENTIAL

EXISTING ST. FRANCIS XAVIER CATHOLIC SECONDARY SCHOOL

2.4 M HIGH ACOUSTIC FENCE

D

C

2.4 M HIGH ACOUSTIC FENCE

B

2.4 M HIGH ACOUSTIC FENCE

A

30.0m CN RAILWAY BUILDING SETBACK

BLDG. A 15 ST. 159 UNITS

BLDG. B 15 ST. 159 UNITS

BLDG. C 15 ST. 159 UNITS

OUTDOOR AMENITY SPACE

OUTDOOR AMENITY SPACE

OUTDOOR AMENITY SPACE

BLOCK 43

STREET 'D'

STREET 'D'

BLOCK 2 4 UNITS
BLOCK 3 6 UNITS
BLOCK 4 6 UNITS
BLOCK 5 4 UNITS
BLOCK 1 4 UNITS
BLOCK 9 4 UNITS
BLOCK 8 4 UNITS
BLOCK 7 5 UNITS
BLOCK 6 4 UNITS

STREET 'E'

BLOCK 10 7 UNITS
BLOCK 11 8 UNITS
BLOCK 12 7 UNITS
BLOCK 13 7 UNITS
BLOCK 15 8 UNITS
BLOCK 14 8 UNITS

STREET 'F'

BLOCK 42 12 UNITS
BLOCK 41 12 UNITS
BLOCK 40 12 UNITS
BLOCK 39 12 UNITS

STREET 'G'

STREET 'H'

BLK. 23 4 UNITS
BLK. 24 4 UNITS
BLK. 25 5 UNITS
BLK. 26 4 UNITS
BLOCK 27 6 UNITS

STREET 'B'

STREET 'C'

BLOCK 22 7 UNITS
BLOCK 21 8 UNITS

STREET 'I'

BLK. 38 8 UNITS
BLK. 37 8 UNITS
BLK. 36 8 UNITS

STREET 'I'

BLOCK 16 6 UNITS
BLK. 17 4 UNITS
BLK. 18 4 UNITS
BLOCK 20 6 UNITS
BLOCK 19 8 UNITS

STREET 'J'

BLK. 35 6 UNITS
BLK. 34 8 UNITS
BLK. 33 6 UNITS

STREET 'J'

BLK. 28 4 UNITS
BLOCK 29 5 UNITS
STREET 'K'
BLOCK 32 16 UNITS
STREET 'K'
BLOCK 30 3 UNITS
BLOCK 31 5 UNITS

STREET 'B'

BRONTE STREET SOUTH (35.0m ROW)

CANADIAN NATIONAL RAILWAY
EXISTING CHANNEL

LINE 300 m FROM CN RIGHT-OF-WAY

DISTRICT PARK ACCESS DRIVEWAY

BLOCK 47
ACTIVE
TRANSPORTATION LINK
0.64ha (1.58ac)

STREET 'A'

EXISTING RESIDENTIAL

WHITLOCK AVENUE

LEGEND:

- ▲ MANDATORY CENTRAL AIR CONDITIONING AND A WARNING CLAUSE (SEE TEXT AND TABLE 3 FOR DETAILS)
- A–D RAILWAY VIBRATION MEASUREMENT LOCATIONS
- ━━ 2.4 M HIGH ACOUSTIC FENCE AND A WARNING CLAUSE (SEE TEXT AND TABLE 3 FOR DETAILS)
- ANALYZED RECEPTOR LOCATION

NOTES:

1. ALL OTHER TOWNHOUSE BLOCKS (UNITS) REQUIRE PROVISION FOR ADDING CENTRAL AIR CONDITIONING AND A WARNING CLAUSE
2. SEE TABLE 3 FOR TOWNHOUSE BLOCKS (UNITS) BLOCK 43 HIGH–RISE BUILDINGS THAT REQUIRE PROXIMITY WARNING CLAUSES "E", "F", AND "G" AND CLASS 4 WARNING CLAUSE "H".
3. SEE FIGURES 15 AND 16 FOR NOISE MITIGATION MEASURES RECOMMENDED TO ADDRESS STATIONARY SOURCES OF NOISE.

N.T.S.

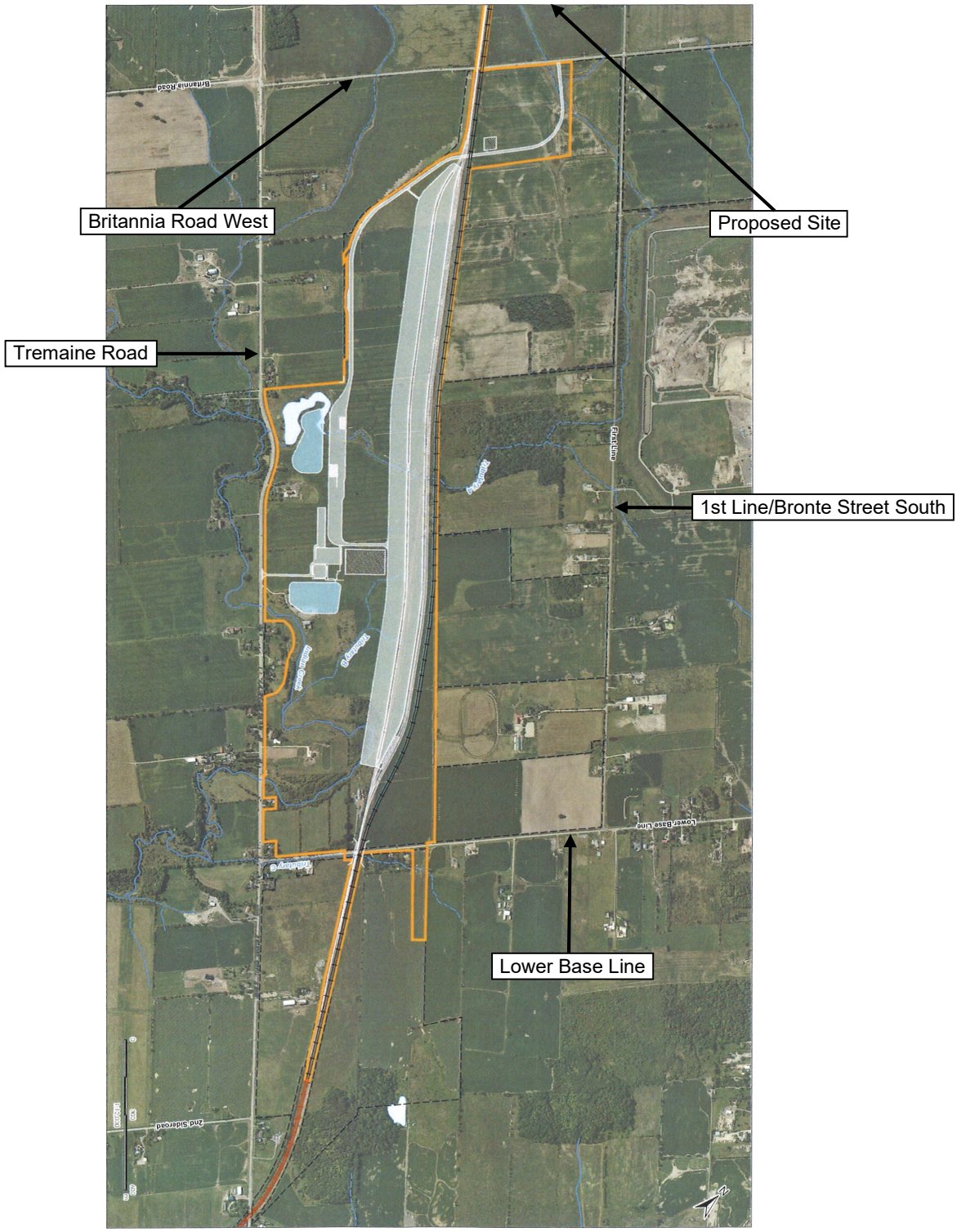
Proposed Mixed-Use Development
Louis St. Laurent Avenue and Bronte Street South
Southwest corner
Fleldgate Boyne West
Town of Milton

Date: August 2025 Our File: 12-048-17

JADE ACOUSTICS

DRAFT (CONCEPT) PLAN OF RESIDENTAIL PORTION OF PROPOSED MIXED-USE DEVELOPMENT SHOWING MINIMUM NOISE MITIGATION MEASURES REQUIRED TO ADDRESS TRANSPORTATION SOURCES OF NOISE

FIGURE 5



N.T.S.

Proposed Mixed-Use Development
Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
Fieldgate Boyne West
Town of Milton

Date: August 2025 **File: 12-048-17**

PLAN SHOWING
FUTURE CN MILTON
INTERMODAL
RAIL YARD

FIGURE 6

JADE ACOUSTICS

17592020 17592040 17592060 17592080 17592100 17592120 17592140 17592160 17592180 17592200 17592220 17592240 17592260

4815220 4815200 4815180 4815160 4815140 4815120 4815100 4815080

LOUIS ST. LAU

CN RAIL CORRIDOR

Building A Refrigerated Delivery Truck Passbys

St_BLDA PTOP

St_EQ27

St_EQ31

St_EQ08

St_EQ05

St_EQ28

St_EQ23

St_EQ32

St_EQ07

St_EQ36

St_EQ06

St_EQ26

St_EQ24

St_EQ25

St_EQ09

BUILDING A

St_EQ20

St_EQ22

St_EQ12

St_EQ01

St_EQ13

St_EQ29

St_EQ10

St_EQ30

St_RefCondA

St_EQ35A

St_EQ11

St_EQ21

St_EQ02

St_RefCondB

R8
Day 55
Evening 55

5450

Fully Enclosed Garbage Compactor

Fully Enclosed Cardboard Compactor

Loading Impulses

Tractor Trailer Refrigeration Unit

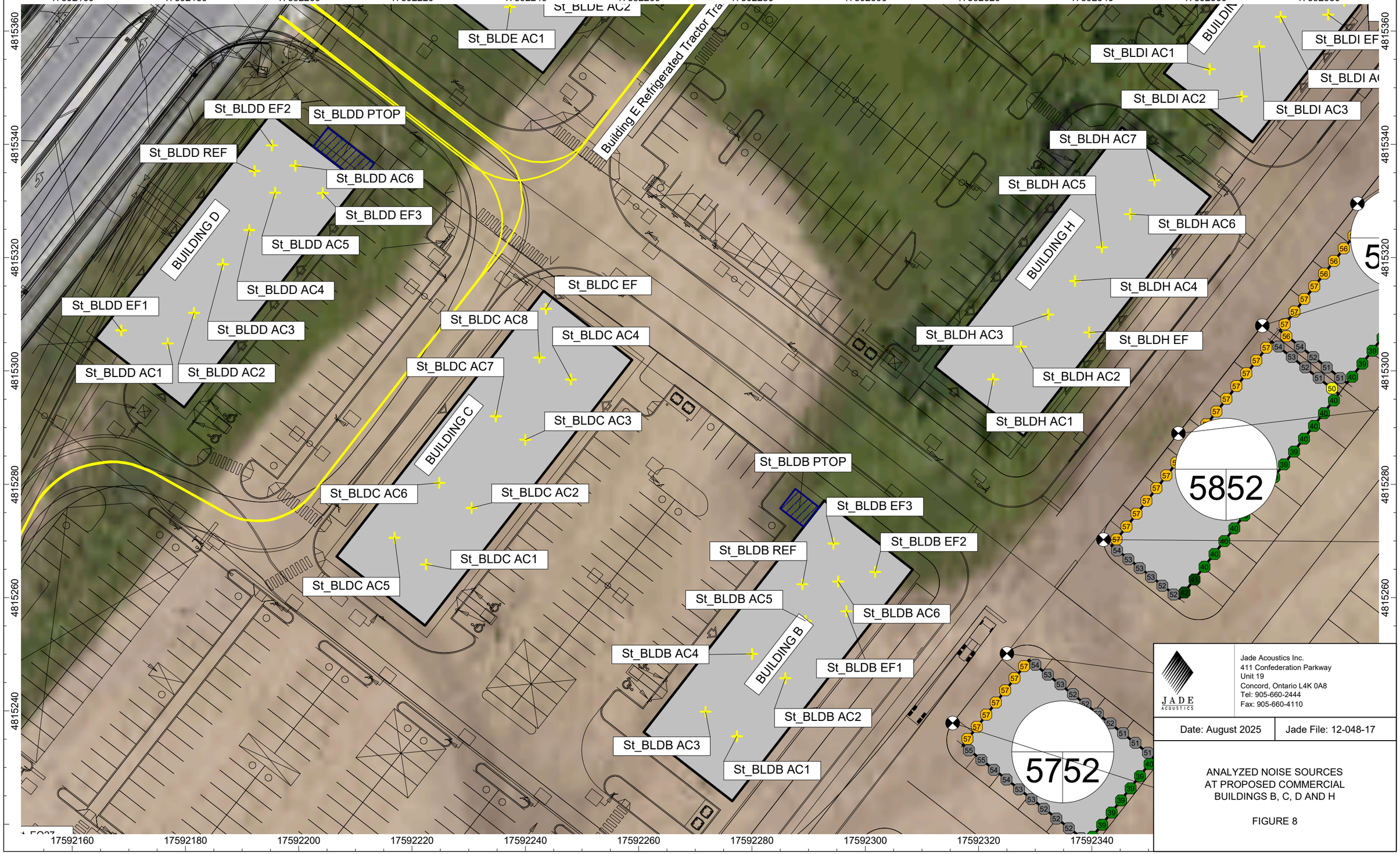
JADE ACOUSTICS

Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025 | Jade File: 12-048-17

ANALYZED NOISE SOURCES
AT PROPOSED COMMERCIAL
BUILDING A

FIGURE 7



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Date: August 2025 | Jade File: 12-048-17

ANALYZED NOISE SOURCES
AT PROPOSED COMMERCIAL
BUILDINGS B, C, D AND H

FIGURE 8

17592200 17592220 17592240 17592260 17592280 17592300 17592320 17592340 17592360 17592380 17592400 17592420 17592440

4815460 4815440 4815420 4815400 4815380 4815360 4815340

LOUIS ST. LAURENT AVENUE

BRONTE STREET SOUTH

BUILDING F

BUILDING G

BUILDING E

BUILDING I

Building E Refrigerated Tractor Trailer Passby

St_BLDF AC1
St_BLDF AC4
St_BLDF AC2
St_BLDF EF1
St_BLDF AC3
St_BLDF REF
St_BLDF EF2
St_BLDF AC7
St_BLDF AC5
St_BLDF PTOP
St_BLDF AC6
St_BLDG EF2
St_BLDF EF3
St_BLDG REF
St_BLDG AC3
St_BLDG PTOP
St_BLDG AC1
St_BLDG EF1
St_BLDE EF
St_BLDE GC
St_BLDG EF3
St_BLDG AC4
St_BLDE AC8
St_BLDE RC
St_BLDG AC2
St_BLDG AC5
St_BLDERefCond
St_BLDE RTTI
St_BLDG AC6
St_BLDE EF3
St_BLDE AC7
St_BLDE AC4
St_BLDI PTOP
St_BLDE AC6
St_BLDI EF2
St_BLDE EF2
St_BLDI REF
St_BLDE AC5
St_BLDI AC5
St_BLDE AC3
St_BLDI AC6
St_BLDE EF1
St_BLDE AC2
St_BLDI EF1
St_BLDE AC1
St_BLDI EF3
St_BLDI AC1
St_BLDI AC4
St_BLDI AC2
St_BLDI AC3
:F2
St_BLDD PTOP
St_BLDH AC7
St_BLDD AC6
St_BLDH AC5
St_BLDD EF3
St_BLDH AC6

R17
Day 54
Evening 5<

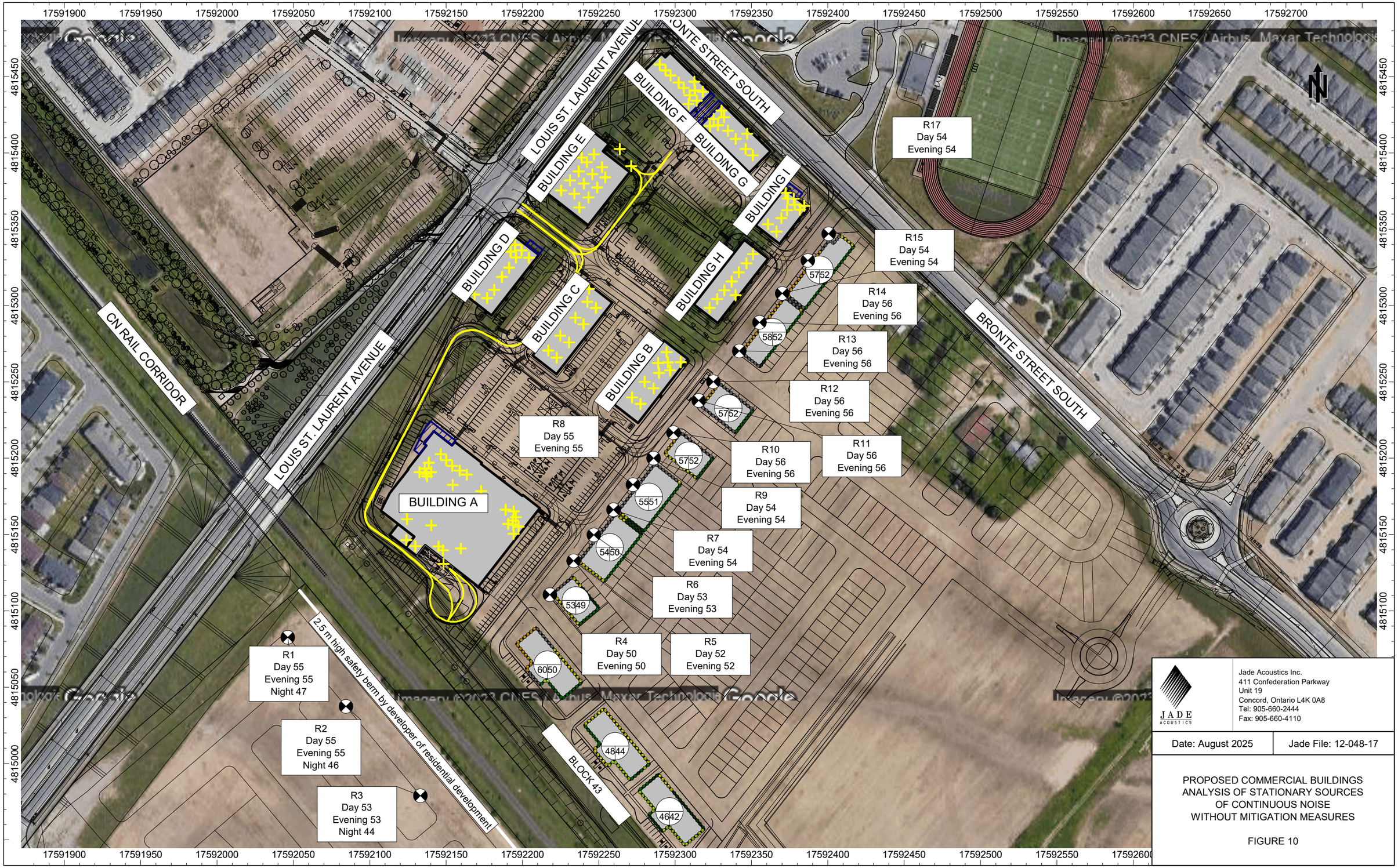
JADE ACOUSTICS

Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025 | Jade File: 12-048-17

ANALYZED NOISE SOURCES
AT PROPOSED COMMERCIAL
BUILDINGS E, F, G AND I

FIGURE 9



JADE ACOUSTICS

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Unit 19
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Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025

Jade File: 12-048-17

PROPOSED COMMERCIAL BUILDINGS
ANALYSIS OF STATIONARY SOURCES
OF CONTINUOUS NOISE
WITHOUT MITIGATION MEASURES

FIGURE 10

JADE ACOUSTICS

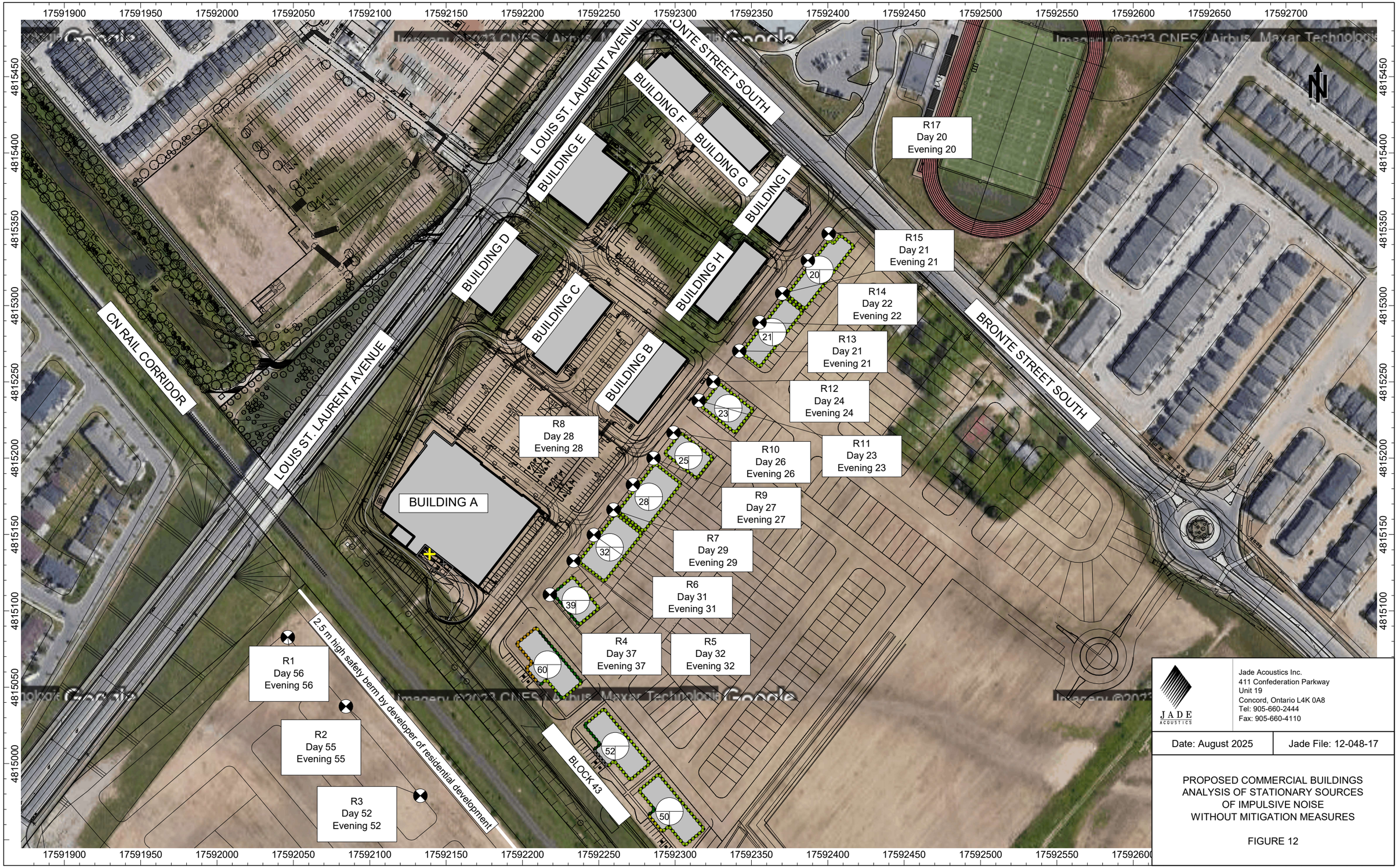
Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025

Jade File: 12-048-17

PROPOSED COMMERCIAL BUILDINGS
ANALYSIS OF STATIONARY SOURCES
OF CONTINUOUS NOISE
WITHOUT MITIGATION MEASURES
- EMERGENCY EQUIPMENT

FIGURE 11



JADE ACOUSTICS

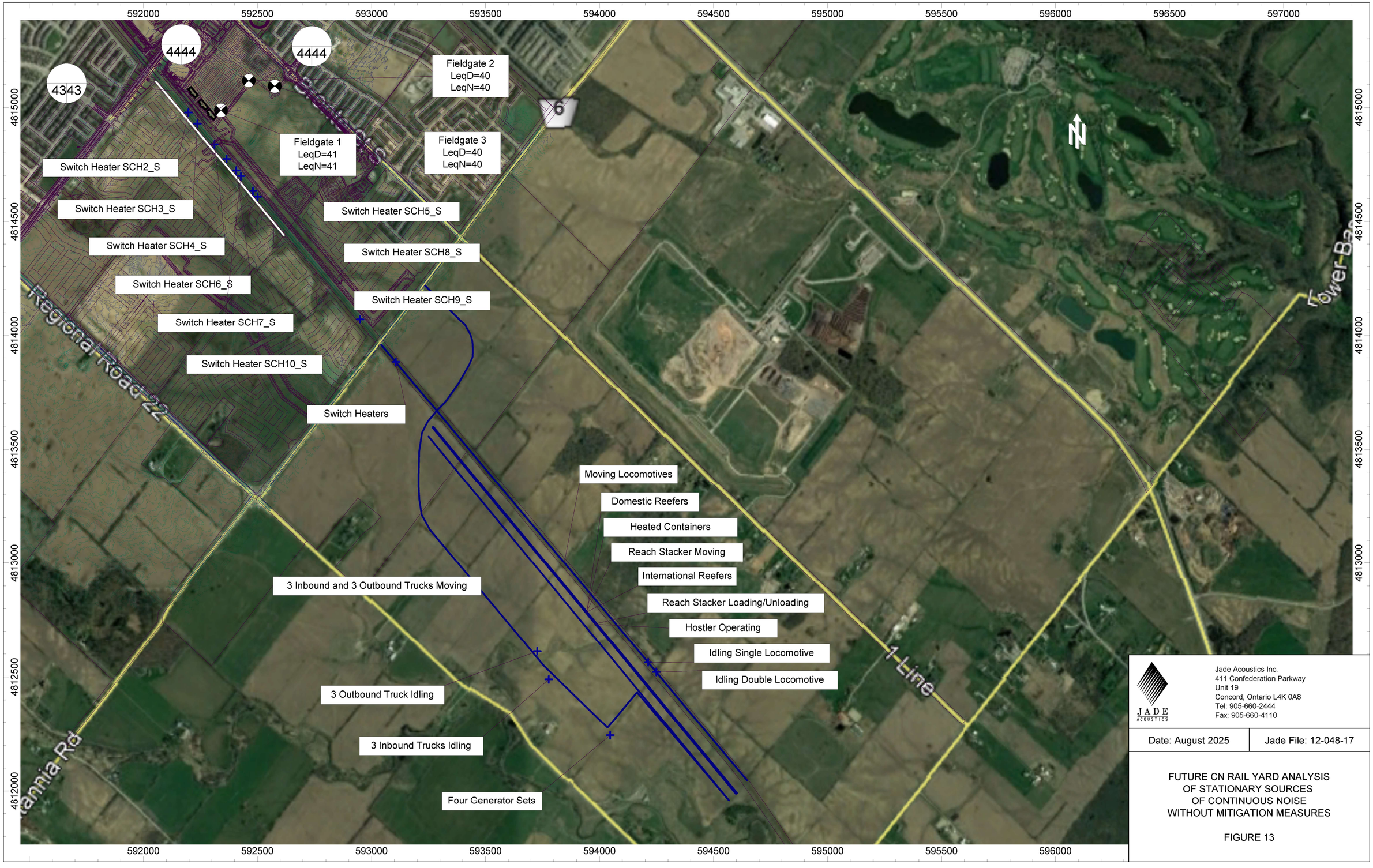
Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025

Jade File: 12-048-17

PROPOSED COMMERCIAL BUILDINGS
ANALYSIS OF STATIONARY SOURCES
OF IMPULSIVE NOISE
WITHOUT MITIGATION MEASURES

FIGURE 12



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Fax: 905-660-4110

Date: August 2025 | Jade File: 12-048-17

FUTURE CN RAIL YARD ANALYSIS
OF STATIONARY SOURCES
OF CONTINUOUS NOISE
WITHOUT MITIGATION MEASURES

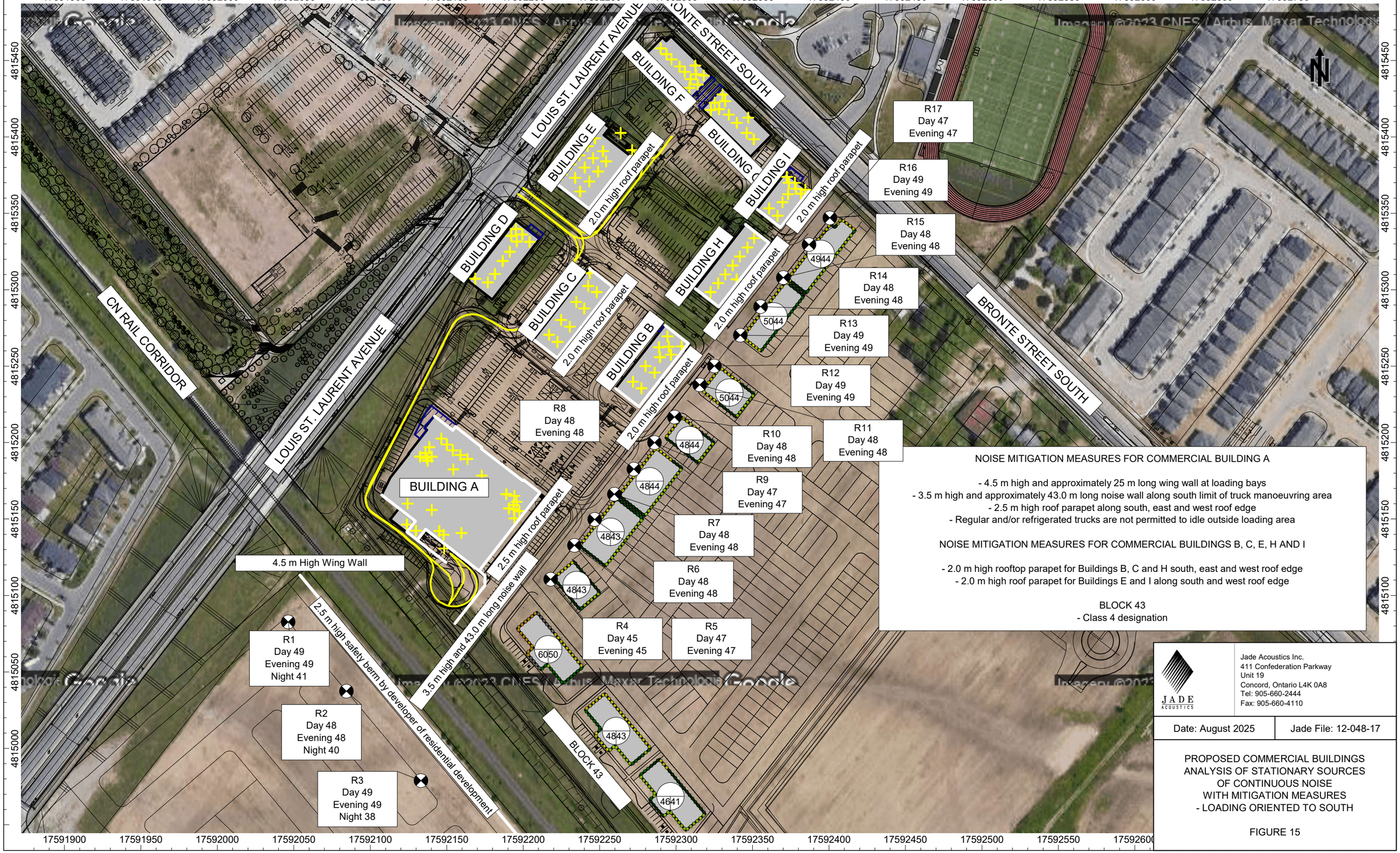
FIGURE 13

Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025 | Jade File: 12-048-17

FUTURE CN RAIL YARD ANALYSIS
OF STATIONARY SOURCES
OF IMPULSIVE NOISE
WITHOUT MITIGATION MEASURES

FIGURE 14



NOISE MITIGATION MEASURES FOR COMMERCIAL BUILDING A

- 4.5 m high and approximately 25 m long wing wall at loading bays
- 3.5 m high and approximately 43.0 m long noise wall along south limit of truck manoeuvring area
- 2.5 m high roof parapet along south, east and west roof edge
- Regular and/or refrigerated trucks are not permitted to idle outside loading area

NOISE MITIGATION MEASURES FOR COMMERCIAL BUILDINGS B, C, E, H AND I

- 2.0 m high rooftop parapet for Buildings B, C and H south, east and west roof edge
- 2.0 m high roof parapet for Buildings E and I along south and west roof edge

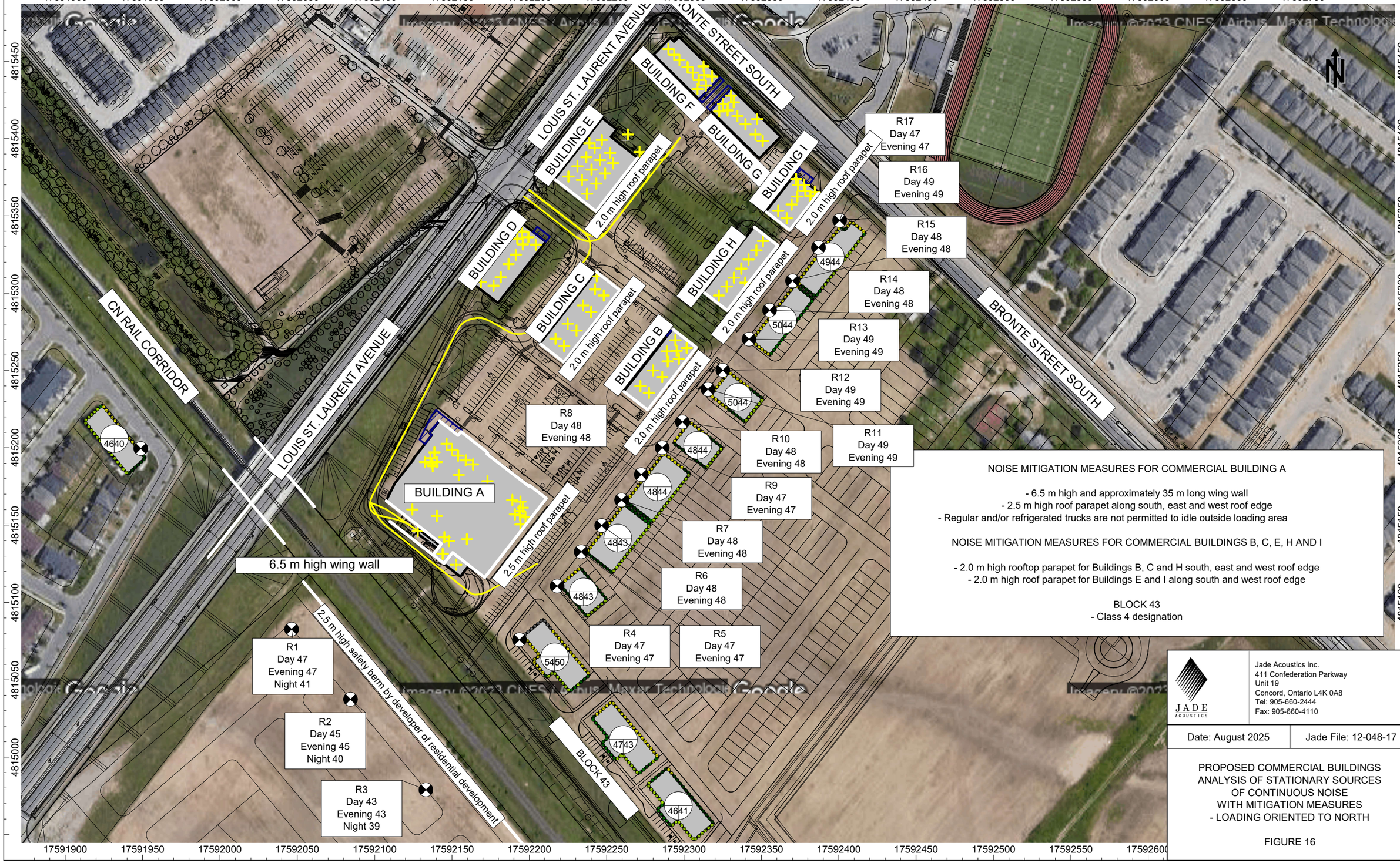
BLOCK 43
- Class 4 designation

JADE ACOUSTICS
Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

Date: August 2025 | Jade File: 12-048-17

PROPOSED COMMERCIAL BUILDINGS
ANALYSIS OF STATIONARY SOURCES
OF CONTINUOUS NOISE
WITH MITIGATION MEASURES
- LOADING ORIENTED TO SOUTH

FIGURE 15



NOISE MITIGATION MEASURES FOR COMMERCIAL BUILDING A

- 6.5 m high and approximately 35 m long wing wall
- 2.5 m high roof parapet along south, east and west roof edge
- Regular and/or refrigerated trucks are not permitted to idle outside loading area

NOISE MITIGATION MEASURES FOR COMMERCIAL BUILDINGS B, C, E, H AND I

- 2.0 m high rooftop parapet for Buildings B, C and H south, east and west roof edge
- 2.0 m high roof parapet for Buildings E and I along south and west roof edge

BLOCK 43
- Class 4 designation

JADE ACOUSTICS
Jade Acoustics Inc.
411 Confederation Parkway
Unit 19
Concord, Ontario L4K 0A8
Tel: 905-660-2444
Fax: 905-660-4110

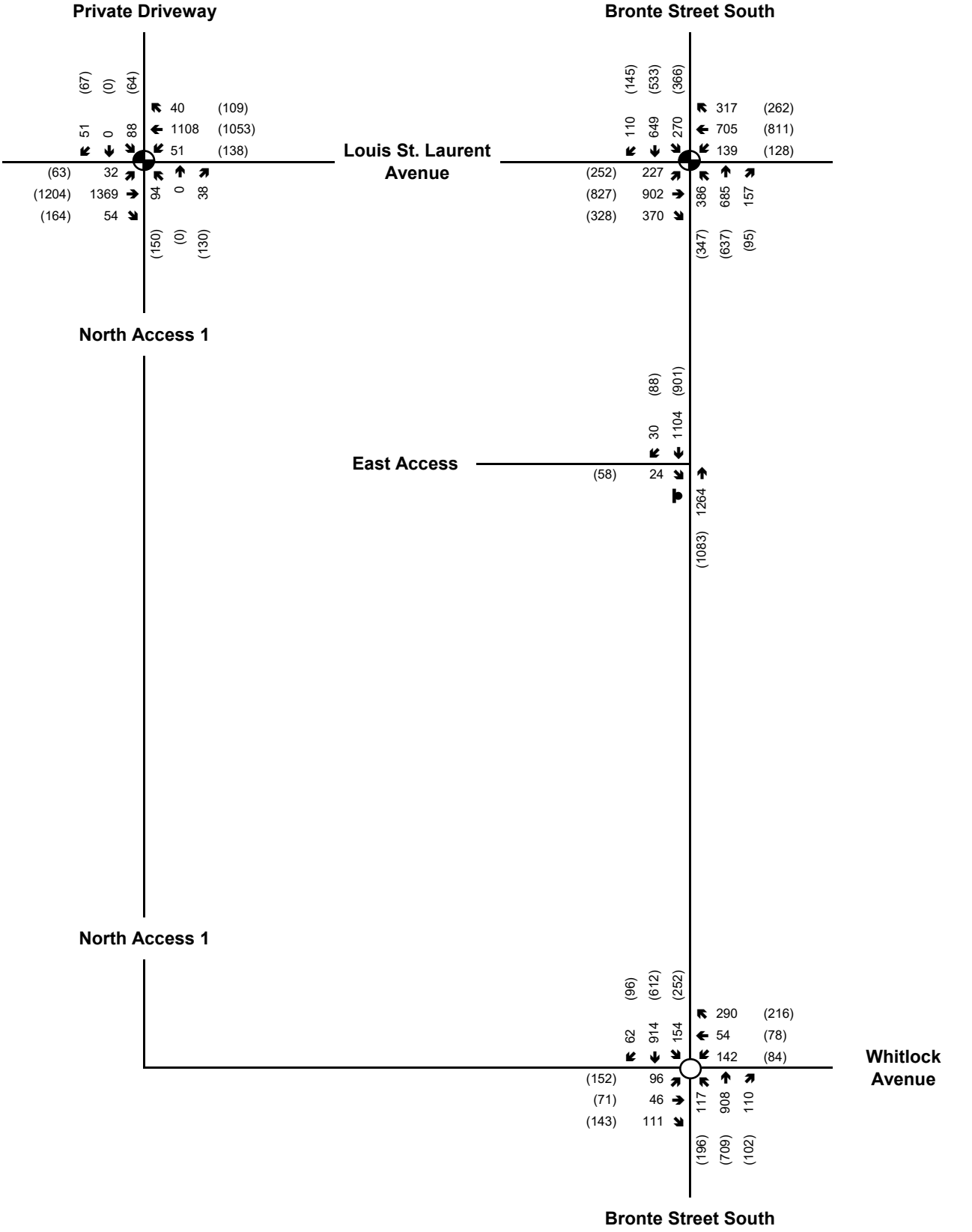
Date: August 2025 | Jade File: 12-048-17

PROPOSED COMMERCIAL BUILDINGS
ANALYSIS OF STATIONARY SOURCES
OF CONTINUOUS NOISE
WITH MITIGATION MEASURES
- LOADING ORIENTED TO NORTH

FIGURE 16

APPENDIX A

CORRESPONDENCE REGARDING TRAFFIC

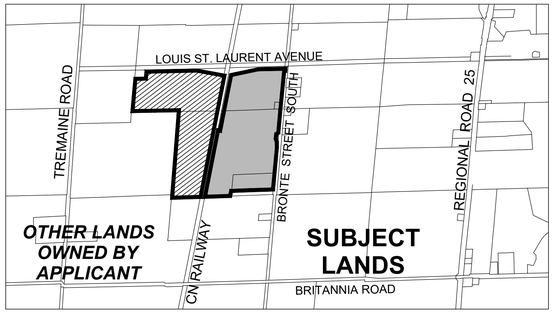


LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
	Signalized Intersection
	Roundabout
	Stop Control

2032 Future Total Traffic Volumes

K:\265-015D\2025 06 June\DP June 16 25.dwg



DRAFT PLAN OF SUBDIVISION
1000118982 ONTARIO LIMITED (FORMERLY 1045502 & 1048605 ONTARIO LIMITED) FIELDGATE DEVELOPMENTS

(EAST LANDS)

FILE #: 24T-21005/M

PART OF LOTS 7 & 8 ,CONCESSION 1, NEW SURVEY
TOWN OF MILTON
REGIONAL MUNICIPALITY OF HALTON

OWNERS CERTIFICATE

I HEREBY AUTHORIZE GLEN SCHNARR & ASSOCIATES INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF MILTON FOR APPROVAL.

SIGNED _____ DATE: JUNE 11, 2014

MR. JACK EISENBERGER
1000118982 ONTARIO LIMITED

SURVEYORS CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED _____ DATE: JUNE 26, 2018

OPHIR N. DZALDOV, O.L.S.
SCHAEEFER DZALDOV BENNET LTD.
64 JARDIN DRIVE, CONCORD ON, L4K 3P3
PHONE: 416-987-0101

ADDITIONAL INFORMATION

(UNDER SECTION 51(17) OF THE PLANNING ACT) INFORMATION REQUIRED BY CLAUSES A,B,C,D,E,F,G, J, & L ARE SHOWN ON THE DRAFT AND KEY PLANS.
H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
I) SANDY LOAM AND CLAY LOAM
K) SANITARY AND STORM SEWERS TO BE PROVIDED

LAND USE SCHEDULE

LAND USE	BLOCKS	AREA (ha)	AREA (ac)	UNITS	DENSITY UPNHA	SDE
STREET TOWNHOMES - 6.4m (21')	1-20	2.34	5.78	114	48.72	86.64
DUAL FRONTAGE TOWNHOMES - 6.4m (21')	21-31	1.11	2.74	55	49.55	41.80
BACK-TO-BACK TOWNHOMES - 6.4m (21')	32-42	1.04	2.57	108	103.85	48.60
SECONDARY MIXED USE NODE	43-45	6.33	15.64			
DISTRICT PARK	46	15.68	38.75			
ACTIVE TRANSPORTATION LINK	47	0.64	1.58			
SERVICING BLOCK	48	1.00	2.47			
NHS (CHANNEL)	49	1.58	3.90			
CHANNEL BUFFER	50,51	0.96	2.37			
SWM POND	52	1.34	3.31			
SWM BUFFER	53	0.19	0.47			
ROAD WIDENING	54	0.02	0.05			
26m ROW (LENGTH: 99m)		0.35	0.86			
20m ROW (LENGTH: 456m)		0.93	2.30			
16m ROW (LENGTH: 1,846m)		2.99	7.39			
TOTAL	**54**	**36.50**	**90.19**	**277**	**61.69**	**177.04**

NOTES

- TYPICAL LOCAL/LOCAL DAYLIGHT RADII: 5m
- LOUIS ST. LAURENT/STREET 'B' DAYLIGHT TRIANGLE: 15.0m x 15.0m
- BRONTE ROAD SOUTH/STREET 'C' DAYLIGHT TRIANGLE: 15.0m x 15.0m
- SDE FACTORS:
  STREET TOWNHOMES - 0.76
  DUAL FRONTAGE TOWNHOMES - 0.76
  BACK-TO-BACK TOWNHOMES - 0.45

SCALE 1:2000
(24 x 36)
JUNE 16, 2025

GSAI
Glen Schnarr & Associates Inc.

Davor Sikic

From: Michael Dowdall <michael.dowdall@tylin.com>
Sent: July 4, 2025 2:53 PM
To: Davor Sikic
Cc: Jim Bacchus; Arthur Walker; Karen Bennett; Maria Herrera; Carlo Stefanutti; Steve Hollingworth; Dalila Giusti; Jadeon Senkowski
Subject: RE: Fieldgate East (SMUN) Revised Development
Attachments: RE: Fieldgate East (SMUN) Revised Development

Davor,

Heavy truck volumes were provided in the attached TMC's per our June 23rd email.
Posted speed on LSL and Bronte St. S is 60km/h
The TIS applied a 2.45% annual growth rate to Louis St. Laurent Avenue traffic, and a 3.00% annual growth rate was applied to Bronte Street South traffic

Maria,

The draft TIS is under review as we need to refine the roundabout analysis at the existing Whitlock / Bronte intersection.

Regards,

Michael Dowdall
DIRECTOR, TRAFFIC
M +1 437.993.2662
TYLin

From: Jadeon Senkowski <JadeonS@gsai.ca>
Sent: Monday, June 30, 2025 10:21 AM
To: Michael Dowdall <michael.dowdall@tylin.com>
Cc: Jim Bacchus <jim.bacchus@tylin.com>; Arthur Walker <arthurw@gsai.ca>; Karen Bennett <karenb@gsai.ca>; Maria Herrera <mariah@fieldgatedevelopments.com>; Carlo Stefanutti <carlo@fieldgatedevelopments.com>; Steve Hollingworth <steve.hollingworth@tylin.com>; dalila <dalila@jadeacoustics.com>; davor <davor@jadeacoustics.com>
Subject: RE: Fieldgate East (SMUN) Revised Development

Good morning, Michael,

I hope all is well. Davor confirmed that he still requires the following additional information:

- Noise calculations need to be based on a 10-year projection. Would the 2032 AADT be applicable to the year 2035? If not, could we use a yearly increase of 2% (or some other percentage) to calculate the 2035 AADT?
- Would posted speed limits and percentages of medium and heavy trucks be available?

Would you please be able to advise Davor at your earliest convenience regarding the above matters?

Thank you,

Jadeon Senkowski | Planner
700 - 10 Kingsbridge Garden Circle
Mississauga, ON L5R 3K6

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	Jade Acoustics Inc. 411 Confederation Parkway Unit 19 Concord ON L4K 0A8	*Project :*	HAL-38.72 – Britannia Road, Milton, ON
Att'n:	Davor Sikic	*Routing:*	davor@jadeacoustics.com
From: *Expéditeur :*	Michael Vallins	*Date:*	2022/03/18
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ■ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Halton Subdivision near Britannia Road in Milton, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca.

Sincerely,

Umair Naveed

Umair Naveed
Project Officer Public Works – Eastern Canada
Permits.gld@cn.ca

Date: 2022/03/18 Project Number: HAL-38.72 – Britannia Road, Milton, ON

Dear Davor:

Re: Train Traffic Data – CN Halton Subdivision near Britannia Road in Milton, ON

The following is provided in response to Davor's 2022/01/17 request for information regarding rail traffic in the vicinity of Britannia Road in Milton, ON at approximately Mile 38.72 on CN's Halton Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	4	140	50	4
Way Freight	0	25	50	4
Passenger	0	10	50	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	10	140	50	4
Way Freight	2	25	50	4
Passenger	0	10	50	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Halton Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are two (2) at-grade crossing in the immediate vicinity of the study area at Mile 38.72 Britannia Rd and Mile 40.69 Lower Baseline Road. Anti-whistling bylaws are in effect at these crossings. Please note that engine-warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The single mainline track is considered to be continuously welded rail throughout the study area. The presence of one switch located at Mile 39.44 may exacerbate the noise and vibration caused by train movements.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Umair Naveed

Umair Naveed
Project Officer Public Works – Eastern Canada
Permits.gld@cn.ca

APPENDIX B

ENVIRONMENTAL NOISE AND VIBRATION CRITERIA

ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)

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

TABLE C-2

Indoor Sound Level Limits
Road and Rail

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

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 (Leq, 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 (Leq, 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
07:00 – 23:00	9 or more	50	50	45	55
	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 (07:00-23:000)/ (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

Supplementary Indoor Sound Level Limits
Road and Rail

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

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.

CN AND GO TRANSIT

RAILWAY NOISE AND VIBRATION GUIDELINES

Mitigation measures are required to achieve the following standards for noise for residential uses.

		Leq (dBA)	
		Day (16 hr.)	Night (8 hr.)
Noise	Sleeping Quarters	35	35
	Living Room	40	40
	Outdoor	55	50

Vibration

Groundborne vibration transmission to be estimated through site testing and evaluation to determine if dwellings within 75 m of the Railway right-of-way will be impacted by vibration velocities in excess of 0.14 mm/sec. RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, $\pm$ 3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec. RMS on and above the first floor of the dwelling.

APPENDIX C

SAMPLE CALCULATION OF PREDICTED UNMITIGATED SOUND LEVELS DUE TO TRANSPORTATION SOURCES

APPENDIX C-1
SAMPLE CALCULATION OF PREDICTED SOUND LEVELS

FILE: 12-048-17
NAME: Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
REFERENCE DRAWINGS: Draft Plan
LOCATION: Block 18, east unit, side wall, 2nd storey

Noise Source:

	Bronte Street South	
	Southbound (SB)	Northbound (NB)
Time Period:	16 hr. (day)	16 hr. (day)
Distance (m):	16.5	24.5

CALCULATION OF PREDICTED SOUND LEVELS*

Reference Leq (dBA)*:	65.22	65.22
Height and/or Distance Correction (dBA):	-0.65	-3.37
Finite Element Correction (dBA):	-1.32	-1.32
Allowance for Screening (dBA):	0.00	0.00
Allowance for Future Growth (dBA):	incl.	incl.
LeqDay (dBA):	63.24	60.53
Combined LeqDay (dBA)	65.10	

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

APPENDIX C-2
SAMPLE CALCULATION OF PREDICTED SOUND LEVELS

FILE: 12-048-17
NAME: Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
REFERENCE DRAWINGS: Draft Plan
LOCATION: Block 18, east unit, side wall, 2nd storey

Noise Source:

	Bronte Street South	
	Southbound (SB)	Northbound (NB)
Time Period:	8 hr. (night)	8 hr. (night)
Distance (m):	16.5	24.5

CALCULATION OF PREDICTED SOUND LEVELS*

Reference Leq (dBA)*:	58.66	58.66
Height and/or Distance Correction (dBA):	-0.65	-3.37
Finite Element Correction (dBA):	-1.32	-1.32
Allowance for Screening (dBA):	0.00	0.00
Allowance for Future Growth (dBA):	incl.	incl.
LeqNight (dBA):	56.69	53.97
Combined LeqNight (dBA):	58.55	

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

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2025 12:48:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b18eusw.te           Time Period: Day/Night 16/8 hours
Description: Block 18, east unit, side wall, second storey

Road data, segment # 1: Bronte St.SB (day/night)
-----------------------------------------------
Car traffic volume  : 10683/1187  veh/TimePeriod  *
Medium truck volume :    33/4     veh/TimePeriod  *
Heavy truck volume  :   174/19    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.30
    Heavy Truck  % of Total Volume     :   1.60
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Bronte St.SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  16.50 / 16.50  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Bronte St.NB (day/night)
-----------------------------------------------
Car traffic volume  : 10683/1187  veh/TimePeriod  *
Medium truck volume :    33/4     veh/TimePeriod  *
Heavy truck volume  :   174/19    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.30
    Heavy Truck  % of Total Volume     :   1.60
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: Bronte St.NB (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  :  24.50 / 24.50  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Bronte St.SB (day)
---------------------------------------

Source height = 1.12 m

ROAD (0.00 + 63.24 + 0.00) = 63.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  65.22   0.00  -0.65  -1.32   0.00   0.00   0.00  63.24
-------------------------------------------------------------------------------

Segment Leq : 63.24 dBA

Results segment # 2: Bronte St.NB (day)
---------------------------------------

Source height = 1.12 m

ROAD (0.00 + 60.53 + 0.00) = 60.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  65.22   0.00  -3.37  -1.32   0.00   0.00   0.00  60.53
-------------------------------------------------------------------------------

Segment Leq : 60.53 dBA

Total Leq All Segments: 65.10 dBA

Results segment # 1: Bronte St.SB (night)
-----------------------------------------

Source height = 1.12 m

ROAD (0.00 + 56.69 + 0.00) = 56.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  58.66   0.00  -0.65  -1.32   0.00   0.00   0.00  56.69
-------------------------------------------------------------------------------

Segment Leq : 56.69 dBA

Results segment # 2: Bronte St.NB (night)
-----------------------------------------

Source height = 1.12 m

ROAD (0.00 + 53.97 + 0.00) = 53.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  58.66   0.00  -3.37  -1.32   0.00   0.00   0.00  53.97
-------------------------------------------------------------------------------

Segment Leq : 53.97 dBA

Total Leq All Segments: 58.55 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 65.10
                           (NIGHT): 58.55
```

APPENDIX C-3
SAMPLE CALCULATION OF PREDICTED SOUND LEVELS

FILE: 12-048-17
NAME: Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
REFERENCE DRAWINGS: Draft Plan
LOCATION: Block 18, east unit, rear yard

Noise Source:

	Bronte Street South	
	Southbound (SB)	Northbound (NB)
Time Period:	16 hr. (day)	16 hr. (day)
Distance (m):	19.5	27.5

CALCULATION OF PREDICTED SOUND LEVELS*

Reference Leq (dBA)*:	65.22	65.22
Height and/or Distance Correction (dBA):	-1.89	-4.37
Finite Element Correction (dBA):	-2.13	-2.13
Allowance for Screening (dBA):	0.00	0.00
Allowance for Future Growth (dBA):	incl.	incl.
LeqDay (dBA):	61.19	58.72
Combined LeqDay (dBA):	63.14	

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

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2025 12:39:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b18eury.te           Time Period: Day/Night 16/8 hours
Description: Block 18, east unit, rear yard

Road data, segment # 1: Bronte St.SB (day)
-----------------------------------------
Car traffic volume  : 10683 veh/TimePeriod  *
Medium truck volume :    33 veh/TimePeriod  *
Heavy truck volume  :   174 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.30
    Heavy Truck  % of Total Volume     :   1.60
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Bronte St.SB (day)
----------------------------------------
Angle1   Angle2           : -50.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  19.50 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.50 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 2: Bronte St.NB (day)
-----------------------------------------
Car traffic volume  : 10683 veh/TimePeriod  *
Medium truck volume :    33 veh/TimePeriod  *
Heavy truck volume  :   174 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.30
    Heavy Truck  % of Total Volume     :   1.60
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Bronte St.NB (day)
--------------------------------------
Angle1   Angle2           : -50.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  27.50 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.50 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: Bronte St.SB (day)
--------------------------------------

Source height = 1.12 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.12 !        1.50 !        1.75 !         1.75

ROAD (0.00 + 61.19 + 0.00) = 61.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     90   0.66  65.22   0.00  -1.89  -2.13   0.00   0.00  -0.14  61.05*
   -50     90   0.66  65.22   0.00  -1.89  -2.13   0.00   0.00   0.00  61.19
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 61.19 dBA

Results segment # 2: Bronte St.NB (day)
--------------------------------------

Source height = 1.12 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.12 !        1.50 !        1.82 !         1.82

ROAD (0.00 + 58.72 + 0.00) = 58.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     90   0.66  65.22   0.00  -4.37  -2.13   0.00   0.00  -0.15  58.57*
   -50     90   0.66  65.22   0.00  -4.37  -2.13   0.00   0.00   0.00  58.72
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 58.72 dBA

Total Leq All Segments: 63.14 dBA
```

APPENDIX D

SAMPLE CALCULATION OF PREDICTED UNMITIGATED SOUND LEVELS DUE TO STATIONARY SOURCES

Commercial Development - Sound Power Level (PWL) Information

Name	ID	Type	1/3 Oktave Spectrum (dB)										Source
			63	125	250	500	1000	2000	4000	8000	A	lin	
CES Sahara Express DPRTU040	CES	Lw	102.0	98.0	93.0	92.0	88.0	84.0	81.0	80.0	93.8	104.3	Manufacturer
Reznor RDH-350	REZ	Lw	87.0	88.0	85.0	81.0	80.0	78.0	76.0	74.0	85.7	92.6	Assumed (Engineered Air AHU Jade File 11-046)
York ZF 15 ton	YORK1	Lw	90.0	93.0	91.0	89.0	86.0	83.0	80.0	75.0	91.5	97.6	York Technical Guide
York ZH090N15	YORK2	Lw	87.0	91.0	88.0	87.0	84.0	78.0	73.0	66.0	88.6	95.1	York Technical Guide
York ZF048D10	YORK3	Lw	84.5	81.0	80.0	78.0	75.0	70.0	67.0	70.5	80.3	88.0	York Technical Guide
York ZF036D10	YORK4	Lw	87.5	86.0	81.0	77.0	75.0	69.5	65.5	70.5	80.4	90.8	York Technical Guide
York ZF078N15	YORK5	Lw	86.0	87.5	86.0	82.5	79.0	73.5	68.5	62.0	84.4	92.2	York Tecnical Guide
York TCG018S	YORK6	Lw	71.0	70.0	67.0	68.0	70.0	64.0	58.0	56.0	72.6	76.8	York Technical Guide
Carnes VEBK-10-L1 500CFM	CARN1	Lw	62.0	67.0	63.0	61.0	57.0	56.0	53.0	48.0	63.7	70.4	Carnes Software
Carnes VEBK-10-L1 600CFM	CARN2	Lw	63.0	67.0	63.0	61.0	57.0	57.0	54.0	49.0	64.1	70.6	Carnes Software
Cranes VUBK-15-S1	CARN3	Lw	81.0	86.0	83.0	82.0	77.0	73.0	68.0	62.0	83.0	89.8	Carnes Software
Carnes VUBK-10-P1	CARN4	Lw	81.0	73.0	80.0	74.0	68.0	70.0	65.0	59.0	77.1	84.6	Carnes Software
Carnes VUBK-08-M1	CARN5	Lw	73.0	73.0	62.0	66.0	65.0	63.0	61.0	57.0	70.2	77.2	Carnes Software
Carnes VRBK-12-R1	CARN6	Lw	73.0	86.0	84.0	79.0	71.0	71.0	68.0	63.0	80.8	88.9	Carnes Software
Carnes VEBK-36-V1	CARN7	Lw	81.0	78.0	72.0	66.0	64.0	61.0	60.0	58.0	70.7	83.3	Carnes Software
CaptiveAire NCA24HPFA	CAP1	Lw	73.0	77.0	73.0	71.0	67.0	67.0	64.0	59.0	74.1	80.6	CaptiveAire table in sones
CaptiveAire A2-D.500-G15 3390CFM	CAP2	Lw	81.0	86.0	83.0	82.0	77.0	73.0	67.0	62.0	83.0	89.8	Assumed to be same as Carnes VUBK-15-S1
CaptiveAire A2-D.500-G15 3375CFM	CAP3	Lw	81.0	86.0	83.0	82.0	77.0	73.0	68.0	62.0	83.0	89.8	Assumed to be same as Carnes VUBK-15-S1
Delhi SD-33	DEL	Lw	72.5	79.4	82.2	74.7	69.7	68.6	64.7	53.7	77.9	85.1	Manufacturer
Refrigeration Condensers A and B	COND	Lw	99.5	94.5	90.5	88.0	86.5	80.5	74.0	66.0	90.7	101.5	Jade File 11-046
Garbage/Cardboard Compactor	GARB	Lw	101.0	95.0	88.0	81.0	77.0	75.0	74.0	67.0	85.8	102.2	Jade File 11-046
Regular Tuck Passby and Idling	REGT	Lw	97.0	101.0	100.0	97.0	93.0	90.0	83.0	78.0	98.9	105.5	Jade File: 06-072-03
Refrigerated Tractor Trailer Passby and Idling	REFT	Lw	107.5	106.0	104.0	99.0	95.5	95.5	91.0	84.5	102.7	111.4	Jade File 11-046
Loading Impulses	IMP	Lw	84.5	98.5	94.5	99.5	101.5	95.5	90.5	80.5	104.0	105.8	Jade File 11-046
Emergency Generator	EMGEN	Lw	92.0	96.0	96.0	95.0	95.0	94.0	88.0	81.0	99.8	102.8	Other Files
Refrigeration Unit	REF	Lw	85.0	89.0	84.0	84.0	80.0	71.0	59.0	50.0	84.7	92.4	Jade File: 06-072-03
Lennox KGB048S4BH1J	LENN1	Lw	84.0	79.0	74.5	73.0	71.0	67.0	61.0	54.0	75.7	86.0	Lennox Product Specification
Lennox KGB060S4BH1J	LENN2	Lw	88.0	83.0	80.5	80.0	76.0	72.0	67.0	61.0	81.4	90.4	Lennox Product Specification
Lennox KGB074S4BH1J	LENN3	Lw	87.0	82.0	79.5	77.0	73.0	69.0	64.0	58.0	78.8	89.2	Lennox Product Specification
Lennox KGB092H4MH1J	LENN4	Lw	97.0	92.0	87.5	87.0	83.0	78.0	72.0	67.0	88.3	99.0	Lennoc Product Specification
Greenheck G-099-A	GREEN	Lw	75.0	79.0	79.0	71.0	67.0	66.0	62.0	55.0	75.0	83.3	Jade File 06-072-03
Car Idling in Drive-thru	CAR	Lw	84.0	79.5	76.0	74.5	72.0	70.0	67.0	62.5	77.7	86.4	Jade File 06-072-03
Speaker in Drive-thru	SPK	Lw	82.0	82.0	74.0	85.0	79.0	74.5	65.5	52.0	84.5	88.9	Jade File: 06-072-03
People Talking at Outdoor Patio	PTOP	Lw	0.0	77.5	73.0	72.5	64.0	58.5	53.5	51.0	72.2	79.9	Jade File: 06-072-03

Commercial Development - Analyzed Point Noise Sources

Name	ID	Result. PWL			Lw / Li		Operating Time			K0	Direct.	Height		Coordinates		
		Day	Evening	Night	Type	Value	Day	Special	Night					X	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Fortino's Refrigeration Condenser A	St_RefCondA	90.7	90.7	90.7	Lw	COND	60.00	60.00	36.00	0.0	RefCondenser: Area 3.2-12.8m2	1.40	g	17592145.13	4815142.17	8.30
Fortino's Refrigeration Condenser B	St_RefCondB	90.7	90.7	90.7	Lw	COND	60.00	60.00	36.00	0.0	RefCondenser: Area 3.2-12.8m2	1.40	g	17592147.92	4815139.68	8.30
Carnes Exhaust Fan	St_EQ29	70.7	70.7	70.7	Lw	CARN7	60.00	60.00	60.00	0.0	(none)	1.68	g	17592123.94	4815146.38	8.58
Carnes Exhaust Fan	St_EQ30	70.7	70.7	70.7	Lw	CARN7	60.00	60.00	60.00	0.0	(none)	1.68	g	17592129.88	4815142.40	8.58
Carnes Exhaust Fan	St_EQ22	83.0	83.0	83.0	Lw	CARN3	60.00	60.00	60.00	0.0	(none)	1.18	g	17592124.40	4815160.12	8.08
CES AHU	St_EQ01	93.8	93.8	93.8	Lw	CES	60.00	60.00	36.00	0.0	(none)	2.40	g	17592140.25	4815155.98	9.30
CES AHU	St_EQ02	93.8	93.8	93.8	Lw	CES	60.00	60.00	36.00	0.0	(none)	2.40	g	17592159.65	4815140.81	9.30
York HVAC	St_EQ07	88.6	88.6	88.6	Lw	YORK2	60.00	60.00	30.00	0.0	(none)	1.42	g	17592132.53	4815190.82	8.32
Reznor HVAC	St_EQ05	85.7	85.7	85.7	Lw	REZ	60.00	60.00	30.00	0.0	(none)	1.52	g	17592138.58	4815197.05	8.42
Carnes Exhaust Fan EG	St_EQ23	77.1	77.1	77.1	Lw	CARN4	60.00	60.00	60.00	0.0	(none)	1.07	g	17592136.04	4815193.25	7.97
Carnes Exhaust Fan	St_EQ26	80.8	80.8	80.8	Lw	CARN6	60.00	60.00	60.00	0.0	(none)	1.15	g	17592136.84	4815189.76	8.05
Carnes Exhaust Fan	St_EQ24	77.1	77.1	77.1	Lw	CARN4	60.00	60.00	60.00	0.0	(none)	1.07	g	17592137.55	4815188.17	7.97
Delhi Exhaust Fan	St_EQ36	77.9	77.9	77.9	Lw	DEL	60.00	60.00	60.00	0.0	(none)	0.84	g	17592140.25	4815190.79	7.74
CaptiveAire Exhaust Fan	St_EQ31	83.0	83.0	83.0	Lw	CAP2	60.00	60.00	60.00	0.0	(none)	1.18	g	17592146.44	4815202.64	8.08
CaptiveAire Exhaust Fan	St_EQ27	74.1	74.1	74.1	Lw	CAP1	60.00	60.00	60.00	0.0	(none)	1.31	g	17592150.02	4815198.74	8.21
York HVAC	St_EQ08	80.3	80.3	80.3	Lw	YORK3	60.00	60.00	30.00	0.0	(none)	1.19	g	17592154.00	4815194.90	8.09
CaptiveAire Exhaust Fan	St_EQ28	74.1	74.1	74.1	Lw	CAP1	60.00	60.00	60.00	0.0	(none)	1.31	g	17592158.99	4815191.85	8.21
CaptiveAire Exhaust Fan	St_EQ32	83.0	83.0	83.0	Lw	CAP3	60.00	60.00	60.00	0.0	(none)	1.18	g	17592163.52	4815189.27	8.08
York HVAC	St_EQ06	91.5	91.5	91.5	Lw	YORK1	60.00	60.00	30.00	0.0	(none)	1.59	g	17592173.01	4815178.42	8.49
York HVAC	St_EQ09	80.4	80.4	80.4	Lw	YORK4	60.00	60.00	30.00	0.0	(none)	1.19	g	17592188.96	4815166.26	8.09
Carnes Exhaust fan	St_EQ20	63.7	63.7	63.7	Lw	CARN1	60.00	60.00	60.00	0.0	(none)	1.08	g	17592194.25	4815165.20	7.98
York HVAC	St_EQ13	80.4	80.4	80.4	Lw	YORK4	60.00	60.00	30.00	0.0	(none)	1.08	g	17592195.74	4815161.31	7.98
York HVAC	St_EQ12	80.4	80.4	80.4	Lw	YORK4	60.00	60.00	30.00	0.0	(none)	1.08	g	17592193.70	4815159.14	7.98
York HVAC	St_EQ10	80.4	80.4	80.4	Lw	YORK4	60.00	60.00	30.00	0.0	(none)	1.08	g	17592190.76	4815156.93	7.98
York HVAC	St_EQ35A	72.6	72.6	72.6	Lw	YORK6	60.00	60.00	30.00	0.0	(none)	0.76	g	17592193.88	4815156.35	7.66
York HVAC	St_EQ11	84.4	84.4	84.4	Lw	YORK5	60.00	60.00	30.00	0.0	(none)	1.42	g	17592197.56	4815155.11	8.32
Carnes Exhaust Fan	St_EQ21	64.1	64.1	64.1	Lw	CARN2	60.00	60.00	60.00	0.0	(none)	1.08	g	17592194.26	4815150.39	7.98
Carnes Exhaust Fan	St_EQ25	70.2	70.2	70.2	Lw	CARN5	60.00	60.00	60.00	0.0	(none)	1.04	g	17592154.31	4815182.45	7.94
Emergency Generator	Em_Standby Gen	99.8	99.8	99.8	Lw	EMGEN	60.00	0.00	0.00	0.0	(none)	2.00	g	17592148.41	4815146.47	8.90
Fully Enclosed Garbage Compactor	St_Garbage Comp	85.8	85.8	85.8	Lw	GARB	20.00	20.00	20.00	0.0	(none)	2.00	r	17592121.45	4815151.30	2.00
Loading Impulses	Imp_LoadingA	104.0	104.0	104.0	Lw	IMP	60.00	60.00	60.00	0.0	(none)	2.50	r	17592139.19	4815137.18	2.50
Tractor Trailer Refrigeration Unit	St_Ref Unit	102.7	102.7	102.7	Lw	REFT	60.00	60.00	60.00	0.0	(none)	3.50	r	17592148.28	4815130.72	3.50
Building D HVAC1	St_BLDD AC1	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592176.86	4815304.84	7.05
Building D Exhaust Fan 1	St_BLDD EF1	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592168.67	4815307.16	6.60
Building D HVAC2	St_BLDD AC2	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592181.50	4815310.23	7.05
Building D HVAC3	St_BLDD AC3	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592186.61	4815318.82	7.05
Building D HVAC4	St_BLDD AC4	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592191.26	4815324.87	7.05
Building D HVAC5	St_BLDD AC5	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592195.84	4815331.46	7.05

Name	ID	Result. PWL			Lw / Li		Operating Time			K0	Direct.	Height		Coordinates		
		Day	Evening	Night	Type	Value	Day	Special	Night					X	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Building F HVAC1	St_BLDF AC1	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592289.89	4815457.90	7.05
Building F HVAC2	St_BLDF AC2	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592293.63	4815454.12	7.05
Building F HVAC3	St_BLDF AC3	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592297.03	4815450.72	7.05
Building F HVAC4	St_BLDF AC4	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592302.31	4815446.11	7.05
Building F HVAC5	St_BLDF AC5	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592305.68	4815442.56	7.05
Building F HVAC6	St_BLDF AC6	78.8	78.8	78.8	Lw	LENN3	60.00	60.00	15.00	0.0	(none)	1.55	g	17592309.49	4815437.76	7.05
Building F HVAC7	St_BLDF AC7	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592314.17	4815434.25	7.05
Building H HVAC1	St_BLDH AC1	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592322.57	4815298.52	7.05
Building H HVAC2	St_BLDH AC2	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592327.50	4815304.29	7.05
Building H HVAC3	St_BLDH AC3	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592332.28	4815309.96	7.05
Fully Enclosed Cardboard Compactor	St_Cardboard Comp	85.8	85.8	85.8	Lw	GARB	20.00	20.00	20.00	0.0	(none)	2.00	r	17592119.17	4815148.26	2.00
Building D HVAC6	St_BLDD AC6	78.8	78.8	78.8	Lw	LENN3	60.00	60.00	15.00	0.0	(none)	1.55	g	17592199.40	4815336.22	7.05
Building B Exhaust Fan1	St_BLDB EF1	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592296.68	4815257.58	6.60
Building B Exhaust Fan2	St_BLDB EF2	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592301.75	4815264.52	6.60
Building B Exhaust Fan3	St_BLDB EF3	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592294.40	4815269.53	6.60
Building B HVAC5	St_BLDB AC5	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592289.46	4815255.89	7.05
Building B HVAC6	St_BLDB AC6	78.8	78.8	78.8	Lw	LENN3	60.00	60.00	30.00	0.0	(none)	1.55	g	17592295.23	4815262.81	7.05
Building B Refrigeration Unit	St_BLDB REF	84.7	84.7	84.7	Lw	REF	60.00	60.00	30.00	0.0	(none)	1.20	g	17592288.91	4815262.35	6.70
Building F Exhaust Fan 1	St_BLDF EF1	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592312.52	4815446.56	6.60
Building G Exhaust Fan 1	St_BLDG EF1	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592347.18	4815412.59	6.60
Building G HVAC3	St_BLDG AC3	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592334.51	4815414.58	7.05
Building G HVAC4	St_BLDG AC4	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592339.68	4815409.24	7.05
Building G HVAC5	St_BLDG AC5	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592346.18	4815402.58	7.05
Building G HVAC6	St_BLDG AC6	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592350.82	4815398.46	7.05
Building I HVAC1	St_BLDI AC1	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592360.78	4815353.27	7.05
Building I HVAC2	St_BLDI AC2	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592366.43	4815348.42	7.05
Building I HVAC3	St_BLDI AC3	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592369.53	4815357.24	7.05
Building I HVAC4	St_BLDI AC4	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592373.32	4815362.49	7.05
Building I HVAC5	St_BLDI AC5	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592373.64	4815370.00	7.05
Building I Exhaust Fan 1	St_BLDI EF1	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592384.55	4815365.35	6.60
Building H Exhaust Fan	St_BLDH EF	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592339.53	4815306.80	6.60
Building H HVAC4	St_BLDH AC4	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592337.05	4815315.88	7.05
Building H HVAC5	St_BLDH AC5	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592341.76	4815321.81	7.05
Building H HVAC6	St_BLDH AC6	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592346.72	4815327.67	7.05
Building H HVAC7	St_BLDH AC7	81.4	81.4	81.4	Lw	LENN2	60.00	60.00	15.00	0.0	(none)	1.55	g	17592351.05	4815333.64	7.05
Building C Exhaust Fan	St_BLDC EF	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592243.60	4815310.97	6.60
Building E Exhaust Fan	St_BLDE EF	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592246.81	4815398.99	6.60
Building C HVAC1	St_BLDC AC1	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592222.48	4815265.85	7.05
Building C HVAC2	St_BLDC AC2	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592230.50	4815275.82	7.05

Name	ID	Result. PWL			Lw / Li		Operating Time			K0	Direct.	Height		Coordinates		
		Day	Evening	Night	Type	Value	Day	Special	Night					X	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Building C HVAC3	St_BLDC AC3	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592239.98	4815287.86	7.05
Building C HVAC4	St_BLDC AC4	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592248.05	4815298.49	7.05
Building C HVAC5	St_BLDC AC5	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592216.92	4815270.55	7.05
Building C HVAC6	St_BLDC AC6	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592224.82	4815280.24	7.05
Building C HVAC7	St_BLDC AC7	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592234.78	4815292.00	7.05
Building C HVAC8	St_BLDC AC8	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592242.48	4815302.36	7.05
Building E Refrigerated Tractor Trailer Idling	St_BLDE RTTI	102.7	102.7	102.7	Lw	REFT	10.00	10.00	0.00	0.0	(none)	3.50	r	17592271.24	4815391.34	3.50
Building E Refrigeration Condenser	St_BLDE RC	90.7	90.7	90.7	Lw	COND	60.00	60.00	36.00	0.0	RefCondenser: Area 3.2-12.8m2	1.40	g	17592238.75	4815396.90	6.90
Building E HVAC1	St_BLDE AC1	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592237.29	4815364.27	7.05
Building E HVAC2	St_BLDE AC2	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592243.31	4815370.79	7.05
Building E HVAC3	St_BLDE AC3	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592248.91	4815377.31	7.05
Building E HVAC4	St_BLDE AC4	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592254.26	4815384.00	7.05
Building E HVAC5	St_BLDE AC5	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592225.26	4815375.39	7.05
Building E HVAC6	St_BLDE AC6	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592231.11	4815381.99	7.05
Building E HVAC7	St_BLDE AC7	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592236.88	4815387.93	7.05
Building E HVAC8	St_BLDE AC8	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	30.00	0.0	(none)	1.55	g	17592242.23	4815393.95	7.05
Building E Exhaust Fan1	St_BLDE EF1	83.0	83.0	83.0	Lw	CAP2	60.00	60.00	60.00	0.0	(none)	1.18	g	17592234.03	4815373.22	6.68
Building E Exhaust Fan2	St_BLDE EF2	83.0	83.0	83.0	Lw	CAP2	60.00	60.00	60.00	0.0	(none)	1.18	g	17592240.22	4815379.96	6.68
Building E Exhaust Fan3	St_BLDE EF3	83.0	83.0	83.0	Lw	CAP2	60.00	60.00	60.00	0.0	(none)	1.18	g	17592245.82	4815386.06	6.68
Building E Garbage Compactor	St_BLDE GC	85.8	85.8	85.8	Lw	GARB	20.00	20.00	20.00	0.0	(none)	2.00	r	17592263.73	4815402.56	2.00
Loading Impulses	Imp_LoadingE	104.0	104.0	104.0	Lw	IMP	60.00	60.00	0.00	0.0	(none)	2.50	r	17592261.98	4815398.68	2.50
Building B HVAC 1	St_BLDB AC1	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592277.36	4815235.54	7.05
Building B HVAC 2	St_BLDB AC2	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592285.89	4815245.78	7.05
Building B HVAC 3	St_BLDB AC3	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592271.81	4815239.85	7.05
Building B HVAC 4	St_BLDB AC4	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592280.02	4815250.05	7.05
Building D Exhaust Fan 2	St_BLDD EF2	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592195.25	4815339.81	6.60
Building B Exhaust Fan 3	St_BLDD EF3	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592204.25	4815331.37	6.60
Building D Refrigeration Unit	St_BLDD REF	84.7	84.7	84.7	Lw	REF	60.00	60.00	30.00	0.0	(none)	1.20	g	17592192.21	4815335.31	6.70
Building G Refrigeration Unit	St_BLDG REF	84.7	84.7	84.7	Lw	REF	60.00	60.00	30.00	0.0	(none)	1.20	g	17592332.08	4815423.42	6.70
Building F Refrigeration Unit	St_BLDF REF	84.7	84.7	84.7	Lw	REF	60.00	60.00	30.00	0.0	(none)	1.20	g	17592313.07	4815440.93	6.70
Building G Exhaust Fan 2	St_BLDG EF2	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592330.36	4815427.72	6.60
Building F Exhaust Fan 2	St_BLDF EF2	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592318.17	4815440.10	6.60
Building G HVAC1	St_BLDG AC1	78.8	78.8	78.8	Lw	LENN3	60.00	60.00	15.00	0.0	(none)	1.55	g	17592325.23	4815422.31	7.05
Building G Exhaust Fan 3	St_BLDG EF3	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592322.74	4815417.54	6.60
Building F Exhaust Fan 3	St_BLDF EF3	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592308.73	4815432.01	6.60
Building G HVAC2	St_BLDG AC2	88.3	88.3	88.3	Lw	LENN4	60.00	60.00	15.00	0.0	(none)	1.55	g	17592328.11	4815418.08	7.05
Building I Refrigeration Unit	St_BLDI REF	84.7	84.7	84.7	Lw	REF	60.00	60.00	30.00	0.0	(none)	1.20	g	17592377.67	4815369.99	6.70
Building I Exhaust Fan 2	St_BLDI EF2	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592372.41	4815373.88	6.60
Building I Exhaust Fan 3	St_BLDI EF3	75.0	75.0	75.0	Lw	GREEN	60.00	60.00	60.00	0.0	(none)	1.10	g	17592381.71	4815362.88	6.60

Name	ID	Result. PWL			Lw / Li		Operating Time			K0	Direct.	Height		Coordinates		
		Day	Evening	Night	Type	Value	Day	Special	Night					X	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Building I HVAC6	St_BLDI AC6	78.8	78.8	78.8	Lw	LENN3	60.00	60.00	15.00	0.0	(none)	1.55	g	17592378.33	4815366.09	7.05
Building E Refrigeration Condenser	St_BLDERefCond	90.7	90.7	90.7	Lw	COND	60.00	60.00	36.00	0.0	RefCondenser: Area 3.2-12.8m2	1.40	g	17592252.26	4815390.67	6.90

Commercial Development - Analyzed Line Noise Sources

Name	ID	Result. PWL			Result. PWL'			Lw / Li		Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
		Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night				Number			Speed
		(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
Building A Refrigerated Tractor Trailer Passbys	St_BLDA Ref Trucks	92.1	92.1	92.1	62.7	62.7	62.7	PWL-Pt	REFT				0.0		(none)	2.0	2.0	2.0	20.0
Building E Refrigerated Tractor Trailer Passby	St_BLDE RTP	84.4	84.4	-15.6	59.6	59.6	-40.4	PWL-Pt	REFT				0.0		(none)	1.0	1.0	0.0	20.0

Commercial Development - Analyzed Area Noise Sources

Name	ID	Result. PWL			Result. PWL"			Lw / Li		Operating Time			K0	Direct.
		Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night		
		(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)	
Building B People Talking at Outdoor Patio	St_BLDB PTOP	75.2	75.2	75.2	61.5	61.5	61.5	Lw	PTOP+10*LOG10(2)	60.00	60.00	0.00	0.0	(none)
Building G People Talking at Outdoor Patio	St_BLDG PTOP	78.2	78.2	78.2	60.4	60.4	60.4	Lw	PTOP+10*LOG10(4)	60.00	60.00	0.00	0.0	(none)
Building I People Talking at Outdoor Patio	St_BLDI PTOP	78.2	78.2	78.2	60.9	60.9	60.9	Lw	PTOP+10*LOG10(4)	60.00	60.00	0.00	0.0	(none)
Building D People Talking at Outdoor Patio	St_BLDD PTOP	78.2	78.2	78.2	61.8	61.8	61.8	Lw	PTOP+10*LOG10(4)	60.00	60.00	0.00	0.0	(none)
Building A People Talking at Outdoor Patio	St_BLDA PTOP	79.9	79.9	79.9	57.6	57.6	57.6	Lw	PTOP+10*LOG10(6)	60.00	60.00	0.00	0.0	(none)
Building F People Talking at Outdoor Patio	St_BLDF PTOP	78.2	78.2	78.2	60.4	60.4	60.4	Lw	PTOP+10*LOG10(4)	60.00	60.00	0.00	0.0	(none)

APPENDIX E

SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION

APPENDIX E-1
SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION*

FILE: 12-048-17
NAME: Louis St. Laurent Avenue and Bronte Street South – Southwest Corner
REFERENCE DRAWINGS: Draft Plan
LOCATION: Block 43, Building A, 15th storey corner bedroom, nighttime

RAIL

Exterior Wall area as a percentage of floor area:	West:	45%
	North:	45%
Window area as a percentage of floor area:	West:	35%
	North:	35%
Number of components:	4	
Outdoor Leq:	West:	72 (+3 for reflections) = 75 dBA
	North:	69 (+3 for reflections) = 72 dBA
Indoor Leq:	35 dBA	
Noise Reduction :	West:	41 dBA (including angle correction)
	North:	38 dBA (including angle correction)
Noise Spectrum:	Diesel Locomotive	Angle Correction: 1 dBA
Absorption:	Medium	

APPROPRIATE ELEMENTS

		STC Rating
Exterior Wall	West	STC 54
	North	STC 54
Window	West	STC 45
	North	STC 44

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

APPENDIX F

SAMPLE CALCULATION OF SOUND BARRIER ANALYSIS

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STAMSON 5.0        NORMAL REPORT        Date: 06-07-2025 12:39:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b18eury.te           Time Period: Day/Night 16/8 hours
Description: Block 18, east unit, rear yard

Road data, segment # 1: Bronte St.SB (day)
-----------------------------------------
Car traffic volume  : 10683 veh/TimePeriod  *
Medium truck volume :    33 veh/TimePeriod  *
Heavy truck volume  :   174 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.30
    Heavy Truck  % of Total Volume     :   1.60
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Bronte St.SB (day)
----------------------------------------
Angle1   Angle2           : -50.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  19.50 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.50 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 2: Bronte St.NB (day)
-----------------------------------------
Car traffic volume  : 10683 veh/TimePeriod  *
Medium truck volume :    33 veh/TimePeriod  *
Heavy truck volume  :   174 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  12100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   0.30
    Heavy Truck  % of Total Volume     :   1.60
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Bronte St.NB (day)
--------------------------------------
Angle1   Angle2           : -50.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  27.50 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   5.50 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: Bronte St.SB (day)
--------------------------------------

Source height = 1.12 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.12 !        1.50 !        1.75 !         1.75

ROAD (0.00 + 61.19 + 0.00) = 61.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     90   0.66  65.22   0.00  -1.89  -2.13   0.00   0.00  -0.14  61.05*
   -50     90   0.66  65.22   0.00  -1.89  -2.13   0.00   0.00   0.00  61.19
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 61.19 dBA

Results segment # 2: Bronte St.NB (day)
--------------------------------------

Source height = 1.12 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.12 !        1.50 !        1.82 !         1.82

ROAD (0.00 + 58.72 + 0.00) = 58.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     90   0.66  65.22   0.00  -4.37  -2.13   0.00   0.00  -0.15  58.57*
   -50     90   0.66  65.22   0.00  -4.37  -2.13   0.00   0.00   0.00  58.72
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 58.72 dBA

Total Leq All Segments: 63.14 dBA
```

Barrier table for segment # 1: Bronte St.SB (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA	
1.50	1.50	61.19	61.19	
1.60	1.60	61.19	61.19	
1.70	1.70	61.19	61.19	
1.80	1.80	56.41	56.41	
1.90	1.90	56.33	56.33	
2.00	2.00	56.17	56.17	
2.10	2.10	55.92	55.92	
2.20	2.20	55.61	55.61	
2.30	2.30	55.24	55.24	
2.40	2.40	54.84	54.84	2.4 m high acoustic fence
2.50	2.50	54.42	54.42	
2.60	2.60	53.98	53.98	
2.70	2.70	53.54	53.54	
2.80	2.80	53.11	53.11	
2.90	2.90	52.68	52.68	
3.00	3.00	52.26	52.26	
3.10	3.10	51.86	51.86	
3.20	3.20	51.47	51.47	
3.30	3.30	51.09	51.09	
3.40	3.40	50.73	50.73	
3.50	3.50	50.38	50.38	

Barrier table for segment # 2: Bronte St.NB (day)

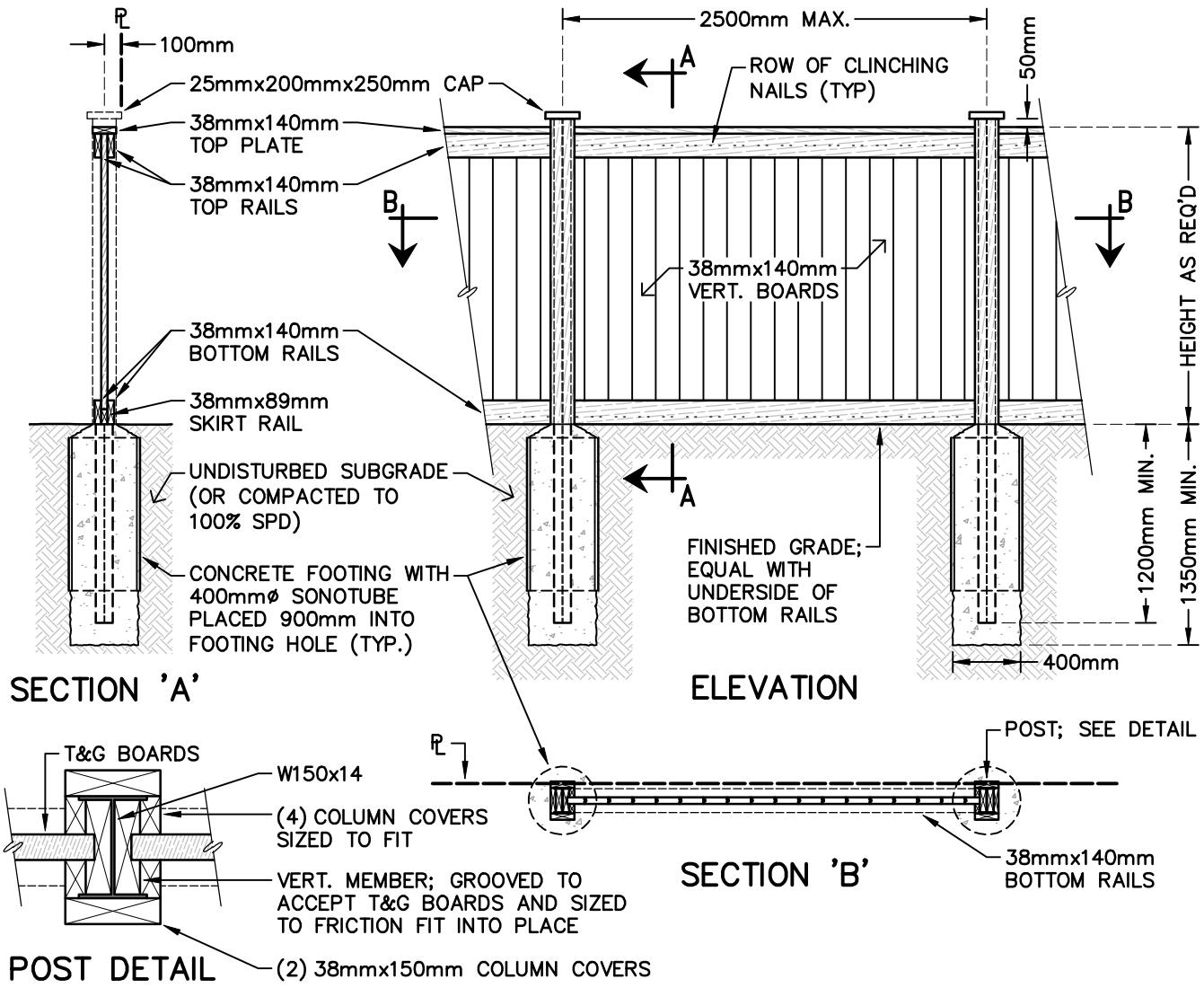
Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA	
1.50	1.50	58.72	58.72	
1.60	1.60	58.72	58.72	
1.70	1.70	58.72	58.72	
1.80	1.80	58.72	58.72	
1.90	1.90	54.09	54.09	
2.00	2.00	54.01	54.01	
2.10	2.10	53.84	53.84	
2.20	2.20	53.61	53.61	
2.30	2.30	53.32	53.32	
2.40	2.40	52.98	52.98	2.4 m high acoustic fence
2.50	2.50	52.62	52.62	
2.60	2.60	52.23	52.23	
2.70	2.70	51.82	51.82	
2.80	2.80	51.42	51.42	
2.90	2.90	51.01	51.01	
3.00	3.00	50.62	50.62	
3.10	3.10	50.23	50.23	
3.20	3.20	49.85	49.85	
3.30	3.30	49.48	49.48	
3.40	3.40	49.13	49.13	
3.50	3.50	48.79	48.79	

Combined LeqDay with 2.4 m high acoustic fence = 57.02 dBA

Combined LeqDay with 2.4 m high acoustic fence and flat ground = 55.39 dBA

APPENDIX G

WOOD ACOUSTIC FENCE DETAIL – TOWN OF MILTON



NOTES:

1. ALL MATERIALS, COMPONENTS, AND CRAFTSMANSHIP SHALL CONFORM TO THE ONTARIO BUILDING CODE AND ALL APPLICABLE LOCAL BY-LAWS.
2. METAL POSTS TO BE GALVANIZED W150x14 MEMBERS FACTORY CUT/MANUFACTURED TO LENGTH.
3. ALL WOOD SHALL BE No. 1 GRADE WESTERN CEDAR, SELECTED FOR GOOD APPEARANCE AND FREE OF WANE AND BARK POCKETS. ALL TORN GRAIN SHALL BE ELIMINATED BY SANDING AND PLANING. MEMBERS EXHIBITING MODERATE TO HEAVY KNOTS SHALL BE WELL DISTRIBUTED THROUGHOUT THE INSTALLATION.
4. FENCE BOARDS SHALL BE TONGUE & GROOVE SELECT (SOUND) TIGHT KNOT NGLA PATTERN 18-(200) MODIFIED 54mm (2 1/8") DRESSED WITH BEVELED EDGE ON BOTH SIDES.
5. RAILS & TOP PLATE TO BE DRESSED TO PATTERN. GRADE TO BE HGLA 1318 STRUCTURAL POST & TIMBER.
6. FINISH ALL WOOD WITH CLEAR STAIN. APPLICATION: APPLY 2 COATS ON CLEAN DRY WOOD AT 5°C TO 21°C.
7. ALL FASTENERS SHALL BE SCREWS OR NAILS PENETRATING EACH BOARD BY A MINIMUM OF 15mm.
8. COUNTER-SINK ALL SCREWS AND DRIVE ALL NAIL HEADS BELOW SURFACE OF WOOD. USE SUFFICIENT SIZE AND QUANTITY OF NAILS TO ENSURE A STABLE AND SECURE STRUCTURE.
9. MAINTAIN FINISHED GRADE PARALLEL WITH BOTTOM OF FENCE MEMBER.
10. FENCE PANELS SHALL BE STEPPED A MAXIMUM OF 150mm AS REQUIRED BY GRADE CONDITIONS.
11. ALL LUMBER SIZES SHOWN ARE ACTUAL (RATHER THAN NOMINAL).
12. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 30MPa AT 28 DAYS WITH 5% TO 7% AIR ENTRAINMENT.

Title

WOOD ACOUSTIC FENCING (WITH METAL POST)

Scale	1:40
Rev. Date	2024/SEP
Standard No.	10-03.02

MILTON