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PRELIMINARY ENVIRONMENTAL NOISE REPORT

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT
MAYFIELD WEST PHASE 2, STAGE 2
MAYFIELD ROAD AND CHINGUACOUSY ROAD
TOWN OF CALEDON
REGIONAL MUNICIPALITY OF PEEL

JADE ACOUSTICS

PREPARED FOR
Mayfield Station Developments Inc.

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SUMMARY

The proposed low to medium density residential and mixed-use development is located at the northeast corner of Mayfield Road and Chinguacousy Road in the Town of Caledon and is subject to road traffic noise from Mayfield Road, Chinguacousy Road, and new internal roads Neil Promenade and Tweedhill Avenue. It is not affected by rail, aircraft, or industrial noise sources.

The environmental noise guidelines of the Town of Caledon, the Region of Peel, and the Ontario Ministry of the Environment, Conservation and Parks (MOE) set out sound level limits for both indoor and outdoor spaces.

Using the road traffic data obtained from the Region of Peel and the Mayfield West Phase 2 Stage 2 Transportation Master Plan, the sound levels for various locations in the development were determined. Sound levels due to the adjacent roads were determined using ORNAMENT, the noise prediction model of the MOE.

It was found that, with appropriate mitigative measures, all residential lots and blocks (units) in the development are predicted to meet the noise guidelines. Where minor excesses exist or mitigation is required, future occupants will be advised through the use of warning clauses.

Certain lots and blocks (units) with exposure to roadways require acoustic barriers up to 3.5 m high. Tables 3 and 4 and Figure 2 show the acoustic barrier requirements.

Lots and blocks (units) in the vicinity of Mayfield Road, Chinguacousy Road, Neil Promenade and/or Tweedhill Avenue require either central air conditioning or forced air heating systems sized to accommodate central air conditioning at a later date if noise becomes a concern. Table 3 and Figure 2 show the central air conditioning requirements.

It is predicted that standard exterior wall and window construction will be acoustically satisfactory for all proposed lots and blocks (units). Prior to issuance of building permits, the acoustical requirements should be reviewed to ensure compliance with the applicable guidelines.

A separate elementary school (Block 287) is proposed at the northeast corner of Neil Promenade and Tweedhill Avenue (not part of the current application). Detailed information regarding noise sources associated with this block is not available at this stage of the project. Once specific information is available, a detailed noise analysis should be prepared by the proponent of the school to ensure the applicable guidelines are met at the proposed residential dwellings.

There is a mixed-use block proposed within Block 354 of the subject site. Detailed information regarding noise sources associated with the mixed-use block is not available at this stage of the project. Once specific information is available, a detailed noise analysis should be prepared by the proponent to ensure the applicable guidelines are met at the proposed residential dwellings.

1.0 INTRODUCTION

Jade Acoustics Inc. was retained by Mayfield Station Developments Inc. to investigate the potential impact of noise on the proposed low to medium density residential and mixed-use development to the satisfaction of the Town of Caledon and the Region of Peel.

The proposed site is identified as:

Part of Lot 18
Concession 2, W.H.S.
(Geographic Township of Chinguacousy, County of Peel)
Town of Caledon
Regional Municipality of Peel

The site is bounded by future residential developments to the north and east, Chinguacousy Road to the west, and Mayfield Road to the south.

Surrounding land uses include existing and future residential developments, existing commercial uses and existing agricultural uses

A Key Plan is attached as Figure 1.

This report is based on the following information:

- Draft Plan of Subdivision prepared by Glen Schnarr and Associates Inc. dated and received September 7, 2021;
- Preliminary Grading Plan prepared by David Schaeffer Engineering Ltd. received October 13, 2021;
- Mayfield West Phase 2 Stage 2 Transportation Assessment prepared by Paradigm Transportation Solutions Limited, provided by LEA Consulting Ltd. on October 1, 2021;
- Road traffic information provided by the Region of Peel; and
- Site visit conducted by Jade Acoustics Inc. staff.

The proposed development is comprised of single detached, semi-detached and townhouse dwellings, a mixed-use block, greenway corridors, and new internal roads.

Single and semi-detached dwellings with a maximum height of two storeys and townhouse dwellings with a maximum height of three storeys have been considered in this report.

Figure 2 shows the proposed development and the minimum noise abatement measures required to meet the guidelines.

2.0 NOISE SOURCES

2.1 Transportation Sources

The noise source of potential impact on the proposed development is the road traffic on Mayfield Road, Chinguacousy Road, and new internal roads Neil Promenade and Tweedhill Avenue.

The ultimate road traffic information for Mayfield Road was provided by the Region of Peel on October 1, 2021 and has been used for the noise analysis. The exception to the use of this provided data is with regard to the posted speed limit. The site visit conducted by Jade Acoustics Inc. staff identified a posted speed limit of 60 km/h along Mayfield Road in the vicinity of the subject site, contrary to the reported 80 km/h posted speed limit included in the Regional data set. It was confirmed with Region of Peel staff that the Mayfield Road speed limit in the vicinity of the subject site is 60 km/h and that the 80 km/h speed included in the data set is relevant to the roadway at a location further to the east. A posted speed limit of 60 km/h has been accounted for in the analysis.

The Town of Caledon was contacted regarding ultimate road traffic information for Chinguacousy Road and indicated that such information is not available from the Town. In lieu, the Mayfield West Phase 2 Stage 2 Transportation Assessment noted in Section 1.0, was used to calculate an appropriate AADT. The Future Total 2041 Traffic volumes were used, with the greater of the AM or PM peak volumes considered to represent 10% of the overall daily volume. Additionally, a day/night traffic split of 90/10 and an overall truck percentage of 4% was used (assume to be split evenly between medium and heavy trucks). The posted speed limit of 80 km/h for Chinguacousy Road has been considered in the analysis.

The Future Total 2041 volumes from the above noted transportation study were also used for the new internal roads, Neil Promenade and Tweedhill Avenue. The same method was used to calculate the AADT as noted for Chinguacousy Road. For the internal roads, a posted speed limit of 50 km/h has been assumed, along with a 90/10 day/night split and an overall percentage of trucks of 2% (assumed to be evenly split between medium and heavy trucks).

The Town of Caledon (Development Standards Manual, Version 5.0, 2019) requires that when assessing the road traffic noise impact on planned sensitive land uses, a traffic speed of 10 km/h over the posted speed must be used. The posted speed limits, as noted in Table 1 of this report, were increased by 10 km/h and used in the calculations to satisfy the Town's requirement.

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

The site is not affected by rail or aircraft traffic.

2.2 Stationary Sources

An elementary school (Block 287, not part of the current application) is proposed at the northeast corner of Neil Promenade and Tweedhill Avenue. Detailed information regarding noise sources associated with the school block is not available at this stage of the project. Once specific information is available, a detailed noise analysis should be prepared by the proponent of the school to ensure the applicable guidelines are met at the proposed residential dwellings.

There is a mixed-use block proposed within Block 354 of the subject site, as shown on the draft plan of subdivision. Detailed information regarding noise sources associated with the future mixed-use block is not available at this stage of the project. Once specific information is available, a detailed noise analysis should be prepared by the proponent to ensure the applicable guidelines are met at the proposed residential dwellings.

On the north side of Mayfield Road, and west of Chinguacousy Road, there is a transformer sub-station located in general proximity to the subject site. There are existing residential developments which are nearer to the sub-station than the subject site. The applicable sound level limits are required to be met at the existing residential dwellings and will therefore consequently be met at the subject site. The transformer sub-station was not considered further in this report.

Based on information from the City of Brampton website, there is a proposed retirement residence to be located at 2247, 2257, and 2271 Mayfield Road. The building is proposed to be located such that there are existing and future residential developments in closer proximity to the proposed building, when compared to the subject site. Since the applicable sound level limits are required to be met at the existing and proposed residential uses, the sound level limits will also be met at the subject site. The proposed retirement residence was not considered further in this report.

3.0 ENVIRONMENTAL NOISE CRITERIA

In addition to the Town of Caledon "Development Standards Manual (Version 5.0), dated 2019 and the "General Guidelines for the Preparation of Acoustical Reports in the Region of Peel" document dated November, 2012, the most recent environmental noise guidelines (NPC-300) of the Ontario Ministry of the Environment, Conservation and Parks (MOE) were used for this report.

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 levels in terms of Leq at the exterior face of a bedroom or living/dining room window are equal to or greater than 60 dBA, or if the daytime (7:00 a.m. to 11:00 p.m.) sound levels at the exterior face of a bedroom or living/dining room window exceed 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. A warning clause advising the occupant of the potential interference with some activities is also required and must be included in all offers of purchase and sale, lease agreements and included in the development agreements.

For nighttime sound levels greater than 50 dBA to less than 60 dBA on the exterior face of a bedroom or living/dining room window or daytime sound levels 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 and must be included in all offers of purchase and sale, lease agreements and included in the development agreements.

In all cases, the air cooled condenser units must not exceed an AHRI rating of 7.6 bels. The air cooled condenser units must be sited in accordance with the zoning by-laws with respect to setbacks as well as location.

As required by the MOE, the Region of Peel and the Town of Caledon, indoor noise criteria for road traffic noise is 40 dBA (Leq8hour) for the bedrooms during nighttime hours, 45 dBA (Leq8hour) for the living/dining rooms during nighttime hours and 45 dBA (Leq16hour) for living/dining rooms and bedrooms during daytime hours. These criteria are used to determine the architectural requirements.

3.1.2 Outdoors

Based on the MOE guidelines, for outdoor amenity areas (Outdoor Living Area – OLA) a design goal of 55 dBA daytime (7:00 a.m. to 11:00 p.m.) sound level is used with an excess not greater than 5 dBA considered acceptable in some cases. Where the unmitigated sound level during the day exceeds 55 dBA (LeqDay) but is less than 60 dBA (LeqDay), a warning clause is required and mitigation should be considered. When the unmitigated sound level exceeds 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 "General Guidelines for the Preparation of Acoustic Reports in the Region of Peel", the sound level in outdoor living areas after applying attenuation measures should be the lowest aesthetically, technically and administratively practical level. The sound level objective is 55 dBA (LeqDay). If the sound level objective is exceeded, the report needs to provide a table of comparative sound barrier heights and show the height required to attenuate noise to the MOE standards.

The Town of Caledon does not accept sound levels in outdoor living areas in excess of 55 dBA (LeqDay), unless design features exceed standard detail. In addition, the Town requires that, when assessing the road traffic impact on planned sensitive land uses, a traffic speed of 10 km/h over the posted speed be used. Traffic volumes must be based on future traffic projections (minimum 20 years) or the ultimate road traffic volumes (ultimate capacity) as determined by the road authority.

The Region of Peel generally requires that an acoustic fence does not exceed 2.0 m in height. The maximum acoustic fence height acceptable to the Region of Peel and the Town of Caledon is 2.4 m.

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

"Outdoor Living Area (OLA)

> (applies to impact assessments of transportation sources) means that part of a noise sensitive land use that is:
>
> - intended and designed for the quiet enjoyment of the outdoor environment; and
> - readily accessible from the building.

The OLA includes:

- backyards, front yards, gardens, terraces or patios;

- balconies and elevated terraces (e.g. rooftops), with a minimum depth of 4 metres, that are not enclosed, provided they are the only outdoor living area (OLA) for the occupant; or

- common outdoor living areas (OLAs) associated with high-rise multi-unit buildings."

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 in the subdivision agreement.

4.0 NOISE IMPACT ASSESSMENT

4.1 Transportation Sources

For road traffic noise the sound level in terms of Leq, the energy equivalent continuous sound level for both day (LeqDay, 16 hours) and night (LeqNight, 8 hours) was determined using ORNAMENT, the Traffic Noise Prediction Model of the MOE.

Table 2 provides a summary of predicted sound levels outdoors due to road traffic at specific locations without any mitigative measures. Appendix C includes sample calculations. The topography between the source and the receiver has been taken into account. The rear yard receiver was assumed to be 3 m from the middle of the rear wall of the house. The façade receiver location has been taken at 4.5 m above grade for two-storey dwellings and at 7.5 m above grade for three-storey dwellings.

The preliminary grading plan prepared by David Schaeffer Engineering Ltd. received October 14, 2021 and draft plan of subdivision prepared by Glen Schnarr and Associates Inc. received September 7, 2021 were used in the analysis. In regard to the preliminary grading plan, lot/block grading elevations were not yet provided on the plan. In terms of the analysis, the roadway gradients were determined from the preliminary grading plan.

The analysis accounts for screening from the proposed dwellings within the subject site and those within the proposed residential developments immediately to the north and east of the subject site.

The highest sound levels were predicted for the residential lots and blocks (units) immediately adjacent to Mayfield Road and/or Chinguacousy Road.

For Lot 1, the unmitigated daytime sound level in the rear yard is predicted to be 64 dBA. The unmitigated sound level at the side wall is predicted to be up to 65 dBA (daytime) and up to 60 dBA (nighttime).

The rear yard of Lot 11 is predicted to experience an unmitigated daytime sound level of 56 dBA.

For Lot 21, fronting Neil Promenade, the daytime sound level at the second storey front wall is predicted to be 57 dBA. During nighttime hours, the predicted sound level is 50 dBA.

For Lot 56 with flankage exposure to Tweedhill Avenue, the daytime sound level at the side wall is predicted to be 58 dBA, while the nighttime sound level is predicted to be 52 dBA. In the rear yard, the daytime unmitigated sound level is predicted to be 54 dBA.

For Lot 83, the unmitigated daytime sound level in the rear yard is predicted to be 57 dBA. At the rear wall, the daytime sound level is also predicted to be 57 dBA, while the nighttime level is predicted to be 51 dBA.

Lot 237 (L), having rear yard exposure to Chinguacousy Road is predicted to have an unmitigated daytime sound level in the rear yard of 51 dBA. The daytime sound level at the rear wall is predicted to be 51 dBA, and the nighttime sound level at the rear wall is predicted to be 44 dBA.

The rear yard of Lot 243, with exposure to both Chinguacousy Road and Tweedhill Avenue is predicted to experience an unmitigated daytime sound level of 56 dBA.

For Block 335 (south unit), the daytime sound level at the third storey of the front wall is predicted to be 64 dBA, with a nighttime predicted sound level of 58 dBA.

For Block 350, the rear yard unmitigated daytime sound level is predicted to be 63 dBA. The daytime sound level at the third storey is predicted to be 65 dBA; the nighttime sound level is predicted to be 60 dBA.

The front wall of Block 353 is predicted to experience a daytime sound level of up to 56 dBA. During the nighttime hours, the predicted sound level is 50 dBA.

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

4.2 Stationary Sources

As noted in Section 2.2, there is an elementary school proposed on Block 287 (not part of the current application), as well as a mixed-use block proposed within Block 354 of the subject site, as shown on the draft plan of subdivision outlined in Section 1.0. Once details of the uses are known, a noise report should be prepared by the proponent of each use to ensure the applicable sound level limits are met at the noise sensitive receptors within the subject site.

On the north side of Mayfield Road, and west of Chinguacousy Road, there is a transformer sub-station located in general proximity to the subject site. There are existing residential developments which are nearer to the sub-station than is the subject site. The applicable sound level limits are required to be met at the existing residential dwellings and will therefore consequently be met at the subject site. The transformer sub-station was not considered further in this report.

Based on information from the City of Brampton website, there is a proposed retirement residence to be located at 2247, 2257, and 2271 Mayfield Road. The building is proposed to be located such that there are existing and future residential developments in closer proximity to the proposed building, when compared to the subject site. Since the applicable sound level limits are required to be met at the existing and proposed residential uses, the sound level limits will also be met at the subject site. The proposed retirement residence was not considered further in this report.

5.0 NOISE ABATEMENT REQUIREMENTS

The noise mitigation requirements for both the indoor and outdoor locations are detailed below. Table 3 and Figure 2 provide a summary of the acoustical mitigative requirements for the residential lots and blocks (units) in this development.

5.1 Indoors

Architectural Component Requirements

The indoor noise exposure criteria for road traffic can be achieved in all cases by using appropriate architectural elements for external wall, window and exterior door construction. The indoor criteria for road traffic noise of 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 characteristic spectrum for the noise sources has been accounted for in the determination of the architectural components.

In determining the architectural requirements, for the units adjacent to the roadways, it is assumed that a bedroom will be located on the upper floor of the dwelling and the worst case would involve a corner bedroom during daytime hours because the day/night traffic split results in more than 5 dBA difference between the predicted daytime and nighttime sound levels. This difference is more than the difference between the MOE indoor criteria for road traffic for daytime and nighttime hours; therefore, a bedroom with calculated daytime sound level was used for the analysis. The exterior walls and windows would be 55% and 25%, respectively, of the associated floor area for both the wall perpendicular and the wall parallel to the roadway.

Sample architectural component selection calculations are shown in Appendix D.

For the worst case location, exterior walls having an STC 35 rating and windows having an STC 26 rating would be needed.

These STC ratings comply with the minimum structural and safety requirements provided by standard construction practices; therefore, standard window and exterior wall construction is acoustically acceptable for all proposed residential units.

Since house 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.

An STC 54 rating for the roof, normally met by most residential roof construction with ventilated attic space, would be acoustically acceptable.

Where the sound level is equal to or 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 noise criteria would not be met with open windows and provisions must be made to permit the windows to remain closed. In this case, the MOE guidelines require central air conditioning and a warning clause. Based on the predicted sound levels, there are dwellings that require central air conditioning in order to achieve the MOE guidelines. See Table 3, Notes to Table 3 and Figure 2 for details.

Where the nighttime sound level (Leq8hour) is greater than 50 dBA to less than 60 dBA and the daytime sound level (Leq16hour) is greater than 55 dBA to less than or equal to 65 dBA, the provision for adding central air conditioning by the occupants must be made. Based on the predicted sound levels, certain lots and blocks (units) in proximity to the road sources require the provision for adding central air conditioning by the occupant and a warning clause. See Table 3, Notes to Table 3 and Figure 2 for details.

The outdoor air conditioning condensing units must meet the applicable sound limits and be sited in accordance with the Town's zoning by-laws.

Warning clauses will also be required to be placed in offers of purchase and sale or lease agreements and in the subdivision agreement for all relevant residential lots and blocks (units) to make future occupants aware of the potential noise situation.

5.2 Outdoors

The outdoor amenity area is required to be exposed to sound levels of no more than 55 dBA during the day. A 5 dB increase is considered acceptable in certain situations. Typically, if the sound level (LeqDay) is above 60 dBA, some form of mitigation and a warning clause is required.

For Lot 1, a 3.5 m high acoustic barrier (berm and fence combination) is required to achieve a predicted sound level of 55 dBA in the rear yard. The acoustic barrier is to be installed along the side and rear property lines. As the maximum permissible fence height in the Town of Caledon is 2.4 m, the acoustic barrier will need to consist of a 2.4 m high acoustic fence on top of a 1.1 m high berm. The acoustic fence should return to the side wall of the dwelling.

In order to accommodate the berm, a portion of the berm would need to be constructed within the greenway block. If this is not feasible, using a 2.4 m high acoustic fence results in a mitigated sound level of 59 dBA. The Town should indicate if this is acceptable.

For Lots 2 to 4 inclusive, with consideration for the above noted acoustic barrier at Lot 1, the installation of a 2.4 m high acoustic fence along the rear property line of each lot is predicted to result in a mitigated sound level of 55 dBA in the rear yards.

For Lots 9 to 11 and 74 to 90, a 2.0 m high fence is predicted to be required in order to achieve a mitigated daytime sound level of 55 dBA or less in the respective rear yards. The acoustic fence is to be installed along the rear property line of the respective lots, as shown on Figure 2.

The 2.0 m high acoustic fence is also required for Lots 12, 91 and 92, and is to be installed along the rear and side property lines of the respective lots, as shown on Figure 2. In all cases, the acoustic fence is to return to the side wall of the respective dwelling.

For Lot 243, with the installation of a 1.8 m high acoustic fence along the side and rear property lines, the predicted mitigated daytime sound level is less than 55 dBA. The acoustic fence is to return to the side wall of the dwelling.

For the south units of Blocks 349 and 350, in order to achieve a mitigated sound level of 55 dBA or less, a 3.0 m high acoustic barrier is required along the side property lines of each block (unit). As there is insufficient room to accommodate a berm, an acoustic fence only is proposed. The required fence height exceeds the maximum permissible fence height in the Town of Caledon and Region of Peel. With the installation of the maximum 2.4 m high acoustic fence at these dwelling units, the predicted mitigated sound level is 58 dBA. This is within the 5 dB tolerance above 55 dBA considered acceptable in certain circumstances. It is requested that the Town of Caledon and Region of Peel take into consideration the approval of these fence height options, corresponding with predicted mitigated sound levels of 55 dBA and less than 60 dBA, for a 3.0 m high and a 2.4 m high acoustic fence, respectively. Table 4 outlines the required acoustic fence heights in order to achieve a predicted sound level between 55 dBA and 60 dBA in the rear yards of the south units of Blocks 349 and 350. Regardless of the sound barrier height, the acoustic barrier is to return to the side wall of each dwelling unit.

For rear lane townhouse blocks with exposure to Mayfield Road or Chinguacousy Road, the expectation is that no traditional rear yards will be proposed. However, the dwelling units may have balconies and/or elevated terraces located on any façade. Should at-grade rear yards be proposed, the need for acoustic barriers will need to be assessed at the time of the detailed noise report.

As noted in Section 3.1.2, balconies and/or elevated terraces which do not meet specified criteria are excluded as noise sensitive areas that require mitigation. It is expected that the balconies and/or elevated terraces associated with the proposed blocks (units) with exposure to road sources will be less than 4.0 m deep. Therefore, sound barriers for the townhouse blocks (with rear laneways) in close proximity to Mayfield Road and Chinguacousy Road would not be required. A more comprehensive review will be conducted when the detailed noise report is prepared.

The location of the proposed sound barriers is shown on Figure 2. Sound barrier requirements are given in Table 3. Sample calculations of the sound barrier analysis are included in Appendix E.

Generally, if a sound barrier is to be used, the sound barrier may be a fence, made of any one or a combination of various materials, berm, or a berm/fence combination. The sound barrier should be of continuous construction, with no gaps and should have a minimum surface density of 20 kg/m^2 or more. Appropriate treatment of the sound barrier at all discontinuities and points of termination would be required to ensure that the sound barrier is effective. This would involve extending the sound barrier to the front property line; returning to the side wall of the house or extending the sound barrier for a minimum of three times the distance between the side wall and the sound barrier, past the rear wall of the house. An acoustic gate of 20 kg/m^2 is very heavy. Therefore, if a gate is required, provided that it is of continuous construction with no gaps between the boards, it may have a surface density of between 10 kg/m^2 and 20 kg/m^2. In addition, any gaps at the bottom of the gate should be kept to a minimal height.

The Town of Caledon has a standard wooden acoustic fence detail. Appendix F includes the Town's acoustic fence detail (Standards No. 613 through 617, inclusive).

Note that any openings under the acoustic fence for drainage must be kept to a minimum. If drainage under the acoustic fence is intended at locations other than the location addressed above, an acoustical engineer should be consulted.

Where an excess will remain or where mitigation is required, a warning clause should be placed in offers of purchase and sale or lease agreements and in the subdivision agreement.

5.3 Stationary Sources

A noise study should be prepared by the developers of the future school block (Block 287, not part of the current application) and the mixed-use block (Block 354 within the subject site) to ensure the applicable sound level limits are achieved at the proposed residential dwellings.

In anticipation of commercial uses within proposed Mixed-Use Block 354, it is recommended that dwelling units adjacent to the block be provided with a proximity warning clause notifying the purchasers/tenants that should commercial uses be introduced, the activities and/or equipment associated with the uses may at times be audible. Table 3 and Figure 2 outline the lots and blocks (units) for which the proximity warning clause is recommended. The need for the proximity warning clause will be re-evaluated at the time of the detailed noise report.

6.0 CONCLUSIONS

With the incorporation of the items discussed (see Table 3, Notes to Table 3 and Figure 2), the sound levels are predicted to be within the appropriate environmental noise criteria. In accordance with the Town's, Region's and MOE's implementation guidelines, where mitigation is required, future occupants will be advised through the use of warning clauses.

Once the final site, grading and landscape plans are available, a detailed noise report should be prepared to ensure compliance with the applicable guidelines.

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 should confirm that the acoustical requirements are in compliance with the environmental noise report.

Respectfully submitted,

JADE ACOUSTICS INC.

Per: _____

Michael Bechbache, P.Eng.

Per: _____

Aaron Keey, P.Eng.

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7.0 REFERENCES

1. "Model Municipal Noise Control By-Law", Final Report, Ontario Ministry of the Environment, August, 1978.

2. "ORNAMENT – Ontario Road Noise Analysis Method for Environment and Transportation", Ontario Ministry of the Environment, October, 1989.

3. "Building Practice Note No. 56: Controlling Sound Transmission into Buildings", J. D. Quirt, Division of Building Research, National Research Council of Canada, September, 1985.

4. "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment, Publication NPC-300, August, 2013 (updated final version # 22).

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

6. "Development Standards Manual", Town of Caledon, Version 5.0, 2019

TABLE 1

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT

MAYFIELD WEST PHASE 2, STAGE 2

MAYFIELD ROAD AND CHINGUACOUSY ROAD

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

SUMMARY OF ROAD TRAFFIC DATA

Road	Mayfield Road	Chinguacousy Road	Neil Promenade	Tweedhill Avenue"
AADT* (Planned)	48,600	8,260	3,200	3,840
No. of Lanes	6	2	2	2
Posted Speed (km/h)**	60**	80**	50**	50**
Trucks (%)	See A Below	4***	2***	2***
Medium/Heavy Split (%)	See A Below	50/50***	50/50***	50/50***
Gradient (%)	1	1	1	1
Day/Night Split (%)	86/14	90/10***	90/10***	90/10***
R.O.W. (m)	50	--	--	--

* AADT: Annual Average Daily Traffic.

** Additional 10 km/h used for calculations, as required by the Town of Caledon.

*** Assumed.

Note A: for Mayfield Road; as indicated by the Region of Peel, daytime trucks are 3.44% medium and 2.16 % heavy and night trucks are 3.14 % medium and 1.45% heavy.

TABLE 2

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT

MAYFIELD WEST PHASE 2, STAGE 2

MAYFIELD ROAD AND CHINGUACOUSY ROAD

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

PREDICTED UNMITIGATED SOUND LEVELS
OUTDOORS DUE TO ROAD TRAFFIC

Lots/Blocks (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
Lot 1	Side Wall	Mayfield Road	42.0	65	--	60	--
	Rear Yard	Mayfield Road	46.0	64	--	--	--
Lot 2	Rear Yard	Mayfield Road	56.0	62	--	--	--
Lot 11	Rear Yard	Mayfield Road	156.0	56	--	--	--
Lot 21	Front Wall	Neil Promenade	17.0	57	--	50	--
Lot 56	Side Wall	Tweedhill Avenue	15.5	58	--	52	--
	Rear Yard	Tweedhill Avenue	20.5	54	--	--	--
Lot 83	Rear Wall	Mayfield Road	179.0	57	--	51	--
	Rear Yard	Mayfield Road	176.0	57	--	--	--
Lot 237 (L)	Rear Wall	Chinguacousy Road	113.0	51	--	44	--
	Rear Yard	Chinguacousy Road	110.0	51	--	--	--
Lot 243	Rear Yard	Chinguacousy Road	109.0	50	56	--	--
		Tweedhill Avenue	20.5	55			

* See Figure 2.

** Rear yard location taken 3 m from rear wall and 1.5 m above grade. Wall location taken 4.5 m above grade for second floor or 7.5 m above grade for third floor (as applicable).

TABLE 2 - Continued

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT

MAYFIELD WEST PHASE 2, STAGE 2

MAYFIELD ROAD AND CHINGUACOUSY ROAD

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

PREDICTED UNMITIGATED SOUND LEVELS
OUTDOORS DUE TO ROAD TRAFFIC

Lots/Blocks (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 335 (South Unit)	Front Wall	Chinguacousy Road	23.5	64	--	58	--
Block 350 (South Unit)	Side Wall	Mayfield Road	57.5	65	--	60	--
	Rear Yard	Mayfield Road	61.0	63	--	--	--
Block 353 (North Unit)	Front Wall	Mayfield Road	219.0	55	56	49	50
		Chinguacousy Road	161.5	51		44	

* See Figure 2.

** Rear yard location taken 3 m from rear wall and 1.5 m above grade. Wall location taken 4.5 m above grade for second floor or 7.5 m above grade for third floor (as applicable).

TABLE 3

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT

MAYFIELD WEST PHASE 2, STAGE 2

MAYFIELD ROAD AND CHINGUACOUSY ROAD

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES

Lots/Blocks (Units)	Air Conditioning[1]*	Exterior Wall[2]*	Window[3]*	Acoustic Fence[4]*	Warning Clause[5]*
Lot 1	Mandatory	Standard	Standard	3.5 m**	A, B, D
Block 349 (south unit)	Mandatory	Standard	Standard	3.0 m**	A, B, D
Block 350 (south unit)	Mandatory	Standard	Standard	3.0 m**	A, B, D, E
Blocks 340 (south unit) and 341 (south unit)	Mandatory	Standard	Standard	No**	A, B
Lots 2 to 4	Provision for Adding	Standard	Standard	2.4 m**	A, C, D
Lots 5 to 12 and 74 to 92	Provision for Adding	Standard	Standard	2.0 m**	A, C, D
Lot 243	Provision for Adding	Standard	Standard	1.8 m**	A, C, D
Lots 322 (L&R), 323 (L&R), 324 and 325 and Blocks 326 (south unit), 335 (south unit), 350 (all units except south unit) and 351 (all units) to 353 (all units)	Provision for Adding	Standard	Standard	No	A, C, E

* Based on preliminary calculations. See Section 5.1.1 for details.

** See Section 5.1.2 and Figure 2 for details.

TABLE 3 - Continued

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT

MAYFIELD WEST PHASE 2, STAGE 2

MAYFIELD ROAD AND CHINGUACOUSY ROAD

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

SUMMARY OF MINIMUM NOISE ABATEMENT MEASURES

Lots/Blocks (Units)	Air Conditioning[(1)*]	Exterior Wall[(2)*]	Window[(3)*]	Acoustic Fence[(4)*]	Warning Clause[(5)*]
Lots 13 to 56, 193, 194 (L&R), 195 (L&R), 196 to 207, 220, 244 and 256 to 270 and Blocks 326 (all units except south unit), 327 (all units) to 334 (all units), 335 (all units except south unit), 336 (all units) to 339 (all units), 340 (all units except south unit), 341 (all units except south unit), 342 (all units) to 348 (all units) and 349 (all units except south unit)	Provision for Adding	Standard	Standard	No	A, C
All other lots and blocks (units)	No Special Requirements				

* Based on preliminary calculations. See Section 5.1.1 for details.

** See Section 5.1.2 and Figure 2 for details.

NOTES TO TABLE 3

1. Means must be provided to allow windows to remain closed for noise control purposes. For air cooled condenser units, the AHRI sound rating must not exceed 7.6 bels. The air cooled condenser units should be placed in a noise insensitive location which complies with municipal by-laws.

   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.

2. Exterior Wall: Based on standard assumptions. See Section 5.1 for details.

3. Window: Based on standard assumptions. See Section 5.1 for details.

4. Acoustic barriers must be of a solid construction with no gaps and have a minimum surface density of 20 kg/m^2. See Section 5.2 for details.

5. Warning Clauses to be placed in the subdivision agreement and to be included in offers of purchase and sale or lease on designated lots and blocks:

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

   B. “Purchasers/tenants are advised that the dwelling unit was fitted with a central air conditioning system in order to permit the closing of windows for noise control. (Note: locate air cooled condenser unit in a noise insensitive area and ensure that unit has a maximum AHRI rating of 7.6 bels).”

   C. “Purchasers/tenants are advised that the dwelling unit was fitted with a forced air heating system and the ducting, etc. sized to accommodate a central air conditioning unit. Air conditioning may be installed at the owner’s option and cost. (Note: locate air cooled condenser unit in a noise insensitive area and ensure the unit has an AHRI sound rating not exceeding 7.6 bels).”

D. “Purchasers/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, or to the same standards, and having the same colour and appearance of the original.”

E. “Purchasers/tenants are advised that due to the proximity of the adjacent commercial uses, noise from the commercial uses may at times be audible.”

6. A conventionally ventilated attic roof construction is satisfactory in all cases.

TABLE 4

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT

MAYFIELD WEST PHASE 2, STAGE 2

MAYFIELD ROAD AND CHINGUACOUSY ROAD

TOWN OF CALEDON

REGIONAL MUNICIPALITY OF PEEL

SOUND BARRIER REQUIREMENTS TO ACHIEVE PREDICTED SOUND LEVELS BETWEEN 55 dBA AND 60 dBA – BLOCKS 349 AND 350*

Block	Sound Barrier Heights (m)					
	55 dBA	56 dBA	57 dBA	58 dBA	59 dBA	60 dBA
Blocks 349 and 350	3.0	2.8	2.6	2.3	2.0	2.0

* See Section 5.2 for details.

N.T.S.

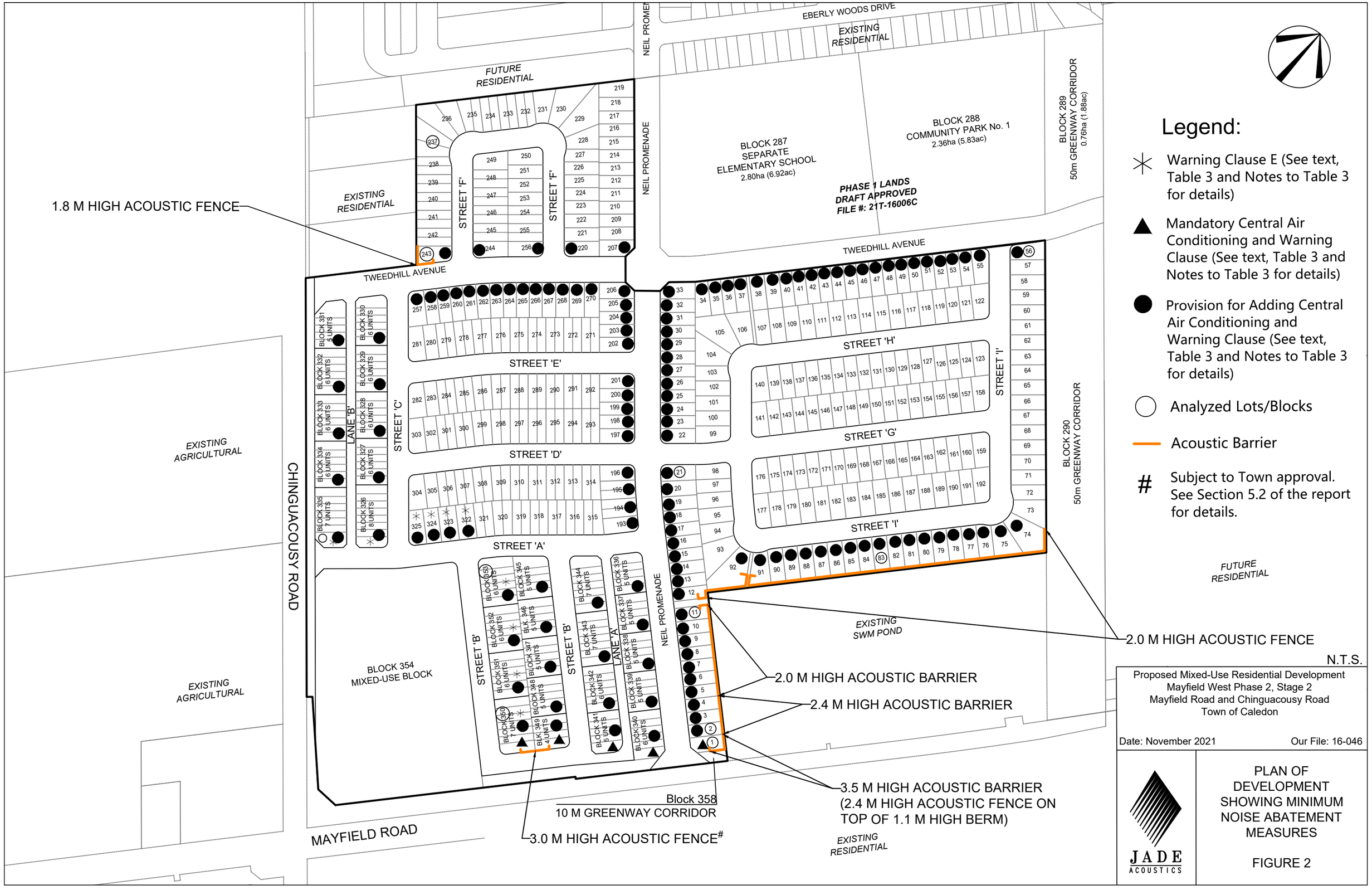
Proposed Mixed-Use Residential Development
Mayfield West Phase 2, Stage 2
Mayfield Road and Chinguacousy Road
Town of Caledon

Date: November 2021 **File: 16-046**

KEY PLAN

FIGURE 1

JADE ACOUSTICS



Legend:

- ✳ Warning Clause E (See text, Table 3 and Notes to Table 3 for details)
- ▲ Mandatory Central Air Conditioning and Warning Clause (See text, Table 3 and Notes to Table 3 for details)
- ● Provision for Adding Central Air Conditioning and Warning Clause (See text, Table 3 and Notes to Table 3 for details)
- ○ Analyzed Lots/Blocks
- Acoustic Barrier
- # Subject to Town approval. See Section 5.2 of the report for details.

N.T.S.

Proposed Mixed-Use Residential Development
Mayfield West Phase 2, Stage 2
Mayfield Road and Chinguacousy Road
Town of Caledon

Date: November 2021 Our File: 16-046

JADE ACOUSTICS

PLAN OF DEVELOPMENT SHOWING MINIMUM NOISE ABATEMENT MEASURES

FIGURE 2

APPENDIX A

CORRESPONDENCE REGARDING ROAD TRAFFIC DATA

Date: September 28, 2021
From: Mike Bechbache, Jade Acoustics Inc.
Re: Traffic Data Request – Mayfield Road (0.6 km West of McLaughlin Road)

Mike,
As per your request, we are providing the following 2020 traffic data:

	Existing	Ultimate
24 Hour Traffic Volume	18,342	48,600
# of Lanes	2	6
Day/Night Split	86/14	86/14
Day Trucks (% of Total Volume)	3.44% Medium 2.16% Heavy	3.44% Medium 2.16% Heavy
Night Trucks (% of Total Volume)	3.14% Medium 1.45% Heavy	3.14% Medium 1.45% Heavy
Right-of-Way Width	50 metres	
Posted Speed Limit	80 km/h	

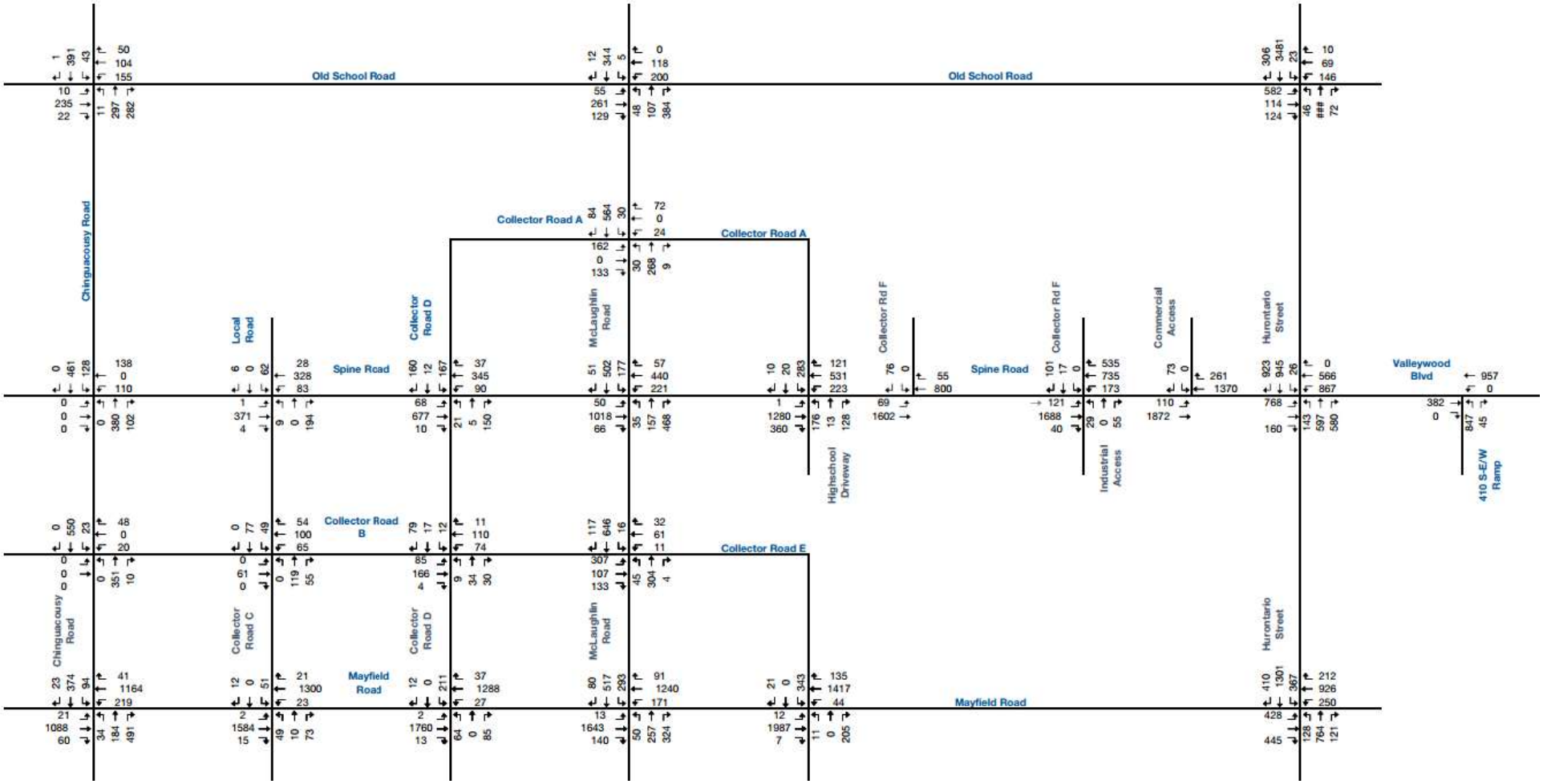
Please note:

1. The current volume is not the Annual Average Daily Traffic, but the averaged raw volumes over three data collection days. If you need the Annual Average Traffic Volume, please visit the Peel Open Data website below: http://opendata.peelregion.ca/data-categories/transportation/traffic-count-stations.aspx
2. The ultimate volume is the planned volume during a level of service 'D' where a 2 second vehicle headway and a volume to capacity ratio of 0.9 is assumed. Traffic signals and hourly variations in traffic are also incorporated into the ultimate volume.

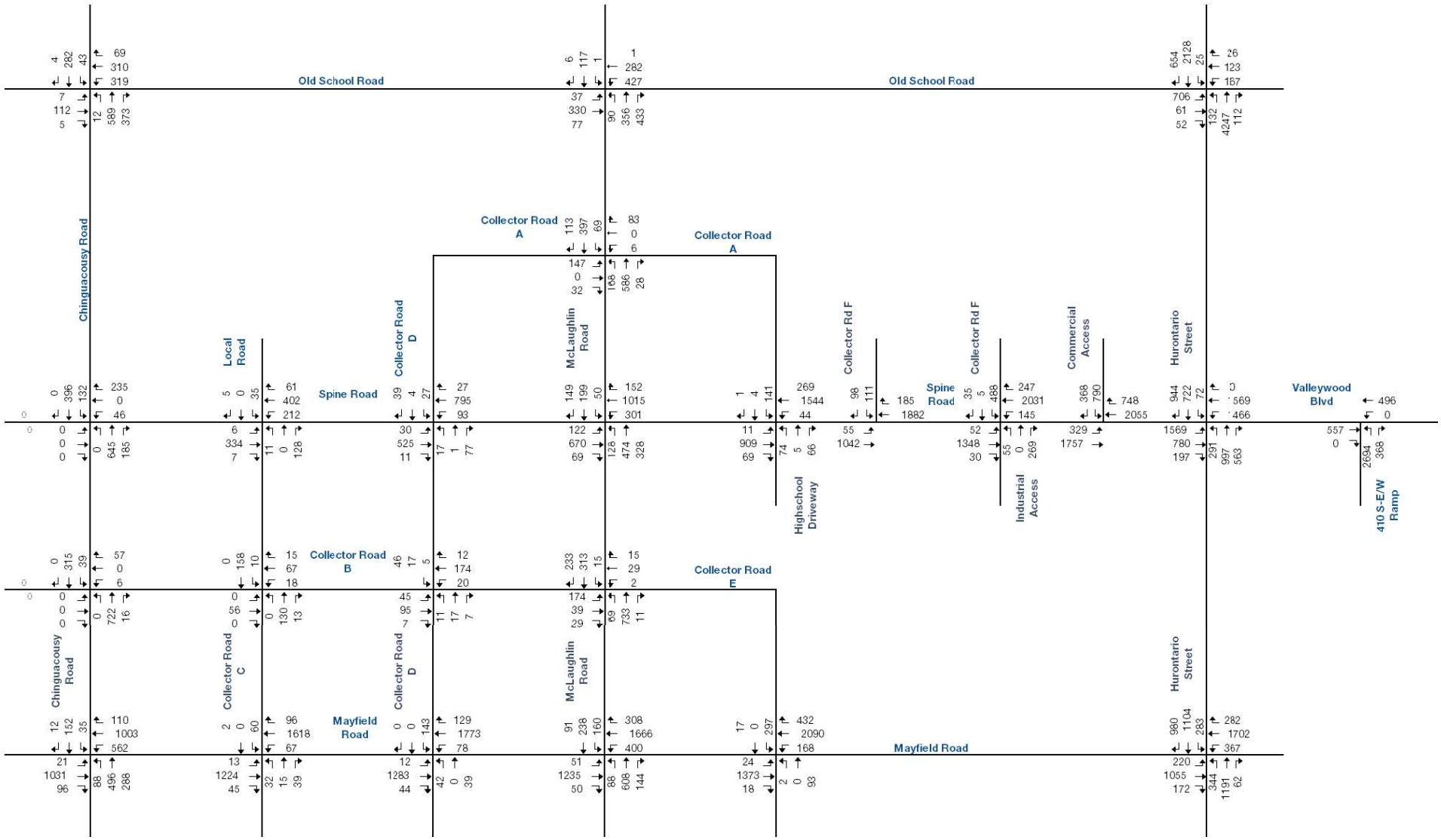
If you require further assistance, please contact me at robert.jay@peelregion.ca.

Regards,

Robbie Jay
Transportation Planner, Transportation System Planning
Transportation Division, Public Works Services, Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9
W: (905) 791-7800 x6456
E: robert.jay@peelregion.ca



2041 Total Traffic – AM Peak Hour



2041 Total Traffic – PM Peak Hour

APPENDIX B

ENVIRONMENTAL NOISE CRITERIA

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

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

SOUND LEVEL CRITERIA FOR ROAD AND RAIL NOISE

TABLE C-1

Sound Level Limit for Outdoor Living Areas

Road and Rail

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

SUPPLEMENTARY SOUND LEVEL LIMITS

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

TABLE C-9

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.

ENVIRONMENTAL NOISE CRITERIA

REGION OF PEEL

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

ROAD TRAFFIC NOISE

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

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

APPENDIX C

SAMPLE CALCULATION OF SOUND LEVEL

APPENDIX C-1
SAMPLE CALCULATION OF SOUND LEVEL

FILE: 16-046
NAME: Mayfield West Phase 2, Stage 2
REFERENCE DRAWINGS: Preliminary Grading Plan
LOCATION: Lot 1, 1.5 m above grade, **rear yard**

Noise Source:	Mayfield Road	Mayfield Road
Angle of Exposure:	-90 to -45	-45 to 39
Time Period:	16 hr. (day)	16 hr. (day)
Distance (m):	46.0	46.0

CALCULATION OF SOUND LEVEL*

Reference Leq (dBA)*:	73.88	73.88
Height and/or Distance Correction (dBA):	-6.47	-8.08
Finite Element Correction (dBA):	-7.66	-3.58
Allowance for Screening (dBA):	0.00	0.00
Allowance for Future Growth (dBA):	incl.	incl.
LeqDay (dBA):	59.75	62.22
Combined LeqDay (dBA):	64.17	

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

```
STAMSON 5.0        NORMAL REPORT        Date: 18-10-2021 19:39:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1ry.te            Time Period: Day 16 hours
Description: Lot 1 Rear Yard - Unmitigated

Road data, segment # 1: MAYFIELD (day)
---------------------------------------
Car traffic volume  : 39455 veh/TimePeriod  *
Medium truck volume :  1438 veh/TimePeriod  *
Heavy truck volume  :   903 veh/TimePeriod  *
Posted speed limit  :    70 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):  48600
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.44
    Heavy Truck  % of Total Volume     :   2.16
    Day (16 hrs) % of Total Volume     :  86.00

Data for Segment # 1: MAYFIELD (day)
---------------------------------------
Angle1   Angle2           : -90.00 deg   -45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  46.00 m
Receiver height           :   1.50 m
Topography                :      0       (Define your own alpha.)
Barrier angle1            : -90.00 deg   Angle2 : -45.00 deg
Barrier height            :   0.01 m
Barrier receiver distance :   8.25 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Alpha                     :   0.33
Reference angle           :   0.00

Road data, segment # 2: MAYFIELD (day)
---------------------------------------
Car traffic volume  : 39455 veh/TimePeriod  *
Medium truck volume :  1438 veh/TimePeriod  *
Heavy truck volume  :   903 veh/TimePeriod  *
Posted speed limit  :    70 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):  48600
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.44
    Heavy Truck  % of Total Volume     :   2.16
    Day (16 hrs) % of Total Volume     :  86.00
```

```
Data for Segment # 2: MAYFIELD (day)
------------------------------------
Angle1   Angle2           : -45.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  46.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -45.00 deg   Angle2 : 39.00 deg
Barrier height            :   0.01 m
Barrier receiver distance :   8.25 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: MAYFIELD (day)
-----------------------------------

Source height = 1.21 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.21 !        1.50 !        1.86 !         1.86

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -45   0.33  73.88   0.00  -6.47  -7.66   0.00   0.00  -0.71  59.03*
   -90    -45   0.33  73.88   0.00  -6.47  -7.66   0.00   0.00   0.00  59.75
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 59.75 dBA

Results segment # 2: MAYFIELD (day)
-----------------------------------

Source height = 1.21 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.21 !        1.50 !        1.86 !         1.86

ROAD (0.00 + 62.22 + 0.00) = 62.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45     39   0.66  73.88   0.00  -8.08  -3.58   0.00   0.00   0.00  62.22*
   -45     39   0.66  73.88   0.00  -8.08  -3.58   0.00   0.00   0.00  62.22
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 62.22 dBA

Total Leq All Segments: 64.17


TOTAL Leq FROM ALL SOURCES (DAY): 64.17
```

APPENDIX C-2
SAMPLE CALCULATION OF SOUND LEVEL

FILE: 16-046
NAME: Mayfield West Phase 2, Stage 2
REFERENCE DRAWINGS: Preliminary Grading Plan
LOCATION: Lot 1, side wall, second storey

Noise Source:	Mayfield Road
Angle of Exposure:	-90 to 90
Time Period:	8 hr. (night)
Distance (m):	42.0

CALCULATION OF SOUND LEVEL*

Reference Leq (dBA)*:	68.37
Height and/or Distance Correction (dBA):	-7.12
Finite Element Correction (dBA):	-1.32
Allowance for Screening (dBA):	0.00
Allowance for Future Growth (dBA):	incl.
LeqNight (dBA):	59.93

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

```
STAMSON 5.0        NORMAL REPORT        Date: 18-10-2021 19:38:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1brn.te           Time Period: Night 8 hours
Description: Lot 1 Building Requirement (Nighttime)

Road data, segment # 1: MAYFIELD (night)
----------------------------------------
Car traffic volume  : 6492  veh/TimePeriod  *
Medium truck volume :  214   veh/TimePeriod  *
Heavy truck volume  :   99    veh/TimePeriod  *
Posted speed limit  :    70 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):  48600
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.14
    Heavy Truck  % of Total Volume     :   1.45
    Day (16 hrs) % of Total Volume     :  86.00

Data for Segment # 1: MAYFIELD (night)
--------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  42.25 m
Receiver height           :   4.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: MAYFIELD (night)
-------------------------------------

Source height = 1.10 m

ROAD (0.00 + 59.93 + 0.00) = 59.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  68.37   0.00  -7.12  -1.32   0.00   0.00   0.00  59.93
-------------------------------------------------------------------------------

Segment Leq : 59.93 dBA

Total Leq All Segments: 59.93 dBA


TOTAL Leq FROM ALL SOURCES (NIGHT): 59.93
```

APPENDIX C-3
SAMPLE CALCULATION OF SOUND LEVEL

FILE: 16-046
NAME: Mayfield West Phase 2, Stage 2
REFERENCE DRAWINGS: Preliminary Grading Plan
LOCATION: Lot 1, side wall, second storey

Noise Source:	Mayfield Road
Angle of Exposure:	-90 to 90
Time Period:	16 hr. (day)
Distance (m):	42.0

CALCULATION OF SOUND LEVEL*

Reference Leq (dBA)*:	73.88
Height and/or Distance Correction (dBA):	-7.10
Finite Element Correction (dBA):	-1.32
Allowance for Screening (dBA):	0.00
Allowance for Future Growth (dBA):	incl.
LeqDay (dBA):	65.46

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

STAMSON 5.0 NORMAL REPORT Date: 18-10-2021 19:38:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1brd.te Time Period: Day 16 hours
Description: Lot 1 Building Requirement (Daytime)

Road data, segment # 1: MAYFIELD (day)

Car traffic volume : 39455 veh/TimePeriod *
Medium truck volume : 1438 veh/TimePeriod *
Heavy truck volume : 903 veh/TimePeriod *
Posted speed limit : 70 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): 48600
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.44
Heavy Truck % of Total Volume : 2.16
Day (16 hrs) % of Total Volume : 86.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.25 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: MAYFIELD (day)

Source height = 1.21 m

ROAD (0.00 + 65.46 + 0.00) = 65.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	73.88	0.00	-7.10	-1.32	0.00	0.00	0.00	65.46

Segment Leq : 65.46 dBA

Total Leq All Segments: 65.46 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.46

APPENDIX D

SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION

APPENDIX D-1
SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION*

FILE: 16-046
NAME: Mayfield West Phase 2, Stage 2
REFERENCE DRAWINGS: Preliminary Grading Plan
LOCATION: Lot 1, Second Storey Corner Bedroom

ROAD

Wall area as a percentage of floor area:	Front:	55%	
	Side:	55%	
Window area as a percentage of floor area:	Front:	25%	
	Side:	25%	
Number of components:	4		
Outdoor Leq:	Front:	65 (+3 for reflections) =	68 dBA
	Side:	62 (+3 for reflections) =	65 dBA
Indoor Leq:	45 dBA		
Noise Reduction (dBA):	Front:	23	
	Side:	20	
Noise Spectrum:	Road/Distant Aircraft	Angle Correction: 0	
Absorption:	Medium		

APPROPRIATE ELEMENTS

		STC Rating
Wall	Front	STC 35**
	Side	STC 32**
Window	Front	STC 26**
	Side	STC 23**

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

** Standard construction.

APPENDIX E

SAMPLE SOUND BARRIER ANALYSIS

```
STAMSON 5.0         NORMAL REPORT         Date: 18-10-2021 19:39:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: lot1ry.te              Time Period: Day 16 hours
Description: Lot 1 Rear Yard - Mitigated

Road data, segment # 1: MAYFIELD (day)
---------------------------------------
Car traffic volume  : 39455 veh/TimePeriod  *
Medium truck volume :  1438 veh/TimePeriod  *
Heavy truck volume  :   903 veh/TimePeriod  *
Posted speed limit  :    70 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):  48600
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.44
    Heavy Truck  % of Total Volume     :   2.16
    Day (16 hrs) % of Total Volume     :  86.00

Data for Segment # 1: MAYFIELD (day)
-------------------------------------
Angle1   Angle2           : -90.00 deg   -45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  46.00 m
Receiver height           :   1.50 m
Topography                :      0       (Define your own alpha.)
Barrier angle1            : -90.00 deg   Angle2 : -45.00 deg
Barrier height            :   0.01 m
Barrier receiver distance :   8.25 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Alpha                     :   0.33
Reference angle           :   0.00

Road data, segment # 2: MAYFIELD (day)
---------------------------------------
Car traffic volume  : 39455 veh/TimePeriod  *
Medium truck volume :  1438 veh/TimePeriod  *
Heavy truck volume  :   903 veh/TimePeriod  *
Posted speed limit  :    70 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):  48600
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.44
    Heavy Truck  % of Total Volume     :   2.16
    Day (16 hrs) % of Total Volume     :  86.00
```

```
Data for Segment # 2: MAYFIELD (day)
------------------------------------
Angle1   Angle2           : -45.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  46.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -45.00 deg   Angle2 : 39.00 deg
Barrier height            :   0.01 m
Barrier receiver distance :   8.25 m
Source elevation          :   0.00 m
Receiver elevation        :   0.50 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: MAYFIELD (day)
-----------------------------------

Source height = 1.21 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.21 !        1.50 !        1.86 !         1.86

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -45   0.33  73.88   0.00  -6.47  -7.66   0.00   0.00  -0.71  59.03*
   -90    -45   0.33  73.88   0.00  -6.47  -7.66   0.00   0.00   0.00  59.75
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 59.75 dBA

Results segment # 2: MAYFIELD (day)
-----------------------------------

Source height = 1.21 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.21 !        1.50 !        1.86 !         1.86

ROAD (0.00 + 62.22 + 0.00) = 62.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45     39   0.66  73.88   0.00  -8.08  -3.58   0.00   0.00   0.00  62.22*
   -45     39   0.66  73.88   0.00  -8.08  -3.58   0.00   0.00   0.00  62.22
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 62.22 dBA

Total Leq All Segments: 64.17


TOTAL Leq FROM ALL SOURCES (DAY): 64.17
```

Barrier table for segment # 1: MAYFIELD (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
1.50	1.50	59.75	59.75
1.60	1.60	59.75	59.75
1.70	1.70	59.75	59.75
1.80	1.80	59.75	59.75
1.90	1.90	54.74	54.74
2.00	2.00	54.72	54.72
2.10	2.10	54.66	54.66
2.20	2.20	54.58	54.58
2.30	2.30	54.47	54.47
2.40	2.40	54.34	54.34
2.50	2.50	54.19	54.19
2.60	2.60	54.02	54.02
2.70	2.70	53.84	53.84
2.80	2.80	53.64	53.64
2.90	2.90	53.44	53.44
3.00	3.00	53.23	53.23
3.10	3.10	53.01	53.01
3.20	3.20	52.79	52.79
3.30	3.30	52.56	52.56
3.40	3.40	52.34	52.34
3.50	3.50	52.12	52.12
3.60	3.60	51.89	51.89
3.70	3.70	51.67	51.67
3.80	3.80	51.45	51.45
3.90	3.90	51.24	51.24
4.00	4.00	51.02	51.02
4.10	4.10	50.82	50.82
4.20	4.20	50.61	50.61
4.30	4.30	50.41	50.41
4.40	4.40	50.21	50.21

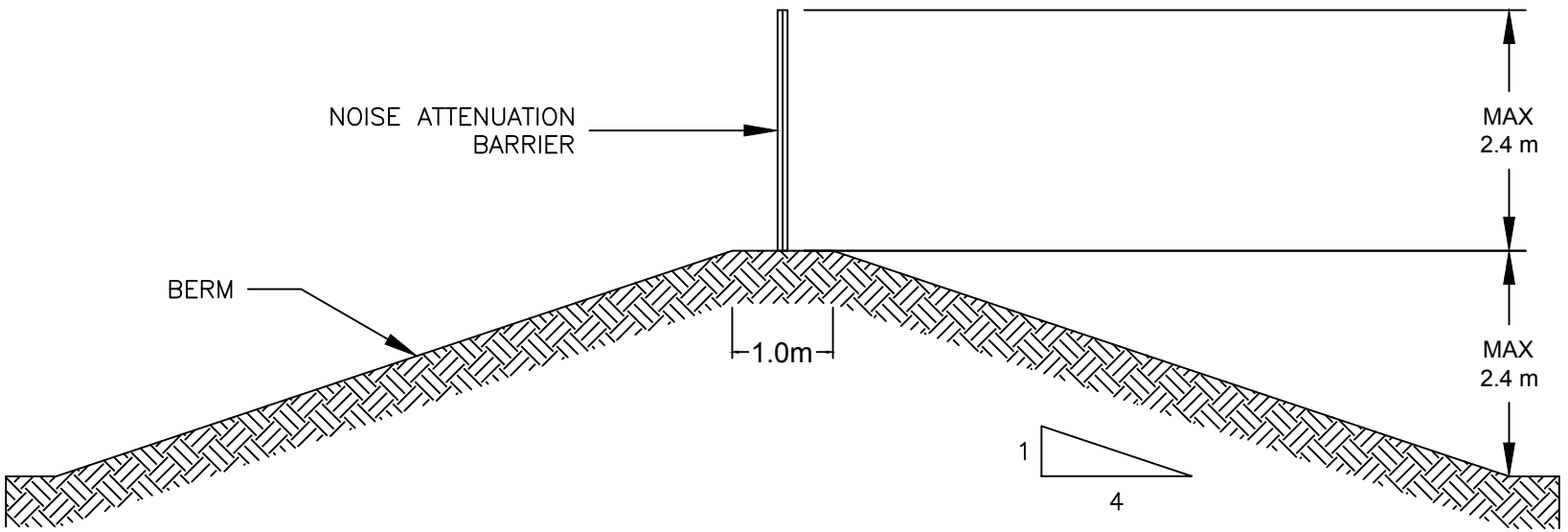
Barrier table for segment # 2: MAYFIELD (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
1.50	1.50	62.22	62.22
1.60	1.60	62.22	62.22
1.70	1.70	62.22	62.22
1.80	1.80	62.22	62.22
1.90	1.90	57.77	57.77
2.00	2.00	57.74	57.74
2.10	2.10	57.64	57.64
2.20	2.20	57.47	57.47
2.30	2.30	57.25	57.25
2.40	2.40	56.97	56.97
2.50	2.50	56.66	56.66
2.60	2.60	56.30	56.30
2.70	2.70	55.93	55.93
2.80	2.80	55.53	55.53
2.90	2.90	55.12	55.12
3.00	3.00	54.71	54.71
3.10	3.10	54.29	54.29
3.20	3.20	53.87	53.87
3.30	3.30	53.46	53.46
3.40	3.40	53.06	53.06
3.50	3.50	52.66	52.66
3.60	3.60	52.27	52.27
3.70	3.70	51.90	51.90
3.80	3.80	51.53	51.53
3.90	3.90	51.18	51.18
4.00	4.00	50.84	50.84
4.10	4.10	50.51	50.51
4.20	4.20	50.19	50.19
4.30	4.30	49.89	49.89
4.40	4.40	49.59	49.59

Lot 1 rear yard with a 3.5 m high acoustic barrier, Leq = 55.41 dBA

APPENDIX F

DETAILS OF ACOUSTIC FENCE



NOTES:

1. NOISE ATTENUATION BARRIER TO BE AS PER TOWN OF CALEDON STANDARD No. 614, 615, 616 & 617.
2. BERM FILL MATERIAL TO BE COMPACTED TO 98% S.P.D.
3. BERM SLOPES TO BE SODDED (INCLUDING "PEGGING") WITH 300mm DEPTH OF TOPSOIL.
4. FENCE TO BE LOCATED ON PRIVATE PROPERTY, AND NO PART OF BERM IS TO BE WITHIN THE MUNICIPAL R.O.W.

TOWN OF CALEDON

NOISE ATTENUATION BARRIER AND BERM

NO.	REVISION	APR'D	DATE
3	STANDARD No. 610 NOW 613, TEXT EDIT		JAN 18
2	NOTE EDIT, S.P.D. CORRECTION, TOPSOIL CORRECTION STANDARD No. 931 NOW 610		JUNE 08
1	TOP OF BERM CORRECTION, ADD NOTE 4		MARCH 08

APR'D: C.C. | DATE: 2007/06

DRAWN: | SCALE: NTS

STANDARD No. 613

NOTES:

GENERAL

1. DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. BUILDER TO VERIFY ALL DIMENSIONS AND BUILD TO SUIT.
3. SOIL BENEATH AND WITHIN 2m RADIUS OF ANY FUTURE FENCE POST SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO CONSTRUCTION.
4. POSTS SHALL BE PLUMB WITHIN 5mm/m ABOVE GRADE.
5. TONGUE AND GROOVE FENCE BOARDS, AND ALL OTHER MEMBERS, SHALL BE FIT TIGHT TO ELIMINATE ALL GAPS AND RATTLING.
6. CONTRACTOR TO COMPLETE ONE MOCK-UP PANEL PRIOR TO PROCEEDING WITH REMAINDER OF FENCE.
7. DO NOT SCALE DRAWINGS.
8. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTERS AS THOSE NOTED FOR SIMILAR CONDITIONS.
9. STRUCTURAL DESIGN IS BASED ON THE 2006 ONTARIO BUILDING CODE.

DESIGN INFORMATION

1. HOURLY WIND PRESSURES: $\frac{1}{50}$ YEAR: 0.53 kPa (VAUGHN, ON).
2. IMPORTANCE FACTOR: NORMAL.
3. THE DESIGN LOADS INDICATED ARE UNFACTORED.

STEEL POST

1. POST SHALL CONFORM TO CSA G40.21 350W (Fy=350 MpA)
2. POST TO BE HOT-DIP GALVANIZED HSS 152X102X6.4

REINFORCING STEEL

1. REINFORCING STEEL SHALL CONFORM TO CSA G30.18-09 GRADE 400W UNLESS OTHERWISE SPECIFIED.
2. INSIDE DIAMETER OF BENDS TO BE A MINIMUM OF 6 BAR DIAMETERS.

CONCRETE

1. CONCRETE STRENGTH - f'c = 25 MPa MINIMUM.
2. EXPOSURE CLASS F-2 (CSA A23.1/A23.2).
3. AIR CONTENT TO CONFORM TO TABLE 4 OF CSA A23.1/A23.2

- 5-8% FOR MAX. 10mm NOMINAL AGGREGATE SIZE
- 4-7% FOR 14-20mm NOMINAL AGGREGATE

4. MAXIMUM WATER TO CEMENT RATIO TO BE 0.55 IN ACCORDANCE WITH TABLE 2 (CSA A23.1/A23.2).
5. CURING TYPE 1 AS PER TABLE 20 (CSA A23.1/A23.2) - 3 DAYS @ ≥ 10°C OR FOR THE TIME NECESSARY TO OBTAIN 40% OF SPECIFIED STRENGTH.
6. CURE CONCRETE TO THE REQUIREMENTS OF OPSS 904 AND AS A MINIMUM REQUIRES WET BURLAP AND MOISTURE VAPOUR BARRIER FILM AS PER OPSS 904.07.03.12.
7. TOP SURFACE OF CONCRETE TO BE SLOPED AWAY FROM POST A MINIMUM OF 50mm FROM POST TO EDGE OF FOUNDATION AT GRADE.
8. MINIMUM CLEAR COVER TO REINFORCING SHALL BE: a) 75mm ±10mm WHEN CAST DIRECTLY AGAINST AND PERMANENTLY EXPOSED TO EARTH b) 50mm ±10mm FOR ALL CONCRETE CAST IN FORM EXPOSED TO FREEZING AND THAWING.

WOOD AND FASTENERS

1. ALL TIMBER AND LUMBER SHALL NE No. 1 OR 2 GRADE WESTERN RED CEDAR UNLESS NOTED OTHERWISE, SELECTED FOR GOOD APPEARANCE AND FREE OF WANE AND BARK POCKETS.
2. THE SKIRT RAIL TO BE PRESSURE TREATED No. 1 OR 2 SPECIES SPF OR BETTER UNLESS NOTED OTHERWISE. CUT EDGES TO BE TREATED WITH APPROVED PRESERVATIVES.
3. TIMBER WITH HEAVY KNOTS AND/OR SAP STAIN SHALL BE DISTRIBUTED THROUGHOUT THE INSTALLATION.
4. THE DESIGN OF THE BEAMS, COLUMNS AND LINTELS IS BASED ON THE LIMIT STATES DESIGN SPECIFIED UNDER CSA STANDARD 086. ANY SUBSTITUTIONS OF SPECIES, GRADE OR GROUP MUST BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK.
5. THE LUMBER WAS DESIGNED FOR A MOISTURECONTENT GREATER THAN 15% AT THE TIME OF MANUFACTURE AND LESS THAN 15% IN SERVICE.
6. ALL FASTENERS TO BE GALVANIZED STEEL OR APPROVED ALTERNATIVE.
7. DURING CONSTRUCTION, ENSURE ALL MEMBERS ARE IN GOOD BEARING CONTACT.
8. ENSURE ALL HARDWARE AND FASTENERS IN CONTACT WITH PRESSURE TREATED WOOD ARE COMPATIBLE WITH PRESSURE TREATING CHEMICALS.
9. ALL WOOD IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED, OR SEPARATED WITH A FOAM SILL GASKET OR POLYSHEET.
10. A CLEAR - UV PROTECTING STAIN (APPROVED BY THE TOWN), WILL BE REQUIRED AFTER INSTALLATION OF WOOD FENCE MEMBERS.
11. WHERE FASTENERS ARE SPECIFIED, THEY SHALL MEET THE FOLLOWING STANDARDS:

a. COMMON NAILS: CSA STANDARD B11 WIRE NAILS, SPIKES AND STAPLES
b. COMMON SPIRAL (ARDOX) NAILS: CSA STANDARD B11 WIRE NAILS, SPIKES AND STAPLES
c. WOOD SCREWS: ASME B18.6.1 WOOD SCREWS
d. BOLTS: ASTM STANDARD A307 OR SAE J429 GRADE 2
e. LAG SCREWS: CSA STANDARD B34 MISCELLANEOUS BOLTS AND SCREWS.

APPROVED HARDWARE

- SCREWS: SIMPSON STRONG-TIE COLLATED METAL SCREWS FOR WOOD TO STEEL APPLICATIONS (SEE SIMPSON STRONG-TIE CATALOGUE C-F-2017, PAGE 274 AND 365 FOR DETAILS) OR APPROVED EQUIVALENT.
- BRACKETS: SIMPSON STRONG TIE FENCE RAIL BRACKETS (SEE SIMPSON STRONG-TIE CATALOGUE C-C-2017, PAGE 350 FOR DETAILS) OR APPROVED EQUIVALENT.

NOMENCLATURE:

@ AT
c/c CENTRE TO CENTRE
m METRE
m3 SQUARE METRES
mm MILLIMETRES
EX. EXISTING
MIN MINIMUM
MAX MAXIMUM
OBC ONTARIO BUILDING CODE (2006)
TYP. TYPICAL
ϕ DIAMETER
SST SIMPSON STRONG-TIE

TOWN OF CALEDON

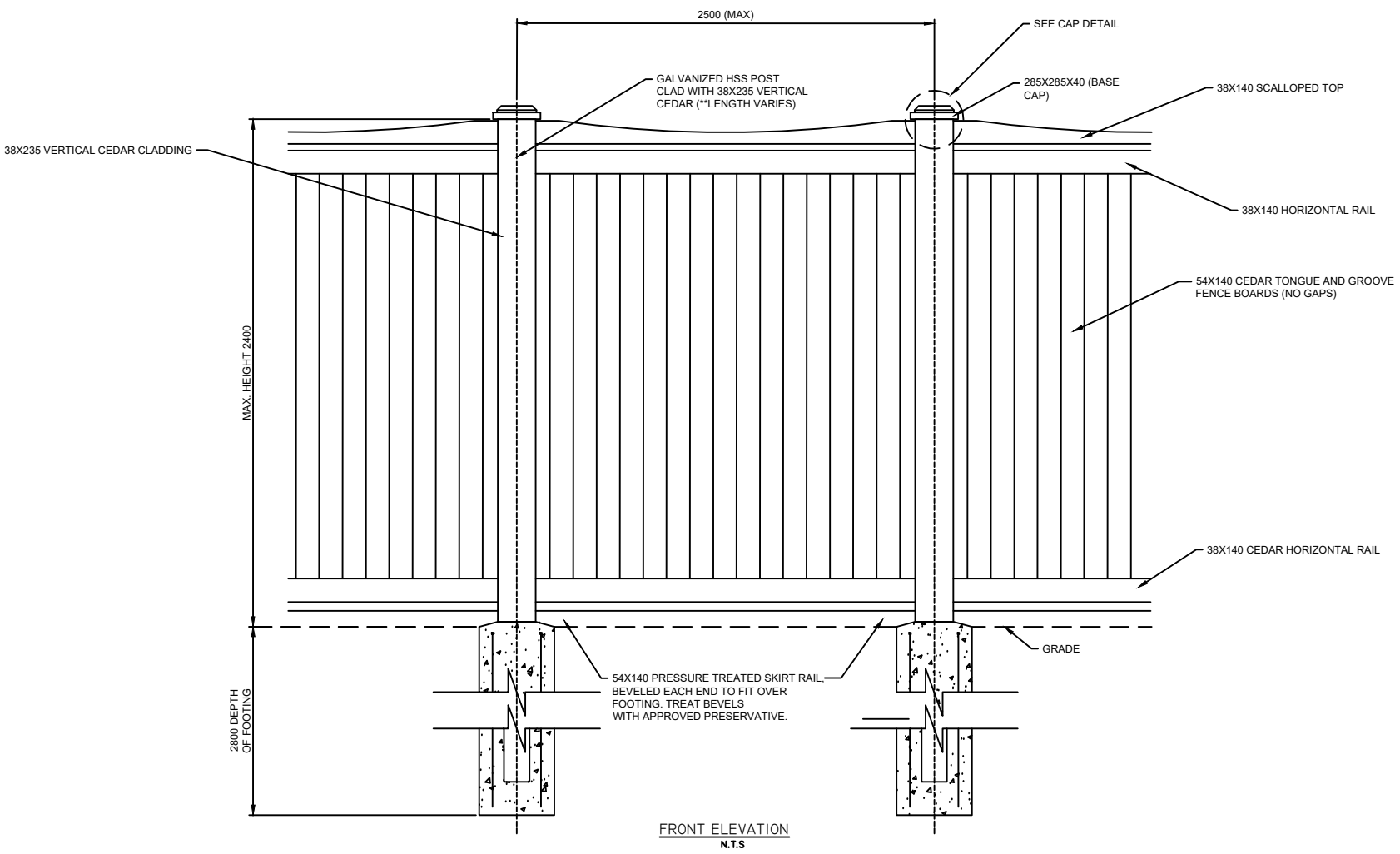
ACOUSTIC FENCE DETAIL

NO.	REVISION	APR'D	DATE

APR'D: R.G. | DATE: JULY 17

DRAWN: B.M. | SCALE: N.T.S.

STANDARD No. 614



FRONT ELEVATION
N.T.S

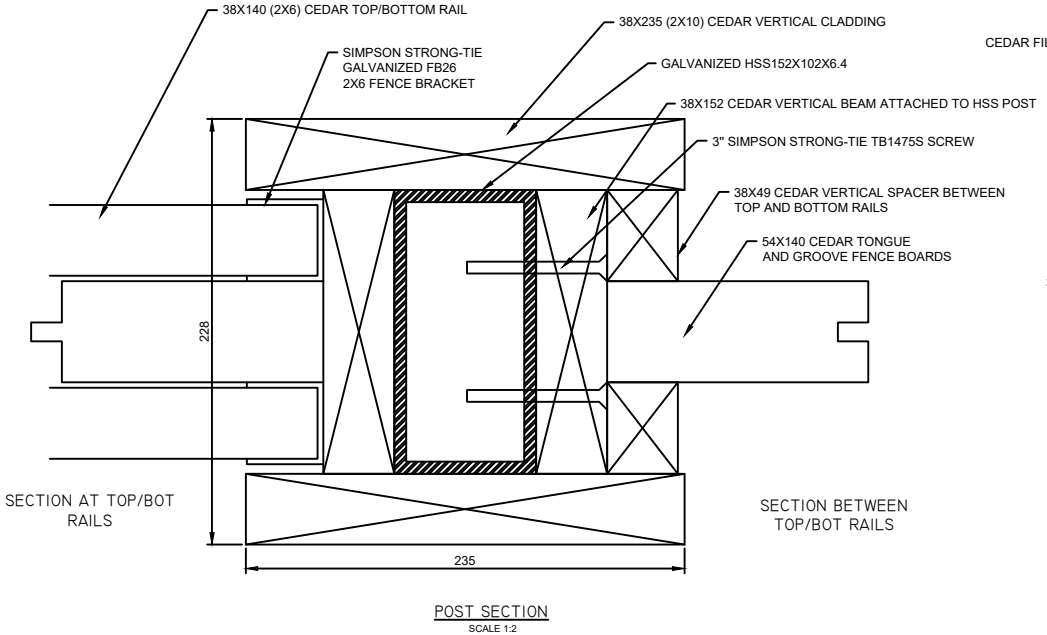
TOWN OF CALEDON

ACOUSTIC FENCE DETAIL

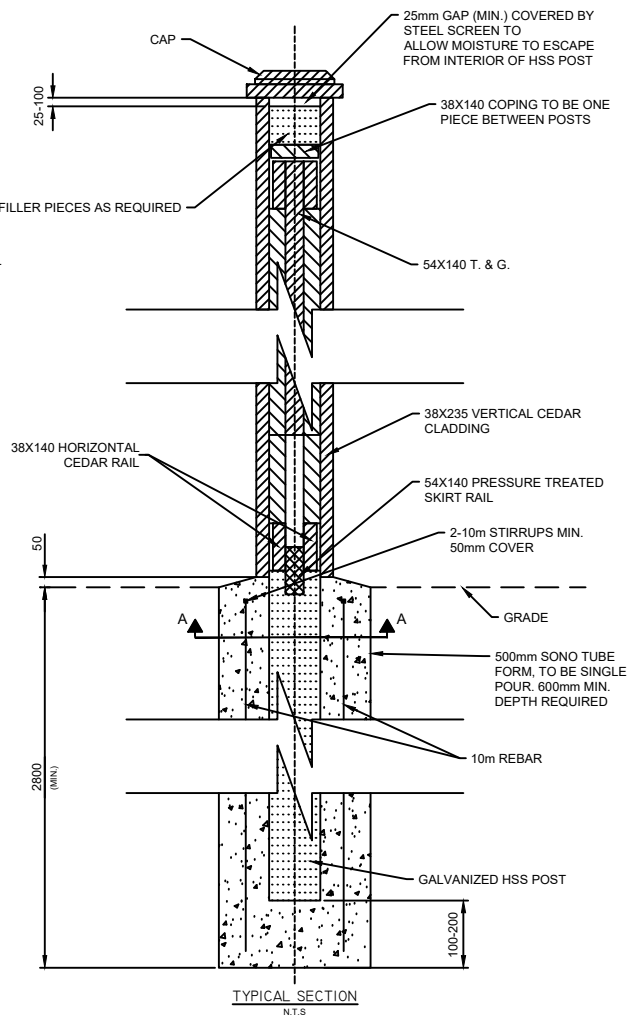
NO.	REVISION	APR'D	DATE
1	TEXT AND DIMENSION REV.	KP	DEC 19

APR'D:	R.G	DATE:	JULY 17
DRAWN:	B.M	SCALE:	N.T.S.

STANDARD No. 615



POST SECTION
SCALE 1:2



TYPICAL SECTION
N.T.S

TOWN OF CALEDON

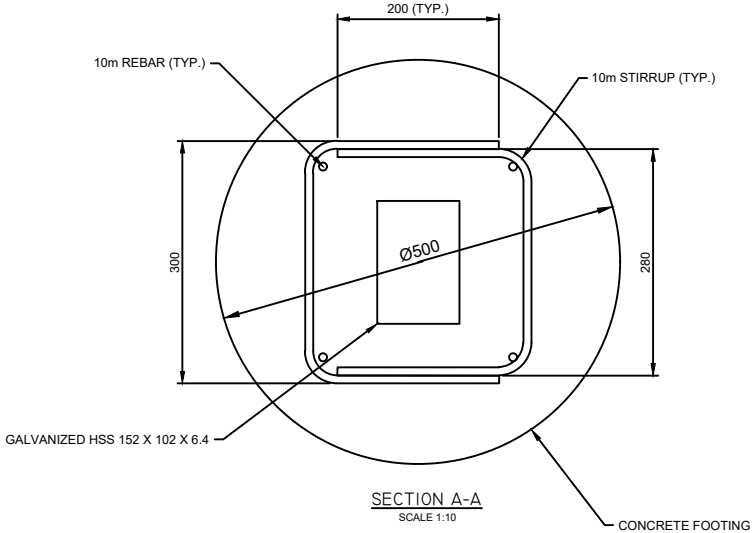
ACOUSTIC FENCE DETAIL

NO.	REVISION	APR'D	DATE
1	TEXT & DIMENSION REV.	KP	DEC 19

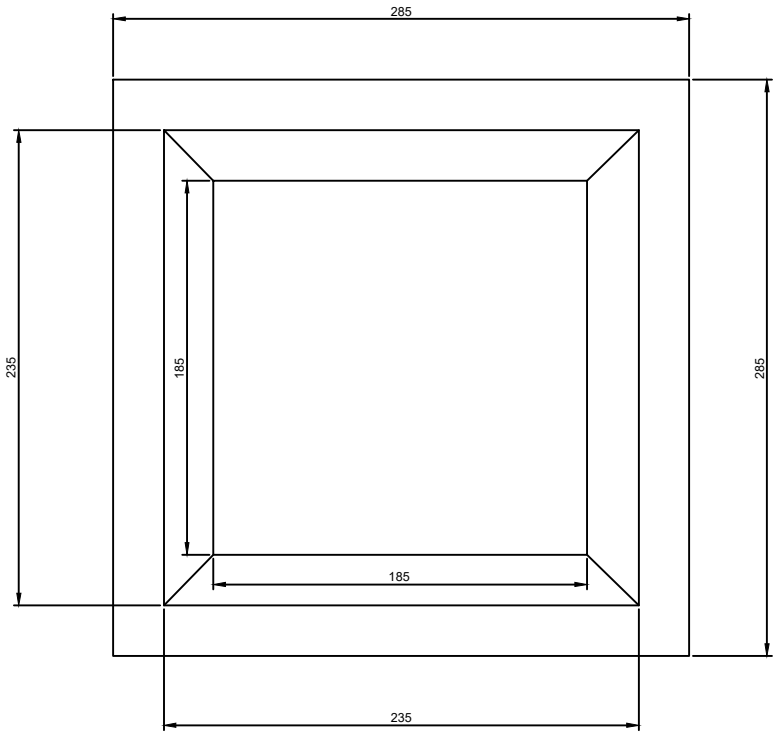
APR'D: R.G | DATE: JULY 17

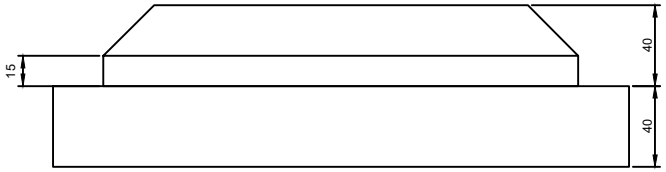
DRAWN: B.M | SCALE: N.T.S.

STANDARD No. 616



SECTION A-A
SCALE 1:10





CAP DETAIL
SCALE 1:2

NAILING TABLE			
PRIMARY MEMBER	SECONDARY MEMBER	CONNECTOR TYPE	COMMENTS
1. VERTICAL BEAM	HSS POST	3" SST TB1475S SCREW	2 @ EACH END + 5 IN A STAGGERED PATTERN ALONG BOARD (EVENLY SPACED)
2. HORIZONTAL RAILS	VERTICAL BEAM	SST FB26 FENCE BRACKET	NAILED AS PER MANUFACTURERS REQUIREMENTS
	SKIRT RAIL	3" NAILS	2 @ ENDS + 1 EVERY 300
3. SKIRT RAIL	VERTICAL BEAM	3" NAILS	2 @ EACH POST
4. T. & G. FENCE BOARDS	HORIZONTAL RAILS	3" NAILS	3 @ EACH END - AT LEAST 1 INTO EACH RAIL
5. VERTICAL SPACER	VERTICAL BEAM	3" NAIL	4 SPACED ALONG HEIGHT
6. VERTICAL CLADDING	VERTICAL BEAM	3" NAIL	2 @ EACH END + 5 IN A STAGGERED PATTERN ALONG BOARD (EVENLY SPACED)
	VERTICAL SPACER	3" NAIL	3 ALONG HEIGHT

TOWN OF CALEDON

ACOUSTIC FENCE DETAIL

NO.	REVISION	APR'D	DATE
1	NAILING TABLE TEXT REV.	KP	DEC 19

APR'D: R.G | DATE: JULY 17

DRAWN: B.M | SCALE: N.T.S.

STANDARD No. 617