

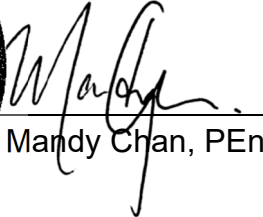
Noise Feasibility Study
Proposed Residential Development
Neyagawa Boulevard & Burnhamthorpe Road West
Oakville, Ontario

Prepared for:

Sherborne Lodge Developments
8600 Dufferin Street
Vaughan, ON L4K 5P5

Prepared by:




Mandy Chan, PEng

Revised: June 8, 2023

HGC Project No. 02000325

VERSION CONTROL

| Ver. | Date | Version Description / Changelog | Prepared By |
|------|-----------------|---------------------------------------------------------------|-------------|
| 0 | March 2, 2023 | Noise Feasibility Study in support of Zoning bylaw Amendment. | M. Chan |
| 1 | August 16, 2021 | Update per Draft Plan dated August 11, 2021 | M. Chan |
| 2 | June 8, 2023 | Update per Draft Plan dated May 8, 2023 | M. Chan |

Limitations

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Any conclusions and/or recommendations herein reflect the judgment of HGC Engineering based on information available at the time of preparation, and were developed in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.



ACOUSTICS



NOISE



VIBRATION

www.hgcengineering.com

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Figure 1 – Key Plan

Figure 2 – Draft Plan Showing Prediction Locations

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Appendix A – Road Traffic Data

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1 Introduction and Summary

HGC Engineering was retained by Sherborne Lodge Developments to conduct a noise feasibility study for a proposed residential development in Oakville, Ontario. The location of the proposed development site is located on the east side of Neyagawa Boulevard and on the south side of Burnhamthorpe Road West (future William Halton Parkway). The purpose of this study is to determine the impact of future environmental noise from the surrounding roadways on the proposed site and to determine the required acoustic requirements in accordance with the Ministry of Environment, Conservation, and Parks (MECP) guidelines, The Region of Halton and the Town of Oakville. This study has been prepared as part of the approval process by the municipality.

The primary noise source of noise was determined to be road traffic on the future William Halton Parkway and Neyagawa Boulevard. Road traffic data was obtained from the Region of Halton. The data was used to predicted sound levels at the future dwelling facades and in potential outdoor living areas. All road traffic noise predictions were compared with the guidelines detailed by the MECP.

The results of the study indicate that it is feasible to achieve the MECP sound level guidelines at the proposed residential development. The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at the dwelling units adjacent to Neyagawa Boulevard. Physical mitigation in the form of an acoustic barrier is required for the rear yard of the flanking dwelling unit directly adjacent to Neyagawa Boulevard. The dwellings adjacent to Neyagawa Boulevard will require forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant. The MECP guidelines recommend that noise warning clauses be used to inform future residents of the traffic noise impacts and the presence of commercial and institutional facilities. Any building construction meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the interior spaces. When detailed information is available for the apartment, school and commercial blocks, a noise study shall be conducted to determine any noise control requirements to meet MECP guidelines.



2 Site Description and Noise Sources

The key plan for the site is attached as Figure 1. The site is located east of Neyagawa Boulevard and south of Burnhamthorpe Rd West (future William Halton Parkway). A draft plan of subdivision prepared by Bousfield Inc. dated May 8, 2023 is provided as Figure 2 and also includes prediction locations. The development will consist of dual frontage townhouses, back-to-back townhouses, street townhouses, single detached lots, apartment block, commercial block, school block and a village square.

HGC Engineering personnel visited the site during the month of March 2021. The acoustical environment surrounding the site is urban in nature. There are numerous developments in the area. Neygawa Boulevard and Burnhamthorpe Road West are the primary existing noise sources in the area. There are no significant stationary sources of noise within 500 m of this site.

3 Sound Level Criteria

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

Table I: MECP Road Traffic Noise Criteria (dBA)

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

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies and terraces that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible. The Region of Halton's minimum noise barrier height is 2.4 m. The Town of Oakville maximum acoustic fence height is 2.4 m.

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

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

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



4 Traffic Noise Assessment

4.1 Road Traffic Data

Future annual average daily traffic 35,000 vehicles per day was applied to Neyagawa Boulevard and the future William Halton Parkway as provided by the Region of Halton and attached as Appendix A. For Neyagawa Boulevard, a commercial vehicles percentage of 1.0% for medium trucks and 1.5% for heavy trucks was calculated from existing traffic volumes and used in the analysis. For William Halton Parkway, a commercial vehicles percentage of 4.0% for medium trucks and 2% for heavy trucks was provided by the Region. A speed limit of 60 kph was used for both roadways. A day/night split of 90%/10% was also applied. Table II summarizes the traffic volume data used in this study.

Table II: Future Road Traffic Data

| Road Name | | Cars | Medium Trucks | Heavy Trucks | Total |
|------------------------|--------------|---------------|---------------|--------------|---------------|
| Neyagawa Boulevard | Daytime | 30 713 | 315 | 473 | 31 500 |
| | Nighttime | 3 413 | 35 | 53 | 3 500 |
| | Total | 34 125 | 350 | 525 | 35 000 |
| William Halton Parkway | Daytime | 29 610 | 1 260 | 630 | 31 500 |
| | Nighttime | 3 290 | 140 | 70 | 3 500 |
| | Total | 32 900 | 1 400 | 700 | 35 000 |

4.2 Road Traffic Prediction

Future traffic sound levels were predicted using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Predictions of the traffic sound levels were made at the window at the upper storey of the townhouses and detached units. An assumed building setback of 6 m front yard and rear yard and 3m exterior side yard were used. Table III summarizes the predicted sound levels.

Table III: Predicted Traffic Sound Levels [dBA]

| Prediction Location | Lot/Block No. | Description | Daytime LEQ16hr - OLA [dBA] | Daytime LEQ16hr - Facade dBA | Nighttime LEQ8hr - Facade dBA |
|---------------------|---------------|------------------------------------------------------------|-----------------------------|------------------------------|-------------------------------|
| [A] | Block 100 | Dual frontage unit adjacent to Neyagawa Blvd | -- | 64 | 58 |
| [B] | 1 | Unit flanking Neyagawa Blvd | 61 | 63 | 56 |
| [C] | 2 | Second unit from Neyagawa Blvd | 56 | 56 | <50 |
| [F] | 3 | Third unit from Neyagawa Blvd | <55 | <55 | <50 |
| [D] | Block 101 | Back to back townhouse units, second row from the roadways | -- | 55 | <50 |
| [E] | Lot 78 | Second row of units from Neyagawa | <55 | <55 | <50 |

Further Analysis

When detailed information is available for Block 105 (Apartments), an assessment of traffic noise shall be conducted to determine any noise control requirements for the block.

At the northwest corner of the site, there is a Commercial Block (Block 106) and School Block (Block 107) proposed. Some dwellings near this future block may be impacted by the activities associated with uses proposed for these blocks. A noise study is typically required during the approvals process when siting plans including elevations are available. A noise study should be conducted to ensure that the noise emissions from the commercial/business facilities and school meet the MECPC guidelines limits contained in NPC-300.

5 Discussion and Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the dwelling units adjacent to Neyagawa Boulevard. Recommendations to address these excesses are discussed below.

5.1 Outdoor Living Areas

The three storey townhouses adjacent to Neyagawa Boulevard are dual frontage units and do not include rear yards.

The rear yard of the flanking single detached unit adjacent to Neyagawa (Lot 1, prediction location [B]) has a predicted sound level of 61 dBA. Calculations indicate the minimum noise barrier height of 2.4 m per Region of Halton would reduce the sound level in the OLA to 55 dBA. This barrier will also reduce the sound level in the OLA of Lot 2 (Prediction location [C]) to less than 55 dBA (53 dBA) and thus further mitigation is not required on Lot 2. A noise warning clause is also recommended to inform future residents of the noise excesses.

As a general note, an acoustic barrier may be a combination of an acoustic wall and an earth berm. The wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m². The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other concrete/wood composite systems provided that it is free of gaps or cracks. The heights and extents of the barriers should be chosen to reduce the sound levels in the OLA's to below 60 dBA and as close to 55 dBA, subject to the approval of the municipality/Region respecting any applicable fence height by-laws.

All other rear yards are well shielded from road traffic noise and do not require mitigation as the sound levels are less than 55 dBA.



5.2 Indoor Living Areas and Ventilation Requirements

Provision for the Future Installation of Air Conditioning by the Occupant

For all dwellings adjacent to Neyagawa Boulevard, the predicted sound levels are predicted between 51 and 60 dBA during the night and between 56 dBA and 65 dBA during the day. To address these excesses, the MECP guidelines recommend that these dwelling units be equipped with a forced air ventilation system with ducts sized to accommodate the future installation of air conditioning by the occupant. The guidelines also recommend warning clauses for these blocks and lots. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300. Blocks requiring forced air heating are shown on Figure 3.

For the remaining dwelling units in the development, there are no specific ventilation requirements.

5.3 Building Façade Constructions

Since the future road traffic sound levels outside all the dwellings units are less than 60 dBA during nighttime and 65 dBA during daytime, any exterior wall, and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the dwelling units.

5.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all lots and blocks with anticipated traffic sound level excesses. Examples are provided below.

Suggested wording for future dwellings with minor sound level excesses is given below:

Type A:

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



Suggested wording for future dwellings with daytime OLA sound levels exceeding the MECP criteria by 6 dB or more, for which physical mitigation has been provided is given below.

Type B:

Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Park.

Suitable wording for future dwellings requiring forced air ventilation systems is given below.

Type C:

This dwelling unit has been fitted with a forced air heating system and the ducting etc., was sized to accommodate central air conditioning. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording to inform future residents of the presence of the neighbouring institutional and commercial uses.

Type D:

Purchasers are advised that due to the proximity of commercial/institutional facilities, sound from these facilities may at times be audible and the operations may change in the future.

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

6 Summary of Recommendations

The results of the study indicate that the proposed residential development is feasible. Future road traffic sound levels in some areas will exceed MECP guidelines, but feasible means exist to reduce the impact to within acceptable limits.

The following list and Table IV summarize the recommendations made in this report.

1. Forced air ventilation with ductwork sized for the future installation of central air conditioning by the occupant is required for the dwelling units adjacent to Neyagawa Boulevard.
2. An acoustic barrier is required for the rear yard of the flanking dwelling unit adjacent to Neyagawa Boulevard.



- Warning clauses should be included in the property and tenancy agreements and offers of purchase and sale or rental agreements to inform all the future residents of the presence of nearby institutional and commercial facilities and traffic noise impact.

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

| Block/Lot No. | Acoustic Barrier | Ventilation Requirements | Type of Warning Clause | Building Constructions |
|---------------------|------------------|--------------------------|------------------------|------------------------|
| Lot 1 | ✓ | Forced Air | A, B, C | OBC |
| Lot 2 | -- | Forced Air | A, C | OBC |
| Lots 60 – 67 | -- | -- | D | OBC |
| Lots 79 – 84 | -- | -- | D | OBC |
| Blocks 90 – 91 | -- | -- | D | OBC |
| Blocks 94 – 98 | -- | Forced Air | A, C | OBC |
| Blocks 99 – 100 | -- | Forced Air | A, C, D | OBC |
| Blocks 101 – 103 | -- | -- | D | OBC |
| All Remaining Units | -- | -- | -- | OBC |

Notes:

-- no specific requirement

OBC – meeting the minimum requirements of the Ontario Building Code

6.1 Implementation

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

- When information is available for Blocks 105, 106 and 107, a detailed noise study shall be conducted to determine any noise control requirements.
- Prior to site plan approval, a Professional Engineer qualified to perform acoustical services in the province of Ontario shall review the grading plan to certify that the noise control measures as specified have been properly incorporated.
- Prior to the issuance of occupancy permits for this development, a Professional Engineer qualified to perform acoustical services in the province of Ontario or the town building department shall certify that the sound control measures have been properly installed and constructed.



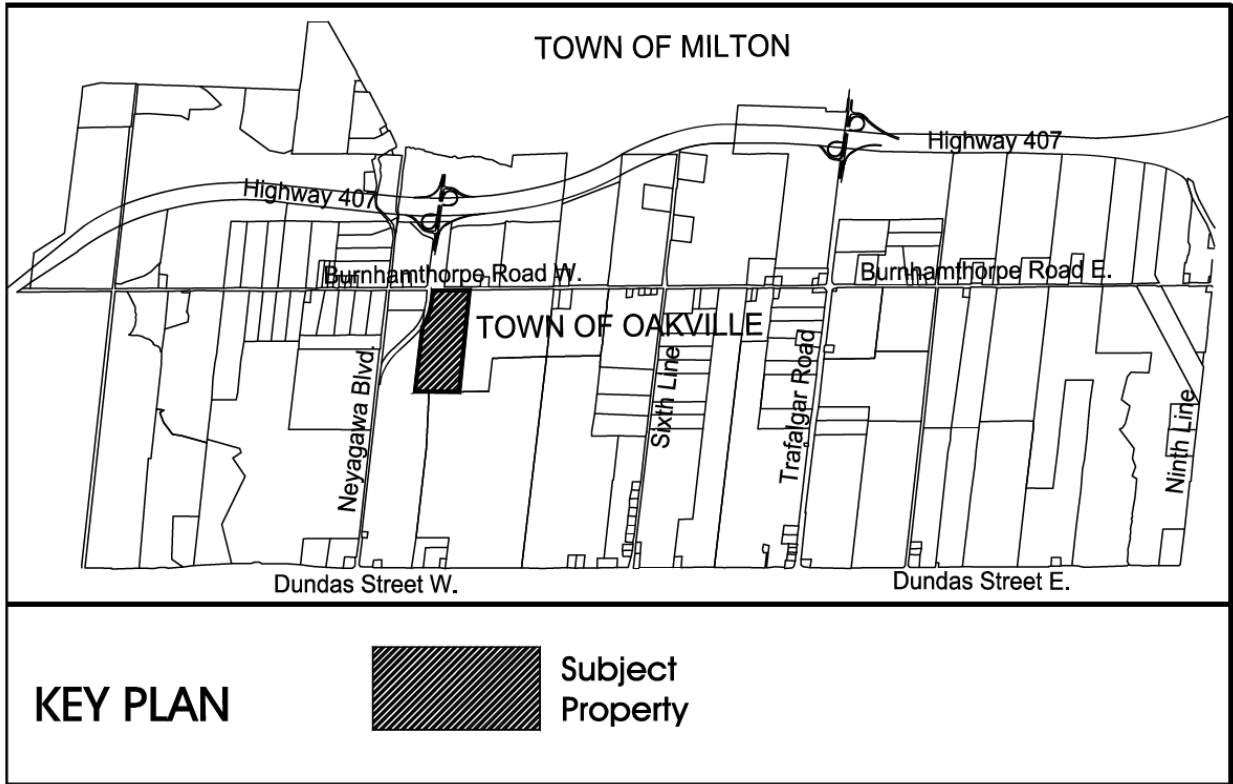
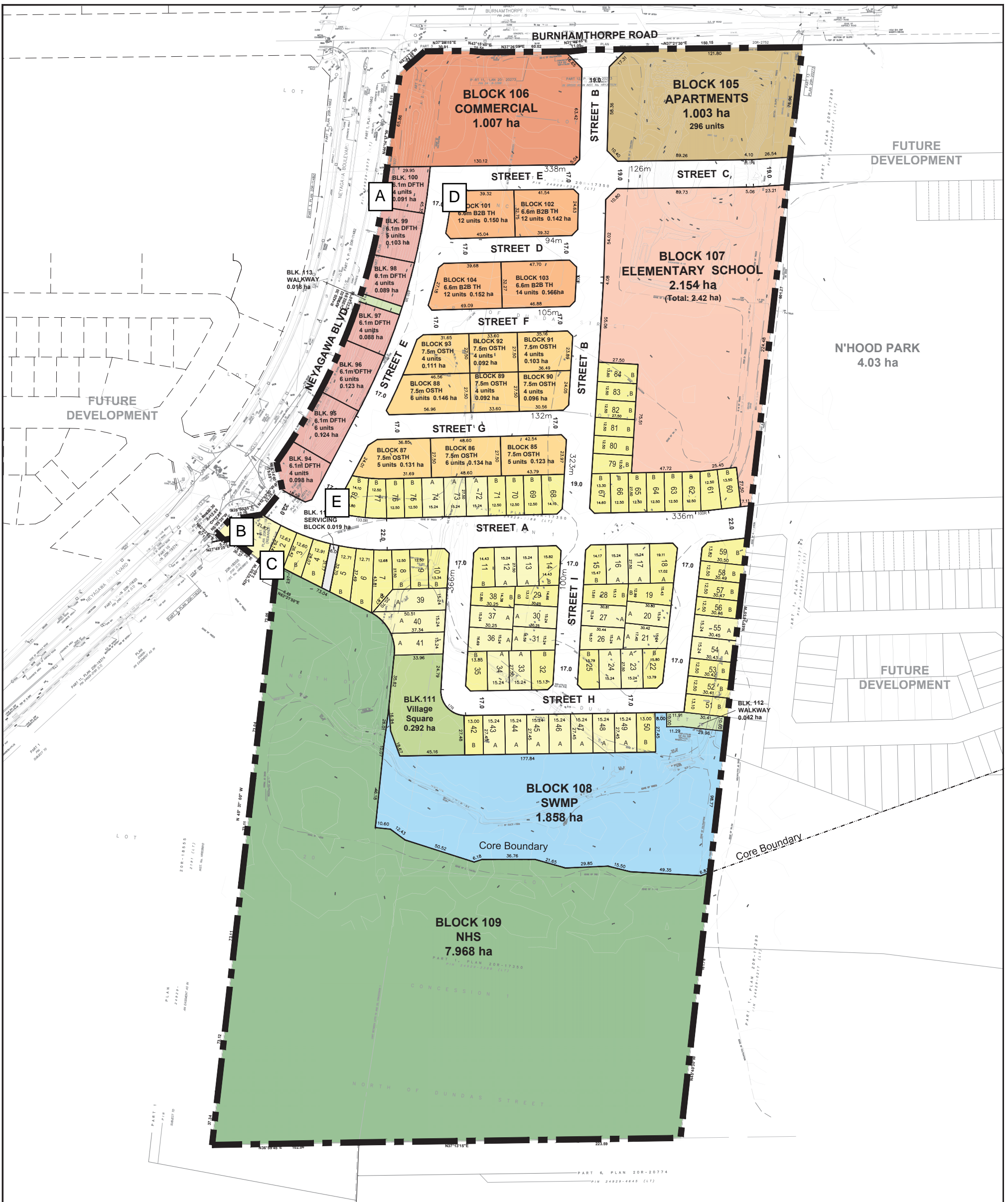


Figure 1: Key Plan



NOTES

- All dimensions are in metres.
- All area measurements are computer generated.
- All elevations refer to Geodetic Datum.
- All existing buildings to be demolished.

| AREA TABLE | 9544-11-66dp | May 8, 2023 |
|----------------------------|----------------|-------------------|
| Residential Singles | Lots 1-84 | 3.06 ha± |
| On Street Townhouses | Blocks 85-93 | 1.029 |
| Double Frontage Townhouses | Blocks 94-100 | 0.717 |
| Back to Back Townhouses | Blocks 101-104 | 0.608 |
| Apartments | Block 105 | 1.003 |
| Commercial | Block 106 | 1.007 |
| School | Block 107 | 2.154 |
| Storm Water Mgt. Pond | Block 108 | 1.858 |
| NHS | Block 109 | 7.968 |
| Servicing Block | Block 110 | 0.019 |
| Village Square | Block 111 | 0.292 |
| Walkways | Blocks 112-113 | 0.060 |
| Roads | | 3.573 |
| Total | | 23.795 ha± |
| ROADS | | |
| 22.0m R.O.W. | 336 m | 0.740 |
| 19.0m R.O.W. | 449 m | 0.875 |
| 17.0m R.O.W. | 1135 m | 1.958 |
| Total | 1920 m | 3.573 ha |
| UNIT COUNT | | |
| 15.24m Single-Detached | A | 33 |
| 12.5m Single-Detached | B | 51 |
| 7.5m On St. Town. | OSTH | 42 |
| 6.1m Double Frontage Town. | DFTH | 33 |
| 6.6m Back to Back Town. | B2B | 50 |
| Apartment Units | | 296 |
| Total | | 505 units |

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- A, B, E, F, G, J, L - As Shown on Plan
- C. This represents the applicant's entire holding of undeveloped land in this vicinity.
- D. Residential singles, On-Street Towns, Double Frontage Towns, Back to Back Towns, Apartments, Commercial, School, SWMP, NHS, Servicing, Village Square, Walkways and Roads
- H. Piped water to be provided.
- I. Clay loam soil.
- K. Sanitary & storm sewers to be provided.

OWNER'S AUTHORIZATION

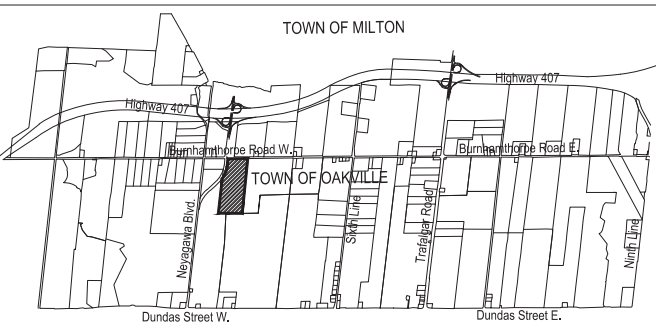
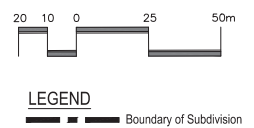
I/we,
 Sherborne Lodge Developments Limited
 being the registered owner(s) of the subject lands hereby
 authorize Bousfields Inc. to prepare and
 submit a draft plan of subdivision for approval.

Signature _____ Day _____ Month _____ Year _____

SURVEYOR'S CERTIFICATE

I hereby certify that the boundaries of the land to be
 subdivided as shown on this plan, and their relationship to
 the adjacent land are accurately and correctly shown.

Signature _____ Day _____ Month _____ Year _____



KEY PLAN
 Subject Property

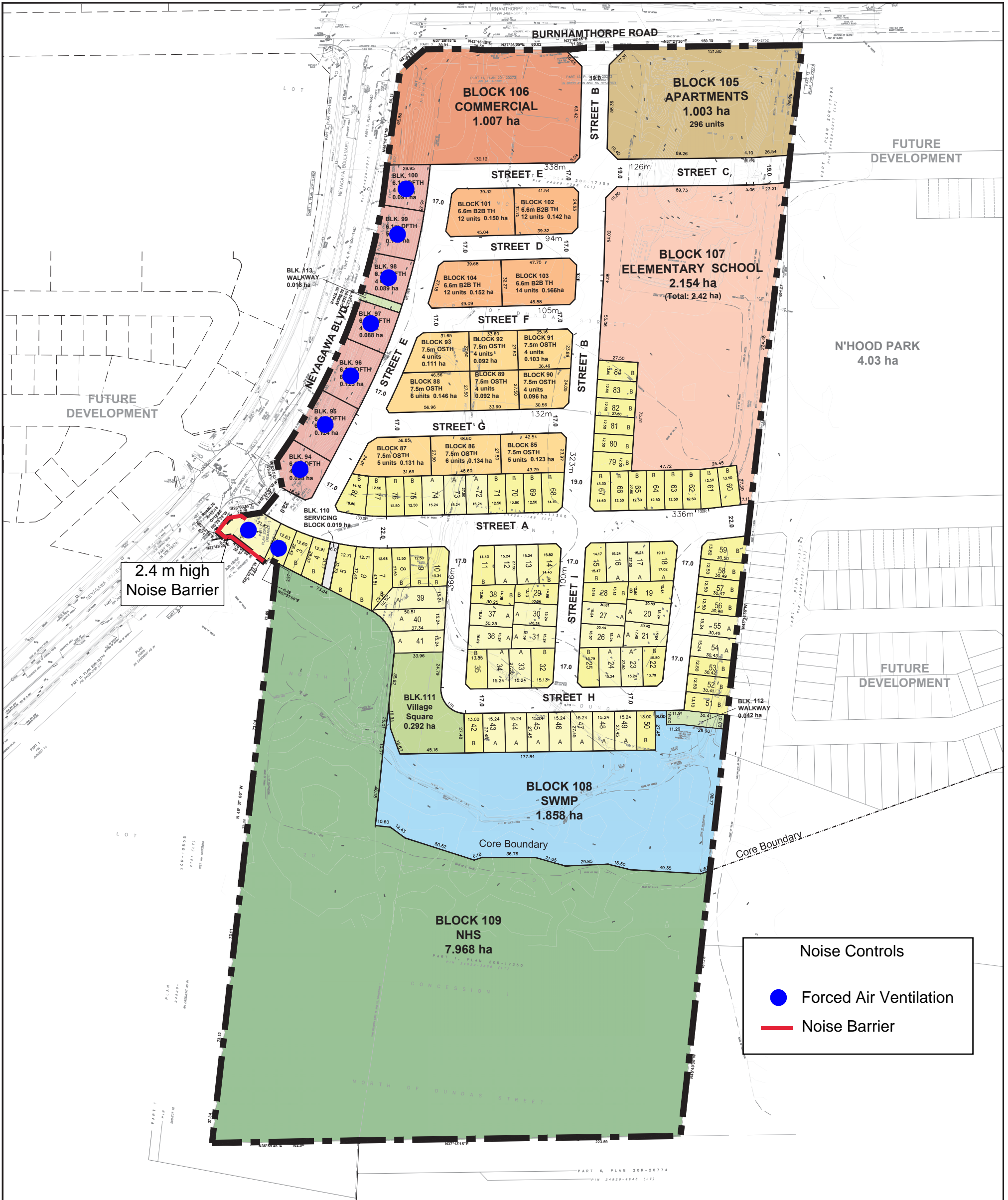
REVISED DRAFT PLAN OF SUBDIVISION
 PART OF LOT 19 & 20, CON.1
 NORTH OF DUNDAS STREET
 (Geographic Township of Trafalgar)
 TOWN OF OAKVILLE
 REGIONAL MUNICIPALITY OF HALTON



BOUSFIELDS INC.
 3 Church Street, Suite 200
 Toronto, Ontario M5E 1M2
 (416) 947-9744
 Fax (416) 947-0781

Scale: 1:1250 Date: May 8, 2023 Drawing Number: 9544-11-66dp

Figure 2 - Draft Plan of Subdivision Showing Prediction Locations



2.4 m high
Noise Barrier

Noise Controls

- Forced Air Ventilation
- Noise Barrier

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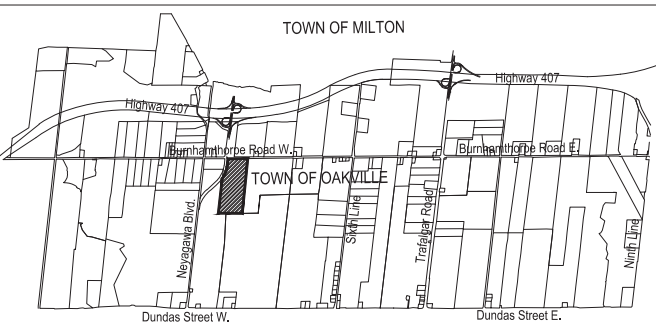
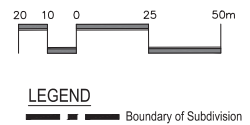
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 Signature _____ Day _____ Month _____ Year _____



REVISED DRAFT PLAN OF SUBDIVISION
 PART OF LOT 19 & 20, CON.1
 NORTH OF DUNDAS STREET
 (Geographic Township of Trafalgar)
 TOWN OF OAKVILLE
 REGIONAL MUNICIPALITY OF HALTON



BOUSFIELDS INC.

3 Church Street, Suite 200
 Toronto, Ontario M5E 1M2
 (416) 947-9744
 Fax (416) 947-0781

Scale: 1 : 1250 Date: May 8, 2023 Drawing Number: 9544-11-66dp

Figure 3 - Plan of Showing Ventilation & Noise Barrier Requirements

APPENDIX A
ROAD TRAFFIC DATA



ACOUSTICS



NOISE



VIBRATION

Burnhamthorpe Rd W @ Neyagawa Blvd

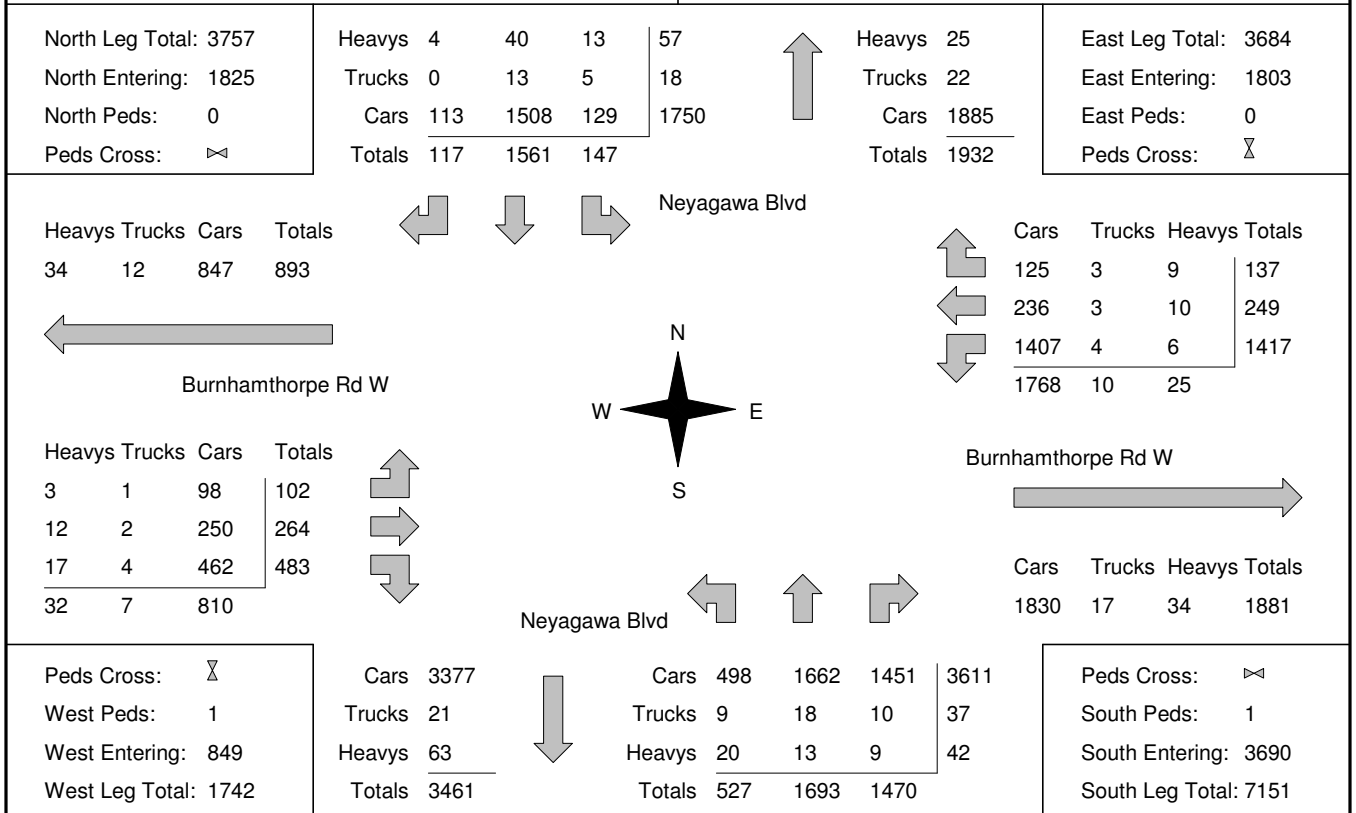
Total Count Diagram

Municipality: Halton Region
Site #: 0000003297
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 3
Count date: 4-Dec-2019

Weather conditions:
 Overcast/Wet
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S



Comments

Mandy Chan

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: March 4, 2021 9:33 AM
To: Mandy Chan
Subject: RE: Ultimate traffic data - Oakville

Hi Mandy,

I hope things are well.

Your request was just forwarded to me this morning, sorry for the delay.

Burnhamthorpe Road:

In 2015 Regional Council, as part of Road Rationalization Review, approved the transferring of Burnhamthorpe to the Town, once the new William Halton Parkway was constructed. In order to facilitate the Town of Oakville initiating the detailed design and implementing the recommendations from its Burnhamthorpe Road Character Study, Town staff have requested transfer of the road to its jurisdiction now for this purpose. This is all being finalized now (report to Regional Council was completed in in the fall 2020), therefore, Town staff will be able to provide you with acceptable ultimate volumes and other assumptions for Burnhamthorpe Road.

Regarding Neyagawa Boulevard, please use 35,000 AADT and 4 lanes. For truck percentages for Neyagawa Boulevard, please be sure to obtain the latest turning movement count from Road Operations (trafficdatarequests@halton.ca) and use existing medium and heavy truck percentages as part of the future analysis.

I hope this helps.

Matt

Matt Krusto

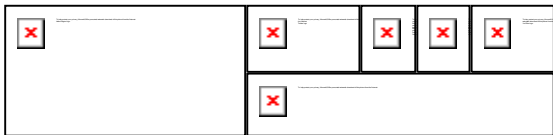
Project Manager II, Transportation Planning Coordination

Infrastructure Planning & Policy

Public Works

Halton Region

905-825-6000, ext. 7225 | 1-866-442-5866



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Mandy Chan

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: March 31, 2021 2:41 PM
To: Mandy Chan
Subject: RE: Ultimate traffic data - Oakville

Hi Mandy,

All good, same for you as well I hope.

Yes it is. Sorry I should have caught that and provided you with the ultimate William Halton Parkway volumes.

Please use William Halton Parkway: 35,000, 4% medium, 2% heavy, 4 lanes.

Hope this helps.

Matt

From: Mandy Chan <machan@hgcengineering.com>
Sent: Wednesday, March 31, 2021 2:27 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: RE: Ultimate traffic data - Oakville

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Hi Matt,

Hope things are well with you!

Just to follow up, one of our sites is right at the southeast corner of Neyagawa Blvd and Burnhamthorpe Road. Is north border road part of William Halton Parkway?

APPENDIX B SAMPLE STAMSON OUTPUT



ACOUSTICS



NOISE



VIBRATION

STAMSON 5.0 NORMAL REPORT Date: 07-05-2021 13:50:11
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te Time Period: Day/Night 16/8 hours
 Description: Predicted daytime and nighttime sound levels at the upper storey windows
 of units adjacent Neyagawa Blvd, Location A

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

 Car traffic volume : 30713/3413 veh/TimePeriod *
 Medium truck volume : 315/35 veh/TimePeriod *
 Heavy truck volume : 473/53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 1.00
 Heavy Truck % of Total Volume : 1.50
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Neyagawa (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 : 31.50 / 31.50 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

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

 Car traffic volume : 29610/3290 veh/TimePeriod *
 Medium truck volume : 1260/140 veh/TimePeriod *
 Heavy truck volume : 630/70 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 4.00
 Heavy Truck % of Total Volume : 2.00
 Day (16 hrs) % of Total Volume : 90.00

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

 Angle1 Angle2 : 0.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 107.00 / 107.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00



Results segment # 1: Neyagawa (day)

Source height = 1.11 m

ROAD (0.00 + 63.96 + 0.00) = 63.96 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90 | 90 | 0.49 | 69.93 | 0.00 | -4.81 | -1.16 | 0.00 | 0.00 | 0.00 | 63.96 |

Segment Leq : 63.96 dBA

Results segment # 2: William (day)

Source height = 1.19 m

ROAD (0.00 + 54.31 + 0.00) = 54.31 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|--------|-------|-------|-------|-------|--------|
| 0 | 90 | 0.49 | 71.18 | 0.00 | -12.71 | -4.17 | 0.00 | 0.00 | 0.00 | 54.31 |

Segment Leq : 54.31 dBA

Total Leq All Segments: 64.41 dBA

Results segment # 1: Neyagawa (night)

Source height = 1.11 m

ROAD (0.00 + 57.45 + 0.00) = 57.45 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90 | 90 | 0.49 | 63.41 | 0.00 | -4.81 | -1.16 | 0.00 | 0.00 | 0.00 | 57.45 |

Segment Leq : 57.45 dBA

Results segment # 2: William (night)

Source height = 1.19 m

ROAD (0.00 + 47.78 + 0.00) = 47.78 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|--------|-------|-------|-------|-------|--------|
| 0 | 90 | 0.49 | 64.65 | 0.00 | -12.71 | -4.17 | 0.00 | 0.00 | 0.00 | 47.78 |

Segment Leq : 47.78 dBA

Total Leq All Segments: 57.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.41
(NIGHT): 57.89

STAMSON 5.0 COMPREHENSIVE REPORT Date: 07-05-2021 13:51:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: bola.te Time Period: 16 hours
Description: Predicted daytime sound level in the OLA of the flanking unit adjacent to Neyagawa Blvd with a 2.4m noise barrier., Location [B]

Road data, segment # 1: Neyagawa

Car traffic volume : 30713 veh/TimePeriod *
Medium truck volume : 315 veh/TimePeriod *
Heavy truck volume : 473 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Neyagawa

Angle1 Angle2 : -40.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 m
Receiver height : 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -40.00 deg Angle2 : 90.00 deg
Barrier height : 2.40 m
Barrier receiver distance : 8.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Segment # 1: Neyagawa

Source height = 1.11 m

Barrier height for grazing incidence

Table with 4 columns: Source Height (m), Receiver Height (m), Barrier Height (m), Elevation of Barrier Top (m). Values: 1.11, 1.50, 1.42, 1.42

ROAD (0.00 + 54.08 + 0.00) = 54.08 dBA

Table with 11 columns: Angle1, Angle2, Alpha, RefLeq, P.Adj, D.Adj, F.Adj, W.Adj, H.Adj, B.Adj, SubLeq. Values: -40, 90, 0.53, 69.93, 0.00, -6.34, -2.29, 0.00, 0.00, -7.22, 54.08

Segment Leq : 54.08 dBA

Total Leq All Segments: 54.08 dBA

TOTAL Leq FROM ALL SOURCES: 54.08