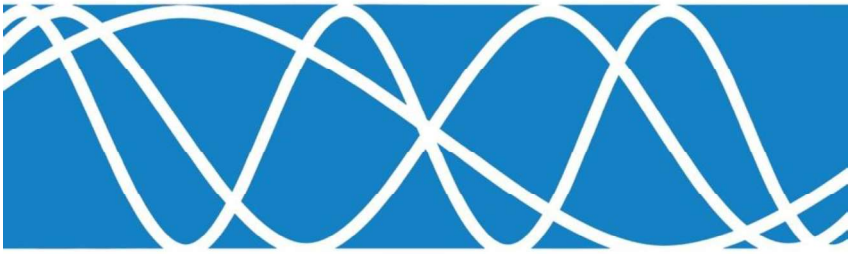
Noise Feasibility Study

Proposed Residential Development

Mount Hope Lands

Caledon, Ontario

February 20, 2026
HGC Project #: 02400490



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NOISE | VIBRATION | ACOUSTICS

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Version Control
Proposed Residential Development, Mount Hope Lands, Caledon, Ontario

Ver.	Date	Version Description	Prepared By
1.0	July 23, 2024	Noise Feasibility Study in support of the planning and approvals process	A. Handiak / V. Garcia
2.0	February 7, 2025	Noise Feasibility Study in support of the planning and approvals process	V. Garcia
3.0	February 20, 2026	Noise Feasibility Study in support of the planning and approvals process	E. Jaklic / S. Paul

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1 INTRODUCTION AND SUMMARY

HGC Noise Vibration Acoustics was retained by United Holdings Inc. to conduct a noise feasibility study for a proposed residential development in the Town of Caledon, Ontario. The development is to be located west of Mount Hope Road and north of Columbia Way. This analysis determines the impact of road traffic noise on the proposed development in accordance with the Ministry of Environment, Conservation, and Parks (MECP) and the Town of Caledon guidelines. A noise study is required by the municipality as part of the planning and approvals process.

This study has been updated to reflect the latest concept plan, dated January 14, 2026.

The primary sources of noise are road traffic on Mount Hope Road and Columbia Way. The traffic data used was obtained from the Paradigm Mount Hope Road Transportation Study. The data was used to predict future road traffic noise at the proposed dwelling façades and rear yard outdoor living areas (OLAs). The predicted sound levels were compared to the guidelines of the MECP to develop noise control recommendations for the proposed site.

The sound level predictions indicate that feasible means exist to reduce sound levels to ensure MECP guidelines are satisfied inside the proposed dwellings. Acoustic barriers are required for the rear yards of dwellings adjacent to Mount Hope Road, and the dwellings with flanking exposure Columbia Way. Central air conditioning is required for the units adjacent to Columbia Way. The provision for the future installation of air conditioning at the occupant’s discretion is required for the dwellings closest to Mount Hope Road and second to fourth rows of dwellings closest to Columbia Way.

Upgraded building and glazing constructions will be required for dwellings directly adjacent to Columbia Way. When detailed floor plans and building elevations are available for the dwellings/buildings directly adjacent tot Columbia Way, window glazing requirements should be refined based on actual

window to floor area ratios. Any building construction meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the remaining dwellings. Noise warning clauses are recommended to inform future occupants of proximity to future commercial facilities. When details of the commercial development are known, the commercial developer shall provide a noise study to determine any noise mitigation for the proposed and existing sensitive receptors.

2 SITE DESCRIPTION AND NOISE SOURCES

The key plan for the development is attached as Figure 1. The development site is located on the north side of Columbia Way and west of Mount Hope Road. The proposed concept plan, prepared by KLM Planning, dated January 14, 2026, is also included as Figure 2, also showing the sound level prediction locations. The proposed development consists of single detached dwellings, semi-detached dwellings, street townhouses, a commercial block, stormwater management ponds, park blocks, along with associated roadways.

A site visit was conducted by HGC personnel on June 24, 2024, to investigate the acoustic environment. The subject site is relatively flat. Lands to the north are primarily vacant along with an existing dwelling. The lands to the east of the site are currently vacant but are designated for future residential lands. Lands to the west are currently designated as Green Belt lands. To the south of the site are existing residential lands. Both Columbia Way and Mount Hope Road are currently 2-lane roads (one lane in each direction). Approximately 300 m to the west is St. Michael Catholic Secondary School. Sounds from this use were not audible at the subject site. There are no significant sources of stationary noise within 500 m of the subject site. A commercial block is proposed for the southern portion of the subject site, adjacent to Columbia Way. It is recommended in Section 4.0 that a warning clause be included to inform future residents of the presence of future commercial uses.

3 ROAD TRAFFIC NOISE ASSESSMENT

3.1 Road Traffic Noise 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 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA]. The Town of Caledon Development Standard, Policies & Guidelines were also reviewed (version 5.0 – January 2019).

Table 1: Road Traffic Noise Criteria

Space	Daytime LEQ (16 hour) Road	Nighttime LEQ (8 hour) 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 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 OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical. Where OLA noise levels exceed 60 dBA, noise control measures, such as an acoustical barrier, are required. The Town of Caledon requires 55 dBA in the OLA's. If higher sound levels are to be achieved in the OLA's, it is the proponent's responsibility to delegate Council to seek relief from the 55 dBA requirements for the amenity areas. The maximum acoustic fence

height is 2.4 m. The remainder of the acoustic barrier height can be made up with an earth berm.

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. If the sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA during the daytime hours or in the range of 51 to 60 dBA during the nighttime hours, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion.

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.

3.2 Traffic Sound Level Assessment

3.2.1 Road Traffic Data

Traffic data for the roadways were obtained from the Paradigm Mount Hope Road Transportation Study and the Town of Caledon, in the form of peak hours projected to 2033 and annual average daily traffic (AADT), respectively. A comparative analysis was performed between both data sets, with the more conservative values selected for the study. The traffic data for both roadways are provided in Appendix A.

Projected traffic volumes for Columbia Way and Mount Hope Road for the year 2033, were conservatively assumed to grow at a rate of 2.5% per year and

projected to 2050, twenty years beyond the expected construction completion date, in accordance with the Town of Caledon requirements. Both Columbia Way and Mount Hope Road have a speed posted limit of 60 km/h, therefore 70 km/h was used in the analysis in accordance with the Town of Caledon requirements. Commercial vehicle percentages were calculated from the data provided.

For Columbia Way, a commercial vehicle percentage of 5.49% was used, consisting entirely of medium trucks. A day/night split of 90/10% was used in the analysis.

For Mount Hope Road, a commercial vehicle percentage of 4.76% was used, also consisting entirely of medium trucks. A day/night split of 90/10% was used in the analysis.

Table 2 summarizes the traffic volume data used in this study.

Table 2: Projected Road Traffic Data to Year 2050

Roadway	AADT	Day / Night Split [%]	Trucks Percentage (%)		Speed Limit [km/h]
			Medium	Heavy	
Columbia Way	17 082	90 / 10	5.49	0.00	60*
Mount Hope Road	7 830	90 / 10	4.76	0.00	60*

Note: *Analysis conducted at 70 km/h, following Town of Caledon guidelines to use a speed 10 kph above the posted limit.

3.2.2 Road Traffic Noise Predictions

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

Since building envelopes were not provided on the site plan, a 6 m front yard setback and a 6 m rear yard setback were used in the analysis. Sound levels were predicted at a height of 4.5 m for 2nd storey windows, assuming each block has 2-storey dwellings. Prediction locations were chosen around the residential site, as shown in Figure 2, to obtain a good representation of the

future sound levels at various dwellings. Two design concepts have been proposed for the townhouse dwellings adjacent to Mount Hope Road: rear-facing units backing onto Mount Hope Road, or a dual-frontage configuration. Recommendations have been made for both design options. Table 3 summarizes the predicted sound levels at each of the sound level prediction locations.

Table 3: Future Road Traffic Sound Levels, [dBA], Without Mitigation

Prediction Location	Description	Daytime in OLA $L_{EQ\ (16\ hour)}$	Daytime at Façade $L_{EQ\ (16\ hour)}$	Nighttime at Façade $L_{EQ\ (8\ hour)}$
[A]	Units adjacent to Mount Hope Road with exposure to Columbia Way.	61	63	56
[B]	Southernmost units adjacent to Columbia Way	61	67	61
[C]	Westernmost units with exposure to Columbia Way	<55	55	<50
[D]	Northernmost units adjacent to Mount Hope Road	60*	63	56
[E]	Second row of units closest to Columbia Road	<55	58	52

Note: *Applicable to the design option with rear yards facing Mount Hope Road.

3.3 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the façades closest to Mount Hope Road and Columbia Way. The following discussion outlines recommendations for acoustic barriers, ventilation requirements, upgraded building façade constructions, and warning clauses to achieve the noise criteria stated in Table 1.

3.3.1 Outdoor Living Areas

Predicted sound levels in rear yards exposed to Mount Hope Road and Columbia Road are up to 61 dBA (prediction locations [A] and [B]), exceeding the MECP limit of 55 dBA by 6 dBA, respectively. Acoustic barriers of 1.8 m height are required for these dwellings to meet 55 dBA.

Two design alternatives are being considered proposed for the townhouse dwellings adjacent to Mount Hope Road (prediction location [D]): rear-facing orientation towards Mount Hope Road, or dual frontage. Recommendations for the two options are described below.

Option 1: Rear Yards Exposed to Mount Hope Road

Predicted sound levels in rear yards exposed to Mount Hope Road will be up to 60 dBA, 5 dBA in excess of the MECP limit of 55 dBA. Acoustic barriers of 1.8 m height are required for these dwellings to meet 55 dBA.

Option 2: Dual Frontage

The proposed residential dwellings may include balconies and/or terraces less than 4 meters in depth. These balconies and/or terraces are not considered OLAs under MECP guidelines and therefore do not require a noise assessment.

The selection of the preferred option may be determined by the developer based on design, constructability, or other site considerations. The location and extent of the required barriers are shown in Figures 3a and 3b, presenting two feasible configurations for the proposed design concepts. When final detailed grading is available and setbacks of the buildings are determined, the acoustic barrier recommendations should be refined.

As a general note, the wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m^2. The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other wood/concrete composite systems or transparent materials provided that it is free of gaps or cracks within or below its extent. The Caledon specific requirements for the construction of the acoustic barrier are included in Appendix C.

Commercial Block

A commercial block is proposed adjacent to Columbia Way. Residential blocks near this future block may be impacted by the activities associated with uses proposed for the block. A noise study is required for the commercial block by their developer during the approvals process and at the time of Site Plan approval when the siting plans including building elevations and potential uses are available to determine the impact of their activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units, rooftop cooling towers or trucking activities along with loading areas will need to be considered. A noise study is required to ensure that the noise emissions from the commercial/business facilities comply with MECP guidelines limits contained in NPC-216.

3.3.2 Indoor Living Areas

Central Air Conditioning

The predicted future sound levels outside the façade of the southernmost dwellings adjacent to Columbia Way (prediction location [B]), will be greater than 65 dBA during the daytime hours and/or greater than 60 dBA during the nighttime. To address these excesses, the MECP guidelines recommend that the dwelling units be equipped with central air conditioning systems, so that the windows can be closed.

Provision for Future Installation of Air Conditioning

The predicted sound levels at the façades of dwellings nearest Mount Hope Road, and the second to fourth rows of dwellings adjacent to Columbia Way, will be between 56 and 65 dBA during daytime hours and/or between 51 to 60 dBA during nighttime hours. To address these excesses, the MECP guidelines recommend that these dwelling units be equipped with the provision for the future installation of air conditioning or a heat pump by the occupant.

Figure 4 shows the ventilation requirements for the development. 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 and/or heat pumps should minimize noise impacts and comply with criteria of MECP publication NPC-216. The guidelines also recommend warning clauses for all units with ventilation requirements.

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

3.3.3 Building Façade Constructions

Given projected future sound levels at the proposed dwellings adjacent to Columbia Way, MECP guidelines recommend that the building envelopes be designed so that indoor sound levels comply with the MECP noise criteria.

Preliminary calculations have been performed to determine the building envelope constructions likely to be required to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the maximum predicted future sound levels at the building façades, and the anticipated areas of the façade components (walls, doors and windows) relative to the floor area of the adjacent room.

For the purposes of this preliminary analysis, typical window-to-floor areas were conservatively assumed to be 50%. Based upon these assumptions, the minimum required STC requirements are shown in Table 4 below assuming sound entering through windows and walls.

Table 4: Preliminary Glazing Requirements

Prediction Location	Description	[1,2,3]Minimum STC Requirements for Glazing
[B]	Southernmost façades adjacent to Columbia Way	STC-30
[A], [D], [C], [E]	Remaining dwellings	OBC

Note:

[1] Assumed window to floor area ratios of 50% for living/dining rooms and bedrooms; and assumed 100% wall to floor area ratio.

[2] Sound entering through windows and walls.

[3] When detailed floor plans and building elevations are available, the drawings should be reviewed to confirm exterior façade constructions and refine window glazing requirements based on actual window to floor area ratios.

OBC – Ontario Building Code

Note that this STC rating is a minimum for the entire assembly and test data should be provided to verify. If more glazing is incorporated, higher STC requirements may apply.

Once detailed floor plans and building elevations are finalized, acoustical requirements for the building façades could be optimized as part of the detailed design of the dwellings.

4 WARNING CLAUSES

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

Suggested wording for future dwellings with sound level excesses.

Type A:

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

A suggested wording for future dwellings 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 on occasions 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.

Suitable wording for future dwellings requiring the provision for the future installation of air conditioning at the occupant's discretion is given below.

Type C:

> This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound limits of the Municipality and the Ministry of the Environment.

Suitable wording for future dwelling units requiring the inclusion of central air conditioning systems is given below.

Type D:

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

Suitable wording for informing future residents of the adjacent commercial facilities and that sounds from these facilities may at times be audible.

Type E:

> Purchasers are advised of the proximity of adjacent commercial facilities, the sound from which may at times be audible.

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

5 SUMMARY OF RECOMMENDATIONS

The following list and Table 4 summarize the recommendations made in this report.

1. Acoustic barriers are required for the rear yards of dwellings with exposure to Mount Hope Road and/or Columbia Way. See section 3.3.1, and Figures 3a and 3b for detailed requirements.

2. Central air conditioning is required for the southernmost dwelling units adjacent to Columbia Way. The provision for the future installation of air conditioning at the occupant's discretion is required for dwellings closest to Mount Hope Road and, second to fourth rows of dwellings closest to Columbia Way. There are no specific ventilation requirements for the remaining units within the proposed development. See section 3.3.2 and Figure 4 for detailed requirements.

3. For the southernmost dwellings adjacent to Columbia Way, upgraded buidling and glazing constructions are required to ensure adequate indoor sound levels from traffic noise, as outlined in Section 3.3.3. 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 remaining dwelling units.

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

5. A commercial block is proposed at the northwestern corner of the Mount Hope Road and Columbia Way intersection. Some dwellings near this block may be impacted by its activities. A noise study is required for the commercial block by the commericla developer as part of the approvals

process and at the time of Site Plan approval when the siting plans including building elevations and potential uses are available to determine the impact of its activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units, or rooftop cooling towers will need to be considered. The buildings should be appropriately designed to consider the proposed residences. A noise study is required to ensure that the noise emissions from the facilities on the innovation blocks comply with MECP guidelines limits contained in NPC-300.

The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.

Table 4: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Description	Acoustic Barrier	*Ventilation Requirements	Type of Warning Clause	STC Requirements LR/BR
[A], [D]	Units adjacent to Mount Hope Road	✓	Provision for A/C	A, B, C, E	OBC
[B]	Units adjacent to Mount Hope Road and Columbia Way	✓	Central A/C	A, B, D, E	STC-30
[C], [E]	Westernmost units with exposure to Columbia way, and fourth row of units adjacent to Columbia Way	--	Provision for A/C	A, C, E	OBC
	Remaining Dwellings	--	--	E	OBC
	Commercial Block	O	O	O	O

Note:
-- no specific requirement.
✓ Refer to section 3.3.1 for acoustic barrier specifications.
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-216.
OBC – Ontario Building Code
O - When siting information is available for these blocks, a detailed noise study should be conducted to determine the acoustic requirements (acoustic barriers, ventilation and building façade construction) when siting, grading, building elevations and floor plans are available and in the case of the innovation hubs, to ensure compliance with NPC-216.

5.1 Implementation

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

1) When final grading and site plans are available, the acoustic barrier heights should be refined.

2) When siting and lotting information is available for the commercial block, a detailed noise study should be conducted by their developer to refine the acoustic requirements for the site.

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

4) Prior to an application for occupancy permits for this development, the Municipality's building inspector or a Professional Engineer qualified to provide acoustical engineering services in Ontario to shall certify that the noise control measures for the dwellings units have been properly installed and constructed.

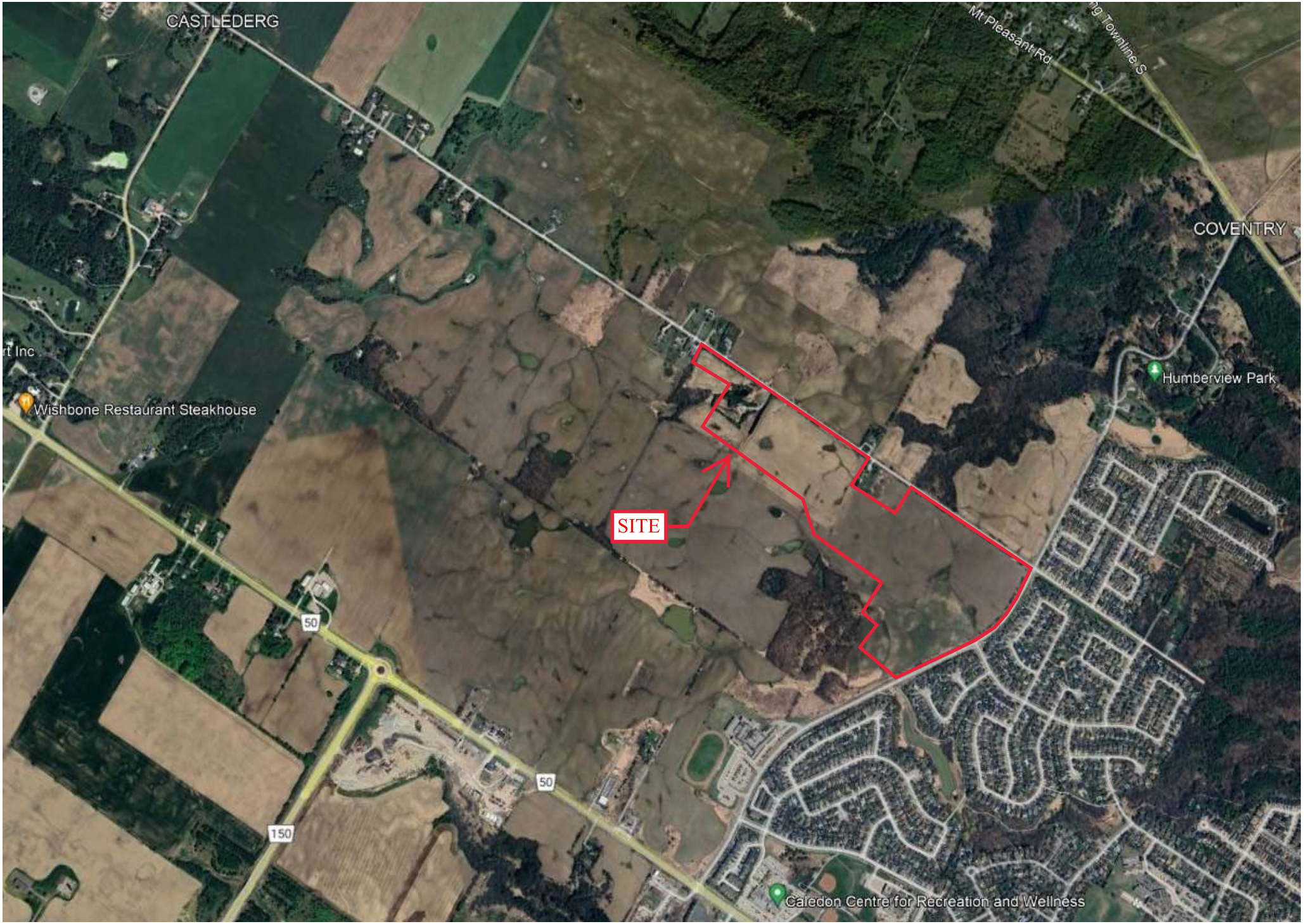


Figure 1: Key Plan

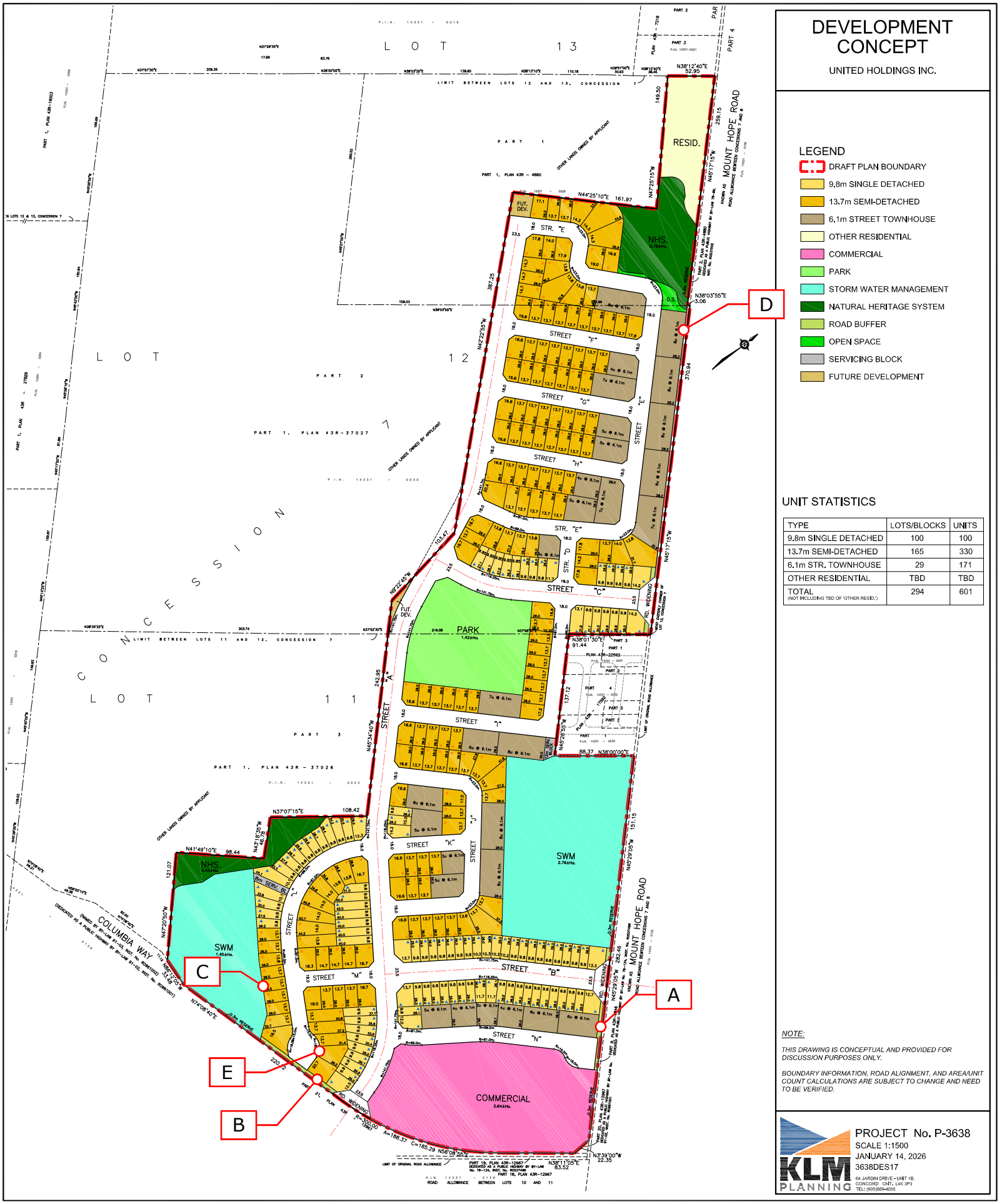


Figure 2: Proposed Concept Plan Showing Prediction Locations

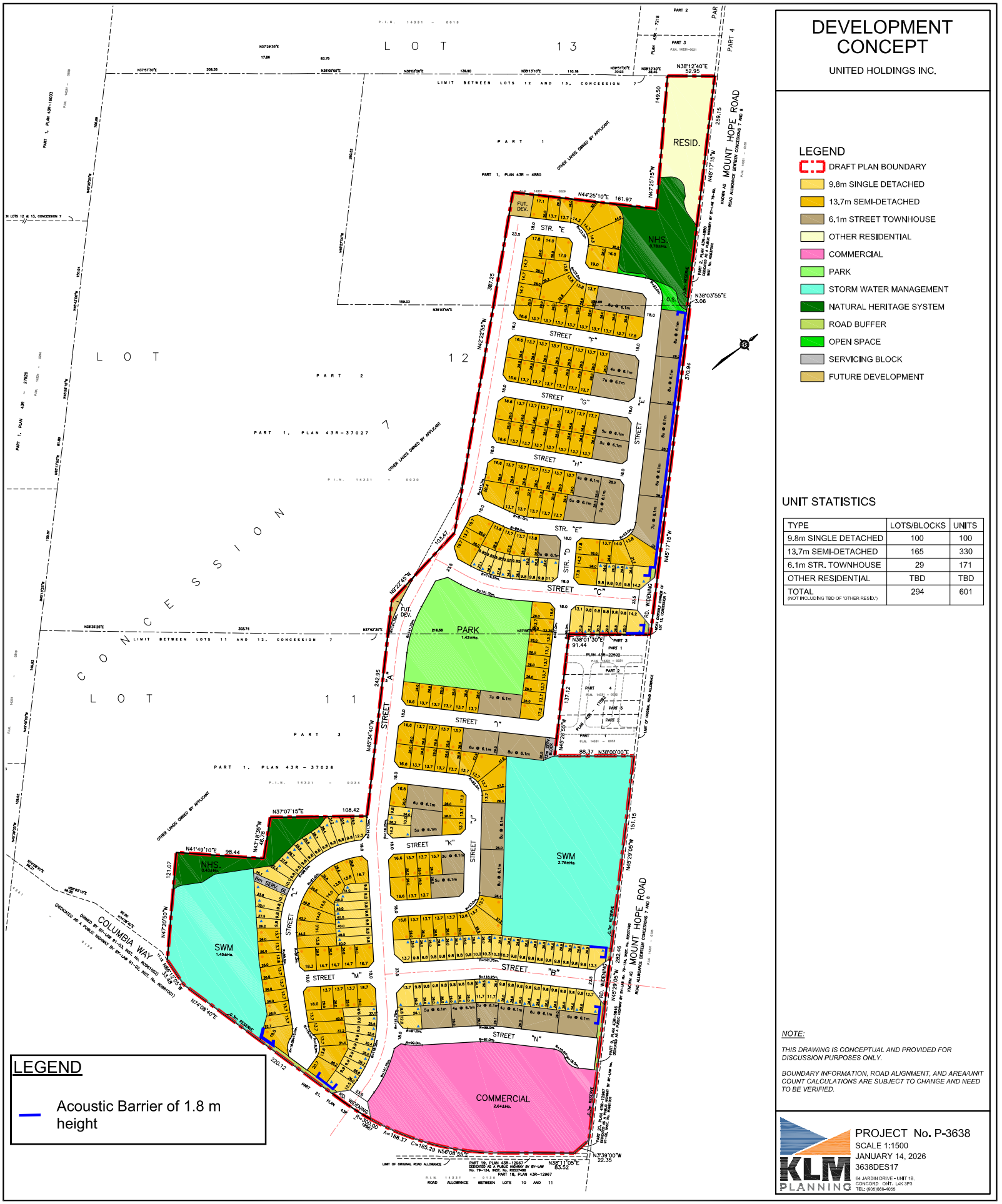


Figure 3a: Proposed Concept Plan Showing Barrier Requirements (Option 1)

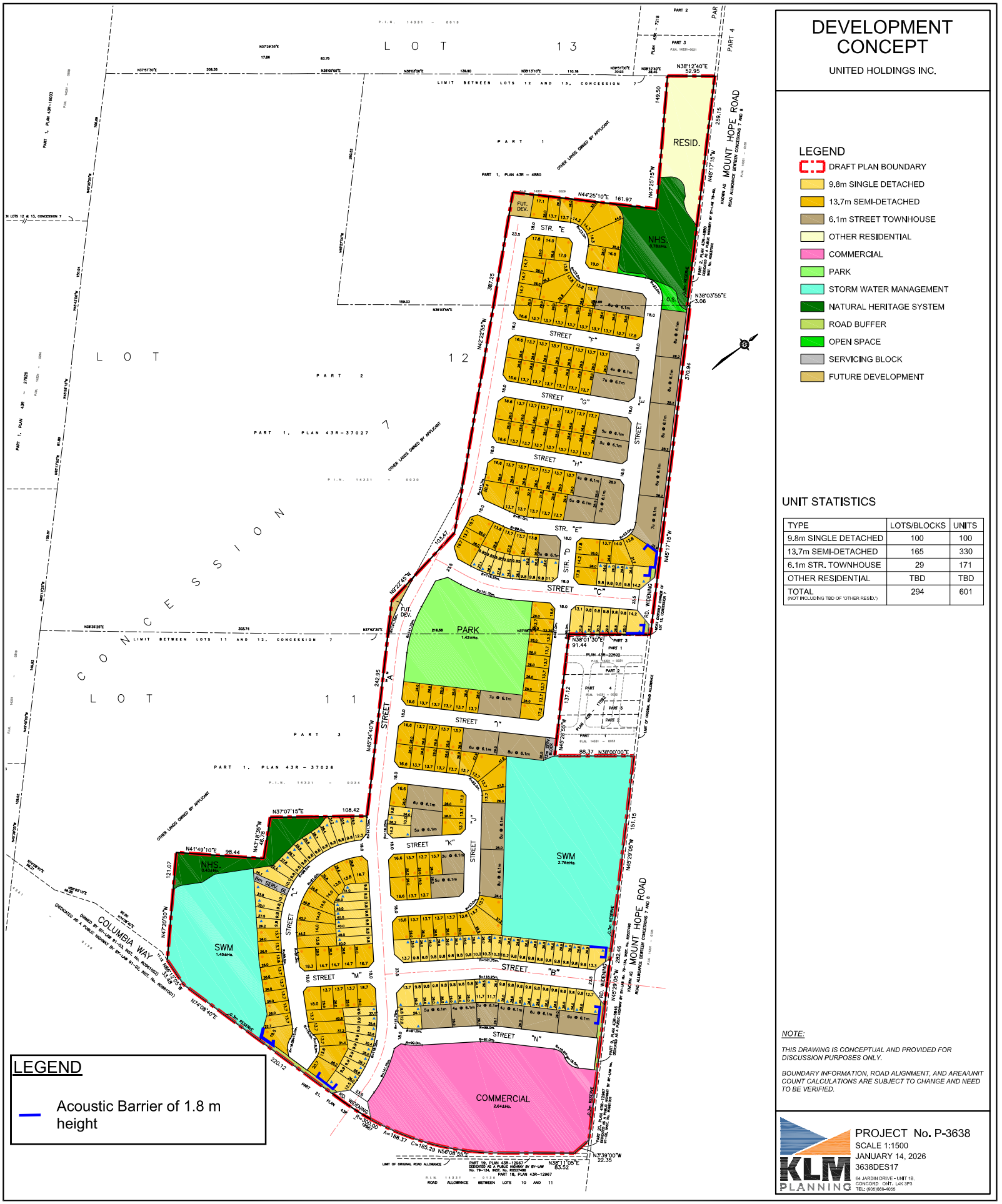


Figure 3b: Proposed Concept Plan Showing Barrier Requirements (Option 2)

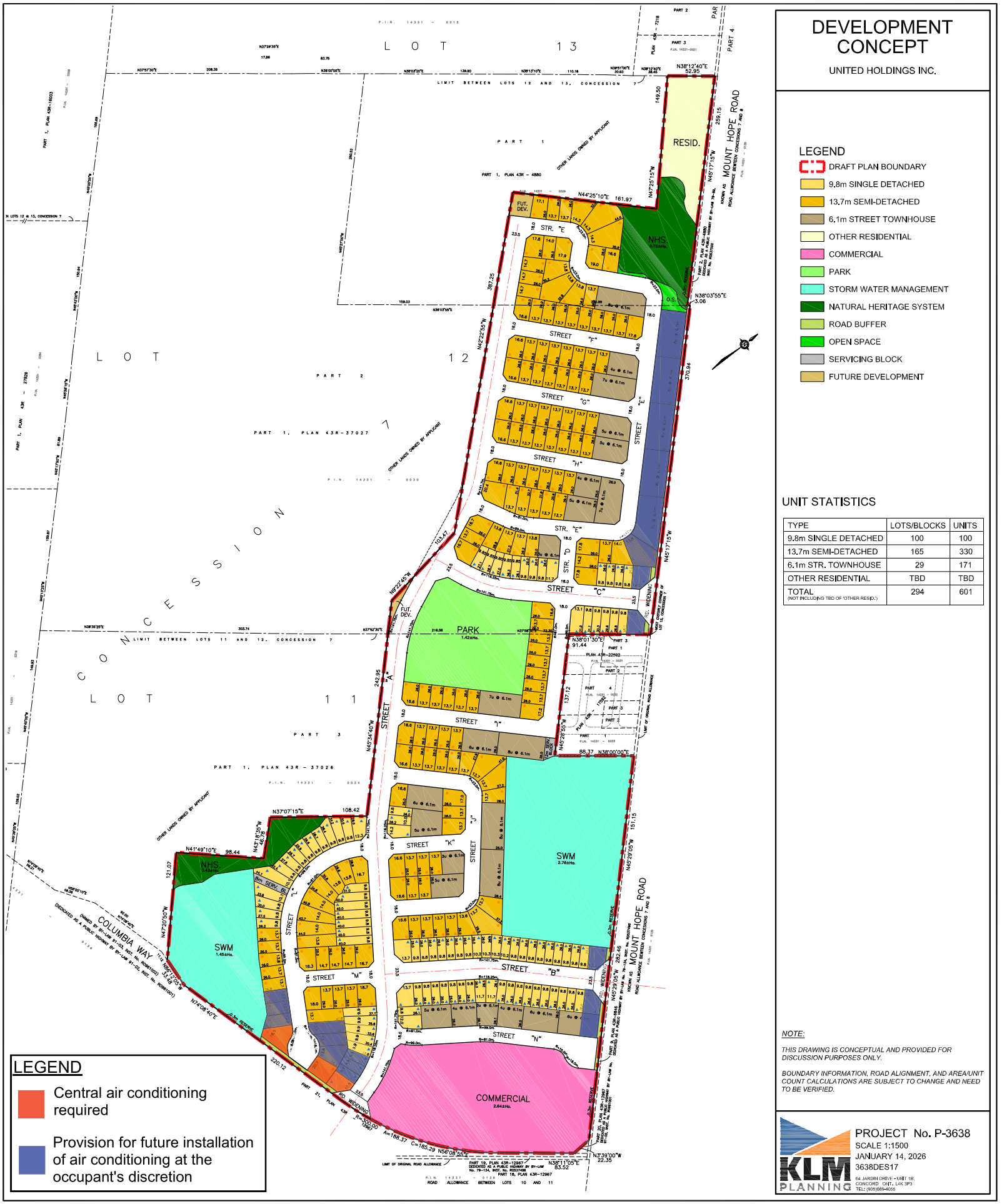
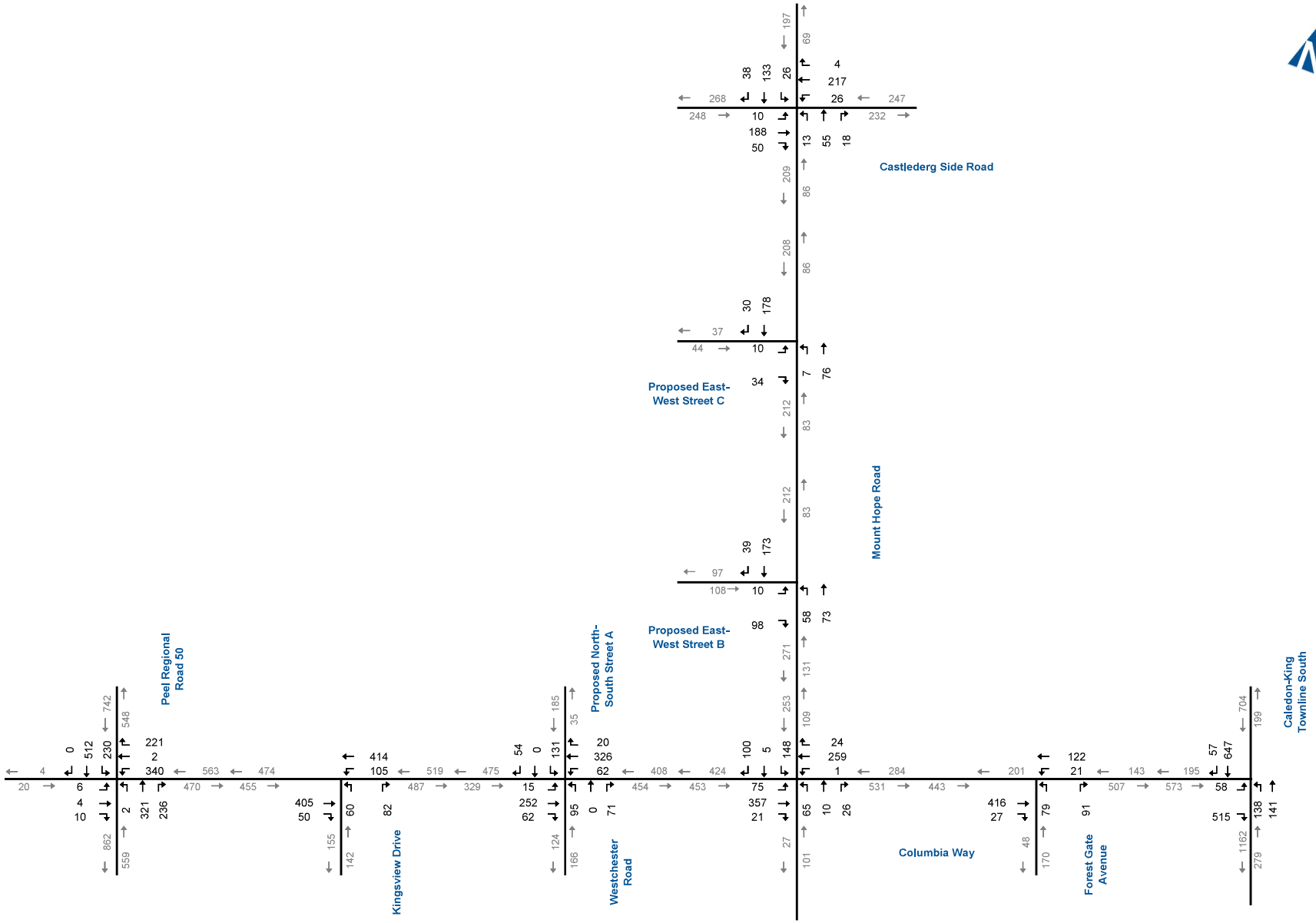
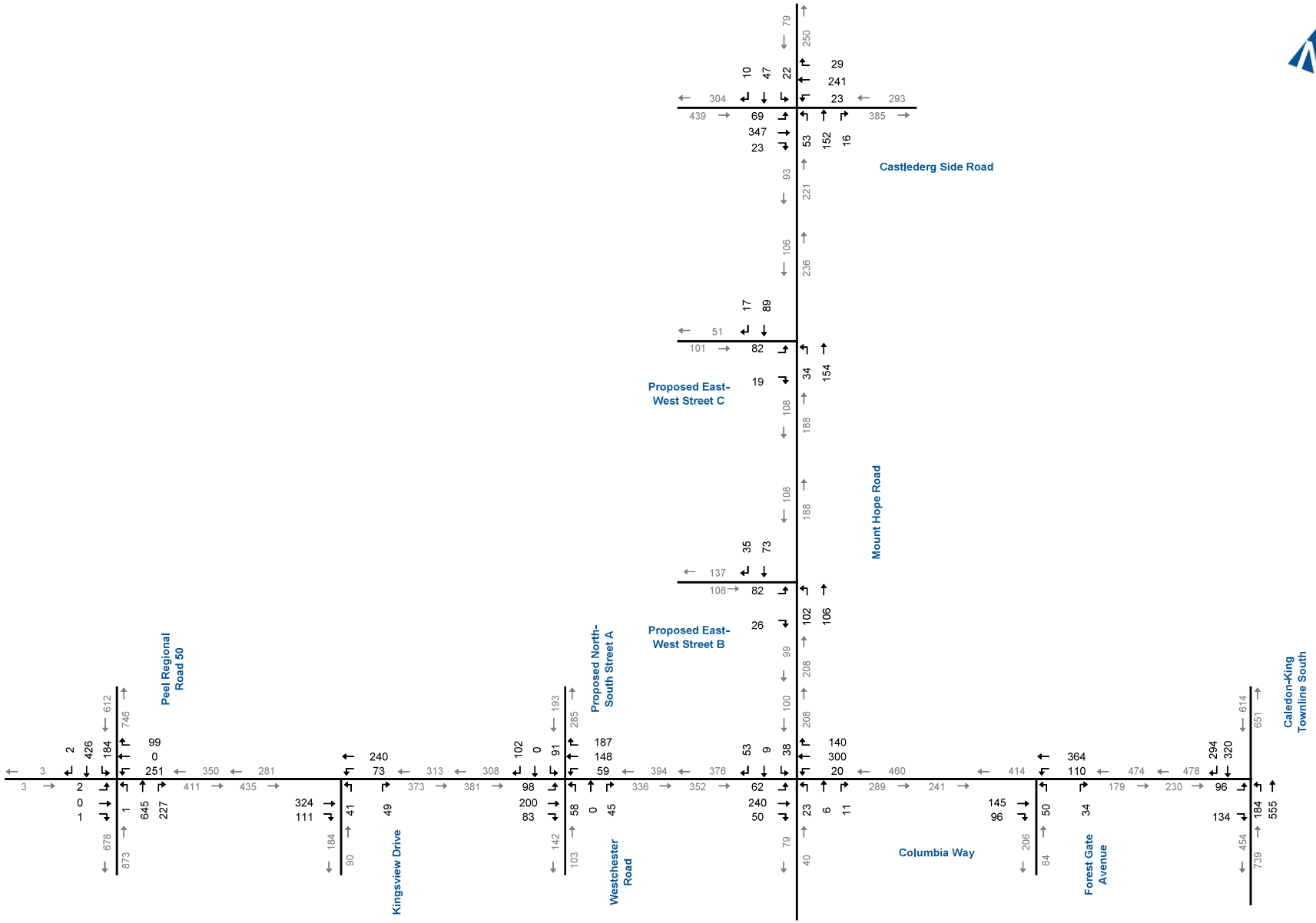


Figure 4: Proposed Concept Plan Showing Ventilation Requirements

Appendix A
Road Traffic Data



2033 Total Traffic Volumes
AM Peak Hour

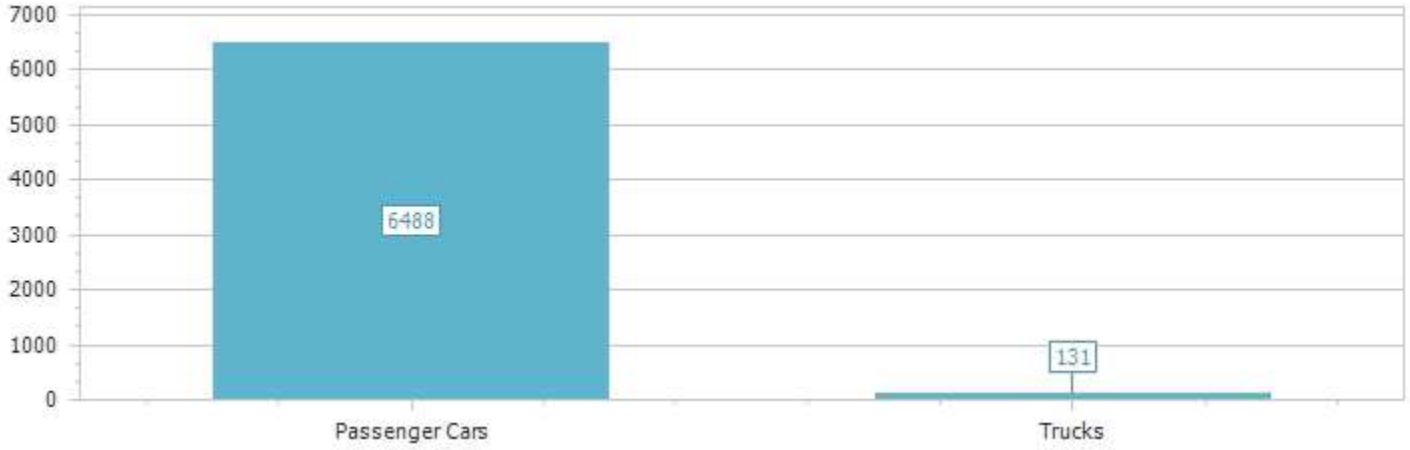


2033 Total Traffic Volumes
PM Peak Hour

Classification Study Report

Location: MOUNT HOPE RD btwn COLUMBIA WY & MOUNT HOPE RD

Municipality: Caledon



Day	Passenger Cars	Trucks	Grand Total
7/22/2021	97.64%	2.36%	100.00%
7/23/2021	98.30%	1.70%	100.00%
7/24/2021	98.80%	1.20%	100.00%
7/25/2021	99.55%	0.45%	100.00%
7/26/2021	98.30%	1.70%	100.00%
7/27/2021	98.53%	1.47%	100.00%
7/28/2021	95.24%	4.76%	100.00%
Grand Total	98.02%	1.98%	100.00%

Heavy Truck Percentage Summary

Location: 18663 MOUNT HOPE RD btwn COLUMBIA WY & MOUNT HOPE RD

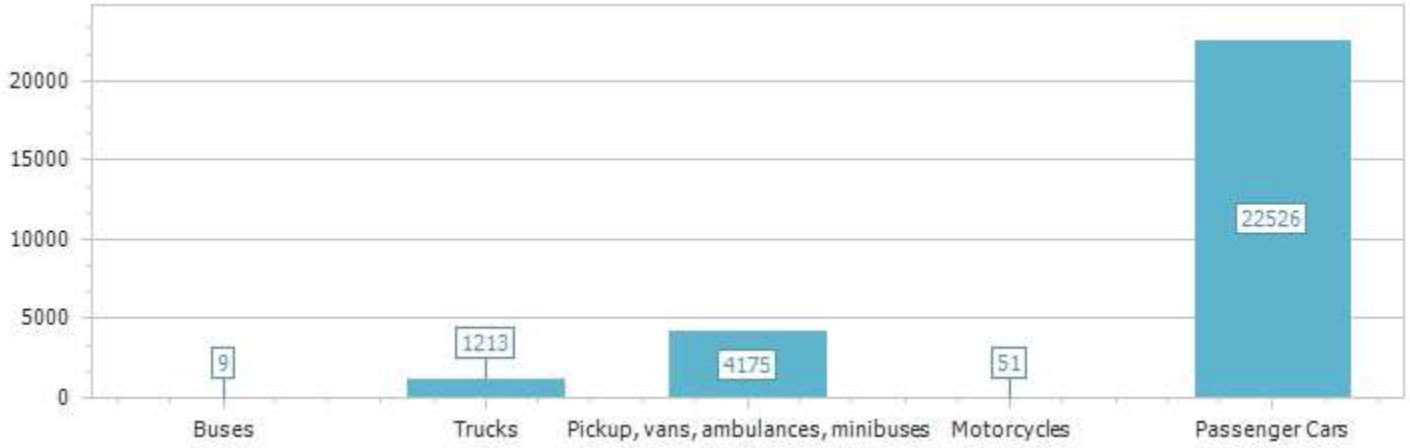
Date	Heavy Truck %	AADT
Thu, Jul 22, 2021	0.0	917
Fri, Jul 23, 2021	0.0	949
Sat, Jul 24, 2021	0.0	839
Sun, Jul 25, 2021	0.0	1,358
Mon, Jul 26, 2021	0.0	922
Tue, Jul 27, 2021	0.0	840
Wed, Jul 28, 2021	0.0	898

Direction	Result Date	Total Bin Count
Both directions	7/22/2021	1,018
Northbound	7/22/2021	527
Southbound	7/22/2021	491
Both directions	7/23/2021	1,115
Northbound	7/23/2021	547
Southbound	7/23/2021	568
Both directions	7/24/2021	831
Northbound	7/24/2021	415
Southbound	7/24/2021	416
Both directions	7/25/2021	885
Northbound	7/25/2021	416
Southbound	7/25/2021	469
Both directions	7/26/2021	941
Northbound	7/26/2021	469
Southbound	7/26/2021	472
Both directions	7/27/2021	884
Northbound	7/27/2021	435
Southbound	7/27/2021	449
Both directions	7/28/2021	945
Northbound	7/28/2021	474
Southbound	7/28/2021	471

Classification Study Report

Location: COLUMBIA WY btwn COLUMBIA WY & WESTCHESTER BV

Municipality: Caledon



Day	Buses	Motorcycles	Passenger Cars	vans, ambulances, m	Trucks	Grand Total
4/19/2023	0.00%	0.07%	78.98%	16.08%	4.86%	100.00%
4/20/2023	0.00%	0.09%	80.38%	14.40%	5.13%	100.00%
4/21/2023	0.04%	0.40%	80.15%	14.79%	4.62%	100.00%
4/22/2023	0.09%	0.03%	83.62%	13.72%	2.54%	100.00%
4/23/2023	0.00%	0.26%	82.55%	15.27%	1.92%	100.00%
4/24/2023	0.09%	0.14%	79.08%	15.97%	4.72%	100.00%
4/25/2023	0.00%	0.26%	80.13%	14.11%	5.49%	100.00%
Grand Total	0.03%	0.18%	80.52%	14.92%	4.34%	100.00%

Heavy Truck Percentage Summary

Location: 18664 COLUMBIA WY btwn COLUMBIA WY & WESTCHESTER BV

Date	Heavy Truck %	AADT
Wed, Apr 19, 2023	0.0	4,067
Thu, Apr 20, 2023	0.0	4,125
Fri, Apr 21, 2023	0.0	3,932
Sat, Apr 22, 2023	0.0	3,481
Sun, Apr 23, 2023	0.0	4,866
Mon, Apr 24, 2023	0.0	4,324
Tue, Apr 25, 2023	0.0	4,101

Direction	Result Date	Total Bin Count
Both directions	4/19/2023	4,153
Eastbound	4/19/2023	2,233
Westbound	4/19/2023	1,920
Both directions	4/20/2023	4,444
Eastbound	4/20/2023	2,335
Westbound	4/20/2023	2,109
Both directions	4/21/2023	4,483
Eastbound	4/21/2023	2,415
Westbound	4/21/2023	2,068
Both directions	4/22/2023	3,346
Eastbound	4/22/2023	1,831
Westbound	4/22/2023	1,515
Both directions	4/23/2023	3,078
Eastbound	4/23/2023	1,692
Westbound	4/23/2023	1,386
Both directions	4/24/2023	4,282
Eastbound	4/24/2023	2,296
Westbound	4/24/2023	1,986
Both directions	4/25/2023	4,188
Eastbound	4/25/2023	2,214
Westbound	4/25/2023	1,974

Appendix B
Sample STAMSON 5.04 Output

```
STAMSON 5.0        NORMAL REPORT        Date: 20-02-2026 15:55:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te                 Time Period: Day/Night 16/8 hours
Description: A_Units Adjacent to Mount Hope Road w Exposure to
             Columbia Way

Road data, segment # 1: Mount Hope (day/night)
----------------------------------------------
Car traffic volume  :  6712/746   veh/TimePeriod  *
Medium truck volume :   335/37    veh/TimePeriod  *
Heavy truck volume  :     0/0     veh/TimePeriod  *
Posted speed limit  :    70 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):   4020
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   4.76
    Heavy Truck  % of Total Volume     :   0.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Mount Hope (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: columbia (day/night)
--------------------------------------------
Car traffic volume  : 14530/1614  veh/TimePeriod  *
Medium truck volume :   844/94    veh/TimePeriod  *
Heavy truck volume  :     0/0     veh/TimePeriod  *
Posted speed limit  :    70 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):   8770
    Percentage of Annual Growth        :   2.50
```

```
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   5.49
    Heavy Truck  % of Total Volume     :   0.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: columbia (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  : 142.00 / 142.00 m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Mount Hope (day)
-------------------------------------

Source height = 0.50 m

ROAD (0.00 + 62.53 + 0.00) = 62.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  64.57   0.00  -2.04   0.00   0.00   0.00   0.00  62.53
-------------------------------------------------------------------------------

Segment Leq : 62.53 dBA

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

Source height = 0.50 m

ROAD (0.00 + 48.21 + 0.00) = 48.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.60  68.19   0.00 -15.62  -4.37   0.00   0.00   0.00  48.21
-------------------------------------------------------------------------------

Segment Leq : 48.21 dBA

Total Leq All Segments: 62.69 dBA

Results segment # 1: Mount Hope (night)
---------------------------------------

Source height = 0.50 m

ROAD (0.00 + 55.99 + 0.00) = 55.99 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.03	0.00	-2.04	0.00	0.00	0.00	0.00	55.99

Segment Leq : 55.99 dBA

Results segment # 2: columbia (night)

Source height = 0.50 m

ROAD (0.00 + 41.68 + 0.00) = 41.68 dBA

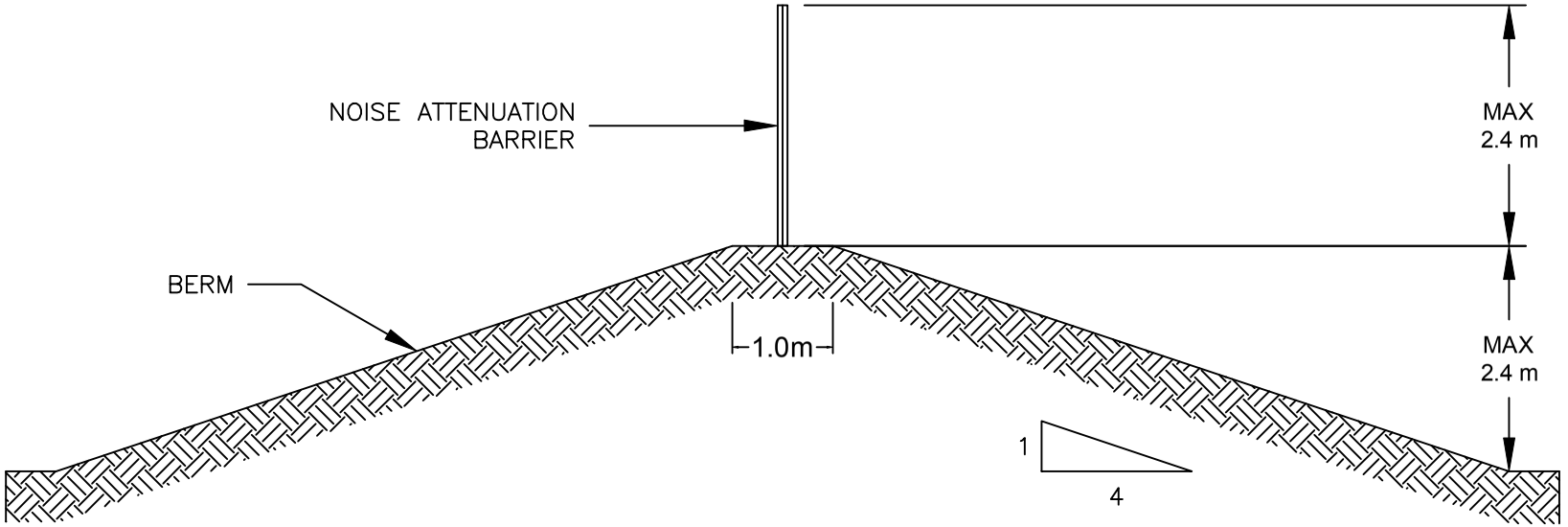
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	61.67	0.00	-15.62	-4.37	0.00	0.00	0.00	41.68

Segment Leq : 41.68 dBA

Total Leq All Segments: 56.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.69
(NIGHT): 56.15

Appendix C
Relevant Pages from Town of Caledon Development Standards, Policies and Guidelines



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

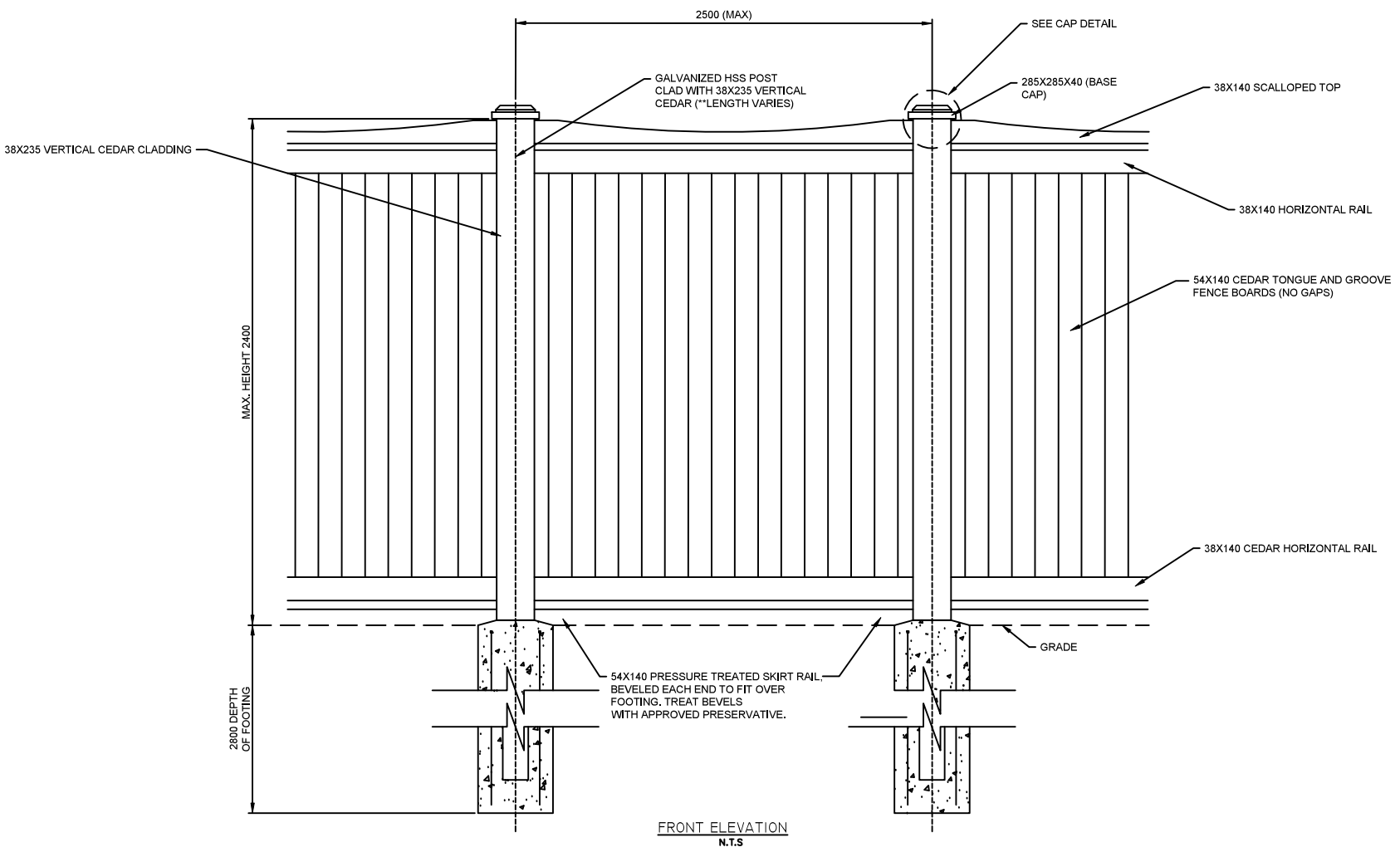
ACOUSTIC FENCE DETAIL

NO.	REVISION	APR'D	DATE

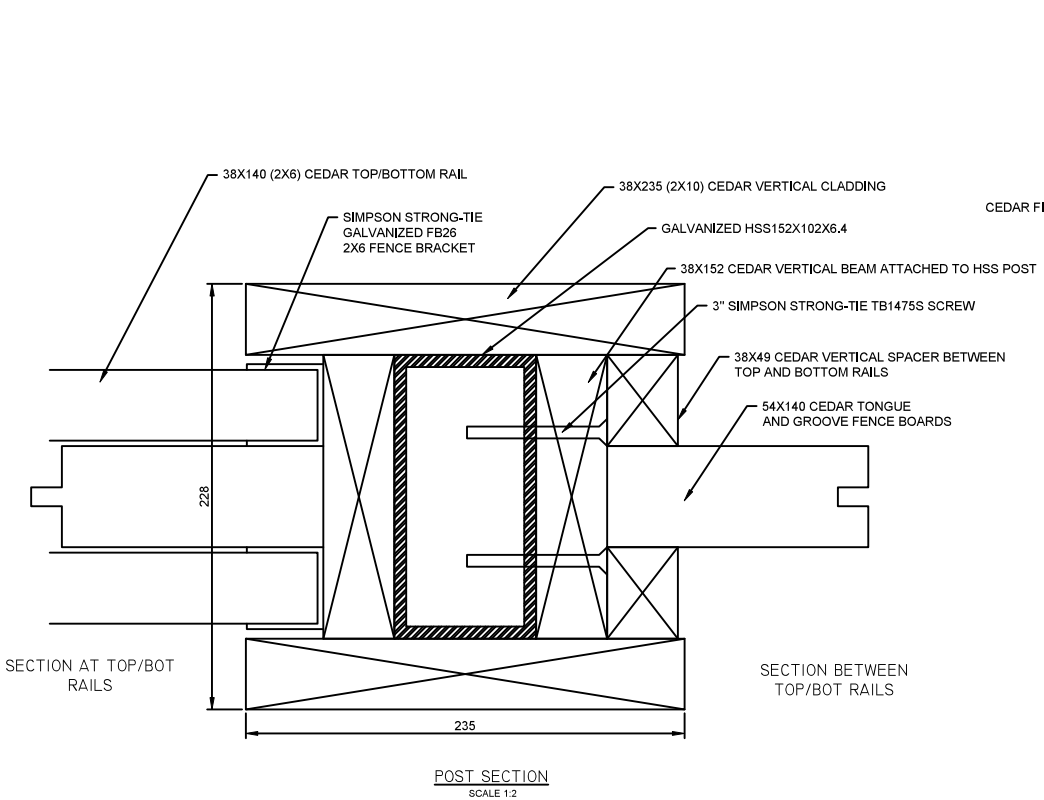
APR'D: R.G. | DATE: JULY 17

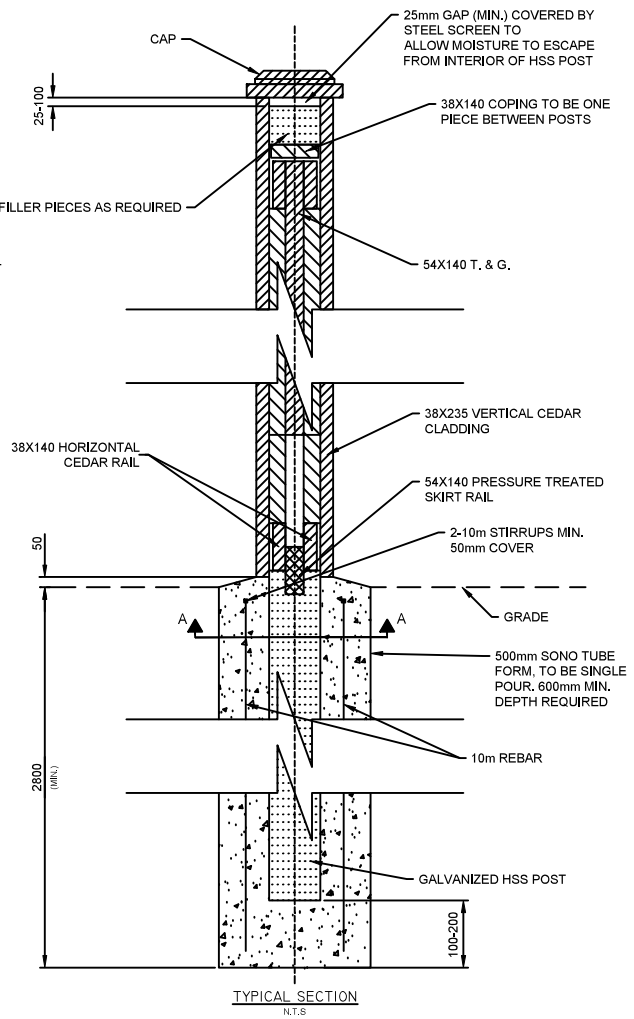
DRAWN: B.M. | SCALE: N.T.S.

STANDARD No. 614

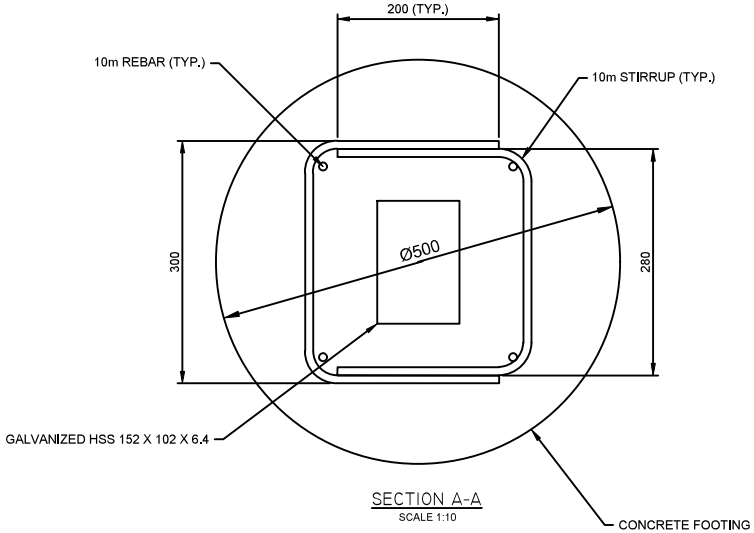


TOWN OF CALEDON						
					APR'D: R.G	DATE: JULY 17
					DRAWN: B.M	SCALE: N.T.S.
ACOUSTIC FENCE DETAIL	1	TEXT AND DIMENSION REV.	KP	DEC 19	STANDARD No. 615	
	NO.	REVISION	APR'D	DATE		

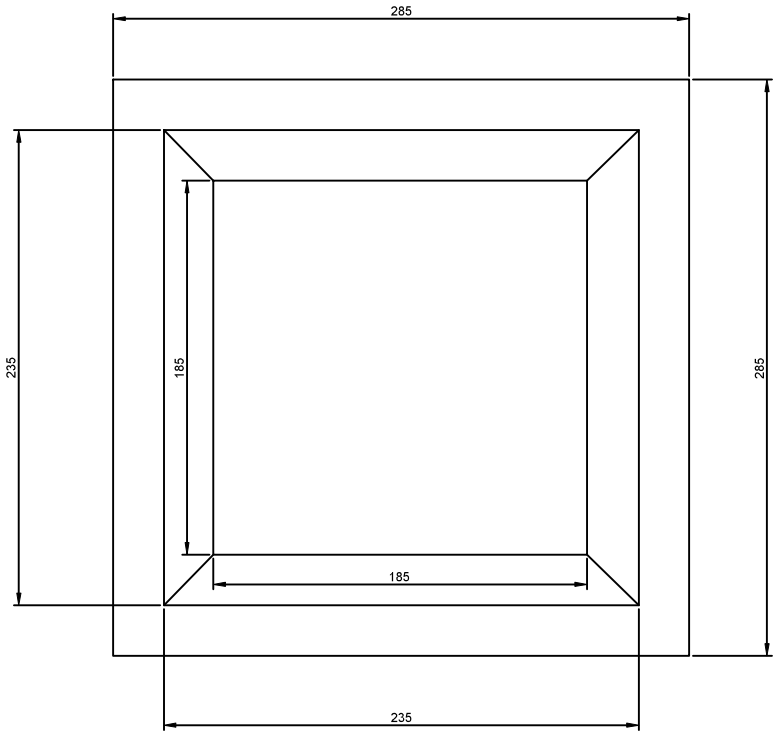


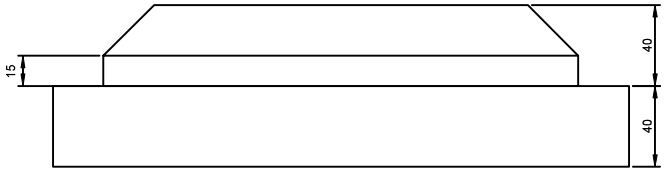


TOWN OF CALEDON						
					APR'D: R.G	DATE: JULY 17
					DRAWN: B.M	SCALE: N.T.S.
ACOUSTIC FENCE DETAIL	1	TEXT & DIMENSION REV.	KP	DEC 19	STANDARD No. 616	
	NO.	REVISION	APR'D	DATE		



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