



# Noise Impact Study

**242 – 246 West Side Road**

Bensanti Developments Ltd.

13 January 2025

➔ **The Power of Commitment**



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**Document Status**

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# Executive Summary

GHD Limited (GHD) was retained by Bensanti Developments Ltd. to prepare a Noise Impact Study for the proposed residential development (Development) located at 242 – 246 West Side Road, Port Colborne, Ontario (Site). This Study has been prepared in support of the planning approvals for the Development.

The Development consists of one 9-storey residential building. There is parking at grade.

The purpose of this Study is to assess the following potential impacts:

- Noise impacts at the Development due to future road traffic
- Stationary noise impacts from off-site industrial/commercial facilities
- Stationary noise impacts from the Development to itself and the environment

Predicted ambient noise levels at the Development from road traffic are sufficiently high that noise mitigation is required in the form of upgraded building façade components, provisions for central air conditioning, as well as recommended noise warning clauses.

Predicted cumulative stationary noise levels at the Site from nearby industrial and commercial facilities are within the applicable stationary noise limits of the MECP, and thus will not reduce the ability of the facilities to comply with the MECP noise guidelines.

Noise emissions from on-site mechanical equipment are recommended to be evaluated during the detailed design phase. Cost contingencies should be maintained for the design and installation of noise controls, such as those described herein.

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.3 and the assumptions and qualifications contained throughout the Report.

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# 1. Introduction

## 1.1 Purpose of this Report

GHD Limited (GHD) was retained by Bensanti Developments Ltd. to prepare a Noise Impact Study (Study) for the proposed residential Development located at 242 – 246 West Side Road, Port Colborne, Ontario, Ontario (Development). This Study has been prepared in support of the planning applications for the Development.

## 1.2 Site and Development Description

The Site is located approximately 14 metres east of West Side Road. A key plan is included as Figure 2.1, which shows the location of the Site in relation to these transportation corridors.

The Site is currently zoned as Residential (R1/R3). The lands surrounding the Site include properties zoned as Residential (R1, R3) to the north, south, east and west. A zoning map is included in Figure A.1 of Appendix A.

Existing noise sources surrounding the Site are summarized as follows:

- **Road Traffic:** West Side Road approximately 14 metres (m) to the west of the Site, respectively
- **Stationary:** The Port Colborne Mall complex is approximately 111 m northwest to the Site

The Development consists of one 9-storey residential building. There is parking at grade.

## 1.3 Scope and Limitations

*This report: has been prepared by GHD for Bensanti Developments Ltd. and may only be used and relied on by Bensanti Developments Ltd. for the purpose agreed between GHD and Bensanti Developments Ltd. as set out in section 1.1 of this report.*

*GHD otherwise disclaims responsibility to any person other than Bensanti Developments Ltd. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.*

*The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.*

*The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.*

*The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.*

## 2. Sound and Vibration Criteria

### 2.1 Municipal Ordinances

The Corporation of the City of Port Colborne By-law 4588/119/04, Noise (Noise By-Law), dated October 12, 2004, has been reviewed in the context of this Study. The Noise By-Law includes specific requirements and prohibitions of noise emissions based on source type during certain time periods, including:

- Noise emissions resulting from loading, unloading, delivering, packing, unpacking, and otherwise handling of any containers, products or materials are prohibited from 7:00 pm to 7:00 am the next day, except until 9:00 am on Saturdays, Sundays, and statutory holidays (Noise By-Law Schedule 2 Section 3).
- Noise from stationary sources are required to comply with the applicable sound level limits prescribed in Provincial noise pollution control guidelines (Noise By-Law section 4 (1)).

As of September 17, 2021, by way of the Main Street Recovery Act, the Province of Ontario removed the power of municipalities to prohibit/regulate noise in connection with delivery of goods to retail business establishments, restaurants (including cafes and bars), hotels, motels, and goods distribution facilities. It is understood that this bill is intended to aid in the economic recovery due to impacts of the COVID-19 pandemic. There are provisions in the Main Street Recovery Act that provide for future regulations to restore municipal powers; however, these regulations have not yet been enacted. Therefore, for the purposes of this Study, (Noise By-Law section 4 (1)) of the Noise By-Law has been assumed to have no effect on the affected businesses.

As noted above, the Noise By-Law makes reference to the Provincial noise pollution control guidelines in regards to stationary sources; therefore, sound level criteria contained in the Ontario Ministry of the Environment, Conservation and Parks (MECP) guideline NPC-300 "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning" (August 2013) are appropriate to be used as the basis for assessment of potential noise impacts.

### 2.2 Transportation Noise Criteria

#### 2.2.1 Road Traffic Criteria

Under NPC-300, road traffic noise impacts are evaluated separately for exterior receptors and interior receptors based on the average day (07:00 to 23:00) and night (23:00 to 07:00) noise impacts. The sound levels are expressed in terms of A-weighted equivalent sound levels (Leq).

NPC-300 defines two categories of receivers for transportation noise:

- Plane of Window (POW): Point corresponding with the centre of a window of a sensitive space.
- Outdoor Living Area (OLA): Outdoor location intended and designed for quiet enjoyment of the outdoor environment that is readily accessible from the building (e.g., backyards, front yards, gardens, terraces, patios). Private balconies and terraces are only considered OLAs if they are greater than 4 metres in depth and if they are the only outdoor living area for the occupant(s).

NPC-300 specifies sound level limits for POW and OLA receivers as summarized in Table 2.1 below.

Table 2.1 Road Traffic – Outdoor Sound Level Limits

Receiver Category	Sound Level Limit (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)
Plane-of-Window (POW)	55	50
Outdoor Living Area (OLA)	55	N/A

For POWs, combined road and rail traffic sound levels exceeding the corresponding criteria above would require additional controls for MECF compliance. Depending on the magnitude of the exceedances, additional controls may include ventilation requirements, requirements for building envelope elements, and/or noise warning clauses.

For OLAs, road traffic sound levels exceeding the daytime limit indicated above would require design of noise barriers to achieve the target, and/or warning clauses. NPC-300 states that sound levels up to 5 dBA above the OLA sound level limit (i.e., up to 60 dBA) are acceptable with the use of an appropriate noise warning clause.

If POW sound levels from future road traffic exceed 65 dBA during the day or 60 dBA at night, building envelope components must be designed to achieve the indoor sound level limits of NPC-300. The indoor sound level limits for road traffic are summarized in Table 2.2 below.

**Table 2.2 Road Traffic – Indoor Sound Level Limits (Residential uses)**

Receiver Category	Road Sound Level Limits (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)
Indoor living areas (excluding sleeping quarters)	45	45
Sleeping quarters	45	40

## 2.3 Stationary Noise Limits

### 2.3.1 MECF Standard Limits

NPC-300 defines stationary noise sources as sound from all sources that are normally operated within the property lines of a facility. The noise impact from stationary sources is evaluated based on operations during a predictable worst-case hour. Stationary noise assessment criteria are generally determined based on the MECF's minimum exclusionary sound level limits, as presented in NPC-300, in comparison to the background sound levels experienced in the area.

The Site is in what would generally be considered a Class 1 acoustic environment as defined by NPC-300, as the acoustic environment is dominated by human activities (i.e., road traffic).

Table 2.3 below summarizes the MECF's minimum exclusionary sound level limits for Class 1 areas, which are expressed in terms of 1-hour equivalent sound levels (1-hour Leq):

**Table 2.3 MECF Minimum Exclusionary Sound Level Limits for Steady Sound – Class 1 Area**

Point of Reception Type	Sound Level Limits (dBA)	
	Day (7am – 11pm)	Night (11pm – 7am)
Plane of window	50	45
Outdoor space	50	--

The applicable guideline sound level limits for regular scheduled testing of emergency equipment (e.g., standby generator) are 5 dBA higher than the corresponding values above.



Impulse noise sources are evaluated separately from steady noise sources. For impulse noise, the sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (LLM), and is dependent on the number of impulses in a given hour. The impulse sound level limits for a Class 1 Areas are summarized as follows:

**Table 2.4** MECP Minimum Exclusionary Sound Level Limits for Impulsive Sound – Class 1 Area

Number of Impulses Per Hour	Sound Level Limits (dBA)	
	Plane of Window POR (7am – 11pm / 11pm – 7pm)	Outdoor POR (7am – 11pm)
9 or more	50 / 45	50
7 to 8	55 / 50	55
5 to 6	60 / 55	60
4	65 / 60	65
3	70 / 65	70
2	75 / 70	75
1	80 / 75	80

### 2.3.2 Residential Air Conditioners

The Ontario Ministry of Environment, Conservation and Parks (MECP) guideline NPC-216 “Residential Air Conditioning Devices” (1993) contains noise level criteria for stationary noise sources (e.g., rooftop mechanical equipment, etc.). The assessment criteria are determined for a point-of-reception based on the minimum exclusionary limits presented in Table 216-2 of NPC-216 in comparison with the existing background sound levels (plus 5 dBA) experienced in the area (whichever is higher):

**Table 2.5** NPC-216 Criteria for Central Air Conditioning Devices

Area Type	One Hour Leq
Class 2	45
Class 1	50*

Note:

\* When central air conditioners are requirements for noise control in the interior living spaces of new developments, the specific sound level limit is increased to 55 dBA.

## 3. Transportation Noise Impact Assessment

### 3.1 Methodology

The roadways near the Site were modelled as sources of sound using the road element in CadnaA set to predict noise emission rates in accordance with the United States of America’s (US) Department of Transportation’s Traffic Noise Model (TNM).

The 3D CadnaA model accounts for the complex geometry at the Site and the surrounding area. The area surrounding the Site features minor elevation changes. Road traffic noise levels were predicted at all POWs of the Development using the Building Noise Map feature of CadnaA, and at OLAs using point receivers.

To demonstrate that the model is generally consistent with the STAMSON model that is the standard in Ontario, a sample STAMSON calculation is included in Appendix B representing suite 802-bedroom west façade at 28.9 m

above grade. The prediction results are within  $\pm 2$  dBA of the CadnaA noise predictions, indicating that the CadnaA model is consistent with STAMSON.

## 3.2 Road Traffic Input Parameters

Future road traffic model parameters used in this Study are summarized as follows:

Table 3.1 Future (2034) Road Traffic Input Parameters

Road Segment	Future AADT	Speed Limit (km/h)	Day / Night Split	Commercial Vehicle Rates (medium trucks / heavy trucks)
West Side Road (Highway 58)	26,723	50	90% / 10%	5% / 8%

Road traffic volumes for West Side Road (Highway 58) were obtained from the MTO in the form of SADT volumes for the year 2015. GHD applied an assumed growth rate of 2.5% to estimate the future 2034 AADT. A day / night split of 90% / 10% was assumed. Commercial vehicle rates were assumed based on guidance from the MTO.

Figure 2.1 shows the location of the roadways noted above in relation to the Site. All road traffic data referenced in this Study is included in Appendix C.

## 3.3 Road Traffic Results

### 3.3.1 Plane of Window Receivers

Predicted future road traffic noise impacts at the worst-case POW receivers of the Development are summarized as follows:

Table 3.2 Future Road Noise Levels – Plane of Window

Façade	Future Noise Levels (dBA)		Limits Exceeded?
	Day	Night	
North	62	56	Yes
East	43	37	No
South	63	56	Yes
West	67	61	Yes

As seen above, future road noise levels at the façades generally range from 43 dBA to 67 dBA during the day and 37 dBA to 61 dBA at night. These sound levels are sufficiently high that the Development must incorporate physical noise mitigation and noise warning clauses in accordance with NPC-300, which are described further in Section 5.3. Figure 3.1A shows the predicted cumulative road noise levels at the façades throughout the Development.

### 3.3.2 Outdoor Living Area

Predicted future road traffic noise impacts at the worst-case OLA receivers of the Development are summarized as follows:

Table 3.3 Future Road Noise Levels – Outdoor Living Area

Receiver ID	Receiver Description	Future Daytime Noise Level (dBA)	Limit Exceeded?
OLA-01	Shared outdoor amenity space on the ground floor (1.5 metres above grade)	53	No

As seen above, the cumulative daytime road noise levels at the OLA are 53 dBA. Noise levels at OLA-01 are sufficiently low that no mitigation is required. OLA receiver location is shown in Figure 3.1B.

## 3.4 Transportation Noise Mitigation

### 3.4.1 Building Envelope Construction

Predicted future traffic noise levels are sufficiently high that the building envelope must be designed with sufficient sound insulation performance to achieve the sound level criteria of NPC-300 for indoor living spaces. Sound insulation performance for windows and walls are commonly specified in terms of Sound Transmission Class (STC) ratings. Higher STC ratings generally correspond to higher sound insulation performance.

STC rating requirements are dependent on the exterior noise levels, source type/spectrum, angles of incidence, sizes of façade components relative to the room size, and sound absorption characteristics of the subject indoor living space. Using these variables, STC rating requirements can be calculated using the method described in the National Research Council Canada's "Controlling Sound Transmission into Buildings" (BPN 56) publication. In accordance with NPC-300, STC rating requirements are calculated separately for road, rail, and air traffic noise, and are then combined on a logarithmic energy sum basis.

Based on "For ZBA/OPA" Architectural Drawings dated March 29, 2023 detailed floor plans and building elevations were used to calculate the window-to-floor area (i.e., total window area for a room divided by its floor area). Window-to-floor area of 96% for sleeping quarters and 112% for indoor living areas were used.

Based on the above assumptions, the minimum STC rating requirements at the worst-case façades are **STC-33** for windows and **STC-40** for exterior walls. Other façades that have less direct exposure to road traffic noise have lower STC rating requirements, as shown in Figure 3.2.

Examples of window assemblies capable of achieving the necessary performance are included in Table 3.4 below:

Table 3.4 Example Window Assemblies and STC Ratings

STC Requirement	Window Assembly Short Form	Window Assembly Description
STC-33	6-13AS-6	Two 6 mm thick monolithic glass panes separated by an air gap of 13 mm

STC ratings for windows are dependent on a variety of factors (e.g., frame design, seals, etc.), and can vary significantly between manufacturers. Therefore, the final STC rating requirements for the windows should be included in the specifications, and window suppliers should be required to submit laboratory test data with their shop drawings to demonstrate that the STC requirements will be achieved.

### 3.4.2 Ventilation

Predicted future traffic noise levels at west façade of the Development are sufficiently high that central air conditioning is required to be installed prior to occupancy for all residential suites with windows on the west façade of the building. This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met. Warning clause **Type D** should also be used for these suites.

Predicted future traffic noise levels at the north and south façades of the Development are sufficiently high that, at a minimum, provisions must be made to enable installation of central air conditioning at the occupant's discretion (i.e., ductwork must be designed and installed to accommodate a future central air conditioning system installation). This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met. Warning clause **Type C** would be required in the case that central air conditioning is not installed prior to occupancy. However, if central air conditioning systems are installed prior to occupancy, then warning clause **Type D** should be used instead. Warning clause wording is included in Section 5.3 and declarations for specified residential suites of the Development as specified in Figure 3.3.

## **4. Stationary Noise Impact Assessment**

There are existing / approved sensitive uses between the Development and the nearest commercial uses. Therefore, the Development does not affect the ability of nearby employment uses to comply with the sound level limits of NPC-300, and no stationary noise compatibility issues are expected.

### **4.1 Noise Impacts from the Development**

#### **4.1.1 Outdoor Noise Impacts**

Base building cooling and ventilation systems for the Development have the potential to result in noise impacts on noise sensitive spaces within the Development itself and at existing residential uses surrounding the Site. The specific equipment selections are not available at the time of writing. Therefore, it is recommended that noise emissions from mechanical equipment serving the Development be evaluated as part of the detailed design of the Development. GHD recommends that the Developer carry the necessary contingencies for noise controls, which may be necessary to achieve compliance with the sound level limits of NPC-300 and/or NPC-216 at all worst-case points of reception both on-site and off-site.

Performance specifications of the above controls is dependent on equipment locations and sound power levels, which may vary. Therefore, the full scope and details of the required noise mitigation should be evaluated during detailed design.

#### **4.1.2 Indoor Noise Impacts**

Mechanical equipment and other building services also have the potential to cause annoyance due to noise and vibration transmission to residences. The American Society of Heating, Refrigerating, and Air conditioning Engineers (ASHRAE) guidelines specify acceptable noise levels from such equipment. Specification of noise controls (e.g., silencers, floating concrete slabs, acoustic ceilings, vibration isolators) to achieve these criteria is typically completed as part of the detailed building design, once equipment selections are made and floor layouts are more developed.

The Ontario Building Code stipulates minimum STC and apparent sound transmission class (ASTC) rating requirements for demising partitions separating residential suites from other spaces inside the building. For demising partitions separating suites from elevator shafts or garbage chutes, constructions meeting a minimum STC-55 rating must be used. For demising partitions separating suites from any other space in the building, constructions meeting a minimum STC-50 rating must be used. Suite demising partitions must also achieve a minimum rating of ASTC-47.

## **5. Recommendations**

### **5.1 Building Envelope Construction**

GHD recommends that the building envelope construction assemblies be selected to achieve STC-33 for windows and STC-40 for exterior walls, based on the conditions described in Section 3.4.1. The STC rating requirements should be updated prior to issuance of building permits, based on the locations of the proposed buildings and the detailed floor plans and elevation drawings.

## 5.2 Ventilation

Central air conditioning is required to be installed prior to occupancy for all residential suites with windows on the west façade of the building. This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met.

Predicted future traffic noise levels at the north and south façades of the Development are sufficiently high that, at a minimum, provisions must be made to enable installation of central air conditioning at the occupant's discretion (i.e., ductwork must be designed and installed to accommodate a future central air conditioning system installation). This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met.

Warning clause **Type C** would be required in the case that central air conditioning is not installed prior to occupancy. However, if central air conditioning systems are installed prior to occupancy, then warning clause **Type D** should be used instead. Warning clause wording is included in Section 5.3.

## 5.3 Warning Clauses

The following warning clauses are recommended to be included in agreements of Offers of Purchase and Sale, lease/rental agreements, and condominium declarations for specified residential suites of the Development as specified in Figure 3.3:

***Applicable only if central air conditioning is not installed prior to occupancy for northern and southern suites:***

**Warning Clause 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 level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."

***Applicable only if central air conditioning is installed prior to occupancy for northern and southern suites, applicable to all suites with windows on the west façade of the building:***

**Warning Clause 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, Conservation and Parks."

## 6. Conclusions

The Study concludes that the proposed development is feasible and will not be restricted by the surrounding noise impact exposures, provided that the proposed development adheres to the noise mitigation recommended in this Study. The recommended noise mitigation at the Development consists of building envelope construction requirements, provisions for installation of central air conditioning in the future, and noise warning clauses.

The Development is not anticipated to affect the ability of the nearby industrial/commercial facilities to comply with the sound level limits of the MECP.

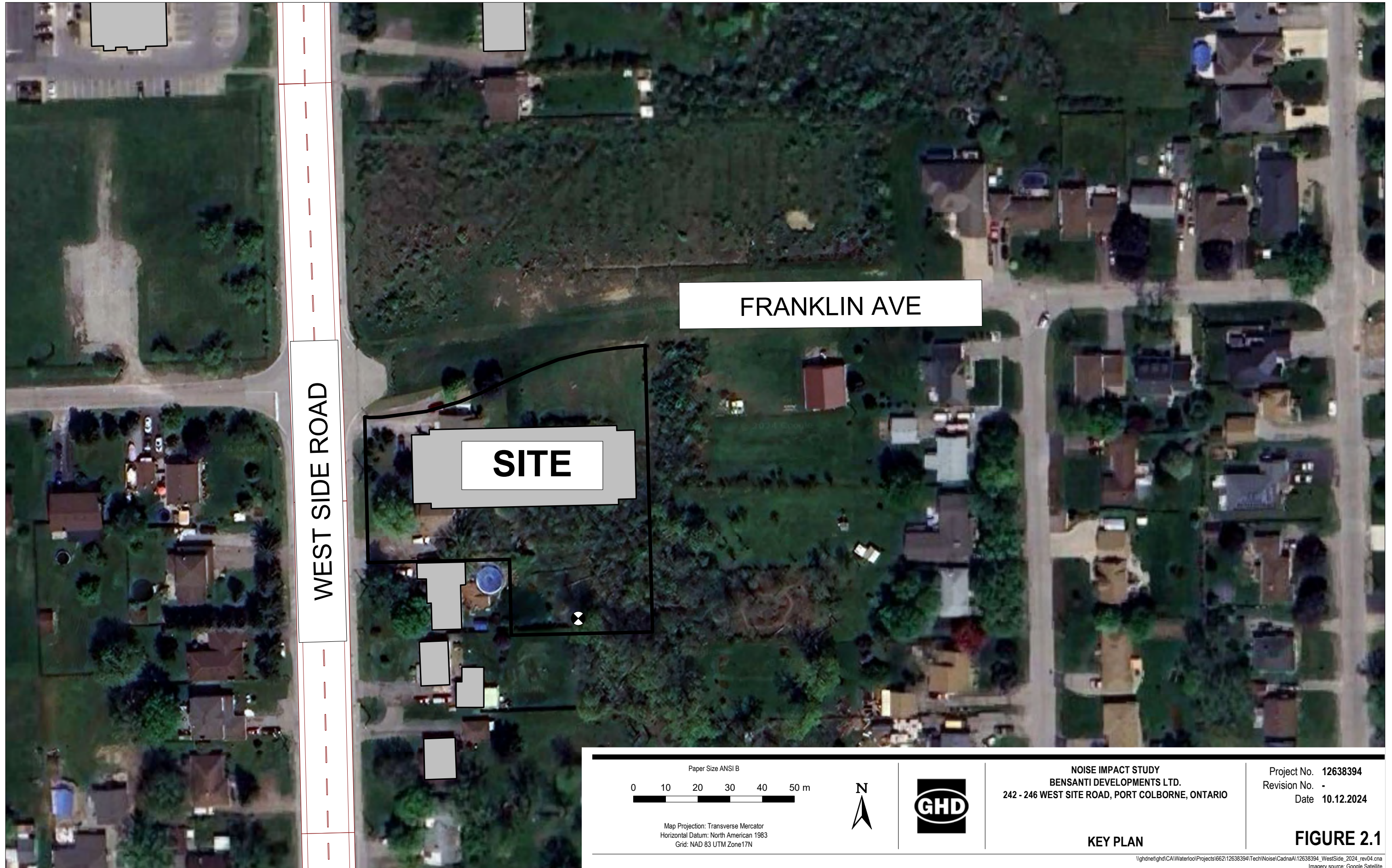
## 7. References

The Corporation of the City of Port Colborne, By-law 4588/119/04

Ontario Ministry of Environment, Conservation and Parks (MECP, 1993), Publication NPC-216: *Residential Air Conditioning Devices*

Ontario Ministry of Environment, Conservation and Parks (MECP, 2013), Publication NPC-300: *Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning*





WEST SIDE ROAD

FRANKLIN AVE

SITE

<p>Paper Size ANSI B</p> <p>0 10 20 30 40 50 m</p> <p>Map Projection: Transverse Mercator Horizontal Datum: North American 1983 Grid: NAD 83 UTM Zone17N</p>	 	<p><b>NOISE IMPACT STUDY</b> <b>BENSANTI DEVELOPMENTS LTD.</b> 242 - 246 WEST SITE ROAD, PORT COLBORNE, ONTARIO</p>	<p>Project No. 12638394 Revision No. - Date 10.12.2024</p> <p><b>KEY PLAN</b></p> <p><b>FIGURE 2.1</b></p>
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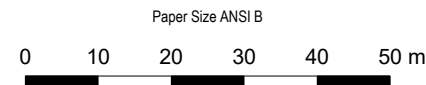
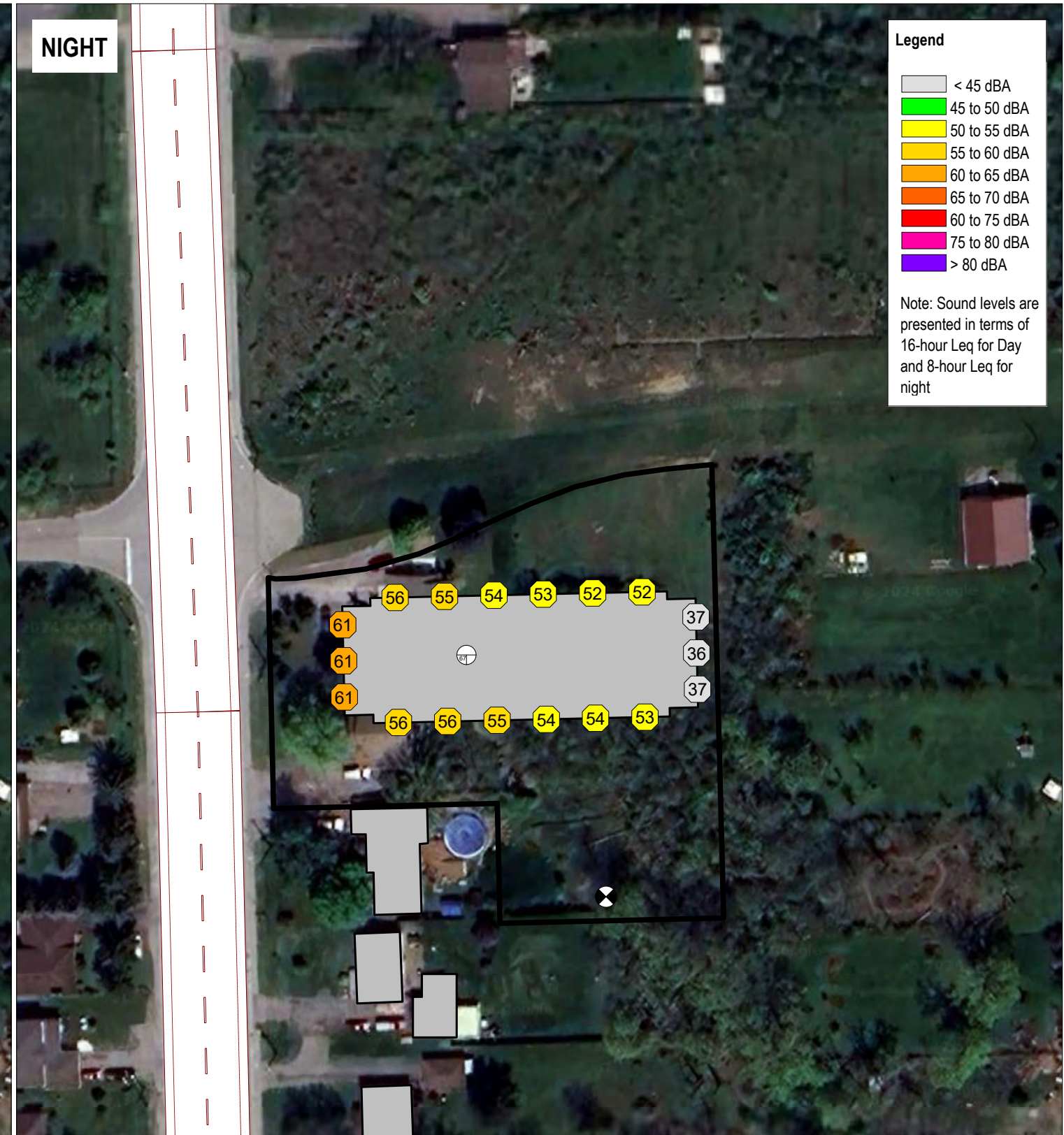
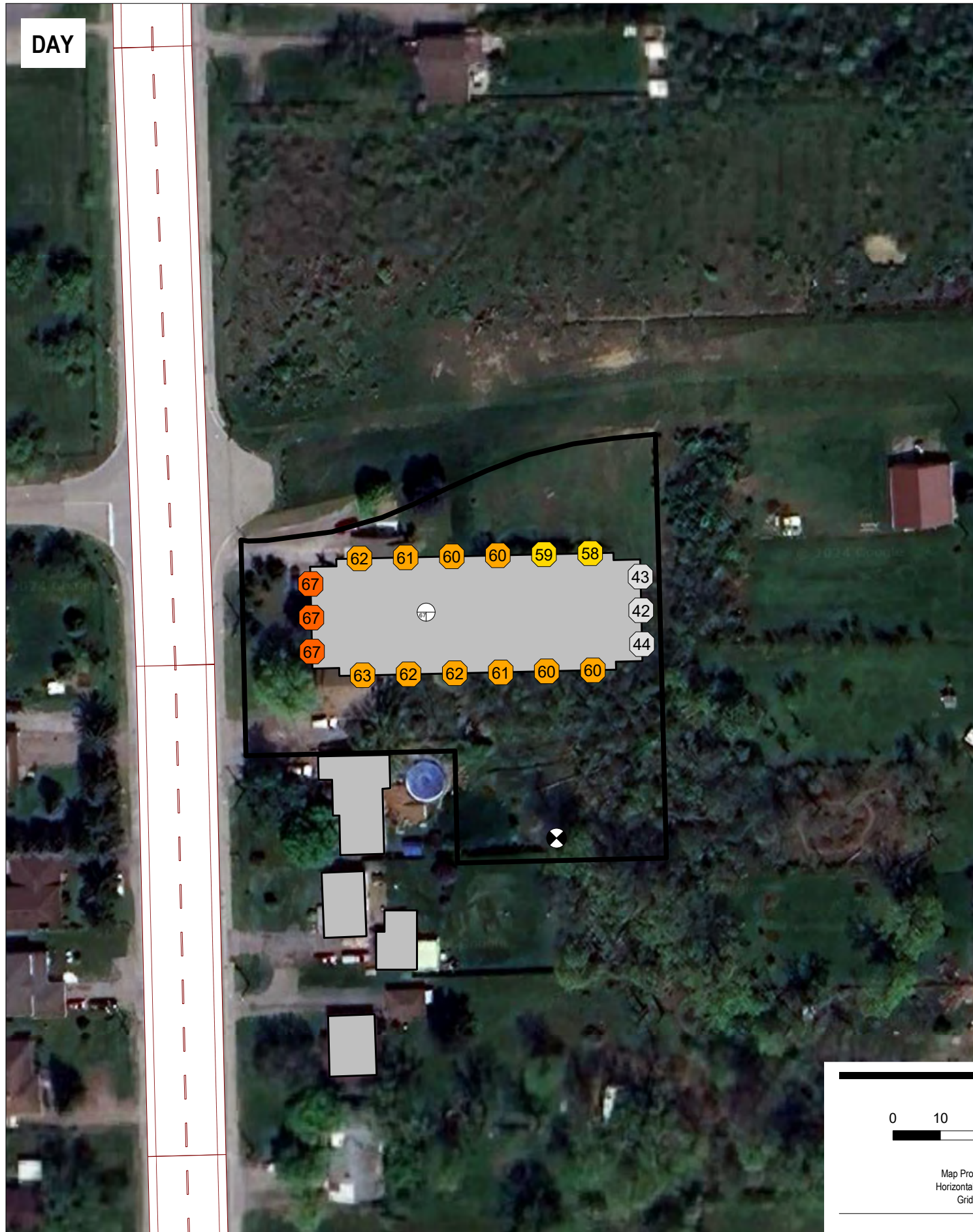
DAY

NIGHT

**Legend**

- < 45 dBA
- 45 to 50 dBA
- 50 to 55 dBA
- 55 to 60 dBA
- 60 to 65 dBA
- 65 to 70 dBA
- 60 to 75 dBA
- 75 to 80 dBA
- > 80 dBA

Note: Sound levels are presented in terms of 16-hour Leq for Day and 8-hour Leq for night



Map Projection: Transverse Mercator  
 Horizontal Datum: North American 1983  
 Grid: NAD 83 UTM Zone17N



**NOISE IMPACT STUDY**  
**BENSANTI DEVELOPMENTS LTD.**  
 242 - 246 WEST SITE ROAD, PORT COLBORNE, ONTARIO

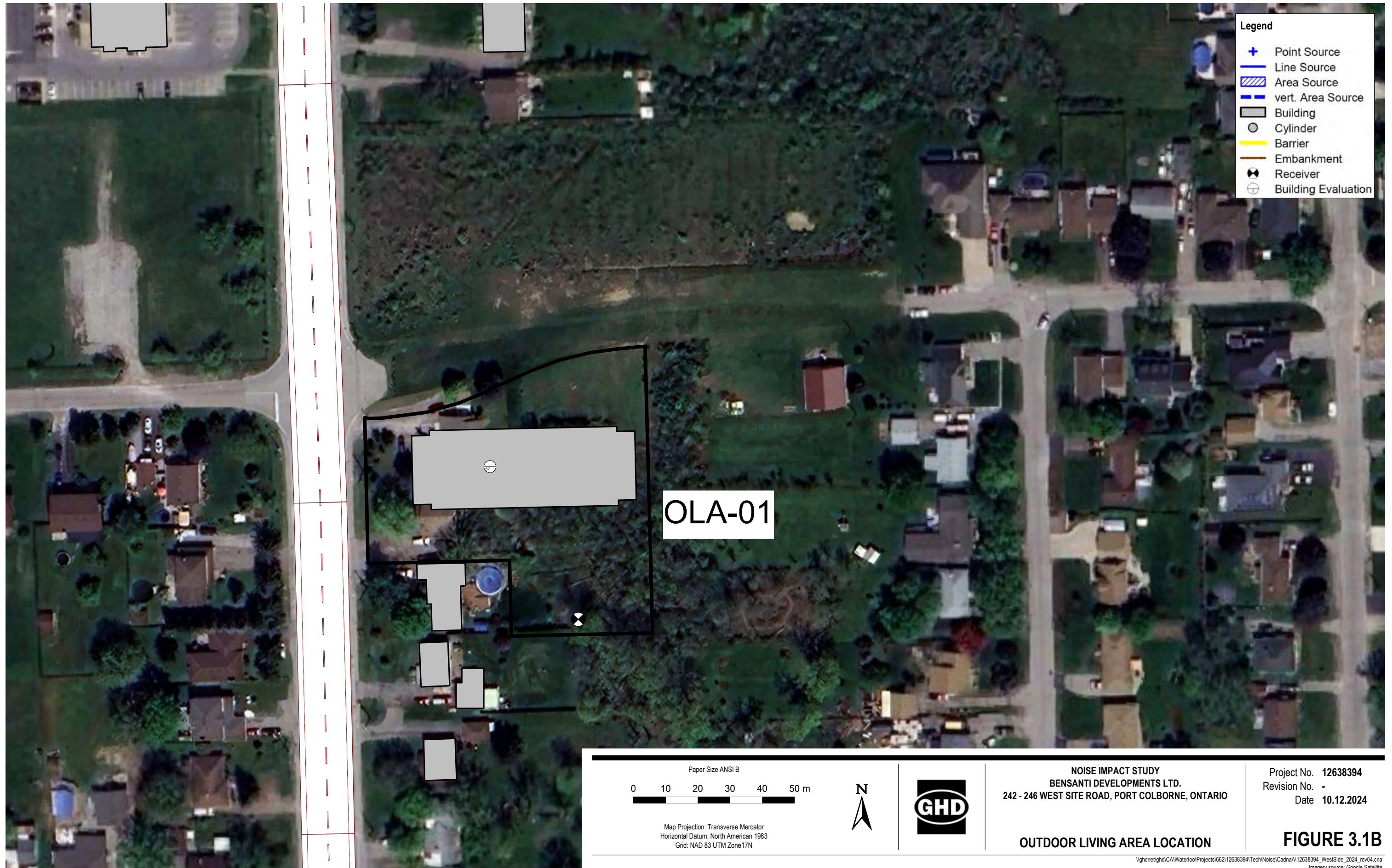
**FACADE SOUND LEVELS DUE TO FUTURE ROAD TRAFFIC**

Project No. 12638394  
 Revision No. -  
 Date 10.12.2024

**FIGURE 3.1A**

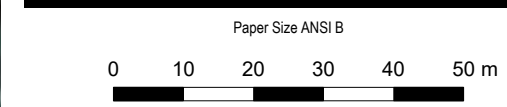
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 Imagery source: Google Satellite





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  - vert. Area Source
  - Building
  - Cylinder
  - Barrier
  - Embankment
  - +
 Receiver
  - +
 Building Evaluation

**OLA-01**



Map Projection: Transverse Mercator  
 Horizontal Datum: North American 1983  
 Grid: NAD 83 UTM Zone17N



**NOISE IMPACT STUDY**  
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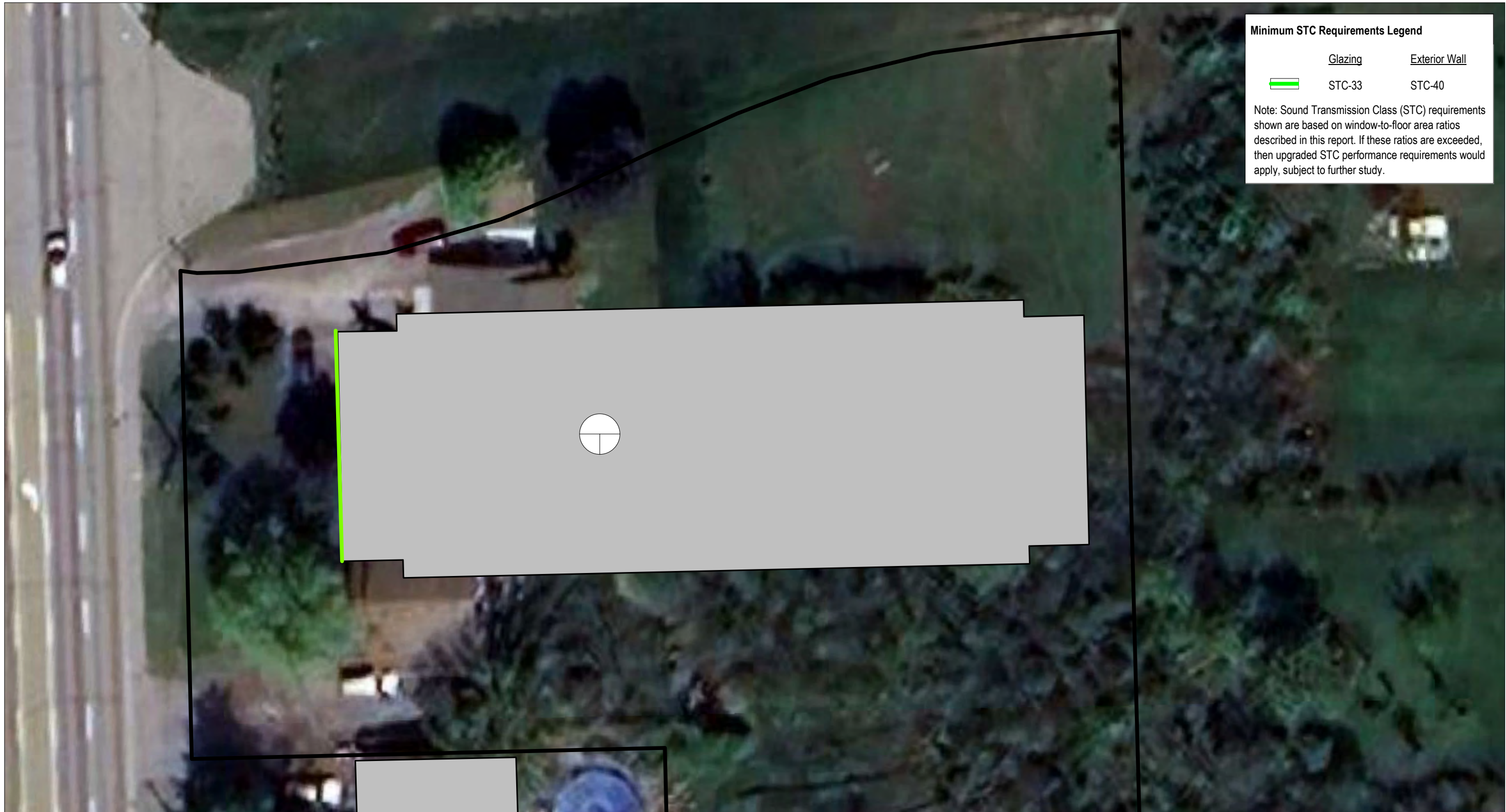
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 Date 10.12.2024

**OUTDOOR LIVING AREA LOCATION**


**FIGURE 3.1B**

\\ghdnet\ghd\CAI\Waterloo\Projects\66212638394\Tech\Noise\CadnaA12638394\_WestSide\_2024\_rev04.cna  
 Imagery source: Google Satellite





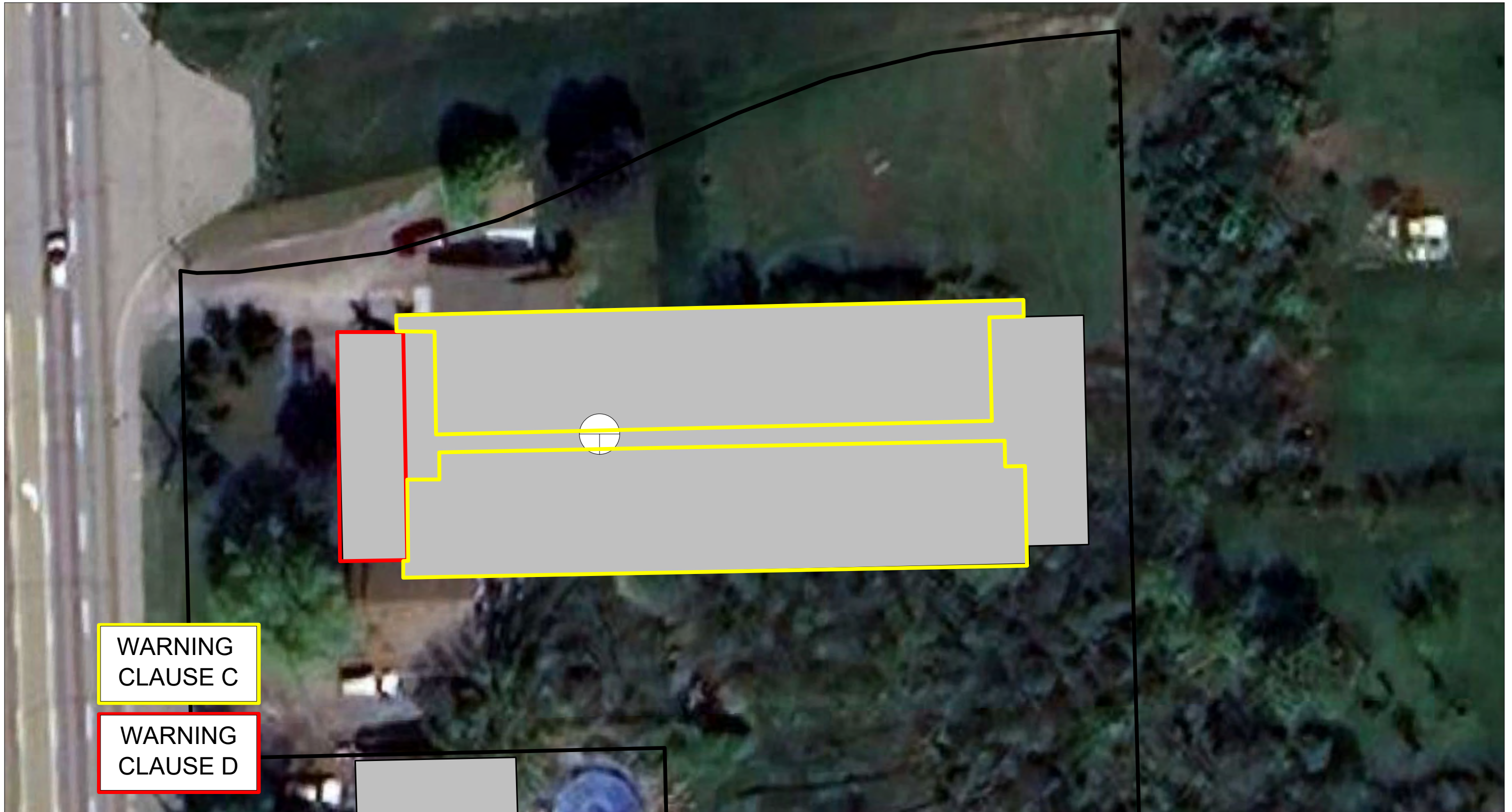
**Minimum STC Requirements Legend**

	Glazing	Exterior Wall
	STC-33	STC-40

Note: Sound Transmission Class (STC) requirements shown are based on window-to-floor area ratios described in this report. If these ratios are exceeded, then upgraded STC performance requirements would apply, subject to further study.

<p>Paper Size ANSI B</p>  <p>Map Projection: Transverse Mercator Horizontal Datum: North American 1983 Grid: NAD 83 UTM Zone17N</p>			<p><b>NOISE IMPACT STUDY</b> BENSANTI DEVELOPMENTS LTD. 242 - 246 WEST SITE ROAD, PORT COLBORNE, ONTARIO</p> <p><b>BUILDING ENVELOPE MINIMUM STC RATING REQUIREMENTS</b></p>	<p>Project No. 12638394 Revision No. - Date 10.12.2024</p> <p><b>FIGURE 3.2</b></p>
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WARNING  
CLAUSE C

WARNING  
CLAUSE D

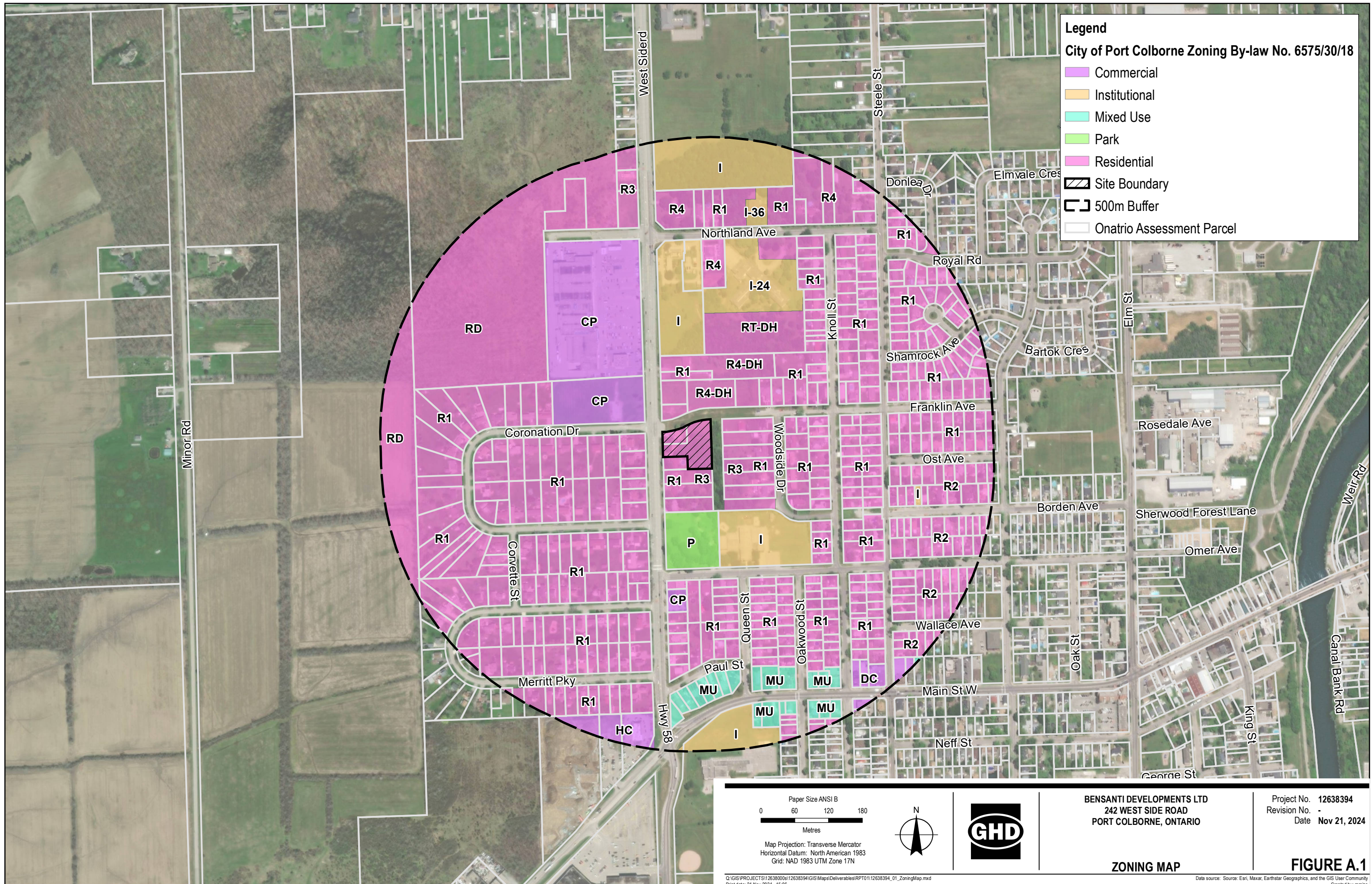
<p>Paper Size ANSI B</p>  <p>Map Projection: Transverse Mercator Horizontal Datum: North American 1983 Grid: NAD 83 UTM Zone17N</p>			<p>NOISE IMPACT STUDY BENSANTI DEVELOPMENTS LTD. 242 - 246 WEST SITE ROAD, PORT COLBORNE, ONTARIO</p> <p><b>VENTILATION AND WARNING CLAUSE REQUIREMENTS</b></p>	<p>Project No. 12638394 Revision No. - Date 10.12.2024</p> <p><b>FIGURE 3.3</b></p>
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# Appendices

# **Appendix A**

**Zoning Map and Site Plan**



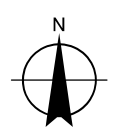


**Legend**  
**City of Port Colborne Zoning By-law No. 6575/30/18**

- Commercial
- Institutional
- Mixed Use
- Park
- Residential
- Site Boundary
- 500m Buffer
- Onatrio Assessment Parcel

Paper Size ANSI B  
 0 60 120 180  
 Metres

Map Projection: Transverse Mercator  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 UTM Zone 17N



**BENSANTI DEVELOPMENTS LTD**  
**242 WEST SIDE ROAD**  
**PORT COLBORNE, ONTARIO**

Project No. **12638394**  
 Revision No. -  
 Date **Nov 21, 2024**

**ZONING MAP**

**FIGURE A.1**

Q:\GIS\PROJECTS\12638394\GIS\Map\Deliverables\RPT\112638394\_01\_ZoningMap.mxd  
 Print date: 21 Nov 2024 - 15:06  
 Data source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community  
 Created by: mmice





# Appendix B

Sample STAMSON Calculation



STAMSON 5.0 SUMMARY REPORT Date: 10-12-2024 11:23:06  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: westside.te Time Period: Day/Night 16/8 hours  
 Description: West facade, 28.9 m AG 8th floor

Road data, segment # 1: West Side Rd (day/night)

```

-----
Car traffic volume      :      20924/2325   veh/TimePeriod
Medium truck volume    :      1203/134    veh/TimePeriod
Heavy truck volume     :      1924/214    veh/TimePeriod
Posted speed limit     :      50         km/h
Road gradient          :      0         %
Road pavement         :      1         (Typical asphalt or concrete)
    
```

Data for Segment # 1: West Side Rd (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 :      28.76 / 28.76 m
Receiver height        :      28.90 / 28.90 m
Topography              :      1         (Flat/gentle slope; no barrier)
Reference angle        :      0.00
    
```

Result summary (day)

```

-----
! source      ! Road      ! Total
! height     ! Leq      ! Leq
! (m)        ! (dBA)    ! (dBA)
-----+-----+-----+
1.West Side Rd!  1.68      ! 69.25    ! 69.25
-----+-----+-----+
Total          69.25 dBA
    
```

Result summary (night)

```

-----
! source      ! Road      ! Total
! height     ! Leq      ! Leq
! (m)        ! (dBA)    ! (dBA)
-----+-----+-----+
1.West Side Rd!  1.68      ! 62.72    ! 62.72
-----+-----+-----+
Total          62.72 dBA
    
```

TOTAL Leq FROM ALL SOURCES (DAY): 69.25  
 (NIGHT): 62.72

# Appendix C

Traffic Data



# Weekly Volume Summary

Thu, Sep 03, 2015

**Location:** H58 0.5km N of H3-Niagara Rd-Main St

**LHRS/Offset:** 32700 / 0.5      **Region:** Central

**Pattern Type:** Intermediate Commuter      **PCS#:** 30      **Hwy. TVIS#:** 58105

**Count Direction:** NB/SB      **Report Dates:** Jul 31, 2015 to Aug 6, 2015

Hour Interval	Fri 15/07/31	Sat 1	Sun 2	Mon 3	Tue 4	Wed 5	Thu 6	Fri 7
0:00- 1:00	106	269	272	229	55	70	53	
1:00- 2:00	77	114	117	77	25	29	30	
2:00- 3:00	44	59	68	36	19	20	25	
3:00- 4:00	27	44	40	18	20	22	26	
4:00- 5:00	51	17	29	25	46	32	35	
5:00- 6:00	147	72	59	64	158	171	165	
6:00- 7:00	349	157	138	113	320	360	337	
7:00- 8:00	541	293	258	199	469	527	541	
8:00- 9:00	731	619	458	357	680	694	683	
9:00-10:00	917	860	899	524	745	690	693	
10:00-11:00	1,401	1,306	1,029	710	915	822	843	
11:00-12:00	1,212	1,247	1,242	928	1,121	1,291	1,015	
<b>AM Total</b>	<b>5,603</b>	5,057	4,609	3,280	4,573	4,728	4,446	0
12:00-13:00	1,705	1,781	1,935	920	1,392	976	1,293	
13:00-14:00	1,440	1,523	1,817	1,517	1,386	1,135	1,416	
14:00-15:00	1,294	1,562	1,781	1,637	1,489	900	928	
15:00-16:00	1,585	1,503	1,421	1,291	1,274	1,216	1,536	
16:00-17:00	1,451	1,462	1,609	1,314	1,189	1,195	1,593	
17:00-18:00	1,577	1,089	1,452	1,141	1,290	930	1,414	
18:00-19:00	1,257	957	1,321	729	794	1,026	1,266	
19:00-20:00	805	795	1,136	760	552	773	1,023	
20:00-21:00	839	755	866	527	497	511	624	
21:00-22:00	561	596	705	267	343	374	434	
22:00-23:00	461	409	841	154	166	218	238	
23:00-24:00	370	385	832	137	82	104	110	
<b>PM Total</b>	<b>13,345</b>	12,817	15,716	10,394	10,454	9,358	11,875	0
<b>24 Hr. Total</b>	<b>18,948</b>	17,874	<b>20,325</b>	13,674	15,027	14,086	16,321	0
<b>Noon - Noon</b>	<b>18,402</b>	17,426	<b>18,996</b>	14,967	15,182	13,804	11,875	
<b>ADT</b>	<b>16,608</b>	<b>AWD</b>	<b>AADT</b>	<b>AAWD</b>	<b>SADT</b>	<b>SAWDT</b>	<b>WADT</b>	<b>DHV</b>
		14,777	<b>15,059</b>	13,891	<b>16,716</b>	15,280	13,402	1,533

## SS Wilson Associates

---

**From:** Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>  
**Sent:** Wednesday, August 15, 2018 5:06 PM  
**To:** SS Wilson Associates  
**Cc:** Terro, Eric (MTO); Bee, Christopher (MTO)  
**Subject:** FW: Traffic Data Request - SSWA File No. WA13-056  
**Attachments:** direction-split.pdf; 1. 32700 0200 2015.pdf; 32700-58105.pdf; 32700 0105 cycle 2.pdf

To Cheryl McMurter, SS Wilson:

Re the email below, and the table, please note the AADT has been falling in the recent years. This is the official MTO data, and is not an error on the part of STIRCS.

Thanks for your attention.

Christopher Bee  
MTO CR Traffic Office  
STIRCS

---

**From:** Bee, Christopher (MTO)  
**Sent:** August-15-18 3:53 PM  
**To:** engineering@SSWilsonAssociates.com  
**Cc:** Terro, Eric (MTO); Bee, Christopher (MTO)  
**Subject:** RE: Traffic Data Request - SSWA File No. WA13-056

To Cheryl McMurter, SS Wilson Administrator:

Regarding the request below:

From MTO Head Office Official TVIS database up to only 2016, we have for LHRS 32700 offset 0.0 data below. Hwy 58 and Coronation Drive in Niagara is at LHRS 32700 offset 0.4-0.6

Yr	AADT ( 2 way)	Directional split %
2016	11100	72% (NB)
2015	11200	72 (NB)
2014	11300	57
2013	11500	57
2012	11600	57

NB = northbound

Directional split % definition is shown in attached schematic.

You can plot the above data overtime on a table, and draw the best straight line through the data points, and extend the line to 2018 to estimate the latest AADT.

For hourly/weekly volume, the latest we have near this location is 2015. We have data for 2015 spring and summer. You should use the 2015 summer data with caution, as this data might be distorted by the Pan Am summer games in 2015. The 2015 spring and summer hourly/weekly data is attached. The 2015 summer cycle data has both class and normal data. You will see that for the normal data the AADT for summer is quite a bit higher than the spring AADT data. This could be because of the Pan Am Games, or more border crossing in the summer than in February... by how much? I don't know



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