NOISE IMPACT STUDY

"ELM / BARRICK / STEELE CONCEPTUAL DEVELOPMENT" PORT COLBORNE, ON REGION OF NIAGARA

Prepared for:

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Our File No: 23-4017

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1.0 INTRODUCTION

dBA Acoustical Consultants Inc. has been retained by e Prime Construction Management to provide a noise impact study for the proposed "Elm / Barrick / Steele Conceptual Development" located in Port Colborne, ON, Region of Niagara.

The purpose of the study will determine the noise impact from Elm Street, Barrick Road and Steele Street vehicular traffic and stationary noise sources from Thurston Machine Co. Ltd. that may impact the proposed Residential and Mixed-Use development, as required for application submission, review and approval by the City of Port Colborne and Region of Niagara.

This study will detail noise impact relative to the site plan and recommend noise control measures necessary (if applicable) to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300 entitled "Stationary & Transportation Sources-Approval & Planning guidelines while satisfying the planning requirements of the City of Port Colborne, Region of Niagara.

A site visit confirmed that vibration from heavy industrial operation (Thurston Machine Co. – 995 Elm Street, Port Colborne, ON.) is not a concern. Aircraft is not a concern as the development is located outside the NEF 25 contour of the area. Rail is not a concern as the nearest line is more than 500m away. See attached Figure 1 Site Location.

2.0 SITE DESCRIPTION

Proposed are twenty (20) Single Family Dwellings, six (6) semi detached townhouses, thirty-seven (37) townhouses, Building A, a 7-storey residential building with 100 units and underground parking, Building B a 7-storey residential building with 100 units and underground parking, and Building C a Mixed-Use a 4-storey building with 24 units.

The proposed development is located approximately 50m east of Steele Street, which is a 2-lane roadway with a posted speed of 40 km/hr. The proposed development is approximately 15m west of Elm Street, which is a 2-lane roadway with a posted speed of 50 km/hr. Barrick road is approximately 150m north of the proposed development and is a 2-lane roadway with a posted speed limit of 50 km/hr. Other area local streets do not have an acoustical impact on the development due to low traffic volumes and speed limits.

Surrounding the townhouse development are 1-2 storey single family dwellings. To the east of the proposed development is Thurston Machine Co. Ltd (995 Elm Street) and smaller commercial buildings to the southeast. See attached Figure 2 Site Plan.

3.0 REGULATORY CONTEXT

The MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning guidelines defines a point of reception/receptor as *"any point on the premises of a person where the sound or vibration originating from other than those premises are received."*

The point of reception may be located on any of the following, or zoned for future use, premises including but not limited to the following: residential homes, retirement homes, etc.

The areas surrounding the proposed Residential Development is indicative of a "Class 2 Area" as defined in MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning guidelines.

The applicable sound limits are the higher of:

- The existing ambient sound level; or
- The minimum values of Table 1.

No restrictions apply to stationary sources if the one-hour equivalent sound exposure (Leq) is lower than the levels in the following Table 1.

TABLE 1 Minimum Sound Level Limits (Class 2 Area)	
Time Period	L_{eq} (dBA)
07:00 - 19:00	50
19:00 - 23:00	50
23:00 – 07:00	45

3.1 THURSTON MACHINE CO. LTD. – 995 Elm Street, Port Colborne

A recent site visit, January 31st, 2023, and a telephone conversation with the business manager, Denise Bulr. She confirmed that they provide fabrication and welding services, machining, paint, blast & coating services as well as assembly and testing. All work is conducted inside the building with all bay doors closed and no work is done outside or at nighttime. The buildings are insulated to prevent indoor noise from emitting to the outside. During our site visit, the operational sounds from Thurston Machine Co. was not audible at the proposed development property line. The bay doors are located on the east side of the building. The building shields the truck noise for the loading bays. Outdoor storage area is located at the rear of the business and is approximately 150m east of the proposed development. A propane tow-motor is periodically used outside for moving outdoor storage items. The hours of operation are Monday to Friday 7:00am – 3:30pm, and closed Saturday and Sunday.

There are three roof top HVAV units located on the front office portion of the building, and they are equipped with acoustical panels and these HVAC units will not have an acoustical impact on the proposed development. The workshop building has four rooftop HVAC units which have acoustical shrouds and dampers that mitigate any noise, and as such will not have an acoustical impact on the proposed development. See Figure 3.

In speaking with the business manager, she confirmed that transport trucks arrive at the rear of the building periodically throughout the week and load and unload inside the building. A transport truck typically generates 69 dBA and a propane tow-motor generates 63 dBA at 2m from the trucks and tow-motors. See Figure 3.

Transport Truck

2m ÷ 50m = (log x 20) = -28 dBA from 69 dBA = 41 dBA overall.

Transport trucks are required to turn off their engines once parked. We calculated the transport truck operating on site at approximately 50m for a full one-hour period. This is very conservative and considered the worst-case scenario.

Tow-Motor (Propane)

2m ÷ 50m = (log x 20) = -28 dBA from 63 dBA = 35 dBA overall.

We calculated the propane tow-motor operating on site at approximately 50m for a full one-hour period. This is very conservative and considered the worst-case scenario.

The transport truck and tow-motor noise levels when combined equal 43 dBA and are below noise levels required in Table 1.

4.0 ROAD NOISE

Area AADT traffic volumes for Elm Street, Barrick Road and Steele Street and Highway 58 were sourced through specific municipalities and the MTO. The City of Port Colborne, Public Works department, advised via phone call that they did not have any traffic volumes for the proposed development area. Niagara Region advised via email that they did not have any regional traffic data for that area and that Highway 58 is under the jurisdiction of the MTO. The MTO traffic volumes for Highway 58, between West Side Road and Highway end has no current traffic volumes due to low traffic volumes.

As a result of the lack of traffic data available, we are unable to calculate the area traffic noise and the impact that it might have on the proposed site. During our recent site visit, we can confirm that traffic volumes in this area are extremely low and will not have an acoustical impact on the proposed development.

5.0 INDOOR NOISE LEVELS

Specific building components (walls, windows, doors etc.) are not required and confirmed using the STC (Sound Transmission Class) method and are summarized in Table 2 following, with minimum window, door and wall construction specified throughout the development. The STC values are calculated for each room type, with a minimum of 2 components and based on window to floor ratios of 80% for noise sensitive areas. Ontario Building Code (OBC) with suffice for all residential units / dwellings.

TABLE 2 – Recommended Door, Wall, and Window Construction

LOCATION	Window STC To Be Used	Exterior Wall STC	Patio Door Construction STC
All Residential Units / Dwellings	Example	Example	Example
Bedroom	OBC	OBC	OBC
Living room	OBC	OBC	OBC

6.0 VENTILATION / WARNING CLAUSES

Ventilation and Warning Clause requirements are not required for this project, however as we are proactive, rather than reactive, Building “B” and Building “C”, we would recommend a Type “E” Warning Clause noted in Table 3 following. It is recommended that the appropriate Warning Clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease.

TABLE 3 - Ventilation and Warning Clause Requirements

LOCATION	VENTILATION	WARNING CLAUSE
Buildings “B” & “C”	OBC	Type “E”

TYPE E:

> “Purchasers/tenants are advised that sound levels due to the adjacent facility are required to comply with sound level limits that are protective of indoor areas and assume that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which has allowed windows and exterior doors to remain closed.”

7.0 SUMMARY OF RECOMMENDATIONS

The following noise control measures are required for this development:

- Specific Window, Door, and Wall construction as recommended in Table 2.
- Registered Warning Clause Type "E", for Buildings "B" & "C" (Table 3).
- It is recommended that a qualified acoustical consultant certify that the required noise control measures have been incorporated into the builder's plans prior to issuance of a building permit.
- It is recommended that a qualified acoustical consultant certify that the required control measures have been properly installed prior to an occupancy permit.

8.0 CONCLUSIONS

dBA Acoustical Consultants Inc. has provided e Prime Construction Management a noise impact study for the proposed "Elm / Barrick / Steele Conceptual Development" located in Port Colborne, ON, Region of Niagara.

The study determined the noise impact from Elm Street, Barrick Road and Steele Street vehicular traffic and stationary noise sources from Thurston Machine Co. Ltd. that may impact the proposed Residential and Mixed-Use development, as required for application submission, review and approval by the City of Port Colborne and Region of Niagara.

This study detailed noise impact relative to the Conceptual Development Plan and recommended noise control measures necessary to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300 entitled "Stationary & Transportation Sources-Approval & Planning guidelines while satisfying the planning requirements of the City of Port Colborne, Region of Niagara.

FIGURE 1
SITE LOCATION

FIGURE 2
SITE PLAN

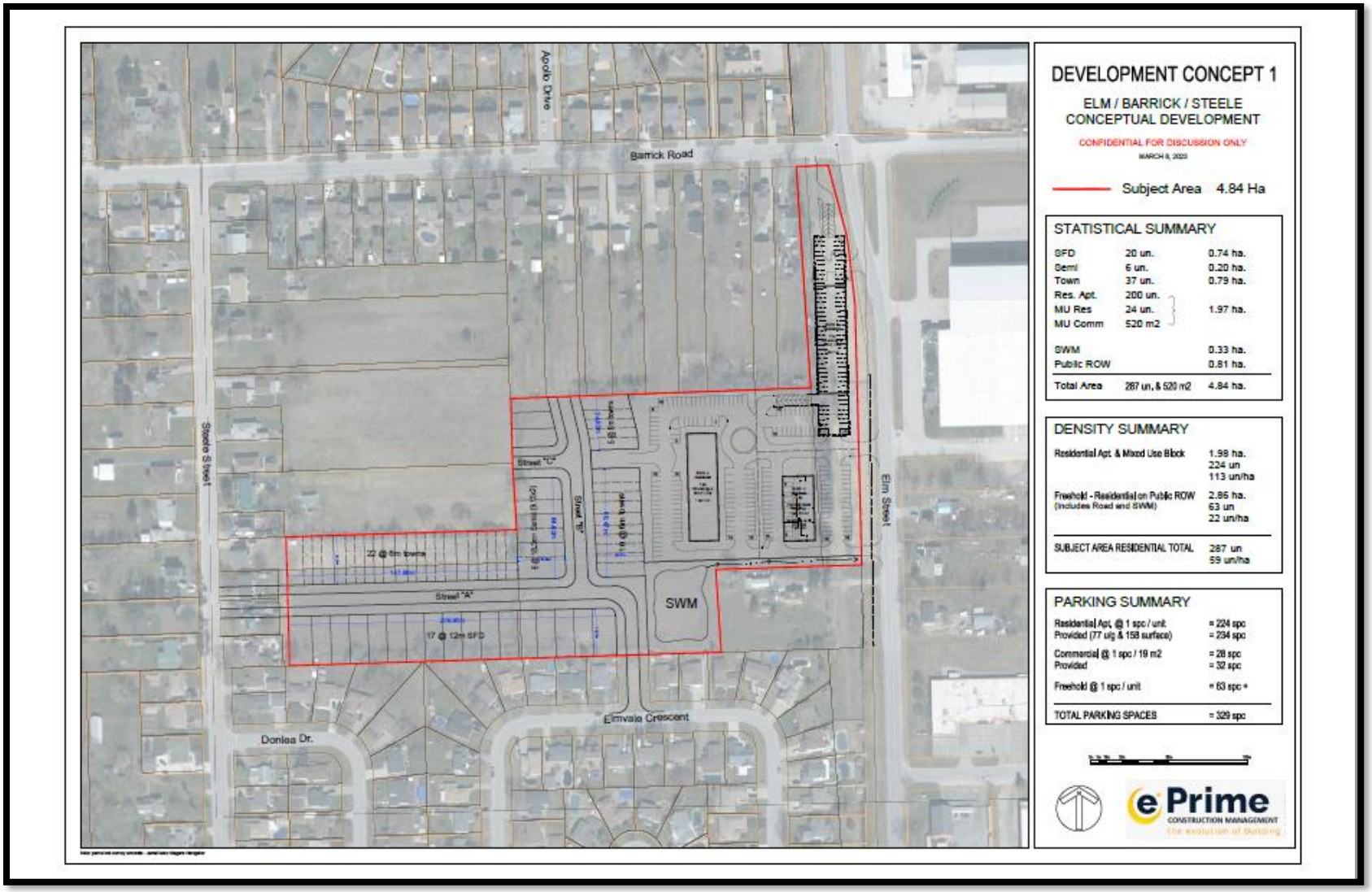
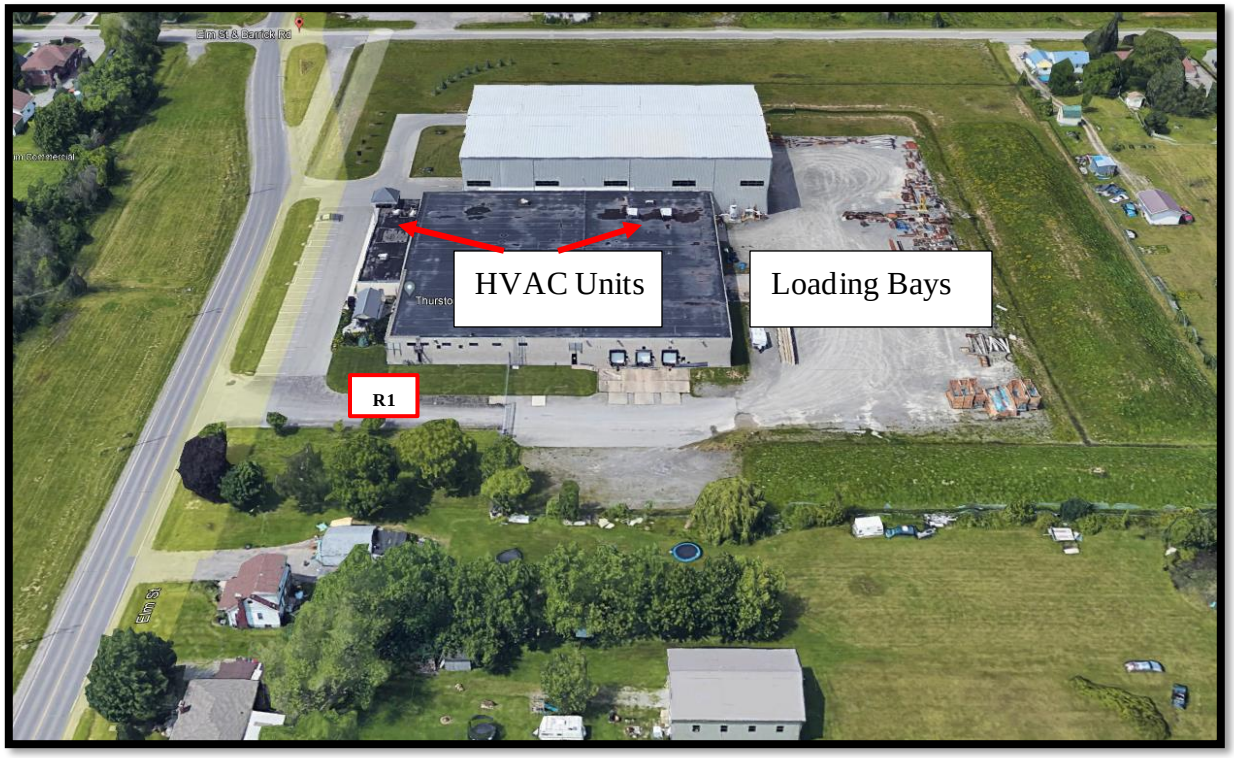


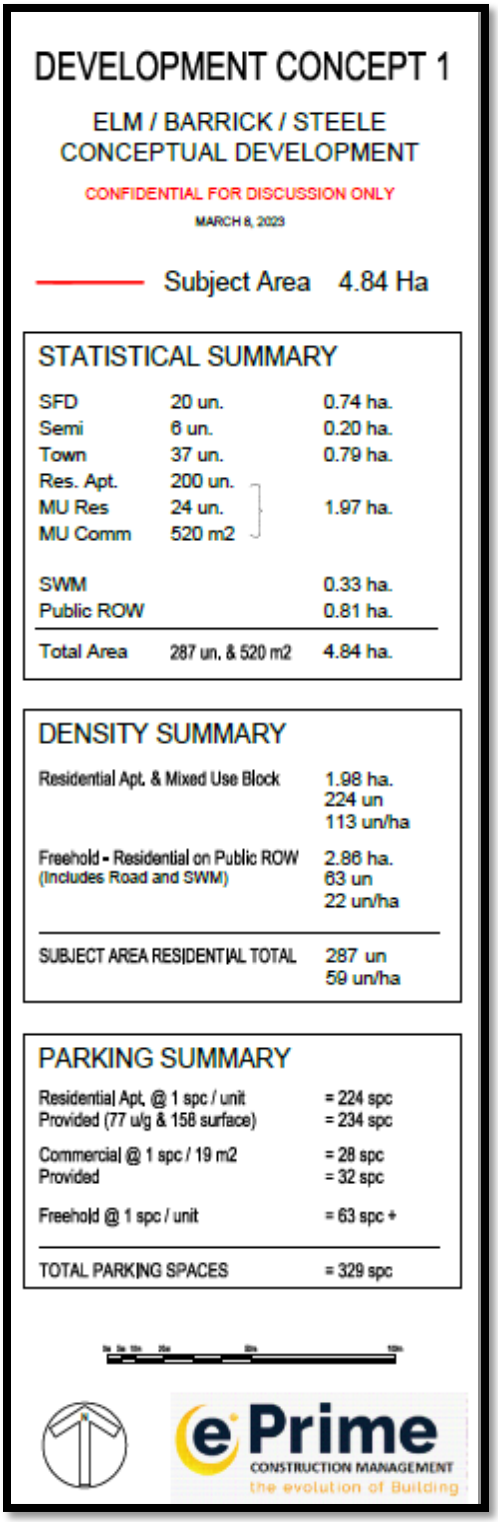
FIGURE 3
THURSTON MACHINE CO. LTD
HVAC UNITS, LOADING BAYS & STATIONARY NOISE SOURCE LOCATIONS



R1 represents the locations of the transport truck and tow-motor calculations at 50m from the proposed development.

APPENDIX "A"

SITE STATISTICS



DEVELOPMENT CONCEPT 1

ELM / BARRICK / STEELE
CONCEPTUAL DEVELOPMENT

CONFIDENTIAL FOR DISCUSSION ONLY

MARCH 8, 2023

Subject Area 4.84 Ha

STATISTICAL SUMMARY

SFD	20 un.	0.74 ha.
Semi	6 un.	0.20 ha.
Town	37 un.	0.79 ha.
Res. Apt.	200 un.	
MU Res	24 un.	1.97 ha.
MU Comm	520 m2	
SWM		0.33 ha.
Public ROW		0.81 ha.
Total Area	287 un. & 520 m2	4.84 ha.

DENSITY SUMMARY

Residential Apt. & Mixed Use Block	1.98 ha. 224 un 113 un/ha
Freehold - Residential on Public ROW (Includes Road and SWM)	2.86 ha. 63 un 22 un/ha
SUBJECT AREA RESIDENTIAL TOTAL	287 un 59 un/ha

PARKING SUMMARY

Residential Apt. @ 1 spc / unit	= 224 spc
Provided (77 u/g & 158 surface)	= 234 spc
Commercial @ 1 spc / 19 m2	= 28 spc
Provided	= 32 spc
Freehold @ 1 spc / unit	= 63 spc +
TOTAL PARKING SPACES	= 329 spc

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the evolution of Building