

Environmental Noise Assessment

Pretty River Estates – Phase 2

Proposed Residential Development

Collingwood, Ontario

May 4, 2022
Project: 122-0071

Prepared for

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Environmental Noise Assessment

Pretty River Estates – Phase 2

Proposed Residential Development Collingwood, Ontario

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) was retained to prepare an Environmental Noise Assessment for the proposed residential development in support of the Site Plan Approval (SPA) application submission to the Town of Collingwood.

The site is located northeast of the intersection of Poplar Sideroad and Portland Street in the Town of Collingwood. The site contains two parcels of land, bisected by a public trail. The South Parcel of land sides onto Poplar Sideroad include 23 townhouse blocks. The East Parcel of land is located approximately 200 m north of Poplar Sideroad and includes 8 townhouse blocks.

The main transportation noise source with potential for impact on the proposed development is road traffic on Poplar Sideroad. The sound levels on site have been determined and compared with the applicable Ministry of the Environment, Conservation and Parks (MECP) noise guideline limits to determine the need for noise mitigation.

To meet the applicable transportation noise source guideline limits:

- Blocks 1 to 4 require the provision for installing air conditioning at a later date. For low density development, this usually takes the form of a forced air heating system suitable sized to accommodate air conditioning;
- Exterior wall and window construction meeting the minimum non-acoustical requirements of the OBC will be sufficient to meet the indoor noise levels of the MECP for all units in the development;
- 2.2 m high sound barriers are required at the rear yards backing onto Poplar Sideroad. See Figure 2. The sound barrier heights should be reviewed when the Grading Plan is finalized.

The only stationary noise source in the vicinity of the site with the potential to impact the proposed development is the pumping station at the Bob Davey Reservoir to the east of the South Parcel. VCL staff visited the pumping station to complete sound measurements and observations at the facility. Based on an assessment of the noise impact from this facility, the applicable noise guideline limits are expected to be met at the subject site without any mitigation.

1.0 INTRODUCTION

1.1 SCOPE

VCL was retained to prepare an Environmental Noise Assessment for the proposed residential development in support of the SPA application submission to the Town of Collingwood. The potential sound levels and noise mitigation measures needed for the proposed development to comply with the MECP noise guideline requirements are outlined herein.

1.2 THE SITE AND SUROUNDING AREA

The site is located northeast of the intersection of Poplar Side Road and Portland Street in the Town of Collingwood. The site contains a South Parcel and an East Parcel of land, bisected by a public trail.

The South Parcel of the site is bounded by:

- The Hamilton Train Trail, with existing single family residential development beyond, to the North;
- Bob Davey Reservoir and Pumping Station to the East;
- Poplar Sideroad, with agricultural lands beyond, to the south; and
- Existing single family residential development to the West.

The East Parcel of the site is bounded by:

- Existing single family residential development, with Kirby Avenue beyond, to the North;
- The Train Trail, with a wooded lot beyond, to the east;
- Bob Davey Reservoir and Pumping Station, with Poplar Sideroad beyond, to the south; and
- the Hamilton Drain Trail, with the South Parcel of the site beyond, to the west.

A Key Plan of the site is included as Figure 1.

This study is based on the site drawing received from Sunvale Homes on March 18, 2022 in AutoCAD format. The site drawing is included as Figure 2.

1.3 THE PROPOSED DEVELOPMENT

The site is located northeast of the intersection of Poplar Sideroad and Portland Street in the Town of Collingwood. The site contains two parcels of land, bisected by a public trail. The South Parcel sides onto Poplar Sideroad include 23 townhouse blocks, accessible from Portland Street to the west. The East Parcel of land is located approximately 200 m north of Poplar Sideroad and includes 8 townhouse blocks, accessible from Dey Drive to the north. All units will be 2-storeys in height and provided with rear yard outdoor amenity spaces.

2.0 NOISE SOURCES

2.1 TRANSPORTATION NOISE SOURCES

The transportation noise source with the potential for impact on the proposed development is road traffic on Poplar Sideroad. Traffic volumes on the other surrounding roadways are anticipated to be minor and no significant noise impact is expected.

Road traffic volumes for Poplar Sideroad were obtained from the Collingwood Transportation Study Update prepared by RJ Burnside & Associates Ltd. dated August 2019. The projected 2041 Turning Movement Count (TMC) for Poplar Sideroad and Raglan Avenue was used to calculate a 24-hour volume along Poplar Sideroad. The peak hourly traffic volume was multiplied by a factor of 10 to obtain a 24-hour volume (that is, the 1-hour peak period consists of 10% of the total daily traffic volume). A day/night split of 90%/10% was used as is typical for well-travelled roadways. Medium and heavy truck volumes were assumed to be 3% and 2% respectively of total traffic volumes.

The traffic data is shown in Appendix A and summarized in Table 1.

TABLE 1 ROAD TRAFFIC DATA

Roadway	Year	24-hour Volumes	% Trucks		Speed Limit (kph)	Day/Night Split (%)
			Medium	Heavy		
Poplar Sideroad	2041	21,470	3	2	60	90/10

2.2 STATIONARY NOISE SOURCES

The only stationary noise source in the vicinity of the site with the potential to impact the proposed development is the pumping station at the Bob Davey Reservoir to the south and east of the development. The pumping station is located approximately 40 m to the east of the nearest point of reception on the South Parcel of the development.

VCL staff visited the pumping station on April 6, 2022 to complete sound measurements and observations at the facility. Noise sources at the pumping station include indoor pumps, two exhaust fans on the roof of the building and an outdoor emergency back-up generator. An assessment of the noise impact of the facility onto the subject site is detailed in Section 5.0.

3.0 ENVIRONMENTAL NOISE GUIDELINES

The applicable noise guidelines for new residential development are those in MECP Publication NPC-300, “Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning”.

The environmental noise guidelines of the MECP, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix B.

3.1 TRANSPORTATION NOISE SOURCES

3.1.1 Architectural Elements

In the daytime, the indoor criterion for road traffic noise is $L_{eq\ Day}^{(1)}$ of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road traffic noise is $L_{eq\ Night}^{(2)}$ of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms.

The architectural design of the building envelope (walls, windows, etc.) must provide adequate sound isolation to achieve these indoor sound level limits.

3.1.2 Ventilation

In accordance with the MECP noise guideline for road traffic sources, if the daytime sound level, $L_{eq\ Day}$, at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ($L_{eq\ Night}$) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

3.1.3 Outdoors

For outdoor amenity areas (“Outdoor Living Areas” - OLA’s), the guideline is $L_{eq\ Day}$ of 55 dBA, with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note that a balcony is not considered an OLA, unless it is:

- the only OLA for the occupant;
- at least 4 m in depth; and
- unenclosed.

3.2 STATIONARY NOISE SOURCES

The site and surrounding area are considered a Class 1 area, where the background sound level is dominated by the “urban hum” during all hours of the day and night. Urban hum is sounds from the activities of people, such as road traffic.

For routine testing of an emergency generator in a Class 1 area, the criteria are one-hour L_{eq} of 55 dBA during the daytime and evening (0700 to 2300 hours) and 50 dBA during the nighttime (2300 to 0700 hours), or the existing ambient sound level due to road traffic, whichever is higher. The sound level limits do not apply during actual emergency situations.

⁽¹⁾ 16-hour energy equivalent sound level (0700-2300 hours).

⁽²⁾ 8-hour energy equivalent sound level (2300-0700 hours).

The criteria apply at the exterior Plane of Window (POW) during the daytime, evening, and nighttime, and at an Outdoor Point of Reception (OPOR) during the daytime and evening (there is no OPOR criterion during the nighttime period).

The guideline limits apply to habitable spaces such as living/dining/family rooms and sleep areas. No indoor sound level guidelines are provided for stationary sources.

4.0 NOISE IMPACT ASSESSMENT – TRANSPORTATION SOURCES

4.1 ASSESSMENT METHOD

Using the road traffic data in Table 1, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT, the computerized road traffic noise prediction model of the MECP.

The daytime and nighttime sound levels at the building facades were assessed at the second storey windows, 4.5 m above grade, representing the top floor bedroom windows for the two-storey buildings (the worst-case locations). The daytime OLA sound levels at the rear yard outdoor amenity areas were calculated at a standing height of 1.5 m above grade, 3 m from the rear walls and aligned with the midpoint of the applicable façade.

Inherent screening of each building face due to its orientation to the noise source as well as that provided by the subject development itself was taken into account. Screening provided by the existing development in the area was not included in the assessment.

The window heights were obtained from the Floor Plans and Elevation Drawings for Blocks 16, 20, 21 and 23, prepared by Sunvale Homes, dated August 7, 2020. The Floor Plan and Elevation Drawings are included as Appendix E.

The rear yard OLA sound levels were calculated using the Grading Plan prepared by Cobide Engineering Inc., dated September 2021. The Grading Plan is included as Appendix F. The grade of the roadway was obtained from the County of Simcoe Interactive Topographical Map (Reference 6).

The location of the receptor points used in this study are shown in Figure 2.

4.2 RESULTS

At the building facades, the highest predicted daytime and nighttime sound levels are 64 dBA and 57 dBA, respectively, and occur at the south facade of Blocks 1 to 3, backing onto Poplar Sideroad.

The highest unmitigated daytime OLA sound level is predicted to be 64 dBA and occurs at the rear yards of Blocks 1 to 3.

Table 2 summarizes the predicted sound levels outdoors at specific locations. A sample calculation is included in Appendix C.

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS

Location	Source	Distance (m)	Leq Day (dBA)	Leq Night (dBA)
R1 - Block 1 South Façade	Poplar Sideroad	26	64	57
R2 - Block 4 South Façade	Poplar Sideroad	48	58	52
R3 - Block 10 South Façade	Poplar Sideroad	68	52	46
R4 - Block Z Southwest Façade	Poplar Sideroad	248	47	41
OLA1 - Block 1 Rear Yard OLA	Poplar Sideroad	23	64	-
OLA2 - Block 4 Rear Yard OLA	Poplar Sideroad	51	52	-
OLA3 - Block 10 Rear Yard OLA	Poplar Sideroad	71	52	-
OLA4 - Block Z Rear Yard OLA	Poplar Sideroad	249	47	-

Notes:

1. See Figure 2 for receptor locations.
2. Distance indicated is taken from the centreline of the noise source to the point of reception.
3. OLA sounds levels are not applicable during nighttime hours (2300 to 0700 hours).

4.3 NOISE ABATEMENT REQUIREMENTS

The noise control measures can generally be classified into two categories which are interrelated, but which can be treated separately for the most part:

- b) Architectural elements to achieve acceptable indoor noise guidelines for transportation sources; and
- c) Design features to protect the OLA's.

Noise abatement requirements are summarized on Figure 2 and in Table 5 along with the notes to Table 5 (See Section 6).

4.3.1 Indoors

4.3.1.1 Architectural Elements

The indoor noise level guidelines for the transportation sources can be achieved by using appropriate construction for exterior walls, windows and doors. In determining the worst-case architectural requirements for the residential units, the exterior wall and window to floor areas for the worst-case living rooms and bedrooms were calculated from the Floor Plans and Elevation Drawings.

Based on the predicted sound levels, exterior wall and window construction meeting the minimum non acoustic requirements of the OBC are sufficient to meet the indoor noise level requirements at all dwellings units on the site.

The final sound isolation requirements may be reviewed when detailed architectural plans are finalized. Wall and window constructions may also be reviewed at this point to ensure that they will meet the required sound isolation performance.

4.3.1.2 Ventilation Requirements

Based on the predicted sound levels, Blocks 1, 2, 3, and 4 require the provision for installing air conditioning at a later date. For low density development, this normally takes the form of a ducted ventilation system suitably sized to accommodate the addition of central air conditioning.

There are no ventilation requirements for the remaining blocks in the development.

4.3.2 Outdoors

The unmitigated daytime OLA sound levels at the rear yards of the lots backing onto Poplar Sideroad (Blocks 1 to 3) exceed the 55 dBA design objective of the MECP.

To meet the 55 dBA limit, a 2.2 m high sound barrier is required along the south property lines of Blocks 1 to 3. The sound barrier orientation is shown in Figure 2.

Sound barriers must be of solid construction, having a minimum face density of 20 kg/m² with no gaps, cracks or holes. A variety of materials are available, including concrete, masonry, glass, wood, specialty composite materials, or a combination of the above.

The analysis should be updated if the Grading Plan is revised.

4.3.3 Warning Clauses

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation.

Table 5 and the notes to Table 5 summarize the warning clauses for the site (See Section 6.0).

5.0 NOISE IMPACT ASSESSMENT – STATIONARY NOISE

5.1 NOISE SOURCES

The pumping station at the Bob Davey Reservoir is located approximately 40 m east of the nearest building on the South Parcel of the site.

VCL staff visited the pumping station on April 6, 2022 to complete sound measurements and observations at the facility. Noise sources at the pumping station include indoor pumps, two exhaust fans on the roof of the building and an outdoor emergency back-up generator.

The pumps were not audible at the exterior of the building while the exterior doors of the facility remained closed. In addition, the exhaust fans on the roof of the building were not audible while standing around the perimeter of the building. As such, these noise sources have not been considered further in the assessment.

The only noise source at the pumping station with the potential to impact the development is the emergency generator located outdoors, at the north end of the building.

The generator is housed in an acoustic enclosure and was measured to have a sound power level of 98 dBA at a height of 3 m above grade.

The noise source is shown on Figure 3. Octave band sound power level data is provided in Appendix D.

5.2 NOISE SENSITIVE RECEPTORS

The predicted sound levels at the proposed building facades were assessed using the receptor feature in CadnaA. The receptors were applied at the upper storey Plane of Window (POW) and at the rear yard Outdoor Points of Reception (OPOR).

Six (6) noise sensitive receptors were used in the assessment, which were selected based on their proximity and exposure to the noise source. The receptors are described as:

- POW_1 and OPOR_1 – The POW and OPOR of the nearest residential block southwest of the pumping station
- POW_2 and OPOR_2 – The POW and OPOR of the nearest residential block west of the pumping station.
- POW_3 and OPOR_3 – The POW and OPOR of the nearest residential block north of the pumping station, on the East Parcel of the site.

Receptors representing the POW were assessed at a height of 4.5 m above grade and the OPOR receptors were modelled at a height of 1.5 m above grade, at the closest point in the rear yard to the stationary noise source.

Figure 3 shows the locations of the assessment receptors.

5.2.1 Applicable Guideline Limits

Poplar sideroad is expected to contribute to the daytime ambient noise environment at the building facades with exposure to the generator. To be conservative, the minimum exclusion limits were applied at all receptors.

5.3 OPERATING SCENARIOS

The MECP noise guidelines require assessing the noise impact during the “predictable worst case” hour.

The operating scenario for routine testing of the emergency generator was provided by staff at the facility. As previously noted, the noise guideline limits do not apply during actual emergency situations.

The generator is modelled as operating for one hour during the daytime only (0700 to 1900 hours).

5.4 ANALYSIS METHOD

A 3-D acoustic model of the closest facades in the proposed development along with the stationary source was developed using CadnaA V2021 MR2 environmental noise modelling software. The software uses the protocol of ISO standard 9613-2 “Acoustics – Attenuation of Sound During Propagation Outdoors” to predict sound levels at receiver locations. The model accounts for distance, atmospheric absorption and ground attenuation. The sound level from all relevant sources (hourly Leq) was determined for each receptor position for the above operating scenario.

Hard ground (G = 0) was used for the hard surfaces, and soft ground (G=1) was used elsewhere. Two orders of sound reflection from the building facades were included in the acoustical model.

The topography of the area was assumed to be flat.

5.5 PREDICTED SOUND LEVELS

Table 3 and Figure 3 show the predicted sound levels at the receptors with the emergency generator in operation.

TABLE 3: UNMITIGATED PREDICTED SOUND LEVELS

Receptor	Predicted Daytime Sound Levels (dBA)	Applicable Guideline Limits (dBA)	Meets Limit?
POW_1	47	55	Yes
POW_2	53	55	Yes
POW_3	44	55	Yes
OPOR_1	43	55	Yes
OPOR_2	55	55	Yes
OPOR_3	43	55	Yes

As shown in Table 3 and Figure 3, the predicted sound levels at the subject site meet the noise guideline limit during routine operation of the generator. As such, noise mitigation measures are not required for the proposed development to address the nearby stationary source.

6.0 NOISE CONTROL SUMMARY

Noise abatement requirements are summarized on Figure 2 and in Table 5 along with the notes to Table 5.

TABLE 5: NOISE ABATEMENT MEASURES

Location	Air Conditioning ⁽¹⁾	Exterior Wall	Exterior Window ⁽³⁾	Sound Barrier ⁽⁴⁾	Warning Clauses ⁽⁵⁾
Blocks 1 - 3	Provision for adding	OBC	OBC	2.2 m	A + B + C + D
Block 4	Provision for adding	OBC	OBC	-	A + B
Block 10, 11, 13, 15, 17, 23, Z, AA, BB	No special acoustical requirements				D
All remaining dwellings	No special acoustical requirements				

Notes

- (1) Central air conditioning allows windows to remain closed for noise control purposes. Provision for adding air conditioning typically takes the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413).
STC values are based on the Floor Plans and Elevation Drawings for Blocks 16, 20, 21 and 23, prepared by Sunvale Homes, dated August 7, 2020, and should be reviewed once building plans are finalized.
- (3) STC - Sound Transmission Class Rating (Reference ASTM-E413). A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.
STC values are based on the Floor Plans and Elevation Drawings for Blocks 16, 20, 21 and 23, prepared by Sunvale Homes, dated August 7, 2020, and should be reviewed once building plans are finalized.
- (4) Acoustic barriers must be of solid construction, having a minimum face density of 20 kg/m² with no gaps, cracks or holes. A variety of materials are available, including concrete, masonry, glass, wood, specialty composite materials, or a combination of the above.
- (5) Warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated building units/lots/townhouse units:
 - A. "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 and rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound level may exceed the noise criteria of the Ministry of the Environment, Conservation and Parks and/or the municipality."
 - B. "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 will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Ministry of the Environment, Conservation and Parks and/or the municipality."
 - C. "Purchasers/occupants are advised that the acoustical berm and/or barrier as installed shall be maintained, repaired or replaced by the owner. Any maintenance, repair or replacement shall be with the same material, to the same standards, and having the same colour and appearance of the original."
 - D. "Purchases/tenants are advised that due to the proximity of the adjacent pumping station, noise from this facility may at times be audible."
- (6) All exterior doors shall be fully weather-stripped.

7.0 CONCLUSIONS

With the incorporation of the recommended noise mitigation measures, the applicable MECP noise guidelines can be met, and a suitable acoustical environment provided for the occupants.

The approvals and administrative procedures are available to ensure that the noise requirements are implemented.

8.0 REFERENCES

1. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment.
2. Building Practice Note No. 56: "Controlling Sound Transmission into Buildings", by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.
3. City of Toronto Municipal Code, Chapter 591, Noise.
4. “Environmental Noise Guideline – Stationary and Transportation Sources, Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, October 2013.
5. “Chapter 48 – Noise and Vibration Control”, ASHRAE Handbook – HVAC Applications, 2011.
6. County of Simcoe Interactive Map (<https://opengis.simcoe.ca/public/>) accessed May 3, 2022

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Tracey Ln

Kerr St

Kirby Ave

Kirby Ave

SITE - East Parcel

SITE - South Parcel

Hughes St

Robertson St

32

Poplar Sideroad



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 Richmond Hill, Ontario
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Title

Key Plan

Project No.

122-0071

Date

May 02, 2022

Project Name

Pretty River Estates - Phase 2

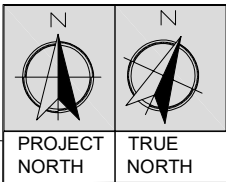
Scale

N.T.S.

Figure

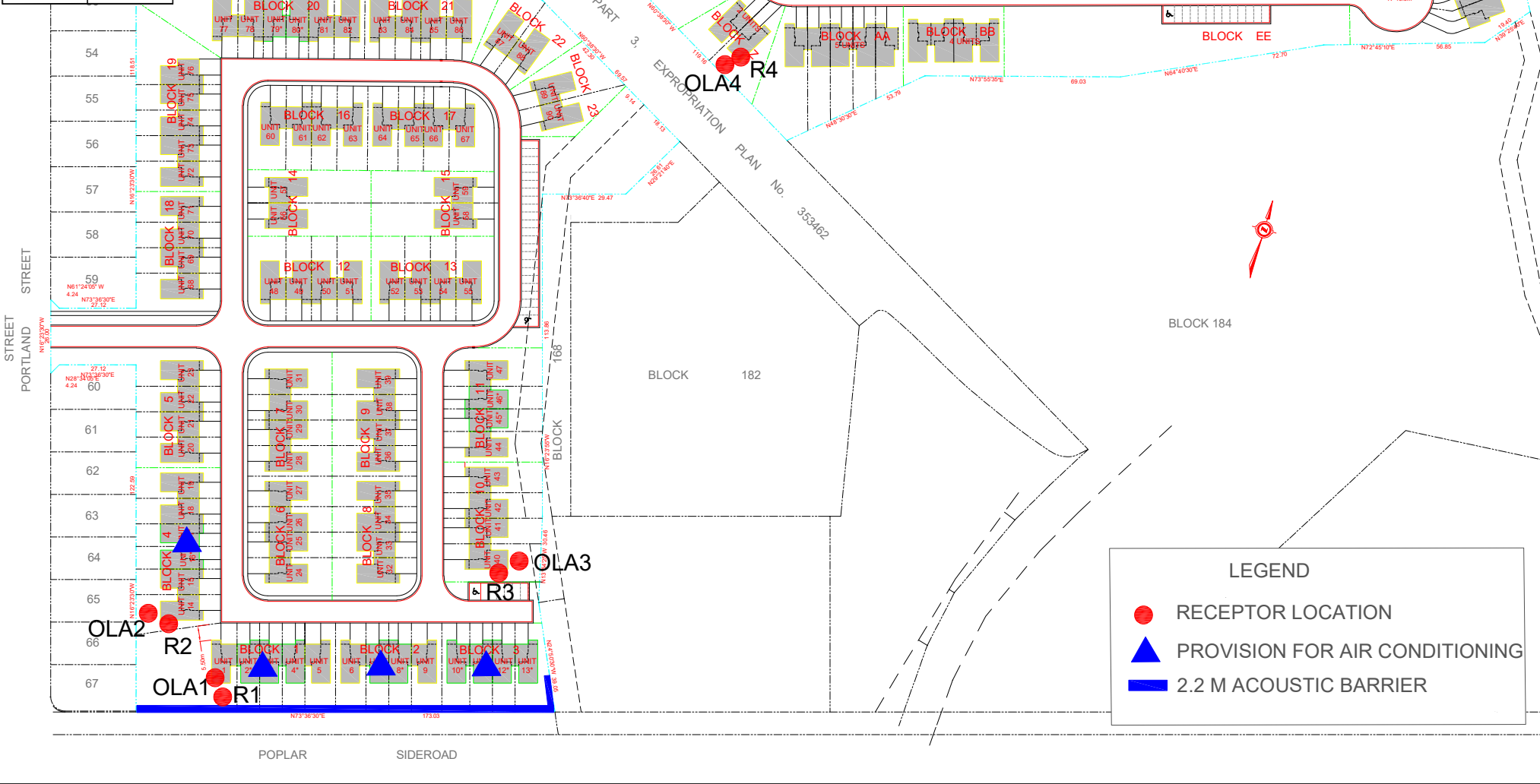
1

No.	Revision/Issue	Date



3. EXPROPRIATION PLAN No. 353462

PROJECT NORTH
TRUE NORTH



LEGEND

- RECEPTOR LOCATION
- ▲ PROVISION FOR AIR CONDITIONING
- 2.2 M ACOUSTIC BARRIER

No.	Revision/Issue	Date

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Receptor Locations

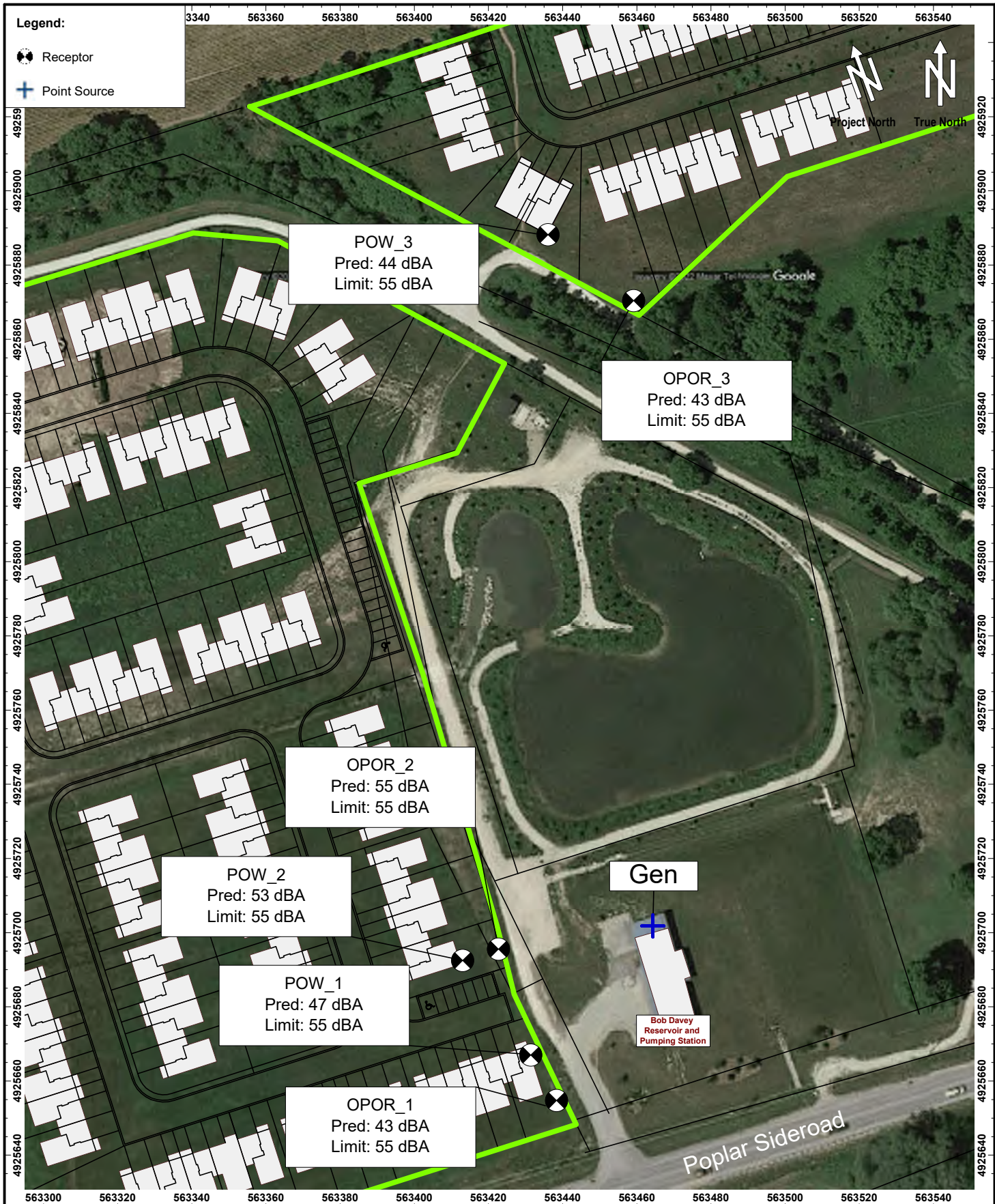
Project Name
 Pretty River Estates - Phase 2

Project No.
 122-0071

Scale
 N.T.S.

Date
 May 02, 2022

Figure
2

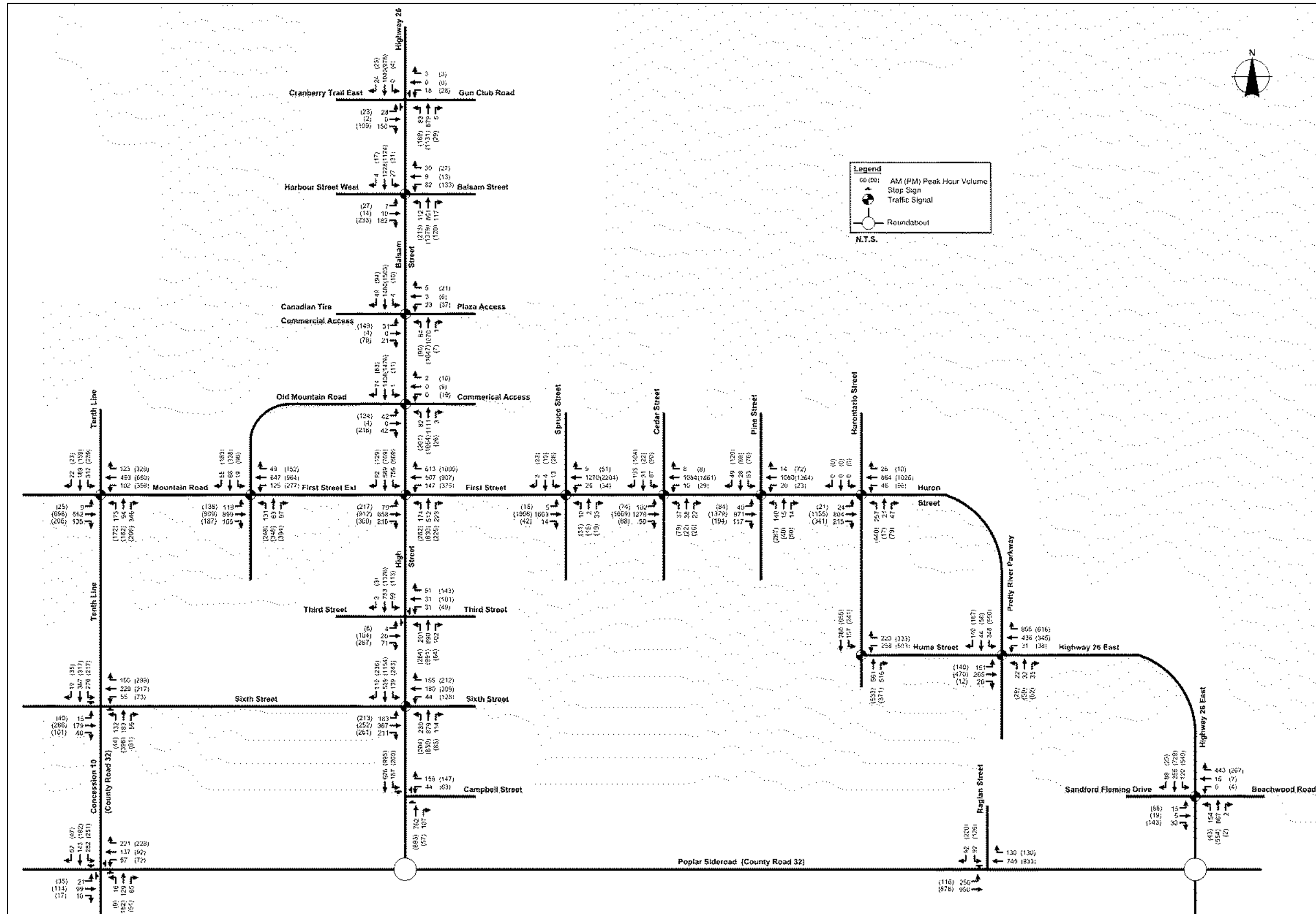


	Title	Date	Figure
	Predicted Unmitigated Sound Levels - Emergency Generator Project Name Pretty River Estates - Phase 2	2022-05-02 Project No. 122-0071	3

APPENDIX A

ROAD TRAFFIC DATA

Figure 14: 2041 Total Traffic Volumes



APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

ENVIRONMENTAL NOISE GUIDELINES

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS(MECP)

Reference: MECP Publication NPC-300, October 2013: “*Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*”.

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30 [#]
	Stationary Source		
	Class 1 Area	07:00 to 19:00 ⁽¹⁾ 19:00 to 23:00 ⁽¹⁾	50 ⁺ dBA 50 ⁺ dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾ 19:00 to 23:00 ⁽²⁾	50 ⁺ dBA 45 ⁺ dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾ 19:00 to 23:00 ⁽³⁾	45 ⁺ dBA 40 ⁺ dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾ 19:00 to 23:00 ⁽⁴⁾	55 ⁺ dBA 55 ⁺ dBA

.../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source Class 1 Area	07:00 to 19:00 ⁽¹⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽¹⁾	50 ⁺ dBA
		23:00 to 07:00 ⁽¹⁾	45 ⁺ dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽²⁾	50 ⁺ dBA
		23:00 to 07:00 ⁽²⁾	45 ⁺ dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾	45 ⁺ dBA
		19:00 to 23:00 ⁽³⁾	45 ⁺ dBA
		23:00 to 07:00 ⁽³⁾	40 ⁺ dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾	60 ⁺ dBA
		19:00 to 23:00 ⁽⁴⁾	60 ⁺ dBA
		23:00 to 07:00 ⁽⁴⁾	55 ⁺ dBA

- # may not apply to in-fill or re-development.
 * or the minimum hourly background sound exposure $L_{eq(1)}$, due to road traffic, if higher.
 (1) Class 1 Area: Urban.
 (2) Class 2 Area: Urban during day; rural-like evening and night.
 (3) Class 3 Area: Rural.
 (4) Class 4 Area: Subject to land use planning authority's approval.

Reference: MECP Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

APPENDIX C

SAMPLE TRANSPORTATION NOISE SOURCE SOUND LEVEL CALCULATIONS

Segment Leq : 57.21 dBA

Total Leq All Segments: 57.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.74
(NIGHT): 57.21

APPENDIX D

STATIONARY NOISE SOURCE DATA AND SAMPLE CALCULATIONS

Pretty River Estates - Phase 2

Point Sources

Name	M.	ID	Result. PWL			Lw / Li		Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height	Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R		Area	Day	Special					Night	X	Y
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)	(min)	(min)	(min)	(dB)	(Hz)	(m)	(m)	(m)	(m)	
Gen		Gen	97.8	97.8	97.8	Lw	Gen		0.0	0.0	0.0					0.0		(none)	3.00	r	563464.35	4925701.80	3.00

Sound Level Library

Name	ID	Type	Octave Spectrum (dB)											Source	
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A		lin
Gen	Gen	Lw		97.9	99.4	100.9	101.3	92.2	92.9	88.2	83.4	76.3	97.8	106.5	Apr 06, 2022 VCL Measurement

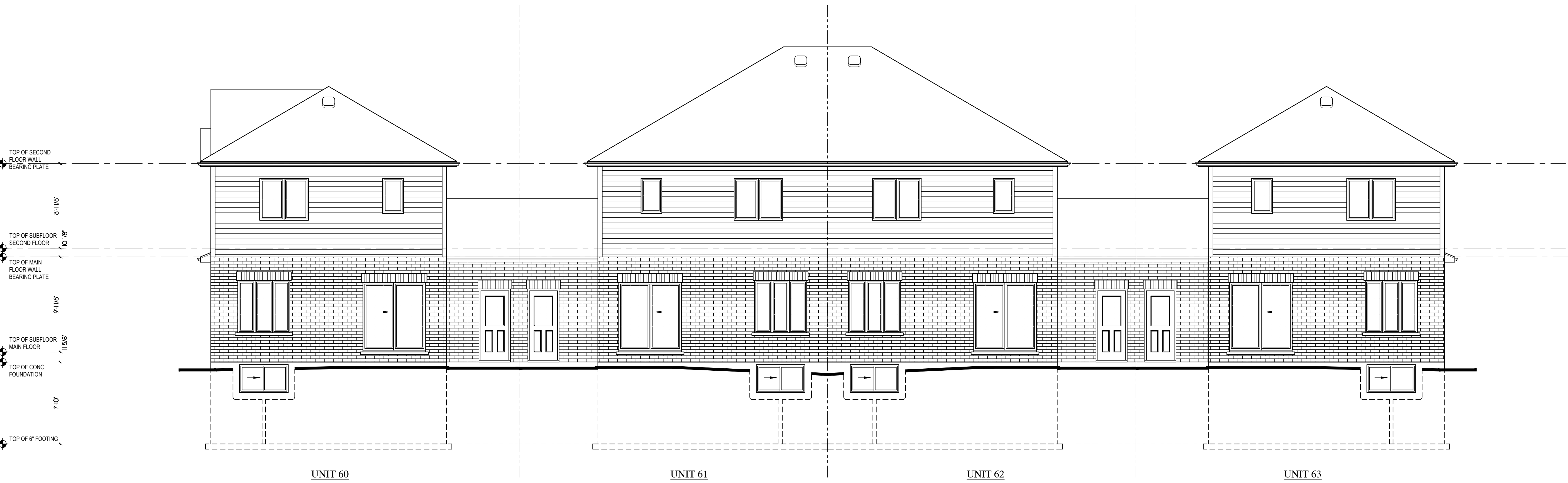
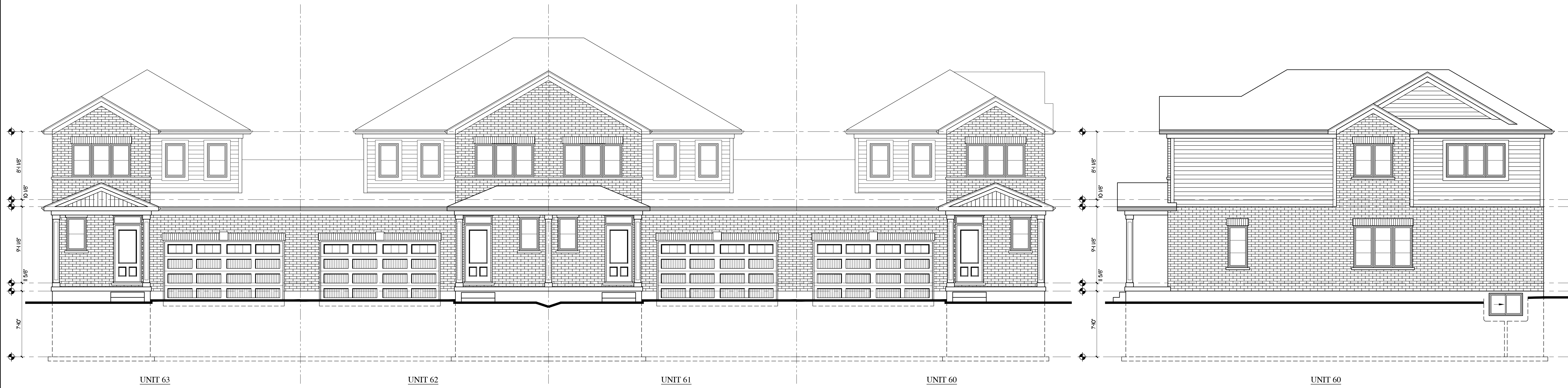
Pretty River Estates - Phase 2

Receiver
 Name: POW_2
 ID: POW_2
 X: 563413.02 m
 Y: 4925692.49 m
 Z: 4.50 m

Point Source, ISO 9613, Name: "Gen", ID: "Gen"																					
Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)	
5	563464.35	4925701.80	3.00	0	DEN	32	58.5	0.0	0.0	0.0	0.0	45.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2
5	563464.35	4925701.80	3.00	0	DEN	63	73.2	0.0	0.0	0.0	0.0	45.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
5	563464.35	4925701.80	3.00	0	DEN	125	84.8	0.0	0.0	0.0	0.0	45.4	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	38.9
5	563464.35	4925701.80	3.00	0	DEN	250	92.7	0.0	0.0	0.0	0.0	45.4	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	46.6
5	563464.35	4925701.80	3.00	0	DEN	500	89.0	0.0	0.0	0.0	0.0	45.4	0.1	-1.2	0.0	0.0	0.0	0.0	0.0	0.0	44.7
5	563464.35	4925701.80	3.00	0	DEN	1000	92.9	0.0	0.0	0.0	0.0	45.4	0.2	-1.3	0.0	0.0	0.0	0.0	0.0	0.0	48.6
5	563464.35	4925701.80	3.00	0	DEN	2000	89.4	0.0	0.0	0.0	0.0	45.4	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	0.0	44.8
5	563464.35	4925701.80	3.00	0	DEN	4000	84.4	0.0	0.0	0.0	0.0	45.4	1.7	-1.3	0.0	0.0	0.0	0.0	0.0	0.0	38.7
5	563464.35	4925701.80	3.00	0	DEN	8000	75.2	0.0	0.0	0.0	0.0	45.4	6.1	-1.3	0.0	0.0	0.0	0.0	0.0	0.0	25.1

APPENDIX E

FLOOR PLAN AND ELEVATION DRAWINGS



STATUS: BUILDING PERMIT
 PLOTTED: JAN. 07/2012
 SCALE: 3/16"=1'-0"
 DRAWN BY: MAM
 DATE: AUG. 7/2020
 LAST REV:

SUNVALE HOMES

PROJECT: PRETTY RIVER ESTATES
 BLOCK 16
 COLLINGWOOD, ONTARIO
 TITLE: FRONT AND REAR ELEVATIONS

688 BRIDLE PATH, UNIT 108
 GRANDVILLE, ONTARIO L7M 4Z5
 PHONE: 518-341-8443
 WWW.SUNVALEHOMES.COM
 DRAWN BY: KAREN KOHATS
 BCN: 28501

SHEET No: **A1**



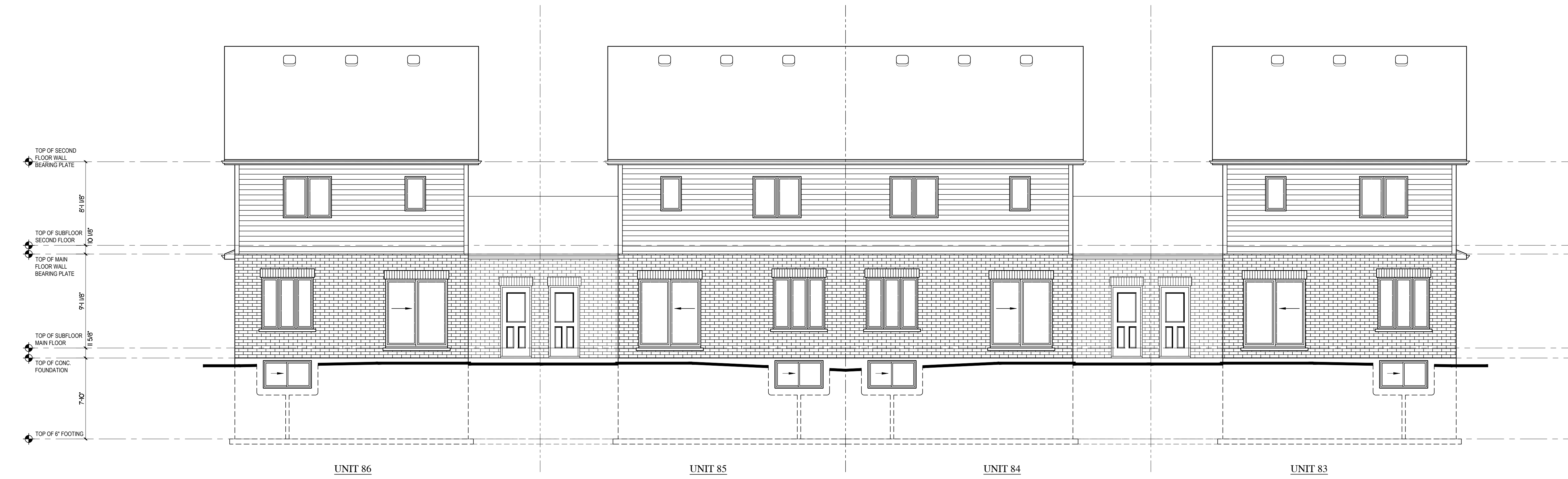
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 PLOTTED: JAN. 07/2012
 SCALE: 3/16"=1'-0"
 DRAWN BY: KMK
 DATE: AUG. 7/2020
 LAST REV:

SUNVALE HOMES

PROJECT: PRETTY RIVER ESTATES
 BLOCK 20
 COLLINGWOOD, ONTARIO
 TITLE: FRONT AND REAR ELEVATIONS

SHEET No: **A1**

688 BRIDLE PATH, UNIT 108
 GRANDVILLE, ONTARIO L7M 4Z5
 PHONE: 518-341-8443
 WWW.SUNVALEHOMES.COM
 DRAWN BY: KAREN KOHATS
 BORN: 28501



PROJECT: PRETTY RIVER ESTATES
 BLOCK 21
 COLLINGWOOD, ONTARIO
 TITLE: FRONT AND REAR ELEVATIONS

STATUS: BUILDING PERMIT
 PLOTTED: JAN. 07/2012
 SCALE: 3/16"=1'-0"
 DRAWN BY: MAM
 DATE: AUG. 7/2020
 LAST REV:

SUNVALE HOMES

GREG BIRRELL, P. ENG., UNIT. MGR.
 GRANDVILLE, ONTARIO L9W 4Z5
 PHONE: 519-341-8443
 www.sunvalhomes.com

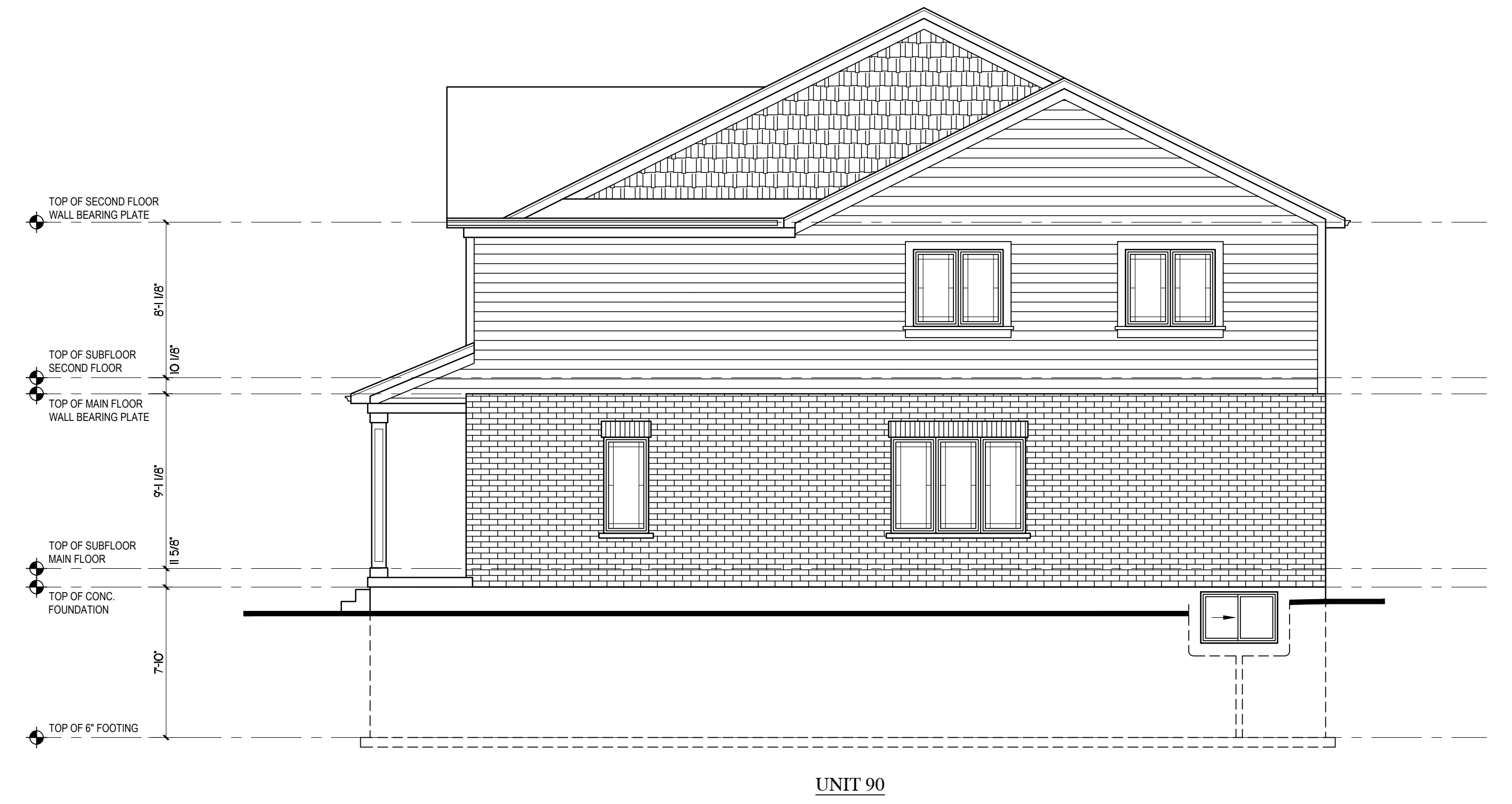
DRAWN BY: KAREN KOHATS
 BCHK: 28501

SHEET No: **A1**



UNIT 89

UNIT 90



UNIT 90



UNIT 90

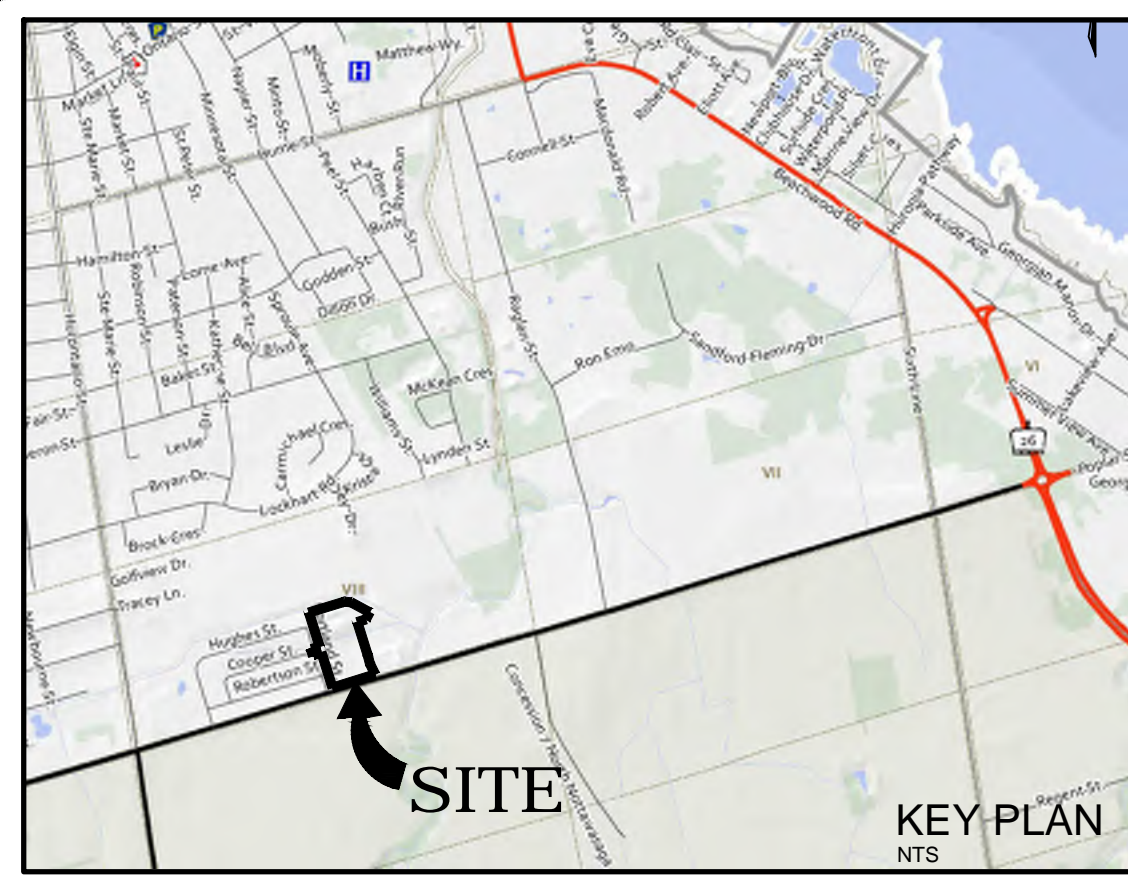
UNIT 89



UNIT 89

APPENDIX F

GRADING PLAN

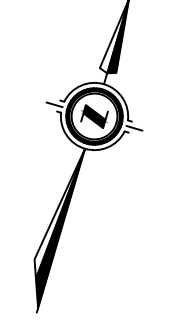
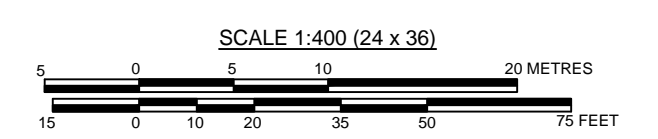
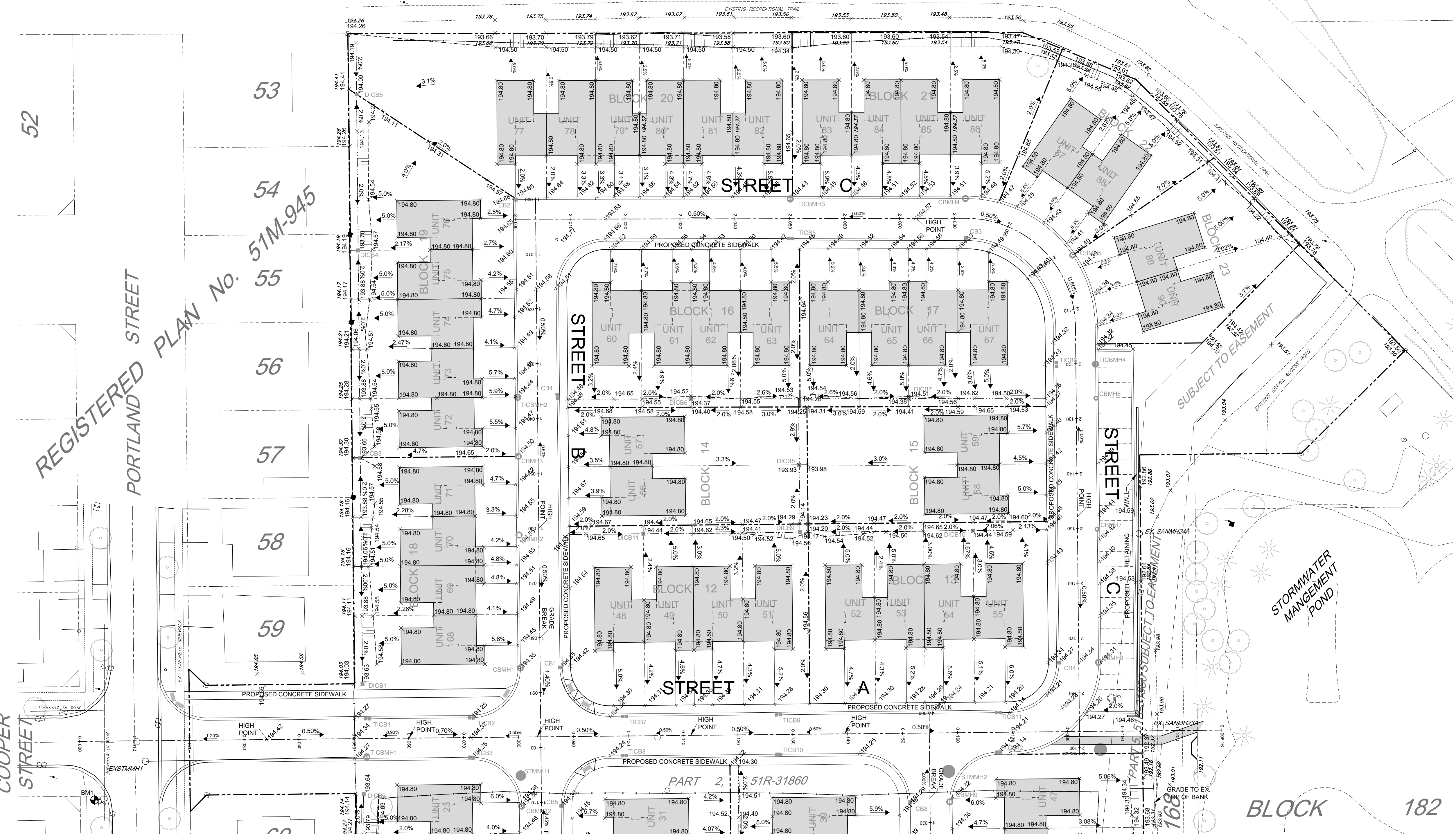


LEGEND	
	PROPERTY BOUNDARY
	PROPOSED EDGE OF PAVEMENT
	PROPOSED STORM MANHOLE
	PROPOSED CATCHBASIN MANHOLE
	PROPOSED CATCH BASIN
	EXISTING CATCH BASIN
	PROPOSED DITCH INLET CATCHBASIN
	PROPOSED GRADE
	PROPOSED ELEVATION
	EXISTING ELEVATION
	PROPOSED SWALE & DIRECTION OF FLOW
	PROPOSED GRADING MAX. 3:1

CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

Notes
1. PROPERTY BOUNDARY DERIVED FROM PLAN OF SURVEY BY ZUBEK, EMO, PATTEN AND THOMSEN LTD.

PART 3, EXPROPRIATION PLAN No. 353462



Benchmark Information
BM1
TOP NUT OF FIRE HYDRANT LOCATED ON THE SOUTH-WESTERLY CORNER OF THE INTERSECTION OF COOPER STREET AND PORTLAND STREET.
ELEVATION 195.24m

No.	DATE	DESCRIPTION	BY	APPD
0	SEP 2021	FOR PRE-CONSULTATION	TLB	SJC
REVISION / ISSUE				

Seal not valid unless signed and dated

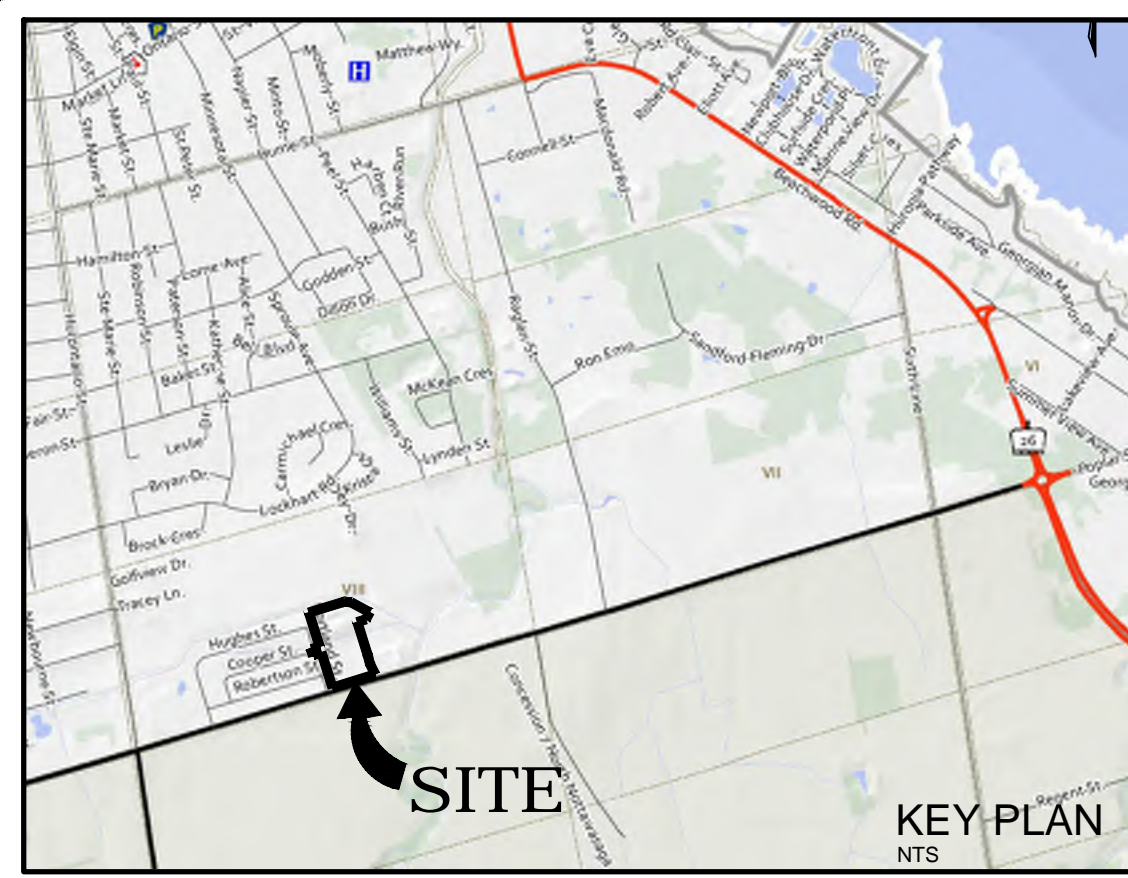
COBIDE ENGINEERING INC
517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title: **PROPOSED TOWNHOUSE DEVELOPMENT
PRETTY RIVER ESTATES
TOWN OF COLLINGWOOD
SITE GRADING PLAN 1**

Client: SUNVALE HOMES LTD.	
Design: TLB	Scale: 1:400
Drawn: JAF	Approved:
Checked: SJC	
Date: JUN 2021	Design Engineer
Drawing No. 00703-SG1	

SEE CONTINUATION SHEET 00703-SG2

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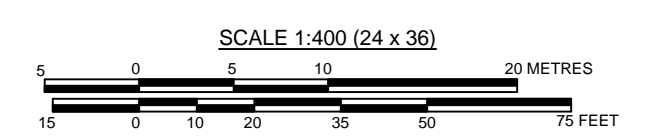
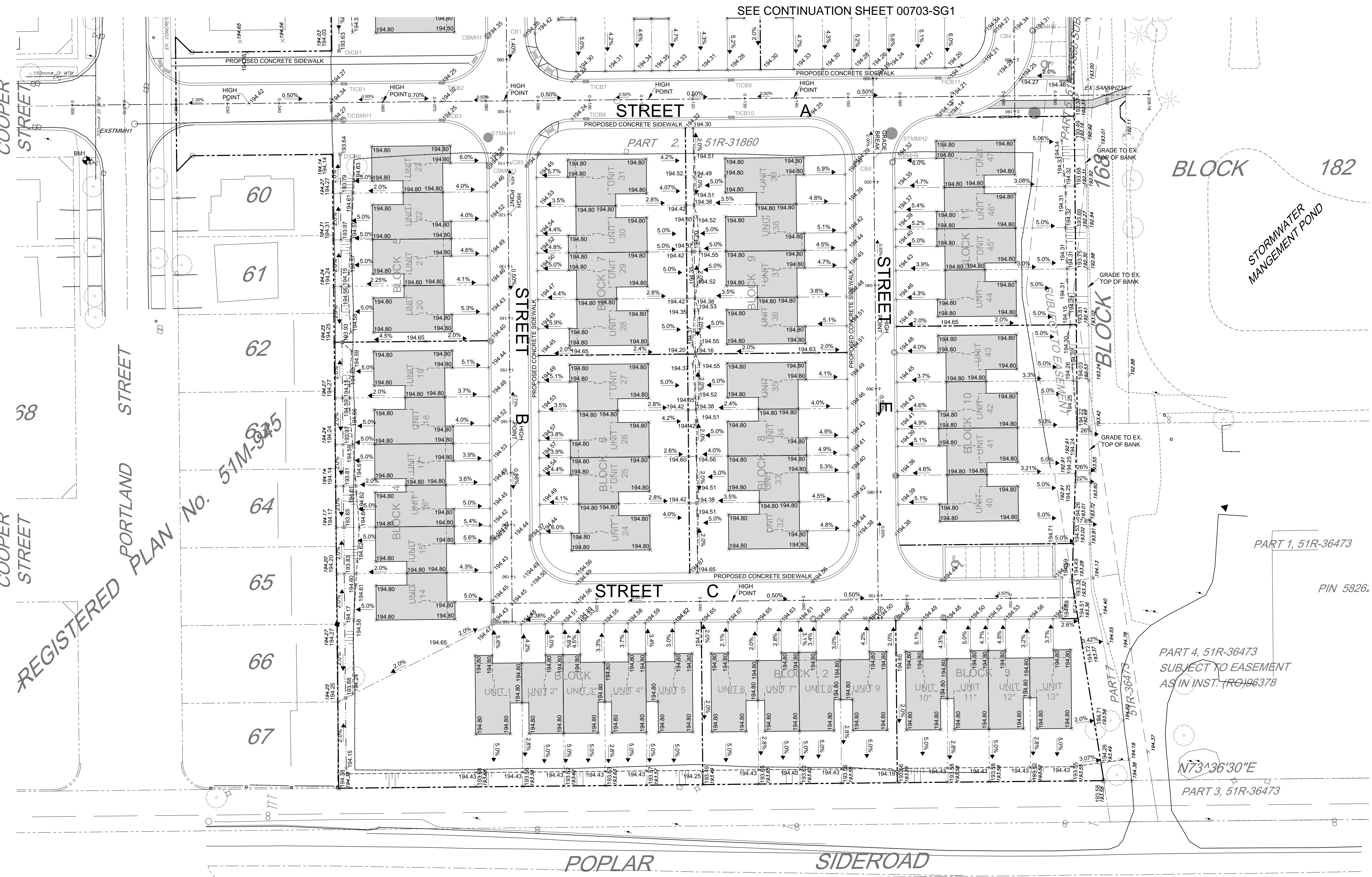
LEGEND

- PROPERTY BOUNDARY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED STORM MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING CATCH BASIN
- ▾ EXISTING DITCH INLET CATCHBASIN
- ▲ PROPOSED GRADE
- ▲ PROPOSED ELEVATION
- ▲ EXISTING ELEVATION
- ▲ PROPOSED SWALE & DIRECTION OF FLOW
- PROPOSED GRADING MAX. 3:1

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Notes

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TOP HUT OF FIRE HYDRANT LOCATED ON THE SOUTH-WESTERLY CORNER OF THE INTERSECTION OF COOPER STREET AND PORTLAND STREET.
ELEVATION 195.24m

No.	DATE	DESCRIPTION	BY	APPD
0	SEP 2021	FOR PRE-CONSULTATION	TLB	SJC
REVISION / ISSUE				

Seal not valid unless signed and dated

COBIDE ENGINEERING INC

517 10th Street, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

SUNVALE HOMES

**PROPOSED TOWNHOUSE DEVELOPMENT
PRETTY RIVER ESTATES
TOWN OF COLLINGWOOD
SITE GRADING PLAN 2**

Client: **SUNVALE HOMES LTD.**

Design: TLB Scale: 1:400
Drawn: JAF Approved:
Checked: SJC
Date: JUN 2021 Design Engineer

DRAWING No. 00703-SG2

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