Environmental Noise Control Study

Proposed Residential Development

2028 Merivale Road
Ottawa, Ontario

Prepared for Olympia Homes

Report PG7471-1 Revision 5 - Dated October 20, 2026

Table of Contents

PAGE

1.0 Introduction 1
2.0 Proposed Development 1
3.0 Methodology and Noise Assessment Criteria 2
4.0 Noise and Vibration Assessment Criteria 7
5.0 Analysis 10
6.0 Results 13
7.0 Discussion and Recommendations 15
8.0 Summary of Findings 19
9.0 Statement of Limitations 22

Appendices

Appendix 1 Table 15 – Summary of Reception Points and Geometry
Drawing PG7471-1-Site Plan
Drawing PG7471-2-Receptor Location Plan
Drawing PG7471-3A-Site Geometry (REC 1)
Drawing PG7471-3B-Site Geometry (REC 2)
Drawing PG7471-3C-Site Geometry (REC 3)
Drawing PG7471-3D-Site Geometry (REC 4)
Drawing PG7471-3E-Site Geometry (REC 5)
Drawing PG7471-3F-Site Geometry (REC 6)
Drawing PG7471-3G-Site Geometry (REC 7)
Drawing PG7471-3H-Site Geometry (REC 8)
Drawing PG7471-3I-Site Geometry (REC 9)
Drawing PG7471-3J-Site Geometry (REC 10)
Drawing PG7471-3K-Site Geometry (REC 10 REV 1)
Drawing PG7471-3L-Site Geometry (REC 11)
Drawing PG7471-3M-Site Geometry (REC11 REV 1)

Appendix 2 STAMSON Results

1.0 Introduction

Paterson Group (Paterson) was commissioned by Ironclad Developments to conduct an environmental noise control study for the proposed residential development to be located at 2028 Merivale Road in the City of Ottawa.

The objectives of the current study are to:

- ❑ Determine the primary noise sources impacting the site and compare the projected sound levels to guidelines set out by the Ministry of Environment and Conservation and Parks (MOECP) and the City of Ottawa.

- ❑ Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

The following report has been prepared specifically and solely for the aforementioned project, which is described herein. It contains our findings and includes acoustical recommendations pertaining to the design and construction of the subject residential development as they are understood at the time of writing this report.

This study has been conducted according to the City of Ottawa document - Engineering Noise Control Guidelines (ENCG), dated January 2016, and the Ontario Ministry of the Environment Guideline NPC-300.

2.0 Proposed Development

It is understood that the proposed residential development will consist of nine single-storey residential buildings (denoted as units 1 through 9). Associated at-grade roadways, parking areas, landscaped areas and outdoor living areas are also anticipated as a part of the proposed residential development.

3.0 Methodology and Noise Assessment Criteria

The City of Ottawa outlines three (3) sources of environmental noise that must be analyzed separately:

- ❒ Surface Transportation Noise
- ❒ Stationary Noise
  - ➢ New noise-sensitive development applications (noise receptors) in proximity to existing or approved stationary sources of noise and
  - ➢ New stationary sources of noise (noise generating) in proximity to existing or approved noise-sensitive developments.
- ❒ Aircraft noise

Surface Transportation Noise

The City of Ottawa's Official Plan, in addition to the ENCG, dictate that the influence area must contain any of the following conditions to classify as a surface transportation noise source for a subject site:

- ❒ Within 100 m of the right-of-way of an existing or proposed arterial, collector or major collector road; a light rail transit corridor; bus rapid transit, or transit priority corridor.
- ❒ Within 250 m of the right-of-way for an existing or proposed highway or secondary rail line.
- ❒ Within 300 m from the right of way of a proposed or existing rail corridor or a secondary main railway line.
- ❒ Within 500 m of an existing 400 series provincial highway, freeway or principal main railway line.

The NPC-300 outlines the limitations of the stationary and environmental noise levels in relation to the location of the receptors. These can be found below in the following tables:

Table 1 - Sound Level Limits for Outdoor Living Areas	
Time Period	**Required $L_{eq(16)}$ (dBA)**
16 hours, 7:00-23:00	55
I. Standards taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas - Road and Rail	

Table 2 - Sound Level Limits for Indoor Living Areas			
Type of Space	**Time Period**	**Required L_{eq} (dBA)**	
		Road	**Rail**
Living/Dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc	7:00-23:00	45	40
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms	23:00-7:00	45	40
Sleeping quarters	7:00-23:00	45	40
	23:00-7:00	40	35
I. Standards taken from Table 2.2b; Sound Level Limit for Indoor Living Areas - Road and Rail			

It is noted in ENCG that the limits outlined in Table 2 are for the sound levels on the interior of the glass pane. The ENCG further goes on to state that the limit for the exterior of the pane of glass will be 55 dBA.

If the sound level limits are exceeded at the window panes for the indoor living areas, the following Warning Clauses may be referenced:

Table 3 - Warning Clauses for Sound Level Exceedances	
Warning Clause	**Description**
Warning Clause Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air 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."
Warning Clause 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 (rail traffic) (air 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."
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."
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."
I. Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines - NPC-300	

Stationary Noise

Stationary noise sources include sources or facilities that are fixed or mobile and can cause a combination of sound and vibration levels emitted beyond the property line. These sources may include commercial air conditioner units, generators and fans. Facilities that may contribute to stationary noise may include car washes, snow disposal sites, transit stations and manufacturing facilities.

The proposed residential development is not in proximity to any existing or approved stationary sources of noise. Therefore, a stationary noise analysis will not be required with respect to off-site stationary noise sources impacting the proposed residential development.

Aircraft/Airport Noise

The subject site is located within the Airport Vicinity Development Zone (AVDZ), and therefore must be reviewed with respect to the aircraft and airport noise as stipulated by the local authorities. Reference should be made to the Prescribed Measures to Address Aircraft Noise, Residential Development 25 NEF/NEP to OAOIZ for a breakdown on how the noise is to analyzed. Based on a review of the aforementioned document, provided the measures outlined below are followed, no further analysis is required. Alternatively, the developer may opt to conduct a site specific aircraft noise impact assessment rather than follow the measures outlined below to confirm if alternative building component specifications would be acceptable.

Building Components Specifications

Exterior Walls – Wall Components

- ❒ *12.7 mm gypsum board*
- ❒ *Vapour barrier*
- ❒ *38 mm x 139 mm studs at 400 mm o.c.*
- ❒ *Batt/brown insulation in the inter-stud cavities*
- ❒ *7.9 mm exterior sheathing*
- ❒ *Building paper*
- ❒ *Wood siding; vinal siding; or metal siding with fiber backer board; or 20 mm stucco*

Windows and Patio Doors

- ❒ *Double-glazed, well fitted, weather stripped units with dimensioned to fit 25 mm*
- ❒ *4 (16) 4 = 4 mm glass, 16 mm space, 4 mm glass*

Roof – Ceiling

- ❒ *Asphalt shingles*
- ❒ *Sheathing*
- ❒ *Typical (pre-engineering) wood trusses at 600 mm o.c. with ventilated attic;*
- ❒ *75 mm (or thicker) batts/blown insulation*
- ❒ *12.7 gypsum board*

Exterior Doors

- ❒ *44 mm steel doors with foam or glass fiber/polyurethane insulated core (dinning and living rooms) with unlimited glazing;*
- ❒ *44 mm glass fiber reinforced plastic door with foam or glass fibre insulated core*

Ventilation Requirements

- ❒ *Forced air heating system with fans, ducts, etc. sized to accommodate the installation of a central air conditioning system.*

Warning Clause Requirements

The following warning clause must be included on all subdivision agreements and/or development agreements, and all offers of purchase and sale and/or lease agreements.

- ❒ *Purchasers/building occupants are forewarned that this property/dwelling unit is located in a noise sensitive area due to its proximity to Ottawa Macdonald -Cartier International Airport. In order to address the impact of aircraft noise in the indoor spaces, the unit had been designed and built to meet provincial standards for noise control by the use of components and building systems that provide sound attenuation. In additional to the building components (ie. Walls, windows, doors, ceiling/roof), since the benefit of sound attenuation is lost when windows or doors are left open this unit has been fitted with a forced air heating system, all components of which are sized to accommodate the future installation of central air conditioning by the owner/occupant.*

  Despite the inclusion of noise control features within the dwelling unit, noise due to aircraft operation may continue to interfere with some indoor activities and with outdoor activities, particularly during the summer months. The purchaser/building occupant is further advised that the Airport is open and operates 24 hours a day, and that changes to operations or expansion of the airport facilities, including the construction of new runways, may affect the living environment of the residents of this property/area.

  The Ottawa MacDonald-Cartier International Airport Authority, its acoustical consultants and the Municipality are not responsible if, regardless of the implementation of noise control features, the purchases/occupant of this dwelling finds the indoor noise levels due to aircraft operations continue to be of concern or are offensive.

4.0 Noise and Vibration Assessment Criteria

Due to the location of the Smith Falls Rail Corridor ground a vibration and ground-borne noise reviews were also performed for this residential development.

Effects of the Rail Corridor on the Proposed Residential Development

The human body can be affected by exposure to vibration, in particular ground-borne vibrations occurring at low frequencies. These can be caused by the surrounding vibration sources previously identified, such as wheels on a road or rail system. These ground-borne vibrations can cause the building to shake (ground-borne vibration) and/or cause rumbling sounds (ground-borne noise).

The methods of defining and measuring vibrations have their own challenges, based on the oscillatory motion identified as a vibration. Due to the nature of the oscillatory motion of the vibration, there is no net movement of the vibration element, and therefore motion descriptors are zero.

There are two (2) main methods of defining the magnitude of the overall vibration. The industry standard approach utilized in construction activities is the peak particle velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal and is often used when monitoring blasting vibrations and is ideal for evaluating the potential for building damage.

However, human responses require a different method of analysis as the human body requires time to respond to vibration signals. The average vibration amplitude would be an applicable method of reporting the ground-borne vibrations that humans would respond to, however, with the vibration being represented as a sine wave, the average vibration amplitude would be zero. Therefore, the root mean square (RMS) amplitude, typically calculated over a 1-second interval, is utilized for the analysis. The RMS value is always less than the PPV.

General factors that could affect the magnitude of the created vibrations include but are not limited to: whether the rail is above grade or below grade, speed, vehicle suspension, wheel and track condition, track support system, depth of system and soil conditions. It should be noted that vibrations that travel through the bedrock surface should be minimal but can travel a further distance.

The Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual: FTA Report No. 0123 dated September 2018 outlines the vibration standards caused by rail sources. Upon review of this document, the following standards were obtained that apply to this analysis.

Screening distances are based on land-use categories and the type of project vehicles. The Smith Falls Rail Line is currently active and is considered a Locomotive Powered Passenger Vehicle. The proposed residential buildings would be classified as a "Vibration Category 2 – Residential". Therefore, the screening distance is 61 metres (200 ft). Vibration assessment is required only when the proposed residential buildings are located within the screening distance from the railway.

The criteria for the environmental impact from vibrations are based on the RMS vibration levels for repeated events. The proposed residential buildings would be classified as a "Vibration Category 2 – Residential". The following table outlines the limits for ground-borne vibrations.

Table 4 - Ground-Borne Vibration (GBV) for General Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events	**Occasional Events**	**Infrequent Events**
Category 2	72 VdB	75 VdB	80 VdB

Notes:

- Standards taken from Table 6.3; Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment.
- Frequent events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
- Occasional events are defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
- Infrequent events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

Ground-borne vibration can also result in ground-borne noise. This is separate from the noise caused by the trains directly and instead focuses on the vibration of objects to emit noise. Similar to ground-borne vibration, the noise impacts are based on criteria for human annoyance and activity interference. For residential buildings, the criteria for acceptability is given in the table on the following page:

Table 5 - Ground-Borne Noise (GBN) for General Assessment

Land Use Category	GBN Impact Levels (dBA re 20 micro Pascals)		
	Frequent Events	**Occasional Events**	**Infrequent Events**
Category 2	35 dBA	38 dBA	43 dBA

Notes:

- Standards taken from Table 6.3; Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment.
- Frequent events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
- Occasional events are defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
- Infrequent events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

5.0 Analysis

Surface Transportation Noise

The subject site is currently occupied with an existing residential dwelling, with Cassone Crescent to the north, Merivale Road to the east, Pineglen Crescent to the south, and Miriam Avenue to the west, further by the Smith Falls Rail Corridor. Merivale Road was identified within the 100 m radius and the Smith Falls Rail Corridor within the 300 m radius of the proposed residential development.

Based on the new City of Ottawa Official Plan, Schedule F, Merivale Road is considered a two-lane urban arterial (2-UAU) however based on the 2017 study "Barrhaven and Merivale Rail Grade Crossing Seperation Study EA" Merivale road is expected to be expanded to a four-lane urban arterial (4-UAU). Other roads within the 100 m radius of the proposed residential development are not classified as either arterial, collector, or major collector roads and, therefore, are not included in this study.

The Smith Falls Rail Line is identified within 300 m of the proposed development. It is understood that the Smith Falls Rail line is used by Via Rail as a Passenger Vehicle rail line. The rail line is currently active, and the volume of trains used for the current analysis is based on the current traffic schedule of the Via Rail Line.

All noise sources are presented in Drawing PG7471-1-Site Geometry, located in Appendix 1.

The City of Ottawa provides noise levels from road traffic, taking into consideration the right-of-way width and the implied roadway class. These values represent the maximum allowable capacity of the proposed roadways. The parameters to be used for sound-level predictions can be found below.

Table 6 - Traffic and Road Parameters

Road	Implied Roadway	AADT (Veh/day)	Posted Speed (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
Merivale Road	4-UAU	35000	50	92/8	7	5
Data obtained from the City of Ottawa document ENCG or City of Ottawa Officials						

Table 7 - Rail Parameters - Daytime (0700-2300)				
Rail Line	**Engine Type**	**Maximum Speed (km/hr)**	**Number of Trips/day**	**Length of Train**
Smith Falls	Diesel	80 - 100	16	10

Table 8 - Rail Parameters – Nighttime (2300-0700)				
Rail Line	**Engine Type**	**Maximum Speed (km/hr)**	**Number of Trips/day**	**Length of Train**
Smith Falls	Diesel	80 - 100	8	10

Two (2) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the survey plan for the subject buildings.

Table 9 - Elevation of Reception Points			
Floor Number	**Elevation at the Centre of Window / Ground Surface (m)**	**Floor Use**	**Daytime/Nighttime Analysis**
Ground Surface	1.5	Outdoor Living Area	-
Ground Floor	1.5	Living Area/Bedroom	Daytime/nighttime

For this analysis, a reception point was taken at the centre of each floor, on the ground floor and the sixth floor. Additionally, receptor points for the outdoor living areas were taken 1.5 m above the ground surface. Reception points are detailed in Drawing PG7471-2 Receptor Location Plans presented in Appendix 1.

All horizontal distances have been measured from the reception point to the edge of the right-of-way. The roadways were analyzed where they intersected the 100m buffer zone, and the rail lines were analyzed where they intersected the 300m buffer zone which is reflected in the local angles described in Paterson Drawings PG7471-3A to 3L-Site Geometry in Appendix 1.

Table 13 - Summary of Reception Points and Geometry, located in Appendix 1, provides a summary of the points of reception and their geometry concerning the noise sources. The analysis is completed so that no effects of sound reflection off the building facade are considered, as stipulated by the ENGC. It should be noted that one receptor is assigned to the side of the building affected by noise. There are two noise sources: Merivale Road, and the Smith Falls Rail. The anticipated noise at each receptor represents the worst-case scenario for each building.

The analysis was completed using STAMSON version 5.04, a computer program which uses the road and rail traffic noise prediction methods using ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) and STEAM (Sound from Trains Environment Analysis Method), publications from the Ontario Ministry of Environment and Energy.

The subject site is relatively level and at grade with the neighbouring roads within a 100 to 300 m radius.

Ground-borne vibration assessment is required for the Smith Falls Rail Line. However, it is noted that the distance between the Smith Falls Rail Line and the proposed residential buildings is greater than 130 m. This distance is greater than the screening distances specified in the City of Ottawa Noise Control Study Guidelines. Therefore, a ground-borne vibration assessment is not required.

6.0 Results

Surface Transportation

The primary descriptors are the 16-hour daytime and the 8-hour nighttime equivalent sound levels, $L_{eq(16)}$ and the $L_{eq(8)}$ for City roads.

The proposed traffic noise levels were analyzed at all reception points. The results of the STAMSON software are located in Appendix 2, and the summary of the results is noted in Table 10 below.

Table 10 – Proposed Noise Levels

Reception Point	Description	OLA (dBA)	Daytime at Facade $L_{eq(16)}$ (dBA)	Nighttime at Facade $L_{eq(8)}$ (dBA)
REC 1	Eastern Elevation - 1st Floor - Unit 1		75.50	68.11
REC 2	Northern Elevation - 1st Floor - Unit 1		67.59	60.06
REC 3	Southern Elevation - 1st Floor - Unit 1		67.58	59.99
REC 4	Northern Elevation - 1st Floor - Unit 5		56.19	49.81
REC 5	Southern Elevation - 1st Floor - Unit 5		56.05	48.46
REC 6	Northern Elevation - 1st Floor - Unit 9		48.42	46.92
REC 7	Western Elevation - 1st Floor - Unit 9		45.92	45.92
REC 8	Southern Elevation - 1st Floor - Unit 9		30.80	30.80
REC 9	Outdoor Living Area - Unit 9	42.75	-	-
REC 10	Outdoor Living Area - Unit 5	56.37	-	-
REC 10 Rev 1	Outdoor Living Area – Unit 5 - Building Orientations Considered – 2.5 m Barrier	53.97	-	-
REC 11	Outdoor Living Area - Unit 1	65.49	-	-
REC 11 Rev 1	Outdoor Living Area - Unit 1 - Building Orientations Considered – 2.5 m Barrier	56.63	-	-

Due to limitations within STAMSOM software, additional calculations were performed for receptors located with a horizontal distance of less than 15 m to the edge of the right-of-way. This calculation was performed using the following formula which is based on the inverse square law.

$$L_2 = L_1 - 20Log_{10}\left(\frac{r_2}{r_1}\right)$$

Where:

L_2: Sound level at distance r_2 (in decibels dBA)

L_1: Sound level at distance r_1 (in decibels dBA)

r_1: Initial distance from source (meters)

r_2: Actual distance from source (meters)

The inverse square law dictates that sound increases proportionally to the square distance from the source. This formula is calculated in free field conditions where there are no obstacles, reflections or atmospheric elements taken into effect. The following table outlines the Receptors where the noise levels were recalculated.

Table 11. Corrected Noise Level Receptor Locations

Receptor ID	Horizontal Distance from Edge of ROW
REC 1	8.5
REC 2	14
REC 3	14
REC 11	12.5

7.0 Discussion and Recommendations

7.1 Outdoor Living Areas

Three outdoor living areas were analyzed as part of the current study. The first outdoor living area (REC 9) is located to the south of Unit 9. The second outdoor living area (REC10) is located to the south of Unit 5. The third outdoor living area (REC11) is located to the south of Unit 1. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources was 42.75, 57.30 and 69.23 dBA, respectively. The values for REC10 and REC 11 were above the 55 dBA limit as specified in Table 1 therefore, additional noise attenuation features will be required.

Further analysis was performed for REC10 and REC11 as they exceeded the 55 dBA threshold. As per Table 12 denoted below of the City of Ottawa Guidelines, the following recommended methods were considered to reduce the noise levels:

- ❒ It is not possible to provide additional setbacks with the current orientation and size of the proposed buildings
- ❒ It is not possible to insert noise-insensitive lands between the source and the receptor
- ❒ The orientation of the proposed buildings was considered and is denoted in Drawing PG7471-3K and 3M
- ❒ An acoustic barrier was considered in addition to the building orientation consideration and is further presented on Drawing PG7471-3K and 3M

Table 12 – Outdoor Living Space Noise Control Measures for Surface Transportation Noise (Table 2.3a from the ENCG of the City of Ottawa)		
Primary Mitigation Measure to achieve required dBA – In order of Preference	**Secondary Mitigation Measures**	
	Landscape plantings and/or non-acoustic fence to obscure the noise source	**Warning Clauses ***
1. Distance setback with soft ground;	Recommended	
1. Insertion of noise-insensitive land uses between the source and the sensitive receptor		
2. Orientation of Buildings to provide sheltered zones in rear yards	Required	Warning Clauses are necessary and to include - Reference to specific noise mitigation measures in the development - Whether noise is expected to increase in the future and - That there is a need to maintain mitigation
3. Shared outdoor amenity areas		
4. Earth Berms (sound barriers)		
5. Acoustic barriers (acoustic barriers)		
* A warning clause is necessary whenever noise is expected to meet or exceed 55dBA Leq 16 in the Outdoor Living Area or Pane of Window of any living space prior to mitigation		

With the implementation of the noise-reducing measures as stated in Table 2.3a of the ENCG, the STAMSON results indicate that the sound levels for REC 10 were reduced to 48.49 dBA and therefore are considered an acceptable outdoor living area. Reference should be made to Drawing PG7471-3K for the noise-reducing measures.

Further analysis was performed for REC 10 and REC 11 for the implementation of the noise-reducing measures. An analysis of a 2.5 m high barrier heights was performed to determine if the noise levels of the outdoor living area could be reduced below the 55 dBA threshold. The inclusion of a 2.5 m high wall reduced the noise level at REC 10 to below 55 dBA and the noise level at REC 11 to 5.6 dBA. This is a minor exceedance at REC 11 and is considered acceptable provided warning clause Type B is included on all deeds of sale for Units 1-5. The acoustic barrier will be required to be constructed as per the ENCG of the City of Ottawa.

Warning Clause 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 (rail traffic) (air 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." in Table 1, and no noise attenuation features will be required.

7.2 Indoor Living Areas and Ventilation

The results of the STAMSON modelling indicate that the $L_{eq(16)}$ ranges between 31.88 dBA and 75.57 dBA. Some of the values calculated exceed the limit of 55 and 65 dBA as specified by the ENCG, and therefore, warning clauses will be required to be stated on any deeds of sale. The applicable warning clauses are summarized in Table 14 below.

Table 14 - Summary of Warning Clauses – Indoor Living Areas

Building	Applicable Warning Clause	Additional Considerations
Unit 1	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."
Unit 2	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."
Unit 3	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."
Unit 4	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."
Unit 5	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."

Unit 6	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."
Unit 7	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."
Unit 8	N/A	N/A
Unit 9	N/A	N/A

Various receptors exceed the 65 dBA threshold; therefore, an analysis of the building materials will be required. However, at this time the building materials and exterior wall construction details have not been finalized. Therefore, a review of the proposed building materials will need to be completed.

Proposed Construction Specifications

It is understood that typical window and wall details are proposed for the residential buildings. The effectiveness of the noise insulation can be expressed as the Acoustical Insulation Factor (AIF), calculated as follows:

$$\boldsymbol{AIF = L_{eq(16)(Exterior)} - L_{eq(16)(Interior)} + 10Log_{10}(N) + 2dBA}$$

Where:

$\boldsymbol{L_{eq(16)(Exterior)}}$**:** Calculated value at the windowpane

$\boldsymbol{L_{eq(16)(Interior)}}$**:** Equals 45 dBA

$\boldsymbol{N}$**:** Number of components in the room

No floor plans or detailed design drawings were provided at the time of preparing the current study. A conservative approach was used, assuming two components per room. Therefore, the AIF would need to be at least **35 dBA** for Units 1 – 5.

A conversion from AIF to a Standard Transmission Class (STC) rating will require knowledge of room dimensions in addition to the wall and window dimensions. However, as this information was not available, a conservative approach was used, which included increasing the AIF factor by 3. **Therefore, provided the building materials of either the windows and/or exterior walls have an STC rating of 38 for Units 1 – 5, would be considered a sufficient noise attenuation device.**

8.0 Summary of Findings

The subject site is located at 2028 Merivale Road. It is understood that the proposed residential development will consist of nine one-storey residential buildings. The associated analysis identified two surface transportation noise sources: Merivale Road and Smith Falls Rail Line.

Several reception points were selected for the analysis, consisting of panes of glass reception points on both the first level and outdoor living areas.

Three outdoor living areas were analyzed as part of the current study. The results of the STAMSON modelling indicate that the Leq(16) from all sources was 42.75, 56.37 and 65.49 dBA, respectively. Further analysis was performed for REC10 and REC11 as they exceeded the 55 dBA threshold. As per the recommendations provided in Table 2.3a of the ENCG, the building orientations and a 2.5 m acoustic barrier were considered. The sound levels for REC 10 were reduced to 53.97 dBA and REC 11 was reduced to 56.63 dBA when utilizing the 2.5 m high noise barrier. With the minor exceedance of the 55 dBA threshold for outdoor living areas, this exceedance is considered acceptable due to the presence of the noise barrier and a warning clause Type B, which is to be included on all Offers of Purchase and Sale for Units 1 – 5.

Units 1, 5 and 9 were analyzed with respect to the indoor noise levels. The sound levels for Unit 1 exceeded the 65 dBA threshold as specified by ENCG, and will require Warning Clause Type D. It is additionally recommended that Units 2 - 4 also receive Warning Clause Type D as well as providing a central air conditioning unit.

The sound levels for Unit 5 exceeded the 55 dBA threshold as specified by the ENCG and will require Warning Clause Type C. It is additionally recommended that Units 6 - 7 also receive Warning Clause Type C as well as a provision for providing central air condition.

The subject site is located within the Airport Vicinity Development Zone (AVDZ), reference should be made to the Prescribed Measures to Address Aircraft Noise, Residential Development 25 NEF/NEP to OAOIZ. Based on the review of the aforementioned document, provided the measures previously outlined are

followed, no further analysis is required. Alternatively, the developer may opt to conduct a site-specific aircraft noise impact assessment rather than follow the measures outlined to confirm if alternative building component specifications would be acceptable.

All warning clauses are reiterated below and are to be included on all applicable units Offers of Purchase and Sale. It should be noted that all units should receive the Aircraft Noise Warning Clause.

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"

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."

Warning Clause 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 (rail traffic) (air 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."

Aircraft Noise Warning Clause: Purchasers/building occupants are forewarned that this property/dwelling unit is located in a noise-sensitive area due to its proximity to Ottawa Macdonald-Cartier International Airport. In order to mitigate the impact of aircraft noise in the indoor spaces, the unit had been designed and built to meet provincial standards for noise control by the use of components and building systems that provide sound attenuation. In addition to the building components (ie, walls, windows, doors, ceiling/roof), since the benefit of sound attenuation is lost when windows or doors are left open, this unit has been fitted with a forced air heating system, all components of which are sized to accommodate the future installation of central air conditioning by the owner/occupant.

Despite the inclusion of noise control features within the dwelling unit, noise due to aircraft operation may continue to interfere with some indoor activities and with outdoor activities, particularly during the summer months. The purchaser/building occupant is further advised that the Airport is open and operates 24 hours a day, and that changes to operations or expansion of the airport facilities, including the construction of new runways, may affect the living environment of the residents of this property/area.

The Ottawa MacDonald-Cartier International Airport Authority, its acoustical consultants and the Municipality are not responsible if, regardless of the implementation of noise control features, the purchaser/occupant of this dwelling finds the indoor noise levels due to aircraft operations continue to be of concern or are offensive.

9.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. Our recommendations should be reviewed when the project drawings and specifications are complete.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Olympia Homes or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.





October 20, 2026



Otillia McLaughlin, B.Eng. Stephanie A. Boisvenue, P.Eng.

Report Distribution:

- ❑ Olympia Homes
- ❑ Paterson Group

APPENDIX 1

TABLE 15 – SUMMARY OF RECEPTION POINTS AND GEOMETRY

DRAWING PG7471-1-SITE PLAN

DRAWING PG7471-2-RECEPTOR LOCATION PLAN

DRAWING PG7471-3A-SITE GEOMETRY (REC 1)

DRAWING PG7471-3B-SITE GEOMETRY (REC 2)

DRAWING PG7471-3C-SITE GEOMETRY (REC 3)

DRAWING PG7471-3D-SITE GEOMETRY (REC 4)

DRAWING PG7471-3E-SITE GEOMETRY (REC 5)

DRAWING PG7471-3F-SITE GEOMETRY (REC 6)

DRAWING PG7471-3G-SITE GEOMETRY (REC 7)

DRAWING PG7471-3H-SITE GEOMETRY (REC 8)

DRAWING PG7471-3I-SITE GEOMETRY (REC 9)

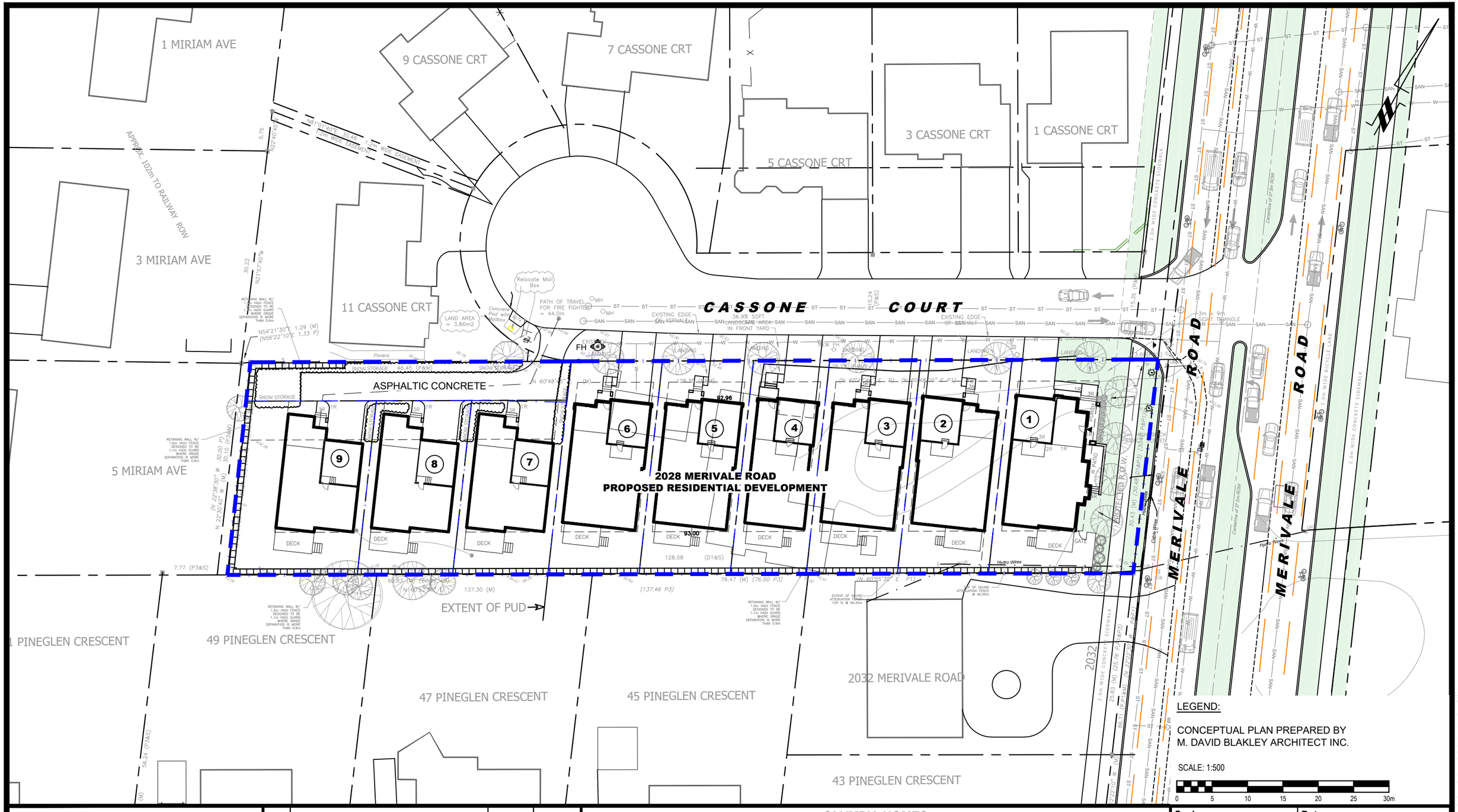
DRAWING PG7471-3J-SITE GEOMETRY (REC 10)

DRAWING PG7471-3K-SITE GEOMETRY (REC10 REV 1)

DRAWING PG7471-3L-SITE GEOMETRY (REC 11)

DRAWING PG7471-3M-SITE GEOMETRY (REC 11 REV 1)

Table 15 - Summary of Reception Points and Geometry																			
2028 Merivale Road																			
Point of Reception	Location	Total Leq Day (dBA)	Total Leq Night (dBA)	Merivale Road								Smith Falls Rail Corridor							
				Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)
REC 1	Eastern Elevation - 1st Floor - Unit 1	75.50	68.11	8.5	1.5	8.63	-83, 84	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 2	Northern Elevation - 1st Floor - Unit 1	67.59	60.06	14	1.5	14.08	-79, 0	n/a	n/a	n/a	n/a	170	1.5	170.01	-52, 54	3	20	n/a	n/a
REC 3	Southern Elevation - 1st Floor - Unit 1	67.58	59.99	14	1.5	14.08	0, 80	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 4	Northern Elevation - 1st Floor - Unit 5	56.19	49.81	65	1.5	65.02	-51, 0	n/a	n/a	n/a	n/a	142	1.5	142.01	-55, 63	3	20	n/a	n/a
REC 5	Southern Elevation - 1st Floor - Unit 5	56.05	48.46	62	1.5	62.02	0, 60	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 6	Northern Elevation - 1st Floor - Unit 9	48.42	46.92	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	118	1.5	118.01	-58, 71	3	40	n/a	n/a
REC 7	Western Elevation - 1st Floor - Unit 9	45.92	45.92	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	123	1.5	123.01	-57, 46	3	40	n/a	n/a
REC 8	Southern Elevation - 1st Floor - Unit 9	30.80	30.80	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	215	1.5	215.01	-7, 0	3	40	n/a	n/a
REC 9	Outdoor Living Area - Unit 9	42.75	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	130	1.5	130.01	-54, 0	3	40	n/a	n/a
REC 10	Outdoor Living Area - Unit 5	57.30	-	63	1.5	63.02	-18, 48	n/a	n/a	n/a	2.5	161	1.5	161.01	-51, 0	3	40	n/a	n/a
REC 10 REV.01	Outdoor Living Area - Unit 5 - 2.5 m Barrier Wall along Unit 1	48.49	-	63	1.5	63.02	-18, 48	n/a	n/a	n/a	n/a	161	1.5	161.01	-51, 0	3	40	n/a	n/a
REC 11	Outdoor Living Area - Unit 1	69.16	-	15	1.5	15.07	-29, 79	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 11 REV.01	Outdoor Living Area - Unit 1 - 2.5 m Barrier Wall along Unit 1	58.44	-	15	1.5	15.07	-29, 79	n/a	n/a	2.5	7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a



LEGEND:

CONCEPTUAL PLAN PREPARED BY
M. DAVID BLAKLEY ARCHITECT INC.

SCALE: 1:500

0 5 10 15 20 25 30m

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

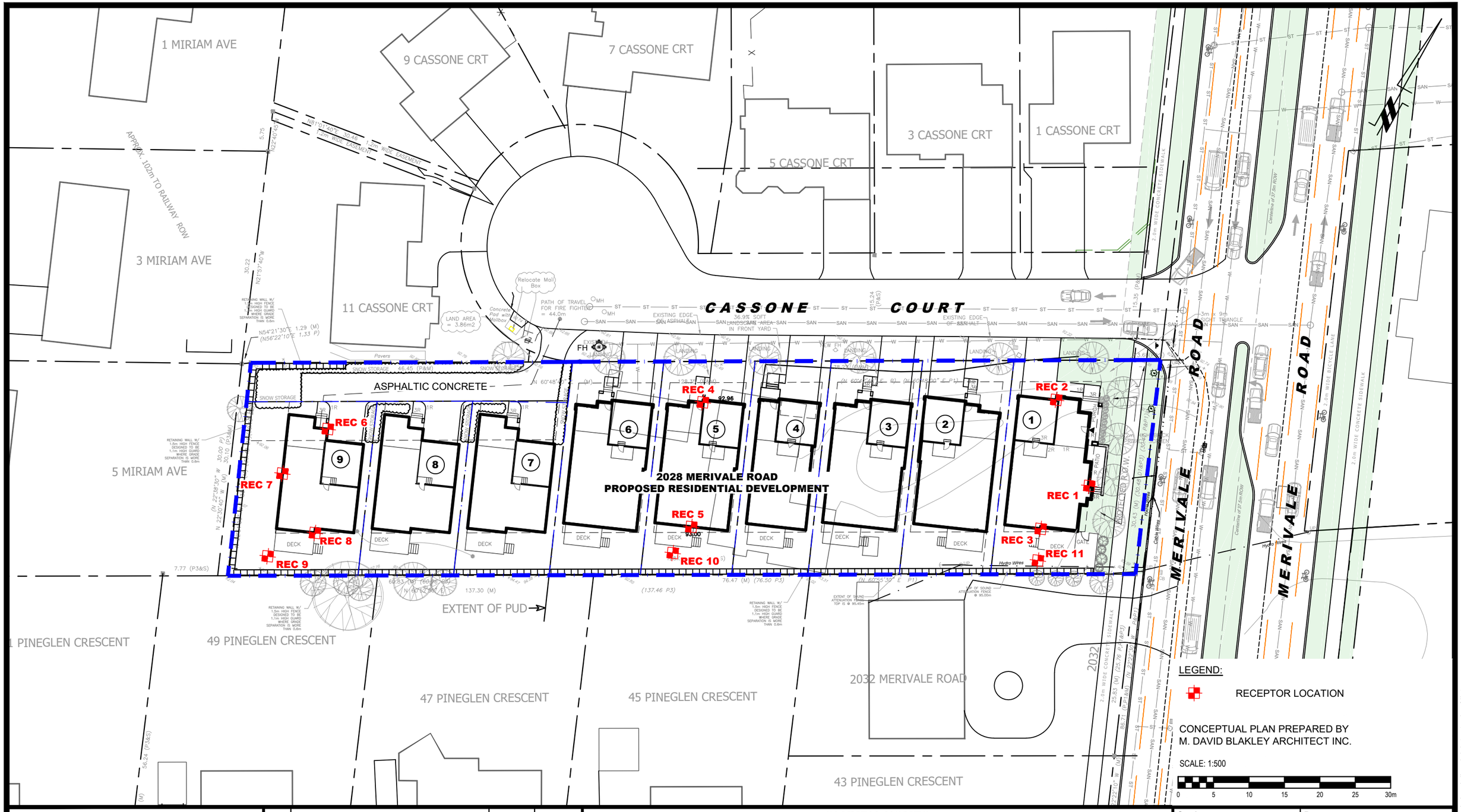
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title: **SITE PLAN**

Scale: 1:500	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-1
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg7[4xx]pg7471\pg7471-1-site plan (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

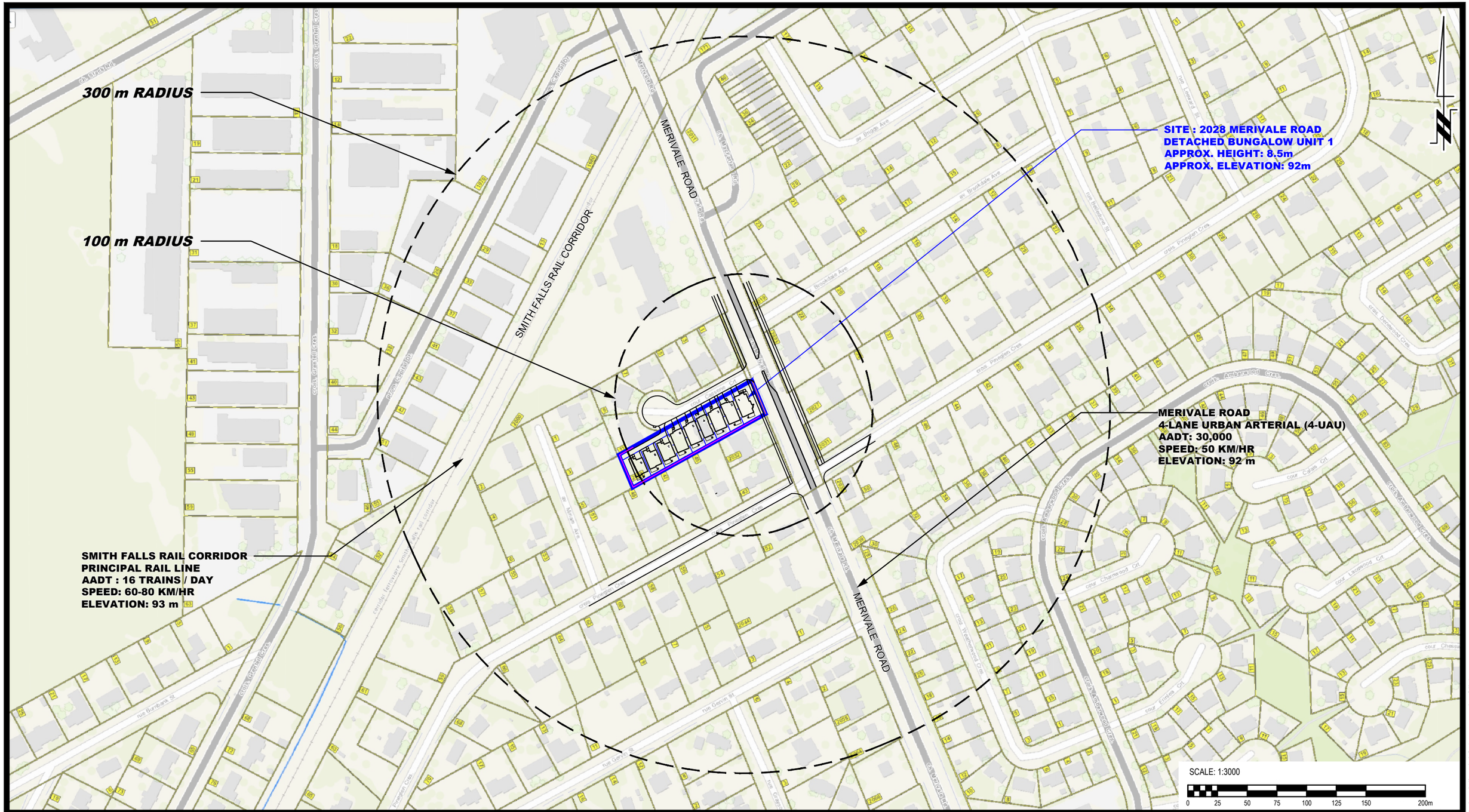
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
RECEPTOR LOCATION PLAN

Scale: 1:500	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-2
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg7471\pg7471-1-site plan (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

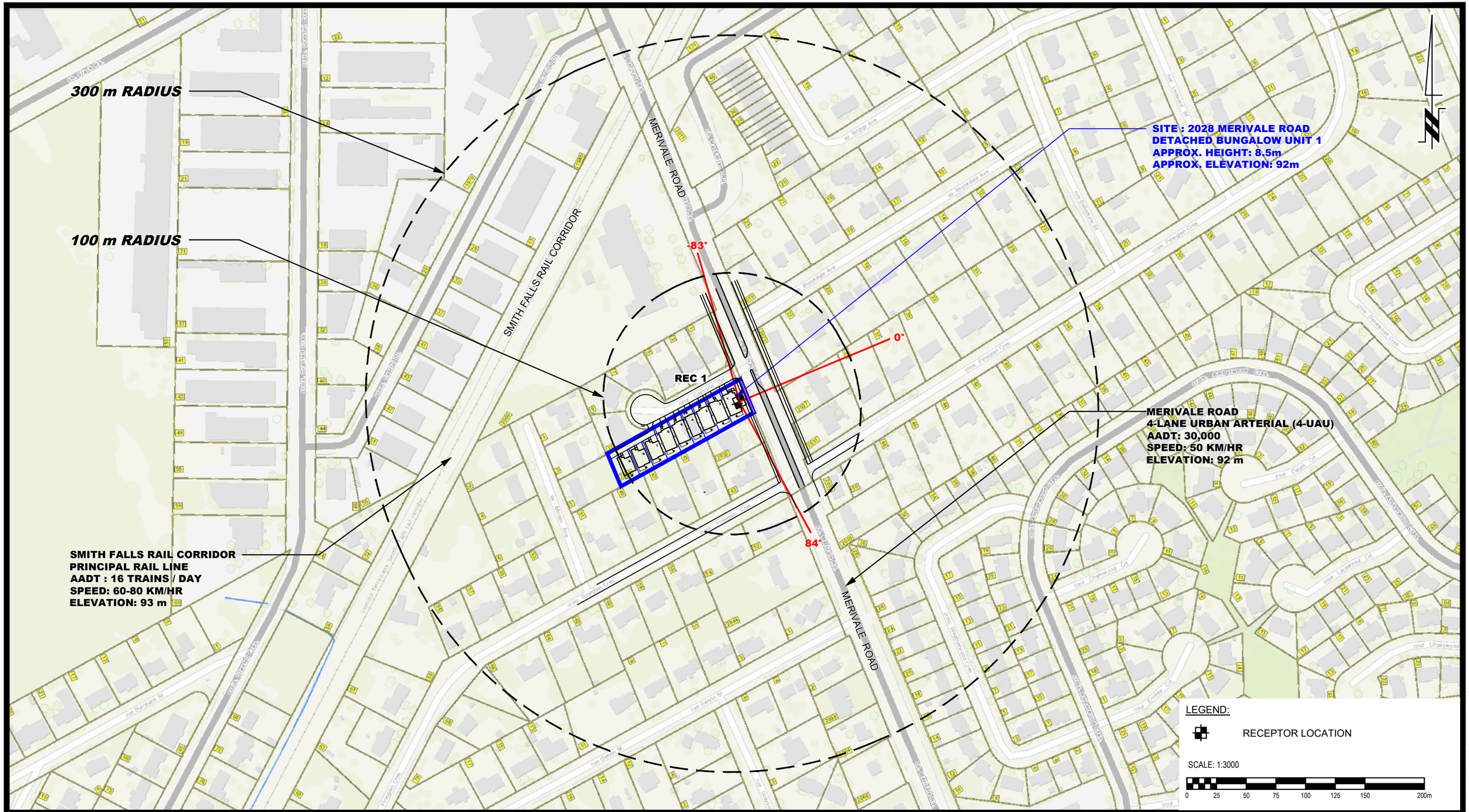
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 1

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3A
Approved by: SB	Revision No.: 1

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg

11x17

300 m RADIUS

100 m RADIUS

54°

0°

-79°

0°

-52°

REC 2

SITE : 2028 MERIVALE ROAD
DETACHED BUNGALOW UNIT 1
APPROX. HEIGHT: 8.5m
APPROX. ELEVATION: 92m

MERIVALE ROAD
4-LANE URBAN ARTERIAL (4-UAU)
AADT: 30,000
SPEED: 50 KM/HR
ELEVATION: 92 m

SMITH FALLS RAIL CORRIDOR
PRINCIPAL RAIL LINE
AADT : 16 TRAINS / DAY
SPEED: 60-80 KM/HR
ELEVATION: 93 m

LEGEND:

RECEPTOR LOCATION

SCALE: 1:3000

0 25 50 75 100 125 150 200m

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

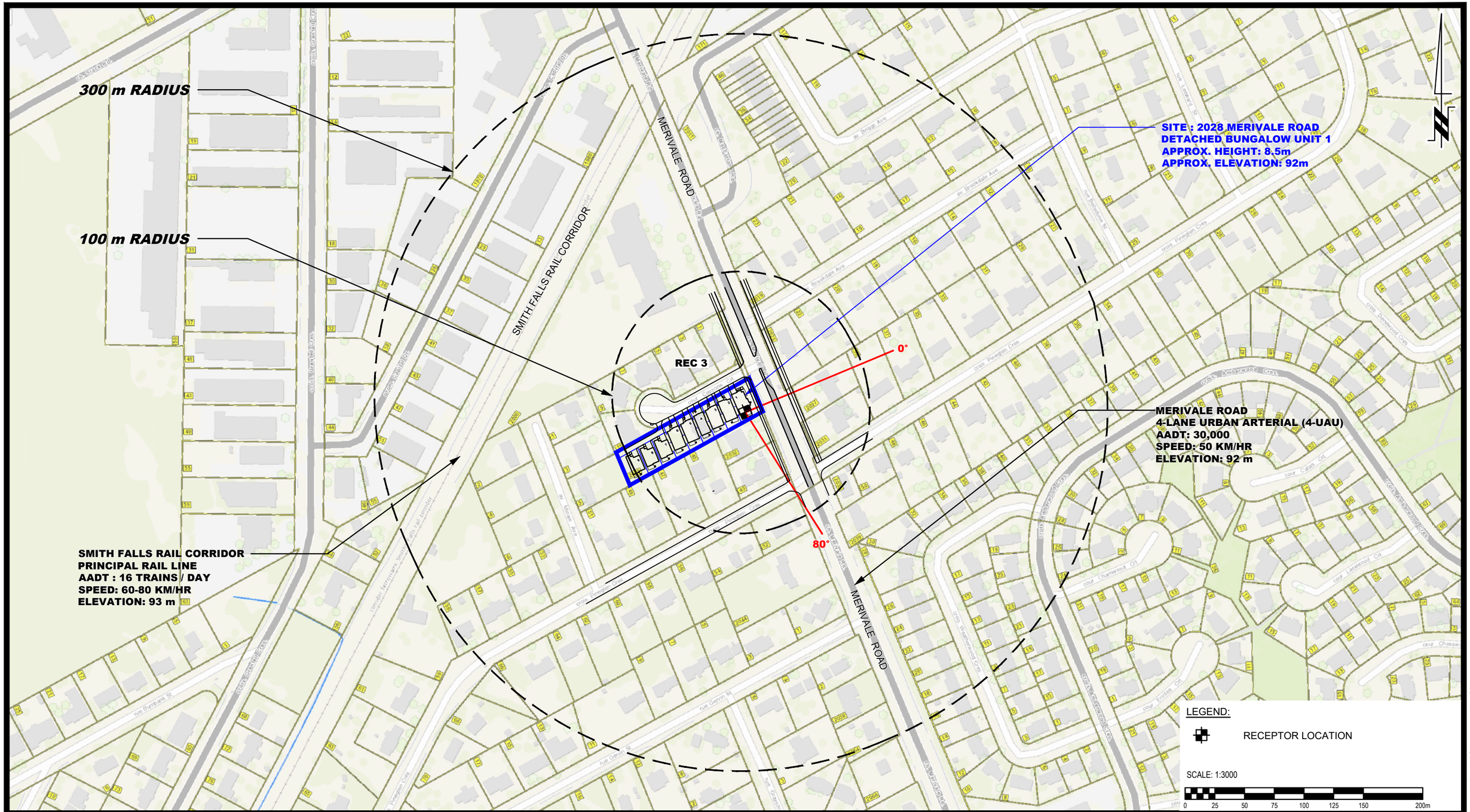
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

SITE GEOMETRY - REC 2

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3B
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

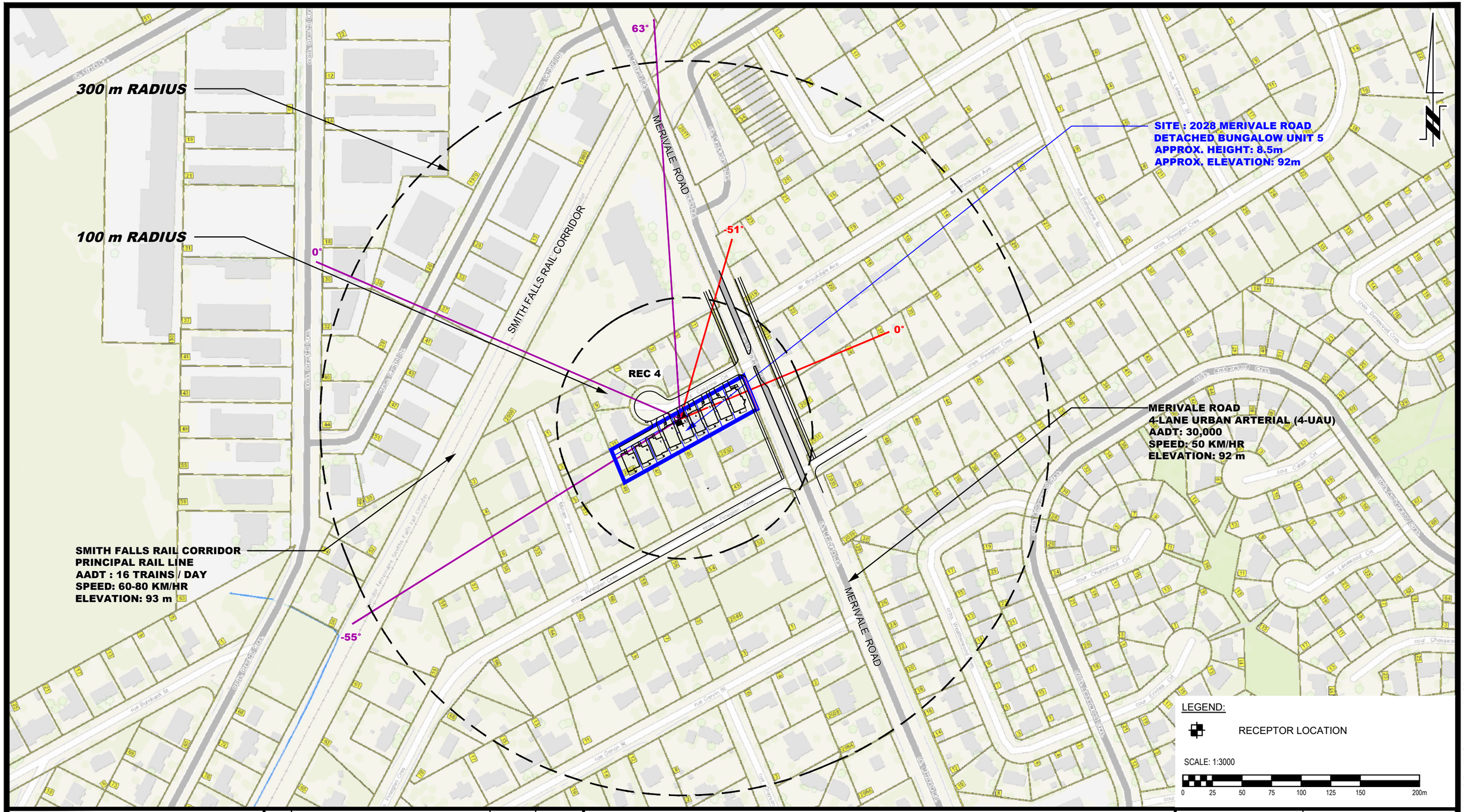
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 3

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3C
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

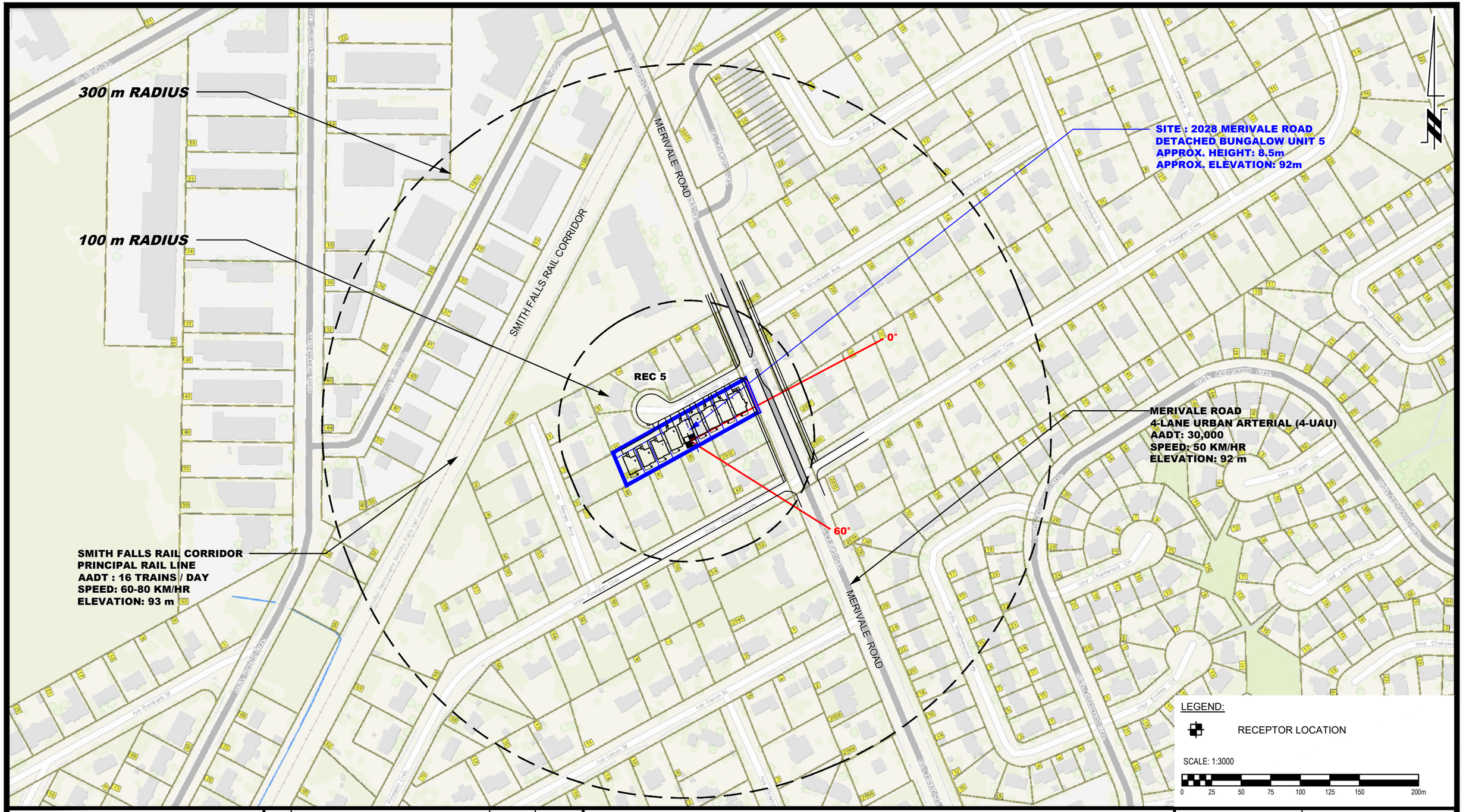
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 4

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3D
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 5

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3E
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 6

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3F
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg

300 m RADIUS

100 m RADIUS

46°

0°

-57°

SMITH FALLS RAIL CORRIDOR
PRINCIPAL RAIL LINE
AADT : 16 TRAINS / DAY
SPEED: 60-80 KM/HR
ELEVATION: 93 m

SITE : 2028 MERIVALE ROAD
DETACHED BUNGALOW UNIT 9
APPROX. HEIGHT: 8.5m
APPROX. ELEVATION: 92m

REC 7

MERIVALE ROAD
4-LANE URBAN ARTERIAL (4-UAU)
AADT: 30,000
SPEED: 50 KM/HR
ELEVATION: 92 m

SMITH FALLS RAIL CORRIDOR

MERIVALE ROAD

515 Meters

LEGEND:

RECEPTOR LOCATION

SCALE: 1:3000

0 25 50 75 100 125 150 200m

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

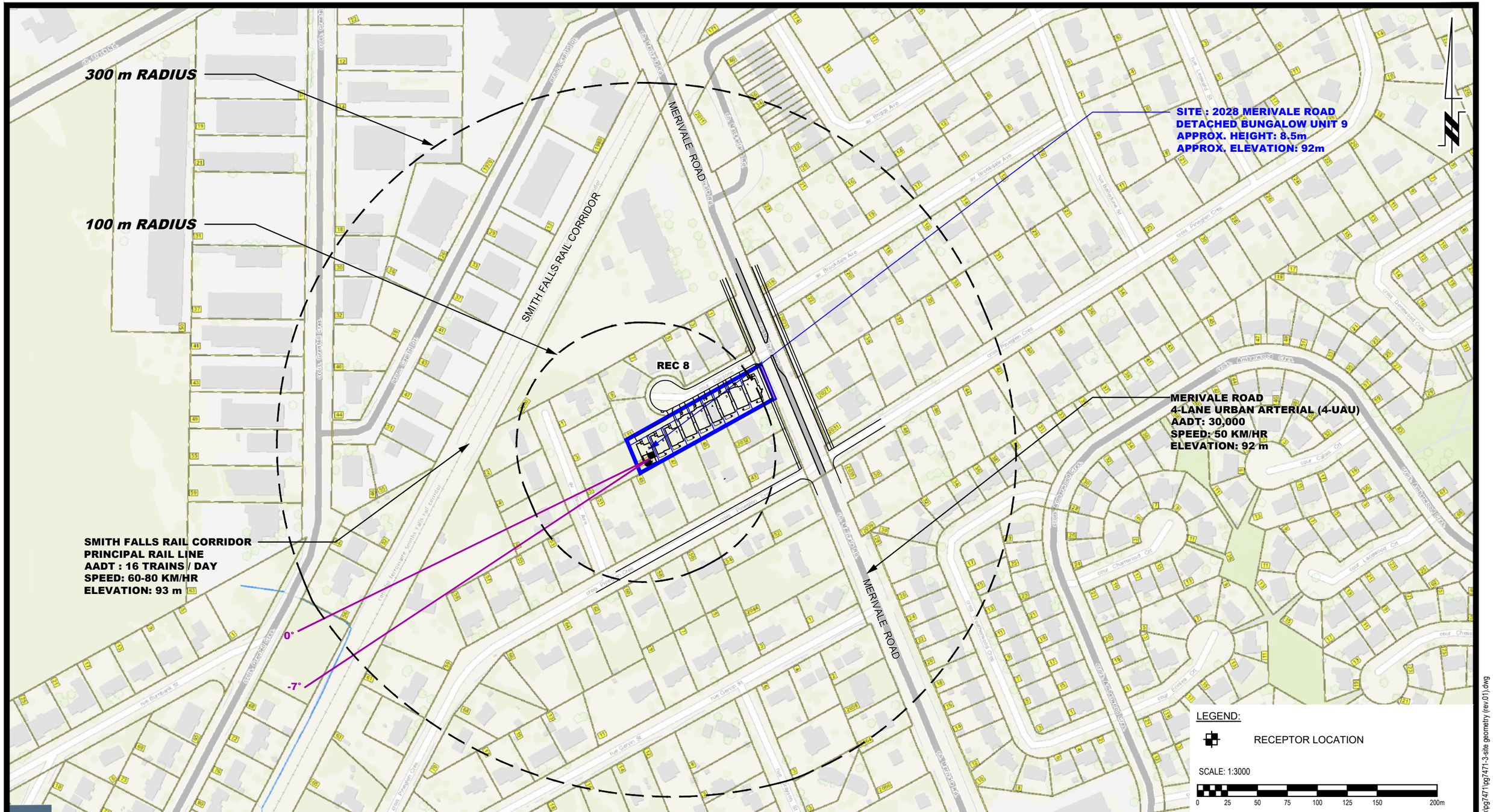
Title:

SITE GEOMETRY - REC 7

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3G
Approved by: SB	Revision No.: 1

p:\autocad drawings\geotechnical\pg7xxx\pg7471\pg7471-3-site geometry (rev.01).dwg

11x17



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

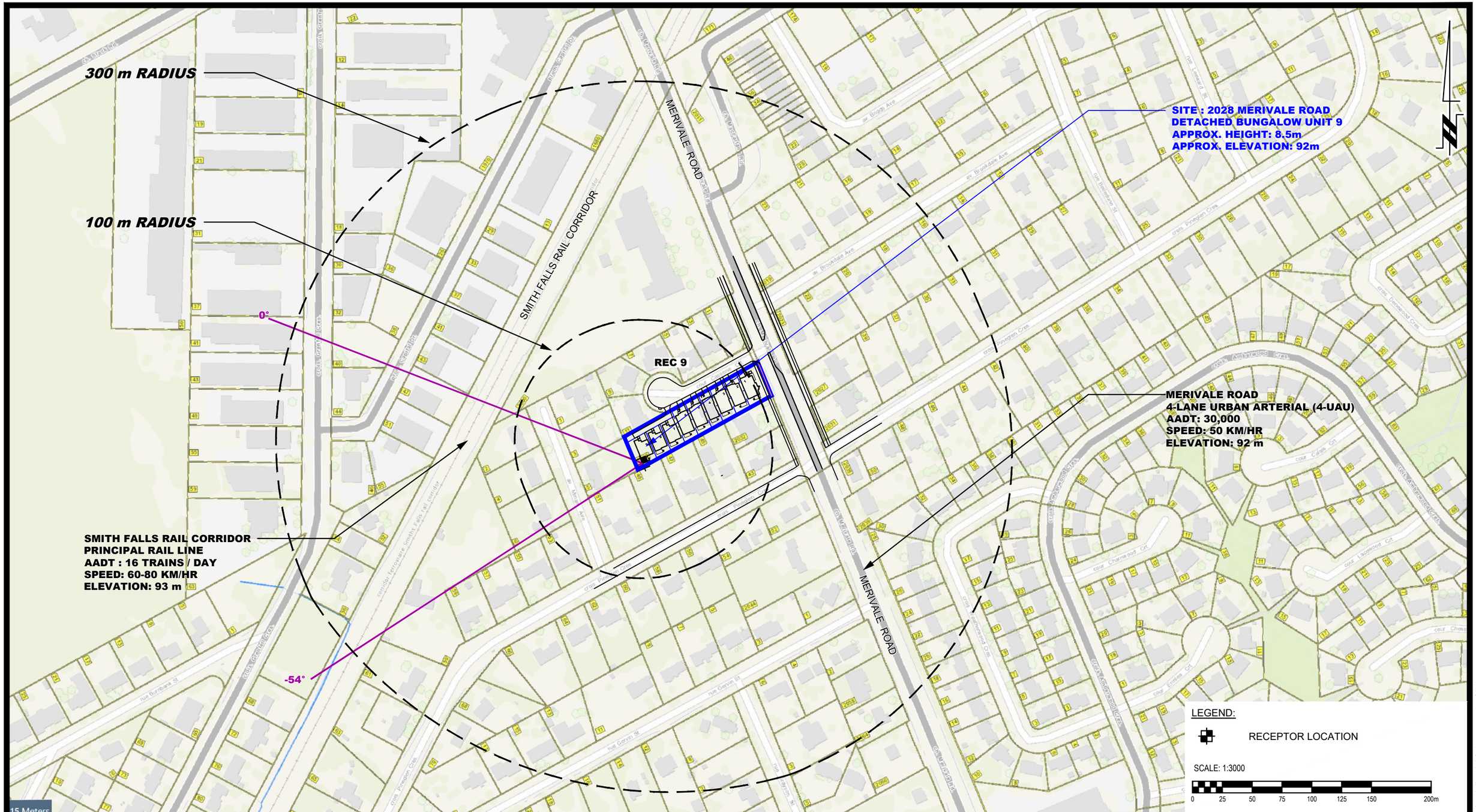
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 8

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3H
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

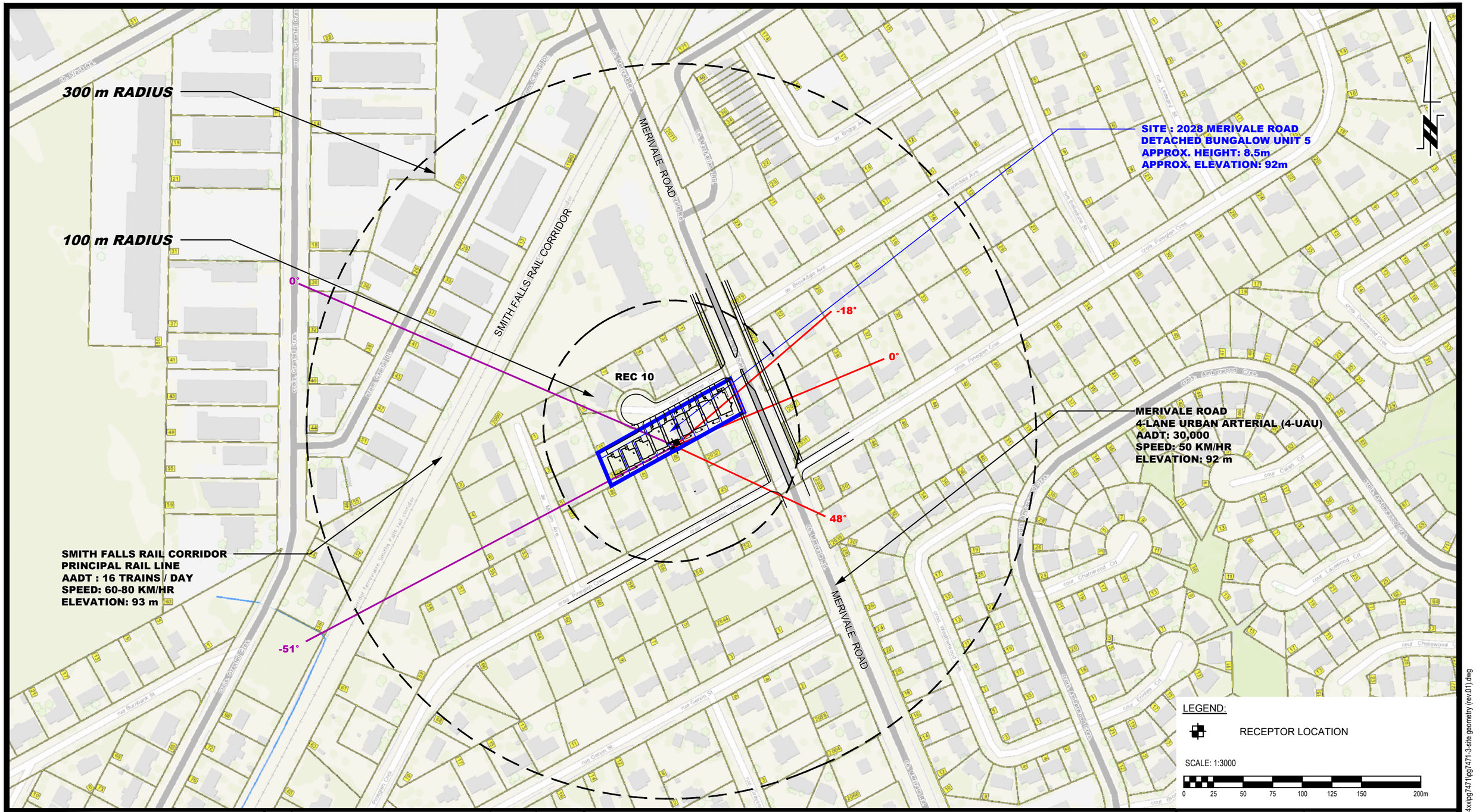
Title:

SITE GEOMETRY - REC 9

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3I
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

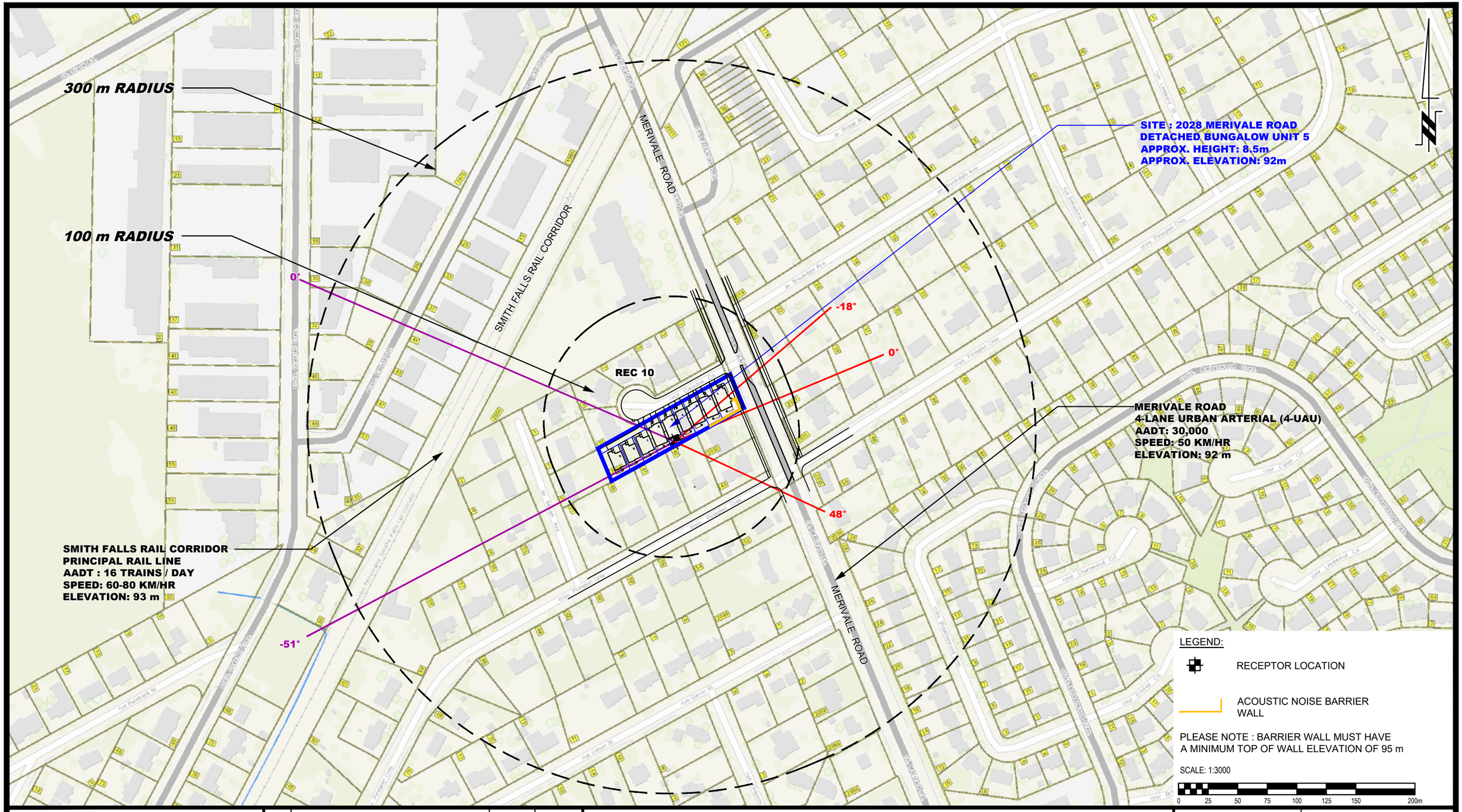
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 10

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3J
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

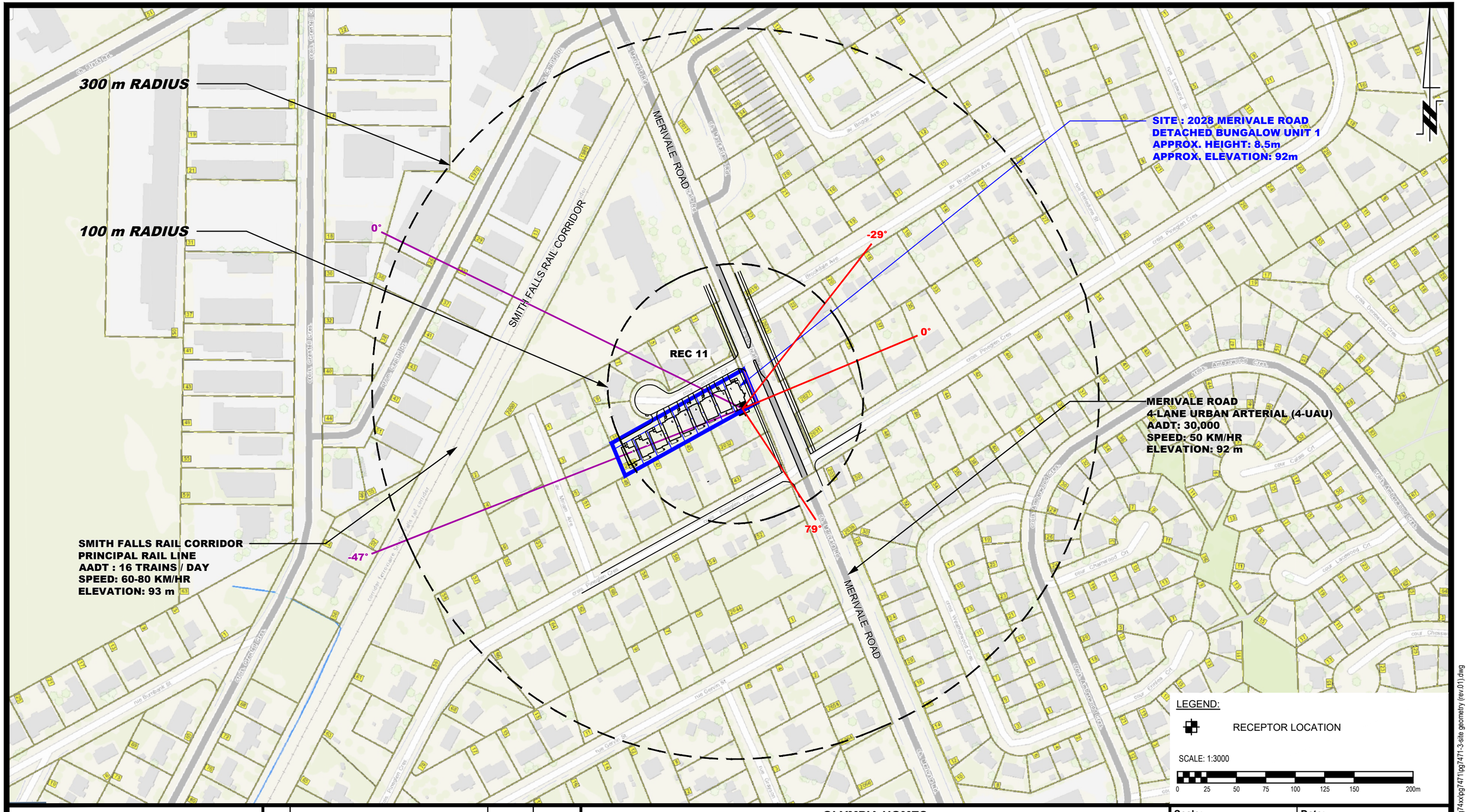
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 10 (REV .01)

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3K
Approved by: SB	Revision No.: 1

11x17

p:\autocad drawings\geotechnical\pg7xx\pg7471\pg7471-3-site geometry (rev.01).dwg



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

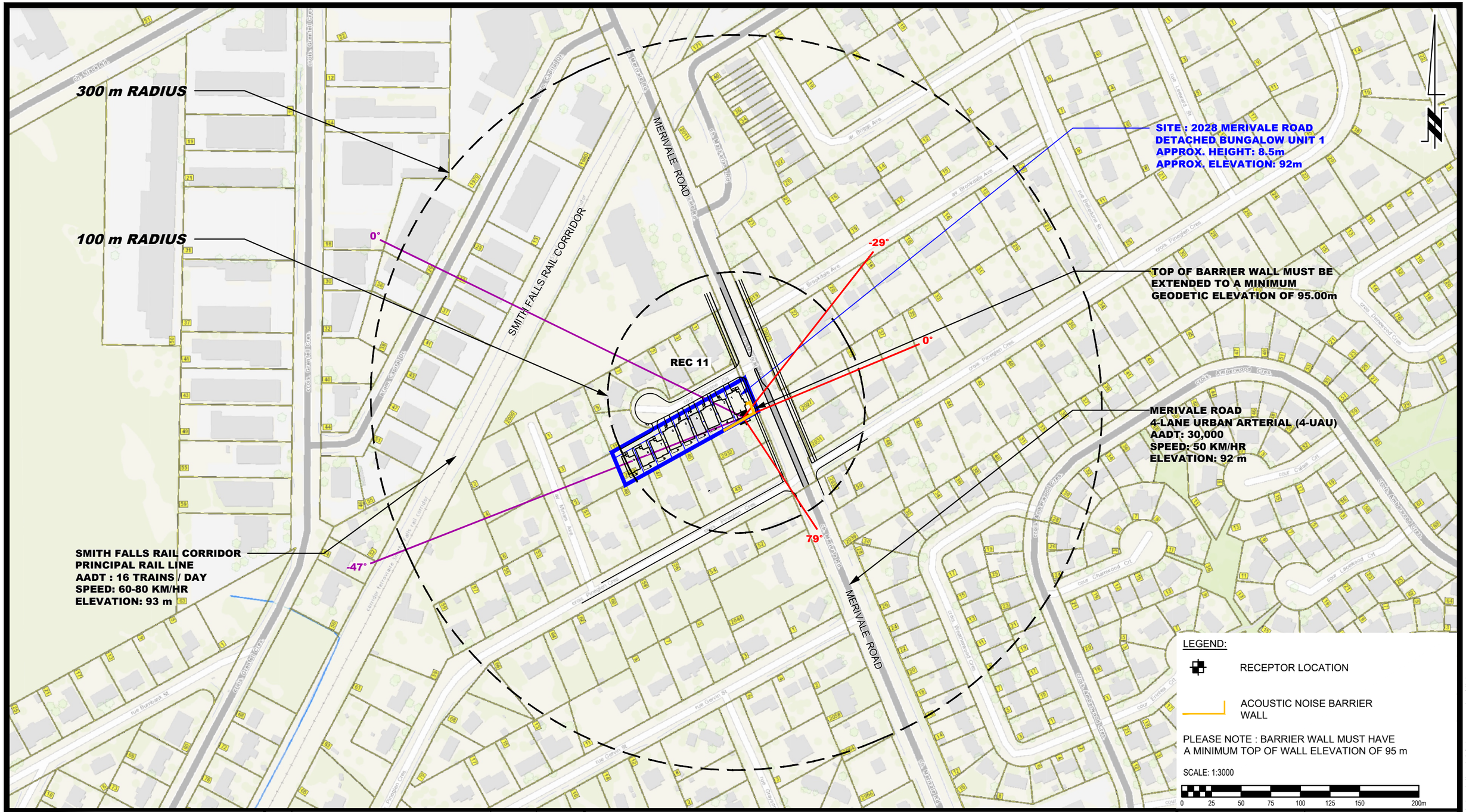
OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

SITE GEOMETRY - REC 11

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3L
Approved by: SB	Revision No.: 1

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg

11x17



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
1	UPDATED TO NEW MERIVALE ROAD CONCEPTUAL PLAN	06/01/2026	OM

OLYMPIA HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
2028 MERIVALE ROAD
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 11 (REV .01)

Scale: 1:3000	Date: 03/2025
Drawn by: YA	Report No.: PG7471-1
Checked by: OM	Dwg. No.: PG7471-3M
Approved by: SB	Revision No.: 1

p:\autocad drawings\geotechnical\pg74xx\pg7471\pg7471-3-site geometry (rev.01).dwg

11x17

APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 11:29:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC1.te Time Period: Day/Night 16/8 hours
Description: REC 1 Unit 1 Eastern Elevation

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

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Merivale Rd (day/night)

Angle1 Angle2 : -83.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

ROAD (0.00 + 70.64 + 0.00) = 70.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	84	0.66	72.16	0.00	0.00	-1.52	0.00	0.00	0.00	70.64

Segment Leq : 70.64 dBA

Total Leq All Segments: 70.64 dBA

↟
Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 63.18 + 0.00) = 63.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	84	0.57	64.56	0.00	0.00	-1.38	0.00	0.00	0.00	63.18

Segment Leq : 63.18 dBA

Total Leq All Segments: 63.18 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 70.64
(NIGHT): 63.18
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 10:51:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec2.te Time Period: Day/Night 16/8 hours
Description: REC 2 Unit 1 Northern Elevation

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	: -52.00 deg	54.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 2 / 3	
House density	: 20 %	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 170.00 / 170.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↑
Results segment # 1: Smith Falls (day)

LOCOMOTIVE (0.00 + 44.75 + 0.00) = 44.75 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	54	0.58	66.50	-16.71	-2.68	0.00	-2.36	0.00	44.75

WHEEL (0.00 + 36.12 + 0.00) = 36.12 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	54	0.66	58.72	-17.50	-2.73	0.00	-2.36	0.00	36.12

Segment Leq : 45.31 dBA

Total Leq All Segments: 45.31 dBA

↑
Results segment # 1: Smith Falls (night)

LOCOMOTIVE (0.00 + 43.25 + 0.00) = 43.25 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq

```
   -52     54   0.58  66.50 -16.71  -2.68   0.00  -3.86   0.00  43.25
-------------------------------------------------------------------

WHEEL (0.00 + 34.62 + 0.00) = 34.62 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -52     54   0.66  58.72 -17.50  -2.73   0.00  -3.86   0.00  34.62
-------------------------------------------------------------------

Segment Leq : 43.81 dBA

Total Leq All Segments: 43.81 dBA

↟
Road data, segment # 1: Merivale Rd (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Merivale Rd (day/night)
---------------------------------------------
Angle1   Angle2           : -79.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Merivale Rd (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.54 + 0.00) = 67.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -79      0   0.66  72.16   0.00   0.00  -4.62   0.00   0.00   0.00  67.54
-------------------------------------------------------------------------
```

Segment Leq : 67.54 dBA

Total Leq All Segments: 67.54 dBA

↟
Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 59.94 + 0.00) = 59.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-79	0	0.66	64.56	0.00	0.00	-4.62	0.00	0.00	0.00	59.94

Segment Leq : 59.94 dBA

Total Leq All Segments: 59.94 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 67.57
(NIGHT): 60.04

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 10:56:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec3.te Time Period: Day/Night 16/8 hours
Description: REC 3 Unit 1 Southern Elevation

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

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Merivale Rd (day/night)

Angle1 Angle2 : 0.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

ROAD (0.00 + 67.56 + 0.00) = 67.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.66	72.16	0.00	0.00	-4.60	0.00	0.00	0.00	67.56

Segment Leq : 67.56 dBA

Total Leq All Segments: 67.56 dBA

↟
Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 59.97 + 0.00) = 59.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.66	64.56	0.00	0.00	-4.60	0.00	0.00	0.00	59.97

Segment Leq : 59.97 dBA

Total Leq All Segments: 59.97 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 67.56
(NIGHT): 59.97
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 11:02:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec4.te Time Period: Day/Night 16/8 hours
Description: REC 4 Unit 5 Northern Elevation

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	-55.00 deg	63.00 deg
Wood depth	0	(No woods.)
No of house rows	2 / 3	
House density	30 %	
Surface	1	(Absorptive ground surface)
Receiver source distance	142.00 / 142.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↑
Results segment # 1: Smith Falls (day)

LOCOMOTIVE (0.00 + 45.82 + 0.00) = 45.82 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	63	0.58	66.50	-15.47	-2.33	0.00	-2.88	0.00	45.82

WHEEL (0.00 + 37.25 + 0.00) = 37.25 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	63	0.66	58.72	-16.20	-2.38	0.00	-2.88	0.00	37.25

Segment Leq : 46.39 dBA

Total Leq All Segments: 46.39 dBA

↑
Results segment # 1: Smith Falls (night)

LOCOMOTIVE (0.00 + 44.32 + 0.00) = 44.32 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	63	0.58	66.50	-15.47	-2.33	0.00	-4.38	0.00	44.32

WHEEL (0.00 + 35.75 + 0.00) = 35.75 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	63	0.66	58.72	-16.20	-2.38	0.00	-4.38	0.00	35.75

Segment Leq : 44.89 dBA

Total Leq All Segments: 44.89 dBA

↟

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

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Merivale Rd (day/night)

```
Angle1   Angle2           : -51.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  65.00 / 65.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

ROAD (0.00 + 55.71 + 0.00) = 55.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	0	0.66	72.16	0.00	-10.57	-5.87	0.00	0.00	0.00	55.71

Segment Leq : 55.71 dBA

Total Leq All Segments: 55.71 dBA

↟
Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 48.12 + 0.00) = 48.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	0	0.66	64.56	0.00	-10.57	-5.87	0.00	0.00	0.00	48.12

Segment Leq : 48.12 dBA

Total Leq All Segments: 48.12 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.19
(NIGHT): 49.81

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 11:04:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec5.te Time Period: Day/Night 16/8 hours
Description: REC 5 Unit 5 Southern Elevation

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

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Merivale Rd (day/night)

Angle1 Angle2 : 0.00 deg 51.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 62.00 / 62.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

ROAD (0.00 + 56.05 + 0.00) = 56.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	51	0.66	72.16	0.00	-10.23	-5.87	0.00	0.00	0.00	56.05

Segment Leq : 56.05 dBA

Total Leq All Segments: 56.05 dBA

↟
Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 48.46 + 0.00) = 48.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	51	0.66	64.56	0.00	-10.23	-5.87	0.00	0.00	0.00	48.46

Segment Leq : 48.46 dBA

Total Leq All Segments: 48.46 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.05
(NIGHT): 48.46
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 11:06:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec6.te Time Period: Day/Night 16/8 hours
Description: REC 6 Unit 9 Northern Elevation

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	-58.00 deg	71.00 deg
Wood depth	0	(No woods.)
No of house rows	2 / 3	
House density	20 %	
Surface	1	(Absorptive ground surface)
Receiver source distance	118.00 / 118.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Results segment # 1: Smith Falls (day)

LOCOMOTIVE (0.00 + 47.85 + 0.00) = 47.85 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	71	0.58	66.50	-14.20	-2.06	0.00	-2.40	0.00	47.85

WHEEL (0.00 + 39.32 + 0.00) = 39.32 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	71	0.66	58.72	-14.87	-2.13	0.00	-2.40	0.00	39.32

Segment Leq : 48.42 dBA

Total Leq All Segments: 48.42 dBA

Results segment # 1: Smith Falls (night)

LOCOMOTIVE (0.00 + 46.35 + 0.00) = 46.35 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	71	0.58	66.50	-14.20	-2.06	0.00	-3.90	0.00	46.35

WHEEL (0.00 + 37.82 + 0.00) = 37.82 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	71	0.66	58.72	-14.87	-2.13	0.00	-3.90	0.00	37.82

Segment Leq : 46.92 dBA

Total Leq All Segments: 46.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 48.42
(NIGHT): 46.92

STAMSON 5.0 SUMMARY REPORT Date: 10-10-2025 25:23:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC7.te Time Period: Day/Night 16/8 hours
Description: REC 7 Unit 9 Western Elevation

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	: -58.00 deg	46.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 3 / 3	
House density	: 20 %	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 123.00 / 123.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Result summary (day)

	Loc Leq (dBA)	Wheel Leq (dBA)	Whistle Left Leq (dBA)	Whistle Right Leq (dBA)	Total Leq (dBA)
1.Smith Falls	45.35	36.84	--	--	45.92 *
Total					45.92 dBA

* Bright Zone !

Result summary (night)

	Loc Leq (dBA)	Wheel Leq (dBA)	Whistle Left Leq (dBA)	Whistle Right Leq (dBA)	Total Leq (dBA)
1.Smith Falls	45.35	36.84	--	--	45.92 *
Total					45.92 dBA

* Bright Zone !

♠

TOTAL Leq FROM ALL SOURCES (DAY): 45.92
(NIGHT): 45.92

♠
♠

STAMSON 5.0 SUMMARY REPORT Date: 10-10-2025 25:25:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC8.te Time Period: Day/Night 16/8 hours
Description: REC 8 Unit 9 Southern Elevation

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	: -7.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 3 / 3	
House density	: 20 %	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 215.00 / 215.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↑
Result summary (day)

	Loc Leq (dBA)	Wheel Leq (dBA)	Whistle Left Leq (dBA)	Whistle Right Leq (dBA)	Total Leq (dBA)
1.Smith Falls	30.25	21.59	--	--	30.80 *
Total					30.80 dBA

* Bright Zone !

↑
Result summary (night)

	Loc Leq (dBA)	Wheel Leq (dBA)	Whistle Left Leq (dBA)	Whistle Right Leq (dBA)	Total Leq (dBA)
1.Smith Falls	30.25	21.59	--	--	30.80 *

```
--------------------+----------+----------+----------+----------+----------
                      Total                                        30.80 dBA

  * Bright Zone  !

↑


TOTAL Leq FROM ALL SOURCES (DAY): 30.80
                           (NIGHT): 30.80
↑
↑
```

STAMSON 5.0 SUMMARY REPORT Date: 10-10-2025 25:26:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC9.te Time Period: Day/Night 16/8 hours
Description: REC 9 Unit 9 Outdoor Living Area

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	: -55.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 3 / 3	
House density	: 20 %	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 130.00 / 130.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Result summary (day)

	Loc Leq (dBA)	Wheel Leq (dBA)	Whistle Left Leq (dBA)	Whistle Right Leq (dBA)	Total Leq (dBA)
1.Smith Falls	42.18	33.64	--	--	42.75 *
Total					42.75 dBA

* Bright Zone !

Result summary (night)

	Loc Leq (dBA)	Wheel Leq (dBA)	Whistle Left Leq (dBA)	Whistle Right Leq (dBA)	Total Leq (dBA)
1.Smith Falls	42.18	33.64	--	--	42.75 *

```
--------------------+----------+----------+----------+----------+----------
                      Total                                        42.75 dBA

  * Bright Zone  !

↑


TOTAL Leq FROM ALL SOURCES (DAY): 42.75
                           (NIGHT): 42.75
↑
↑
```

STAMSON 5.0 NORMAL REPORT Date: 10-10-2025 11:23:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec10.te Time Period: Day/Night 16/8 hours
Description: REC 10 Unit 5 Outdoor Living Area

Rail data, segment # 1: Smith Falls (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Smith Falls	16.0/8.0	100.0	1.0	10.0	Diesel	Yes

Data for Segment # 1: Smith Falls (day/night)

Angle1 Angle2	-47.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	2 / 3	
House density	20 %	
Surface	1	(Absorptive ground surface)
Receiver source distance	280.00 / 280.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Smith Falls (day)

LOCOMOTIVE (0.00 + 37.93 + 0.00) = 37.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.58	66.50	-20.15	-6.13	0.00	-2.30	0.00	37.93

WHEEL (0.00 + 29.15 + 0.00) = 29.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.66	58.72	-21.10	-6.17	0.00	-2.30	0.00	29.15

Segment Leq : 38.47 dBA

Total Leq All Segments: 38.47 dBA

↟
Results segment # 1: Smith Falls (night)

LOCOMOTIVE (0.00 + 36.43 + 0.00) = 36.43 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.58	66.50	-20.15	-6.13	0.00	-3.80	0.00	36.43

WHEEL (0.00 + 27.65 + 0.00) = 27.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.66	58.72	-21.10	-6.17	0.00	-3.80	0.00	27.65

Segment Leq : 36.97 dBA

Total Leq All Segments: 36.97 dBA

↟

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

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: Merivale Rd (day/night)

```
Angle1   Angle2           : -18.00 deg   49.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  63.00 / 63.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

ROAD (0.00 + 57.24 + 0.00) = 57.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-18	49	0.66	72.16	0.00	-10.35	-4.57	0.00	0.00	0.00	57.24

Segment Leq : 57.24 dBA

Total Leq All Segments: 57.24 dBA

Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 49.65 + 0.00) = 49.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-18	49	0.66	64.56	0.00	-10.35	-4.57	0.00	0.00	0.00	49.65

Segment Leq : 49.65 dBA

Total Leq All Segments: 49.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.30
(NIGHT): 49.88

STAMSON 5.0 NORMAL REPORT Date: 28-07-2026 15:19:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11.te Time Period: Day/Night 16/8 hours
Description: Receptor 11

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

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Merivale Rd (day/night)

Angle1 Angle2 : -29.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

ROAD (0.00 + 69.16 + 0.00) = 69.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-29	79	0.66	72.16	0.00	0.00	-3.00	0.00	0.00	0.00	69.16

Segment Leq : 69.16 dBA

Total Leq All Segments: 69.16 dBA

Results segment # 1: Merivale Rd (night)

Source height = 1.50 m

ROAD (0.00 + 61.57 + 0.00) = 61.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-29	79	0.66	64.56	0.00	0.00	-3.00	0.00	0.00	0.00	61.57

Segment Leq : 61.57 dBA

Total Leq All Segments: 61.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.16
(NIGHT): 61.57

STAMSON 5.0 NORMAL REPORT Date: 28-07-2026 15:19:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11r.te Time Period: Day/Night 16/8 hours
Description: Receptor 11 - With noise barrier

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

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Merivale Rd (day/night)

Angle1 Angle2 : -29.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -29.00 deg Angle2 : 79.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 2.00 / 2.00 m
Source elevation : 96.00 m
Receiver elevation : 96.00 m
Barrier elevation : 96.00 m
Reference angle : 0.00

Results segment # 1: Merivale Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of

```
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.50 !        97.50

ROAD (0.00 + 58.44 + 0.00) = 58.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -29     79   0.51  72.16   0.00   0.00  -2.84   0.00   0.00 -10.88  58.44
-------------------------------------------------------------------------------

Segment Leq : 58.44 dBA

Total Leq All Segments: 58.44 dBA

🠝
Results segment # 1: Merivale Rd (night)
----------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.50 !        97.50

ROAD (0.00 + 50.85 + 0.00) = 50.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -29     79   0.51  64.56   0.00   0.00  -2.84   0.00   0.00 -10.88  50.85
-------------------------------------------------------------------------------

Segment Leq : 50.85 dBA

Total Leq All Segments: 50.85 dBA

🠝



TOTAL Leq FROM ALL SOURCES (DAY): 58.44
                           (NIGHT): 50.85
🠝
🠝
```