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## Willow Court 3400 Woodroffe Avenue

## Noise Impact Assessment

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**NOISE IMPACT ASSESSMENT  
WILLOW COURT  
3400 WOODROFFE AVENUE**



**Prepared by:**

**NOVATECH**

240 Michael Cowpland Drive, Suite 200  
Ottawa, Ontario, K2M 1P6

November 5, 2025  
Revised: April 14, 2026

Ref: R-2025-81  
Novatech File No. 124147

April 14, 2026

Fotenn  
420 O'Connor Street  
Ottawa, ON K2P 1W4

**Attention: Tamara Nahal, Planner**

**Reference: Willow Court  
3400 Woodroffe Avenue  
Noise Impact Assessment  
Our File No.: 124147**

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Please find enclosed the 'Noise Impact Assessment' for the 3400 Woodroffe Avenue development.

Please contact the undersigned with any questions, or if you require additional information.

Sincerely,

**NOVATECH**



Lucas Wilson, P.Eng.  
Project Engineer

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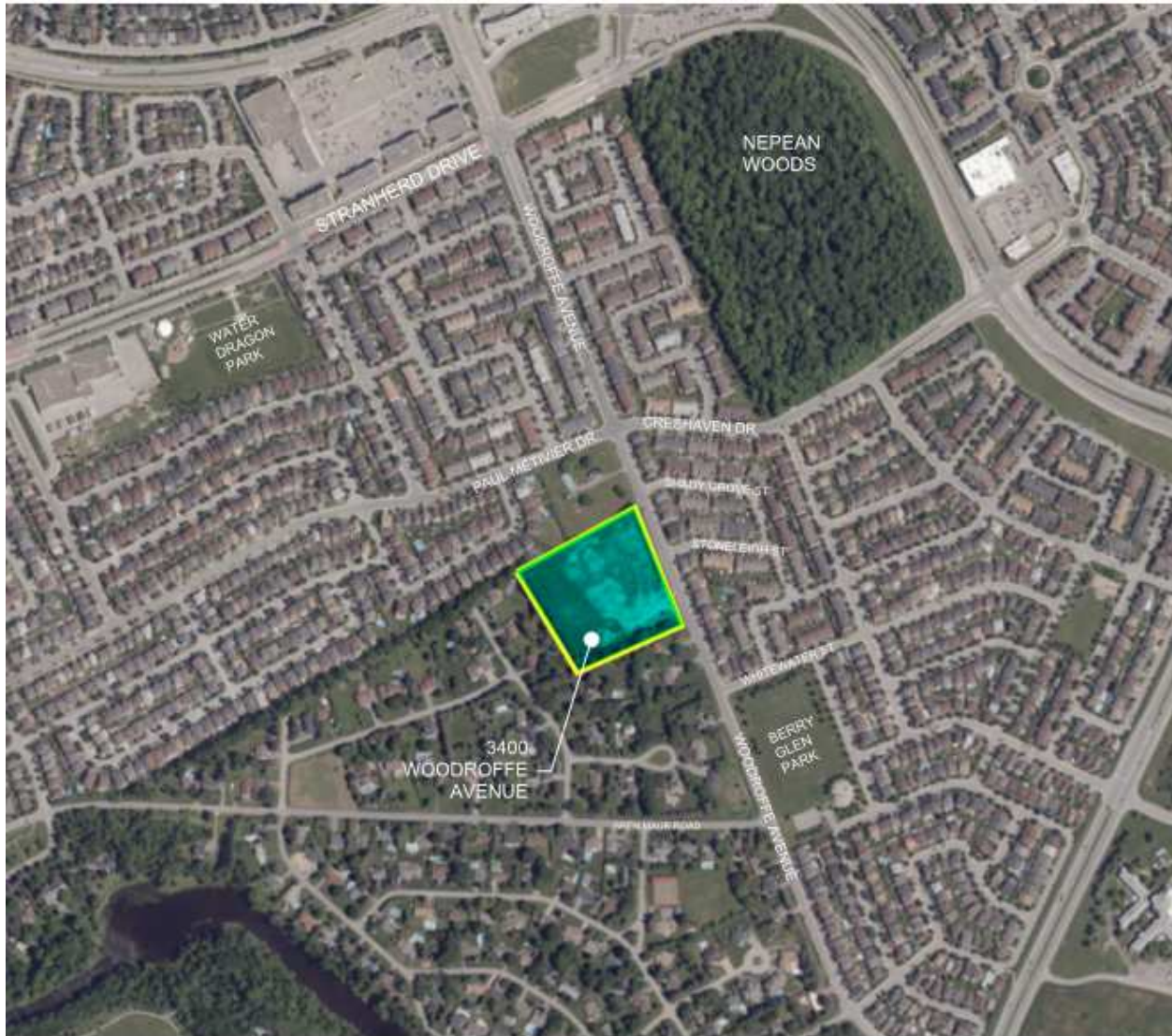
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## 1.0 INTRODUCTION

This report is submitted on behalf of the developer, Phoenix Homes for the proposed development located at 3400 Woodroffe Avenue, herein called the 'Subject Site'. This report assesses the environmental impact of noise on the proposed development and outlines the mitigation measures that will be required.

The subject site is located within Barrhaven, 100 metres south of the Woodroffe Avenue and Paul Metivier Drive intersection. The site is approximately 2.36 hectares and is bounded by existing residential and the Longfields Community Church to the north, Woodroffe Avenue to the east, and existing residential lands to the south and west. A key plan of the area is presented below in **Figure 1-1**.



**Figure 1-1 Key Plan**

The site is vacant with an approximate 10m strip of wooded area running along the west and south property lines. The proposed development will consist of 160 units mixed between nine Terrace Flats blocks (108 units), three three-storey back-to-back Townhome blocks (32 units) and three townhome blocks (20 units). The proposed site plan is shown in **Figure 1-2**.



**Figure 1-2 Site Plan**

This report assesses the impacts of sound from vehicular traffic on the proposed development using the Ministry of the Environment (MOE) Stamson 5.0 software and outlines any necessary noise attenuation requirements for compliance with the City of Ottawa Environmental Noise Control Guidelines (ENCG) and the MOE Environmental Noise Guidelines (MOE Publication NPC-300).

## 2.0 CITY OF OTTAWA ENVIRONMENTAL NOISE CONTROL GUIDELINES

### 2.1 Sound Level Criteria

The City of Ottawa is concerned with noise from aircraft, roads, railways and transitways as expressed in the City of Ottawa Official Plan (May 2003). These policies are supported by the Environmental Noise Control Guidelines (ENCG) which is a technical document that outlines the specific sound level criteria. The City of Ottawa's *Environmental Noise Control Guidelines (ENCG)*, January, 2016 and the Ministry of Environment's *Environmental Noise Guidelines, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300* have been used for the purpose of this report. As per Section 2.2 of the City of Ottawa Noise Control Guidelines (2016), unless otherwise noted, developments should be consistent with NPC-300 (MOE publication, 2013).

The areas that must be assessed for acoustic protection include the Outdoor Living Area (OLA) and the Outdoor Plane of Window (POW).

These locations are defined as:

- Outdoor Living Area (OLA):** The Outdoor Living Area is defined as that part of the outdoor amenity area provided for the quiet enjoyment of the outdoor environment during the daytime period. These amenity areas are typically backyards, gardens, terraces, patios and common outdoor living areas. The OLA noise target for traffic noise sources is 55 dBA. This criterion may be exceeded by an amount not greater than 5 dBA, subject to justification and the use of a Warning Clause. OLA noise levels are analysed at 3.0m from the building façade, 1.5m above grade.
- Plane of Window (POW):** The plane of window is defined as the indoor living space where the sound levels will affect the living room area during daytime hours and bedrooms during night time hours. The residential Plane of Window noise target for traffic noise sources is 55 dBA during the day and 50 dBA at night. If this criterion is exceeded, the property may be subject to building component analysis and warning clauses. The sound criterion is broadly summarized in **Table 2-1**. POW noise levels are analysed 1.5m above grade for the first storey, 4.7m above grade for the second storey and 7.5m above grade for the third storey.

**Table 2-1 City of Ottawa Outdoor Plane of Window Sound Level Criteria**

TIME PERIOD	RECEIVER LOCATION	SOUND LEVEL CRITERIA
Daytime (07:00 - 23:00 hrs)	Plane of Living Room Window	55 dBA
Night time (23:00 - 07:00 hrs)	Plane of Bedroom Window	50 dBA

Compliance with the outdoor sound level criteria generally ensures compliance with the indoor sound level criteria which is summarized below in **Table 2-2**.

**Table 2-2 Indoor Sound Level Criteria**

<b>TIME PERIOD</b>	<b>RECEIVER LOCATION</b>	<b>SOUND LEVEL CRITERIA</b>
Daytime (07:00 - 23:00 hrs)	<b>Living/Dining Rooms of residential dwelling units</b> , hospitals, schools, nursing homes, day-care centres, theatres, places of worship, individual or semiprivate offices, conference rooms etc.	45 dBA
Night Time (23:00 - 07:00 hrs)	<b>Sleeping quarters of residential units</b> , hospitals, nursing homes, senior citizen homes, etc.	40 dBA

## 2.2 Noise Attenuation Requirements

When sound levels are predicted to be less than the specified criteria for daytime and night time conditions, no attenuation measures are required on the part of the proponent. As the noise criteria are exceeded, a combination of attenuation measures is recommended by the City of Ottawa and the MOE to modify the development environment.

These attenuation measures may include any or all of the following:

- Distance setback with soft ground;
- Insertion of noise insensitive land uses between the source and sensitive receptor;
- Orientation of building to provide sheltered zone;
- Construction of a noise barrier wall and/or berm;
- Installation of a forced air ventilation system with provision for central air;
- Installation of central air;
- Acoustically selected building façade components

### 2.2.1 Noise Barrier

Noise barriers should only be used when other noise control measures have been considered, and there is no other alternative. For the purpose of this study, when noise levels exceed 60 dBA in the Outdoor Living Area, control measures (barriers) are required to reduce the Leq to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

The noise barriers are to be compliant with the City standard for noise barriers and have the following characteristics.

- Minimum height of 2.2m;
- Maximum height of 2.5m (unless approved by the City of Ottawa);
- Situated 0.30m inside the private property;
- A surface mass density not less than 20kg/sq.m; and
- No holes or gaps.

### 2.2.2 Ventilation Requirements

A forced air heating system with provision for a central air conditioning system is required if the daytime noise levels are between 55 dBA and 65 dBA and/or night time noise levels are between 50 dBA and 60 dBA.

The installation of a central air conditioning system is required when the daytime noise level exceeds 65 dBA and/or night time noise levels exceed 60 dBA.

### **2.2.3 Building Component Assessment**

When noise levels exceed 65 dBA (daytime) or 60 dBA (night time) the exterior cladding system of the building envelope must be acoustically assessed to ensure the indoor sound criteria is achieved. This includes analysis of the exterior wall, door, and/or glazing system specifications as appropriate.

The NRC research *Acoustic Insulation Factor: A Rating for the Insulation of Buildings against Noise* (June 1980, JD Quirt) is used to assess the building components and the required acoustic insulation factor (AIF). This method is recognized by the City of Ottawa.

The required AIF is based on the Outside  $L_{eq}$ , Indoor  $L_{eq}$  required, and the number of exterior façade components.

Minimum Required AIF = Outside  $L_{eq}$  – Indoor  $L_{eq}$  +  $\log_{10}$  (Number of Components) + 2dB

Where, N = Number of components (walls, windows and roof);  
L = Sound Level expressed on a common decibel scale.

### **2.2.4 Warning Clauses**

When predicted noise levels exceed the specified criteria, the City of Ottawa and the MOE recommend warning clauses be registered as a notice on title and incorporated into the sales agreements to warn potential purchaser/buyers/tenants of the possible elevated noise levels.

The following typical warning clauses are extracted from Section C8.1 of the MOE NPC-300 document.

#### *Warning Clause Type A*

“Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City’s and the Ministry of the Environment’s noise criteria.”

#### *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 may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the City’s and the Ministry of the Environment’s noise criteria.”

#### *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 will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City’s and the Ministry of the Environment’s noise criteria.”

*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 City’s and the Ministry of the Environment’s noise criteria.”

**2.2.5 Summary of Noise Attenuation Measure Requirements**

**Table 2-3** summarizes the noise attenuation measure requirements and warning clauses should sound criteria be exceeded.

**Table 2-3 Outdoor, Ventilation and Warning Clause Requirements (NPC-300)**

Assessment Location	Leq (dBA)	Outdoor Control Measures	Indoor Control Measures		Warning Clause
			Ventilation Requirements	Building Components	
Outdoor Living Area (OLA)	Less than 55	None required	N/A	N/A	None required
	Between 55 and 60	Control measures (barriers) may not be required but should be considered	N/A	N/A	Required if resultant Leq exceeds 55 dBA Type A
	More than 60	Barriers required	N/A	N/A	Required if resultant Leq exceeds 55 dBA Type B
Plane of Living Room Window (POW)	Less than 55	N/A	None Required	None Required	None Required
	Between 55 and 65	N/A	Forced air heating with provision for central air conditioning	None Required	Required Type C
	More Than 65	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type D
Plane of Bedroom Window (POW)	Less than 50	N/A	None Required	None Required	None Required
	Between 50 and 60	N/A	Forced air heating with provision for central air conditioning	None Required	Required Type C
	More than 60	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type D

### 3.0 NOISE SOURCES

The City of Ottawa Official Plan and Environmental Noise Control Guidelines (ENCG) stipulate that a noise impact assessment is required when a noise sensitive development is within proximity to a surface transportation (road or rail), stationary and aircraft noise sources.

Due to the site location, only roadway noise will be considered. The following distances to roadway noise sources are applicable to the subject site:

- Within 100m from the right-of-way of an existing/proposed arterial/collector

**Figure 3-1** shows the noise sources that have an impact on this development. Woodroffe Avenue and Paul Metivier Drive (Major Collector) and Whitewater Street (Collector) are located within 100m of the development.

#### 3.1 Woodroffe Ave., Paul Métivier Dr. (Major Collector) and Whitewater St. (Collector)

Woodroffe Avenue and Paul Métivier Drive are classified as Urban Major Collectors (2-UMCU) and Whitewater Street is classified as an Urban Collector (2-UCU) Roadway in the 2013 Transportation Master Plan – Map 6. An Annual Average Daily Traffic (AADT) value of 12,000 is specified for a Major Collector (2-UMCU), while a value of 8,000 is specified for a Collector (2-UCU).

As per Table B1 of Appendix B of the ENCG, **Table 3-1** outlines the traffic parameters used to calculate the sound levels for the development.

**Table 3-1 Woodroffe Ave., Paul Métivier Dr. and Whitewater St. Noise Parameters**

Roadway Classification	2-Lane Urban Major Collector	2-Lane Urban Collector
	Woodroffe Ave, Paul Metivier Dr.	Whitewater St.
<b>Annual Average Daily Traffic (AADT)</b>	12,000 veh/day	8,000 veh/day
<b>Day/Night Split (%)</b>	92/8	92/8
<b>Heavy Trucks (%)</b>	5	5
<b>Medium Trucks (%)</b>	7	7
<b>Posted Speed Limit</b>	50 km/hr	50 km/hr
<b>Road Gradient</b>	1.0%	1.0%



Figure 3-1 Noise Sources

## 4.0 NOISE LEVEL PREDICTIONS

### 4.1 Modeling

Noise levels are calculated using the STAMSON computer program, version 5.03. Road data is input into the program as applicable, whereupon the program calculates an A-weighted 16 hour  $L_{eq}$  noise level for the daytime and an 8 hour  $L_{eq}$  noise level for the night time. The results of these computer calculations are presented in **Appendix A** and summarized in **Table 4-1** and **Table 4-2**.

**Table 4-1 OLA Noise Level Summary**

LOCATION	OUTDOOR LIVING AREA NOISE LEVEL – $L_{eq}$ - (dBA)
	Unattenuated
R4 (Amenity Area - Park)	54.48
R15 (Amenity Area)	54.98

**Table 4-2 POW Noise Level Summary**

LOCATION	PLANE OF WINDOW (POW) NOISE LEVEL – $L_{eq}$ - (dBA)	
	DAYTIME	NIGHT TIME
R1 (Ground Floor)	65.77	58.17
R2 (Ground Floor)	60.49	52.89
R3 (Ground Floor)	58.19	50.59
R5 (Ground Floor)	59.75	52.15
R6 (Ground Floor)	56.85	49.25
R7 (Ground Floor)	56.87	50.08
R8 (Ground Floor)	65.80	58.20
R9 (Ground Floor)	55.25	47.65
R10 (Ground Floor)	57.66	50.06
R11 (Ground Floor)	56.15	48.55
R12 (Ground Floor)	52.63	45.03
R13 (Ground Floor)	54.97	47.37
R14 (Ground Floor)	56.85	49.25

### 4.2 Outdoor Control Measures

The shared amenity space (on-site park) is located in the interior of the site, surrounded by buildings and surface parking. The OLA noise level is below the minimum requirement of 55 dBA (54.48 dBA); therefore, no mitigation measures or warning clauses are required.

### 4.3 Indoor Control Measures

Warning clauses are required on title relating to the requirement of forced air heating with provision for central air conditioning and required central air conditioning.

Units 'C' and 'D' in Buildings 3 to 7 (all levels), Units 'A' and 'B' in Building 8 (all levels), Units 'A', 'B', 'C', and 'D' in Building 10 and Units 'A' and 'B' in Building 11 require forced air heating with provision for central air conditioning and associated warning clause Type C. These units are identified below in **Figure 5-1**.

Typical wording for Type C warning clause: "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 City's and the Ministry of the Environment's noise criteria."

Units 'A' and 'B' in Buildings 3 to 7 (all levels) require central air conditioning and associated warning clause Type D and are identified below in **Figure 5-1** and include all units facing Woodroffe Avenue.

Typical wording for Type D warning clause: "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 noise levels are within the City's and the Ministry of the Environment's noise criteria."

## 4.4 Building Component Assessment

### 4.4.1 Units facing Woodroffe Avenue

The worst-case sound level is located at R8 facing Woodroffe Avenue and is above the 65 dBA (daytime) allowances at 65.80 dBA. Night-time sound levels are under the 60 dBA allowance at 58.20 dBA. Therefore, an analysis of the cladding system is warranted due to daytime sound levels. To comply with the ENCG policies, the building envelope will require a minimum AIF rating to provide the indoor noise levels as shown above in **Table 2-2**. Compliance at the worst-case receiver points will demonstrate compliance for all locations.

The acoustical insulation factor for residential living rooms is calculated as follows:

Two Building Components:  $AIF = 65.80 \text{ dBA} - 45 \text{ dBA} + 10\log(2) \text{ dBA} + 2 \text{ dBA} = 26$

To comply with the ENCG policies, the buildings will require a minimum AIF rating of 26 to provide the appropriate indoor noise levels. Presented below are recommended building materials that provide the required AIF rating. These building materials are only suggestions and can be substituted with equivalent building materials that meet or exceed the AIF rating.

Walls with EW1 compositions (refer to **Appendix A** for applicable worksheets) have an AIF range of 29 to 39 depending on the exterior wall to interior floor area ratio; this exceeds the minimum requirement for 2 components. A standard residential window section employs 3mm glazing x 13mm air space x 3mm glazing, which has an AIF of 26 with a window to floor area ratio of 63%.

When the building floor plans and exterior facade have been finalized, the tables in **Appendix A** shall be referenced to ensure that the selected building components exceed the minimum AIF rating.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

To meet the requirements for compliance with the City of Ottawa Environmental Noise Control Guidelines and the MOE Environmental Noise Guideline the following measures are required.

### Outdoor Control Measures

The noise level in the shared amenity space is below 55 dBA, therefore no warning clause is required.

### Indoor Control Measures

All building faces fronting on Woodroffe Avenue will comply with the ENCG indoor noise policy employing EW1 wall components and standard residential window sections 3mm glazing x 13mm air space x 3mm glazing with a maximum window to floor area ratio of 63%.

Units 'C' and 'D' in Buildings 3 to 7 (all levels), Units 'A' and 'B' in Building 8 (all levels), Units 'A', 'B', 'C', and 'D' in Building 10 and Units 'A' and 'B' in Building 11 require forced air heating with provision for central air conditioning and associated warning clause Type C. These units are identified below in **Figure 5-1**.

Units 'A' and 'B' in Buildings 3 to 7 (all levels) require central air conditioning and associated warning clause Type D and are identified below in **Figure 5-1** and are limited to all units facing Woodroffe Avenue.

### Building Component Assessment

All building faces will comply with the ENCG indoor noise policy employing Ontario Building Code minimum building components.

### Warning Clauses

Warning clauses are to be placed on title and in the purchase and sale agreements as indicated above and in **Figure 5-1**. The following typical warning clauses are extracted from Section C8.1 of the MOE NPC-300 document.

#### 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 will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria."

#### 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 noise levels are within the City's and the Ministry of the Environment's noise criteria."



Figure 5-1 Construction Requirements and Warning Clauses

If you have any questions or comments with regards to this report, please do not hesitate to contact the undersigned.

Respectfully issued,

**NOVATECH**

Prepared By:



Lucas Wilson, P.Eng.  
Project Engineer

Reviewed By:



Mark Bissett, P.Eng.  
Senior Project Manager

**APPENDIX A**

**Stamson Model Output  
AIF Component Assessment**



Source height = 1.50 m

ROAD (0.00 + 58.17 + 0.00) = 58.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.91	0.00	-1.74	0.00	0.00	0.00	0.00	58.17

Segment Leq : 58.17 dBA

Total Leq All Segments: 58.17 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.77  
(NIGHT): 58.17



```

-----
Angle1  Angle2      : -47.00 deg   39.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 109.20 / 109.20 m
Receiver height  :      1.50 / 1.50 m
Topography      :      3      (Elevated; no barrier)
Elevation       :      1.80 m
Reference angle  :      0.00

```

Results segment # 1: Woodroffe (day)

Source height = 1.50 m

```

ROAD (0.00 + 60.06 + 0.00) = 60.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -90     0    0.61  67.51   0.00  -3.07  -4.38   0.00   0.00   0.00  60.06
-----

```

Segment Leq : 60.06 dBA

Results segment # 2: Paul M. (day)

Source height = 1.50 m

```

ROAD (0.00 + 50.19 + 0.00) = 50.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -47    39    0.61  67.51   0.00 -13.85  -3.47   0.00   0.00   0.00  50.19
-----

```

Segment Leq : 50.19 dBA

Total Leq All Segments: 60.49 dBA

Results segment # 1: Woodroffe (night)

Source height = 1.50 m

```

ROAD (0.00 + 52.46 + 0.00) = 52.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -90     0    0.61  59.91   0.00  -3.07  -4.38   0.00   0.00   0.00  52.46
-----

```

Segment Leq : 52.46 dBA

Results segment # 2: Paul M. (night)

Source height = 1.50 m

ROAD (0.00 + 42.59 + 0.00) = 42.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	39	0.61	59.91	0.00	-13.85	-3.47	0.00	0.00	0.00	42.59

Segment Leq : 42.59 dBA

Total Leq All Segments: 52.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.49  
(NIGHT): 52.89



Data for Segment # 2: Paul M. (day/night)

```

-----
Angle1  Angle2      : -45.00 deg  42.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 109.40 / 109.40 m
Receiver height  :      1.50 / 1.50 m
Topography      :      3      (Elevated; no barrier)
Elevation       :      1.80 m
Reference angle  :      0.00

```

Results segment # 1: Woodroffe (day)

Source height = 1.50 m

```

ROAD (0.00 + 57.43 + 0.00) = 57.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -90     0    0.61  67.51   0.00  -5.71  -4.38   0.00   0.00   0.00  57.43
-----

```

Segment Leq : 57.43 dBA

Results segment # 2: Paul M. (day)

Source height = 1.50 m

```

ROAD (0.00 + 50.23 + 0.00) = 50.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -45    42    0.61  67.51   0.00 -13.86  -3.42   0.00   0.00   0.00  50.23
-----

```

Segment Leq : 50.23 dBA

Total Leq All Segments: 58.19 dBA

Results segment # 1: Woodroffe (night)

Source height = 1.50 m

```

ROAD (0.00 + 49.83 + 0.00) = 49.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -90     0    0.61  59.91   0.00  -5.71  -4.38   0.00   0.00   0.00  49.83
-----

```

Segment Leq : 49.83 dBA

Results segment # 2: Paul M. (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 42.63 + 0.00) = 42.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	42	0.61	59.91	0.00	-13.86	-3.42	0.00	0.00	0.00	42.63

-----

Segment Leq : 42.63 dBA

Total Leq All Segments: 50.59 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.19  
(NIGHT): 50.59

Filename: r4.te                                      Time Period: Day/Night 16/8 hours  
 Description:

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

```
-----
Car traffic volume : 9715/845   veh/TimePeriod *
Medium truck volume : 773/67   veh/TimePeriod *
Heavy truck volume : 552/48   veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient      : 1 %
Road pavement     : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 12000
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: Woodroffe (day/night)

```
-----
Angle1 Angle2      : -47.00 deg  78.00 deg
Wood depth          : 0 (No woods.)
No of house rows   : 1 / 1
House density       : 70 %
Surface            : 2 (Reflective ground surface)
Receiver source distance : 73.40 / 73.40 m
Receiver height     : 1.50 / 1.50 m
Topography         : 3 (Elevated; no barrier)
Elevation          : 1.80 m
Reference angle    : 0.00
```

Results segment # 1: Woodroffe (day)

Source height = 1.50 m

ROAD (0.00 + 54.48 + 0.00) = 54.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	78	0.00	67.51	0.00	-6.90	-1.58	0.00	-4.56	0.00	54.48

Segment Leq : 54.48 dBA

Total Leq All Segments: 54.48 dBA

Results segment # 1: Woodroffe (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 46.88 + 0.00) = 46.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	78	0.00	59.91	0.00	-6.90	-1.58	0.00	-4.56	0.00	46.88

-----

Segment Leq : 46.88 dBA

Total Leq All Segments: 46.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY) : 54.48  
(NIGHT) : 46.88



Results segment # 1: Woodroffe (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 52.15 + 0.00) = 52.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	86	0.61	59.91	0.00	-3.35	-4.41	0.00	0.00	0.00	52.15

-----

Segment Leq : 52.15 dBA

Total Leq All Segments: 52.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.75  
(NIGHT): 52.15



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 # 2: Woodroffe (day/night)

-----  
 Angle1 Angle2 : 0.00 deg 84.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 66.20 / 66.20 m  
 Receiver height : 1.50 / 1.50 m  
 Topography : 4 (Elevated; with barrier)  
 Barrier angle1 : 18.00 deg Angle2 : 74.00 deg  
 Barrier height : 10.00 m  
 Elevation : 1.80 m  
 Barrier receiver distance : 24.70 / 24.70 m  
 Source elevation : 102.00 m  
 Receiver elevation : 104.00 m  
 Barrier elevation : 104.00 m  
 Reference angle : 0.00

Results segment # 1: Woodroffe (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 ! 0.75 ! 104.75

ROAD (52.31 + 35.89 + 50.27) = 54.48 dBA  
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
 -----  
 -90 -66 0.00 67.51 0.00 -6.45 -8.75 0.00 0.00 0.00 52.31  
 -----  
 -66 -15 0.00 67.51 0.00 -6.45 -5.48 0.00 0.00 -19.70 35.89  
 -----  
 -15 0 0.00 67.51 0.00 -6.45 -10.79 0.00 0.00 0.00 50.27  
 -----

Segment Leq : 54.48 dBA

Results segment # 2: Woodroffe (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.75	104.75

ROAD (51.06 + 36.76 + 48.51) = 53.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	18	0.00	67.51	0.00	-6.45	-10.00	0.00	0.00	0.00	51.06
18	74	0.00	67.51	0.00	-6.45	-5.07	0.00	0.00	-19.23	36.76
74	84	0.00	67.51	0.00	-6.45	-12.55	0.00	0.00	0.00	48.51

Segment Leq : 53.08 dBA

Total Leq All Segments: 56.85 dBA

Results segment # 1: Woodroffe (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.75	104.75

ROAD (44.71 + 28.29 + 42.67) = 46.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-66	0.00	59.91	0.00	-6.45	-8.75	0.00	0.00	0.00	44.71
-66	-15	0.00	59.91	0.00	-6.45	-5.48	0.00	0.00	-19.70	28.29
-15	0	0.00	59.91	0.00	-6.45	-10.79	0.00	0.00	0.00	42.67

Segment Leq : 46.88 dBA

Results segment # 2: Woodroffe (night)

-----  
 Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.75	104.75

ROAD (43.46 + 29.16 + 40.91) = 45.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	18	0.00	59.91	0.00	-6.45	-10.00	0.00	0.00	0.00	43.46
18	74	0.00	59.91	0.00	-6.45	-5.07	0.00	0.00	-19.23	29.16
74	84	0.00	59.91	0.00	-6.45	-12.55	0.00	0.00	0.00	40.91

Segment Leq : 45.49 dBA

Total Leq All Segments: 49.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.85  
 (NIGHT): 49.25







Results segment # 1: Woodroffe (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 50.08 + 0.00) = 50.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	66	0.43	59.91	0.00	-5.01	-4.82	0.00	0.00	0.00	50.08

-----

Segment Leq : 50.08 dBA

Total Leq All Segments: 50.08 dBA

TOTAL Leq FROM ALL SOURCES (DAY) : 56.87  
(NIGHT) : 50.08



Data for Segment # 2: Whitewater (day/night)

-----  
Angle1 Angle2 : -46.00 deg -15.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 3 / 3  
House density : 90 %  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 103.90 / 103.90 m  
Receiver height : 1.50 / 1.50 m  
Topography : 3 (Elevated; no barrier)  
Elevation : 1.80 m  
Reference angle : 0.00

Results segment # 1: Woodroffe (day)

-----  
Source height = 1.50 m

ROAD (0.00 + 65.79 + 0.00) = 65.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.51	0.00	-1.72	0.00	0.00	0.00	0.00	65.79

-----  
Segment Leq : 65.79 dBA

Results segment # 2: Whitewater (day)

-----  
Source height = 1.50 m

ROAD (0.00 + 39.17 + 0.00) = 39.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	-15	0.00	65.75	0.00	-8.41	-7.64	0.00	-10.53	0.00	39.17

-----  
Segment Leq : 39.17 dBA

Total Leq All Segments: 65.80 dBA

Results segment # 1: Woodroffe (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 58.19 + 0.00) = 58.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.91	0.00	-1.72	0.00	0.00	0.00	0.00	58.19

-----  
Segment Leq : 58.19 dBA

Results segment # 2: Whitewater (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 31.58 + 0.00) = 31.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	-15	0.00	58.16	0.00	-8.41	-7.64	0.00	-10.53	0.00	31.58

-----

Segment Leq : 31.58 dBA

Total Leq All Segments: 58.20 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.80  
(NIGHT): 58.20

Filename: r9.te                                      Time Period: Day/Night 16/8 hours  
 Description:

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

```
-----
Car traffic volume   : 9715/845   veh/TimePeriod  *
Medium truck volume : 773/67    veh/TimePeriod  *
Heavy truck volume  : 552/48    veh/TimePeriod  *
Posted speed limit  : 50 km/h
Road gradient       : 1 %
Road pavement      : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 12000
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: Woodroffe (day/night)

```
-----
Angle1  Angle2      : 0.00 deg  24.00 deg
Wood depth      : 0 (No woods.)
No of house rows : 0 / 0
Surface         : 2 (Reflective ground surface)
Receiver source distance : 33.70 / 33.70 m
Receiver height  : 1.50 / 1.50 m
Topography      : 3 (Elevated; no barrier)
Elevation       : 1.80 m
Reference angle  : 0.00
```

Results segment # 1: Woodroffe (day)

Source height = 1.50 m

ROAD (0.00 + 55.25 + 0.00) = 55.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	24	0.00	67.51	0.00	-3.52	-8.75	0.00	0.00	0.00	55.25

Segment Leq : 55.25 dBA

Total Leq All Segments: 55.25 dBA

Results segment # 1: Woodroffe (night)

Source height = 1.50 m

ROAD (0.00 + 47.65 + 0.00) = 47.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	24	0.00	59.91	0.00	-3.52	-8.75	0.00	0.00	0.00	47.65

Segment Leq : 47.65 dBA

Total Leq All Segments: 47.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.25  
(NIGHT): 47.65



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 # 2: Whitewater (day/night)

-----  
 Angle1 Angle2 : -53.00 deg -32.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 3 / 3  
 House density : 95 %  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 107.90 / 107.90 m  
 Receiver height : 1.50 / 1.50 m  
 Topography : 3 (Elevated; no barrier)  
 Elevation : 1.80 m  
 Reference angle : 0.00

Results segment # 1: Woodroffe (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 ! 0.82 ! 104.82

ROAD (0.00 + 32.03 + 57.62) = 57.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	14	0.00	67.51	0.00	-6.15	-9.33	0.00	0.00	-20.00	32.03
14	90	0.00	67.51	0.00	-6.15	-3.74	0.00	0.00	0.00	57.62

Segment Leq : 57.63 dBA

Results segment # 2: Whitewater (day)

-----  
 Source height = 1.50 m

ROAD (0.00 + 36.09 + 0.00) = 36.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-32	0.00	65.75	0.00	-8.57	-9.33	0.00	-11.76	0.00	36.09

Segment Leq : 36.09 dBA

Total Leq All Segments: 57.66 dBA

Results segment # 1: Woodroffe (night)

-----

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.82	104.82

ROAD (0.00 + 24.43 + 50.02) = 50.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	14	0.00	59.91	0.00	-6.15	-9.33	0.00	0.00	-20.00	24.43
14	90	0.00	59.91	0.00	-6.15	-3.74	0.00	0.00	0.00	50.02

Segment Leq : 50.03 dBA

Results segment # 2: Whitewater (night)

Source height = 1.50 m

ROAD (0.00 + 28.50 + 0.00) = 28.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	-32	0.00	58.16	0.00	-8.57	-9.33	0.00	-11.76	0.00	28.50

Segment Leq : 28.50 dBA

Total Leq All Segments: 50.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.66  
(NIGHT): 50.06



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 # 2: Woodroffe2 (day/night)

-----  
 Angle1 Angle2 : -9.00 deg 83.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 64.20 / 64.20 m  
 Receiver height : 1.50 / 1.50 m  
 Topography : 4 (Elevated; with barrier)  
 Barrier angle1 : -9.00 deg Angle2 : 70.00 deg  
 Barrier height : 10.00 m  
 Elevation : 1.80 m  
 Barrier receiver distance : 22.80 / 22.80 m  
 Source elevation : 102.00 m  
 Receiver elevation : 104.00 m  
 Barrier elevation : 104.00 m  
 Reference angle : 0.00

Results segment # 1: Woodroffel (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 ! 0.79 ! 104.79

ROAD (50.69 + 35.50 + 52.79) = 54.93 dBA  
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
 -----  
 -90 -74 0.00 67.51 0.00 -6.31 -10.51 0.00 0.00 0.00 50.69  
 -----  
 -74 -35 0.00 67.51 0.00 -6.31 -6.64 0.00 0.00 -19.05 35.50  
 -----  
 -35 -9 0.00 67.51 0.00 -6.31 -8.40 0.00 0.00 0.00 52.79  
 -----

Segment Leq : 54.93 dBA

Results segment # 2: Woodroffe2 (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 ! 0.79 ! 104.79

ROAD (0.00 + 37.91 + 49.78) = 50.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-9	70	0.00	67.51	0.00	-6.31	-3.58	0.00	0.00	-19.71	37.91
70	83	0.00	67.51	0.00	-6.31	-11.41	0.00	0.00	0.00	49.78

Segment Leq : 50.06 dBA

Total Leq All Segments: 56.15 dBA

Results segment # 1: Woodroffel (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.79	104.79

ROAD (43.09 + 27.90 + 45.19) = 47.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-74	0.00	59.91	0.00	-6.31	-10.51	0.00	0.00	0.00	43.09
-74	-35	0.00	59.91	0.00	-6.31	-6.64	0.00	0.00	-19.05	27.90
-35	-9	0.00	59.91	0.00	-6.31	-8.40	0.00	0.00	0.00	45.19

Segment Leq : 47.33 dBA

Results segment # 2: Woodroffe2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.79	104.79

ROAD (0.00 + 30.31 + 42.18) = 42.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-9	70	0.00	59.91	0.00	-6.31	-3.58	0.00	0.00	-19.71	30.31
70	83	0.00	59.91	0.00	-6.31	-11.41	0.00	0.00	0.00	42.18

Segment Leq : 42.46 dBA

Total Leq All Segments: 48.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.15  
(NIGHT): 48.55



ROAD (0.00 + 45.03 + 0.00) = 45.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-7	0.43	59.91	0.00	-10.38	-4.49	0.00	0.00	0.00	45.03

Segment Leq : 45.03 dBA

Total Leq All Segments: 45.03 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.63  
 (NIGHT): 45.03



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

24 hr Traffic Volume (AADT or SADT): 12000  
 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 # 2: Woodroffe2 (day/night)

-----  
 Angle1 Angle2 : -30.00 deg 83.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 64.20 / 64.20 m  
 Receiver height : 1.50 / 1.50 m  
 Topography : 4 (Elevated; with barrier)  
 Barrier angle1 : -30.00 deg Angle2 : 69.00 deg  
 Barrier height : 10.00 m  
 Elevation : 1.80 m  
 Barrier receiver distance : 22.00 / 22.00 m  
 Source elevation : 102.00 m  
 Receiver elevation : 104.00 m  
 Barrier elevation : 104.00 m  
 Reference angle : 0.00

Results segment # 1: Woodroffel (day)

-----  
 Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.10	104.10

ROAD (50.17 + 34.65 + 49.85) = 53.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-76	0.00	67.51	0.00	-6.25	-11.09	0.00	0.00	0.00	50.17
-76	-43	0.00	67.51	0.00	-6.25	-7.37	0.00	0.00	-19.25	34.65
-43	-30	0.00	67.51	0.00	-6.25	-11.41	0.00	0.00	0.00	49.85

-----  
 Segment Leq : 53.09 dBA

Results segment # 2: Woodroffe2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.81	104.81

ROAD (0.00 + 38.80 + 50.11) = 50.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	69	0.00	67.51	0.00	-6.31	-2.60	0.00	0.00	-19.80	38.80
69	83	0.00	67.51	0.00	-6.31	-11.09	0.00	0.00	0.00	50.11

Segment Leq : 50.42 dBA

Total Leq All Segments: 54.97 dBA

Results segment # 1: Woodroffel (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.10	104.10

ROAD (42.57 + 27.05 + 42.25) = 45.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-76	0.00	59.91	0.00	-6.25	-11.09	0.00	0.00	0.00	42.57
-76	-43	0.00	59.91	0.00	-6.25	-7.37	0.00	0.00	-19.25	27.05
-43	-30	0.00	59.91	0.00	-6.25	-11.41	0.00	0.00	0.00	42.25

Segment Leq : 45.49 dBA

Results segment # 2: Woodroffe2 (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 ! 0.81 ! 104.81

ROAD (0.00 + 31.20 + 42.51) = 42.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	69	0.00	59.91	0.00	-6.31	-2.60	0.00	0.00	-19.80	31.20
69	83	0.00	59.91	0.00	-6.31	-11.09	0.00	0.00	0.00	42.51

-----

Segment Leq : 42.82 dBA

Total Leq All Segments: 47.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.97  
(NIGHT): 47.37



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

```

24 hr Traffic Volume (AADT or SADT): 12000
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 # 2: Woodroffe (day/night)

```

-----
Angle1  Angle2      : 0.00 deg  84.00 deg
Wood depth      : 0 (No woods.)
No of house rows : 0 / 0
Surface        : 2 (Reflective ground surface)
Receiver source distance : 66.20 / 66.20 m
Receiver height : 1.50 / 1.50 m
Topography     : 4 (Elevated; with barrier)
Barrier angle1 : 18.00 deg  Angle2 : 74.00 deg
Barrier height  : 10.00 m
Elevation      : 1.80 m
Barrier receiver distance : 24.70 / 24.70 m
Source elevation : 102.00 m
Receiver elevation : 104.00 m
Barrier elevation : 104.00 m
Reference angle : 0.00

```

Results segment # 1: Woodroffe (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 !      0.75 !      104.75

```

ROAD (52.31 + 35.89 + 50.27) = 54.48 dBA

```

-----
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
-90    -66    0.00  67.51   0.00  -6.45  -8.75   0.00   0.00   0.00  52.31
-----
-66    -15    0.00  67.51   0.00  -6.45  -5.48   0.00   0.00 -19.70  35.89
-----
-15     0     0.00  67.51   0.00  -6.45 -10.79   0.00   0.00   0.00  50.27
-----

```

Segment Leq : 54.48 dBA

Results segment # 2: Woodroffe (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.75	104.75

ROAD (51.06 + 36.76 + 48.51) = 53.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	18	0.00	67.51	0.00	-6.45	-10.00	0.00	0.00	0.00	51.06
18	74	0.00	67.51	0.00	-6.45	-5.07	0.00	0.00	-19.23	36.76
74	84	0.00	67.51	0.00	-6.45	-12.55	0.00	0.00	0.00	48.51

Segment Leq : 53.08 dBA

Total Leq All Segments: 56.85 dBA

Results segment # 1: Woodroffe (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.75	104.75

ROAD (44.71 + 28.29 + 42.67) = 46.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-66	0.00	59.91	0.00	-6.45	-8.75	0.00	0.00	0.00	44.71
-66	-15	0.00	59.91	0.00	-6.45	-5.48	0.00	0.00	-19.70	28.29
-15	0	0.00	59.91	0.00	-6.45	-10.79	0.00	0.00	0.00	42.67

Segment Leq : 46.88 dBA

Results segment # 2: Woodroffe (night)

-----  
 Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.75	104.75

ROAD (43.46 + 29.16 + 40.91) = 45.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	18	0.00	59.91	0.00	-6.45	-10.00	0.00	0.00	0.00	43.46
18	74	0.00	59.91	0.00	-6.45	-5.07	0.00	0.00	-19.23	29.16
74	84	0.00	59.91	0.00	-6.45	-12.55	0.00	0.00	0.00	40.91

Segment Leq : 45.49 dBA

Total Leq All Segments: 49.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.85  
 (NIGHT): 49.25



TABLE 5: Acoustic Insulation Factor for Various Types of Windows

Window area as a percentage of total floor area of room (1)										Single glazing	Double glazing of indicated glass thickness						Triple glazing																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
4	5	6	8	10	13	16	20	25	32		40	50	63	80	2mm and 3mm glass	3mm and 4mm glass	4mm and 5mm glass	5mm and 6mm glass	6mm and 7mm glass	3mm, 4mm and 5mm glass	4mm, 5mm and 6mm glass																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Acoustic Insulation Factor (AIR) (2)										Thickness	Interpane spacing in mm (3)										Interpane spacings in mm (5)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
35	34	33	32	31	30	29	28	27	26	25	24	23	22	3mm	6	13	18	22	26	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	98	102	106	110	114	118	122	126	130	134	138	142	146	150	154	158	162	166	170	174	178	182	186	190	194	198	202	206	210	214	218	222	226	230	234	238	242	246	250	254	258	262	266	270	274	278	282	286	290	294	298	302	306	310	314	318	322	326	330	334	338	342	346	350	354	358	362	366	370	374	378	382	386	390	394	398	402	406	410	414	418	422	426	430	434	438	442	446	450	454	458	462	466	470	474	478	482	486	490	494	498	502	506	510	514	518	522	526	530	534	538	542	546	550	554	558	562	566	570	574	578	582	586	590	594	598	602	606	610	614	618	622	626	630	634	638	642	646	650	654	658	662	666	670	674	678	682	686	690	694	698	702	706	710	714	718	722	726	730	734	738	742	746	750	754	758	762	766	770	774	778	782	786	790	794	798	802	806	810	814	818	822	826	830	834	838	842	846	850	854	858	862	866	870	874	878	882	886	890	894	898	902	906	910	914	918	922	926	930	934	938	942	946	950	954	958	962	966	970	974	978	982	986	990	994	998	1002	1006	1010	1014	1018	1022	1026	1030	1034	1038	1042	1046	1050	1054	1058	1062	1066	1070	1074	1078	1082	1086	1090	1094	1098	1102	1106	1110	1114	1118	1122	1126	1130	1134	1138	1142	1146	1150	1154	1158	1162	1166	1170	1174	1178	1182	1186	1190	1194	1198	1202	1206	1210	1214	1218	1222	1226	1230	1234	1238	1242	1246	1250	1254	1258	1262	1266	1270	1274	1278	1282	1286	1290	1294	1298	1302	1306	1310	1314	1318	1322	1326	1330	1334	1338	1342	1346	1350	1354	1358	1362	1366	1370	1374	1378	1382	1386	1390	1394	1398	1402	1406	1410	1414	1418	1422	1426	1430	1434	1438	1442	1446	1450	1454	1458	1462	1466	1470	1474	1478	1482	1486	1490	1494	1498	1502	1506	1510	1514	1518	1522	1526	1530	1534	1538	1542	1546	1550	1554	1558	1562	1566	1570	1574	1578	1582	1586	1590	1594	1598	1602	1606	1610	1614	1618	1622	1626	1630	1634	1638	1642	1646	1650	1654	1658	1662	1666	1670	1674	1678	1682	1686	1690	1694	1698	1702	1706	1710	1714	1718	1722	1726	1730	1734	1738	1742	1746	1750	1754	1758	1762	1766	1770	1774	1778	1782	1786	1790	1794	1798	1802	1806	1810	1814	1818	1822	1826	1830	1834	1838	1842	1846	1850	1854	1858	1862	1866	1870	1874	1878	1882	1886	1890	1894	1898	1902	1906	1910	1914	1918	1922	1926	1930	1934	1938	1942	1946	1950	1954	1958	1962	1966	1970	1974	1978	1982	1986	1990	1994	1998	2002	2006	2010	2014	2018	2022	2026	2030	2034	2038	2042	2046	2050	2054	2058	2062	2066	2070	2074	2078	2082	2086	2090	2094	2098	2102	2106	2110	2114	2118	2122	2126	2130	2134	2138	2142	2146	2150	2154	2158	2162	2166	2170	2174	2178	2182	2186	2190	2194	2198	2202	2206	2210	2214	2218	2222	2226	2230	2234	2238	2242	2246	2250	2254	2258	2262	2266	2270	2274	2278	2282	2286	2290	2294	2298	2302	2306	2310	2314	2318	2322	2326	2330	2334	2338	2342	2346	2350	2354	2358	2362	2366	2370	2374	2378	2382	2386	2390	2394	2398	2402	2406	2410	2414	2418	2422	2426	2430	2434	2438	2442	2446	2450	2454	2458	2462	2466	2470	2474	2478	2482	2486	2490	2494	2498	2502	2506	2510	2514	2518	2522	2526	2530	2534	2538	2542	2546	2550	2554	2558	2562	2566	2570	2574	2578	2582	2586	2590	2594	2598	2602	2606	2610	2614	2618	2622	2626	2630	2634	2638	2642	2646	2650	2654	2658	2662	2666	2670	2674	2678	2682	2686	2690	2694	2698	2702	2706	2710	2714	2718	2722	2726	2730	2734	2738	2742	2746	2750	2754	2758	2762	2766	2770	2774	2778	2782	2786	2790	2794	2798	2802	2806	2810	2814	2818	2822	2826	2830	2834	2838	2842	2846	2850	2854	2858	2862	2866	2870	2874	2878	2882	2886	2890	2894	2898	2902	2906	2910	2914	2918	2922	2926	2930	2934	2938	2942	2946	2950	2954	2958	2962	2966	2970	2974	2978	2982	2986	2990	2994	2998	3002	3006	3010	3014	3018	3022	3026	3030	3034	3038	3042	3046	3050	3054	3058	3062	3066	3070	3074	3078	3082	3086	3090	3094	3098	3102	3106	3110	3114	3118	3122	3126	3130	3134	3138	3142	3146	3150	3154	3158	3162	3166	3170	3174	3178	3182	3186	3190	3194	3198	3202	3206	3210	3214	3218	3222	3226	3230	3234	3238	3242	3246	3250	3254	3258	3262	3266	3270	3274	3278	3282	3286	3290	3294	3298	3302	3306	3310	3314	3318	3322	3326	3330	3334	3338	3342	3346	3350	3354	3358	3362	3366	3370	3374	3378	3382	3386	3390	3394	3398	3402	3406	3410	3414	3418	3422	3426	3430	3434	3438	3442	3446	3450	3454	3458	3462	3466	3470	3474	3478	3482	3486	3490	3494	3498	3502	3506	3510	3514	3518	3522	3526	3530	3534	3538	3542	3546	3550	3554	3558	3562	3566	3570	3574	3578	3582	3586	3590	3594	3598	3602	3606	3610	3614	3618	3622	3626	3630	3634	3638	3642	3646	3650	3654	3658	3662	3666	3670	3674	3678	3682	3686	3690	3694	3698	3702	3706	3710	3714	3718	3722	3726	3730	3734	3738	3742	3746	3750	3754	3758	3762	3766	3770	3774	3778	3782	3786	3790	3794	3798	3802	3806	3810	3814	3818	3822	3826	3830	3834	3838	3842	3846	3850	3854	3858	3862	3866	3870	3874	3878	3882	3886	3890	3894	3898	3902	3906	3910	3914	3918	3922	3926	3930	3934	3938	3942	3946	3950	3954	3958	3962	3966	3970	3974	3978	3982	3986	3990	3994	3998	4002	4006	4010	4014	4018	4022	4026	4030	4034	4038	4042	4046	4050	4054	4058	4062	4066	4070	4074	4078	4082	4086	4090	4094	4098	4102	4106	4110	4114	4118	4122	4126	4130	4134	4138	4142	4146	4150	4154	4158	4162	4166	4170	4174	4178	4182	4186	4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Table 6.3 - Acoustic Insulation Factor for Various Types of Exterior Wall

	Percentage of exterior wall area to total floor area of room											Type of Exterior Wall
	16	20	25	32	40	50	63	80	100	125	160	
Acoustic	39	38	37	36	35	34	33	32	31	30	29	EW1
Insulation	41	40	39	38	37	36	35	34	33	32	31	EW2
Factor	44	43	42	41	40	39	38	37	36	35	34	EW3
	47	46	45	44	43	42	41	40	39	38	37	EW4
	48	47	46	45	44	43	42	41	40	39	38	EW1R
	49	48	47	46	45	44	43	42	41	40	39	EW2R
	50	49	48	47	46	45	44	43	42	41	40	EW3R
	55	54	53	52	51	50	49	48	47	46	45	EW5
	56	55	54	53	52	51	50	49	48	47	46	EW4R
	58	57	56	55	54	53	52	51	50	49	48	EW6
	59	58	57	56	55	54	53	52	51	50	49	EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8

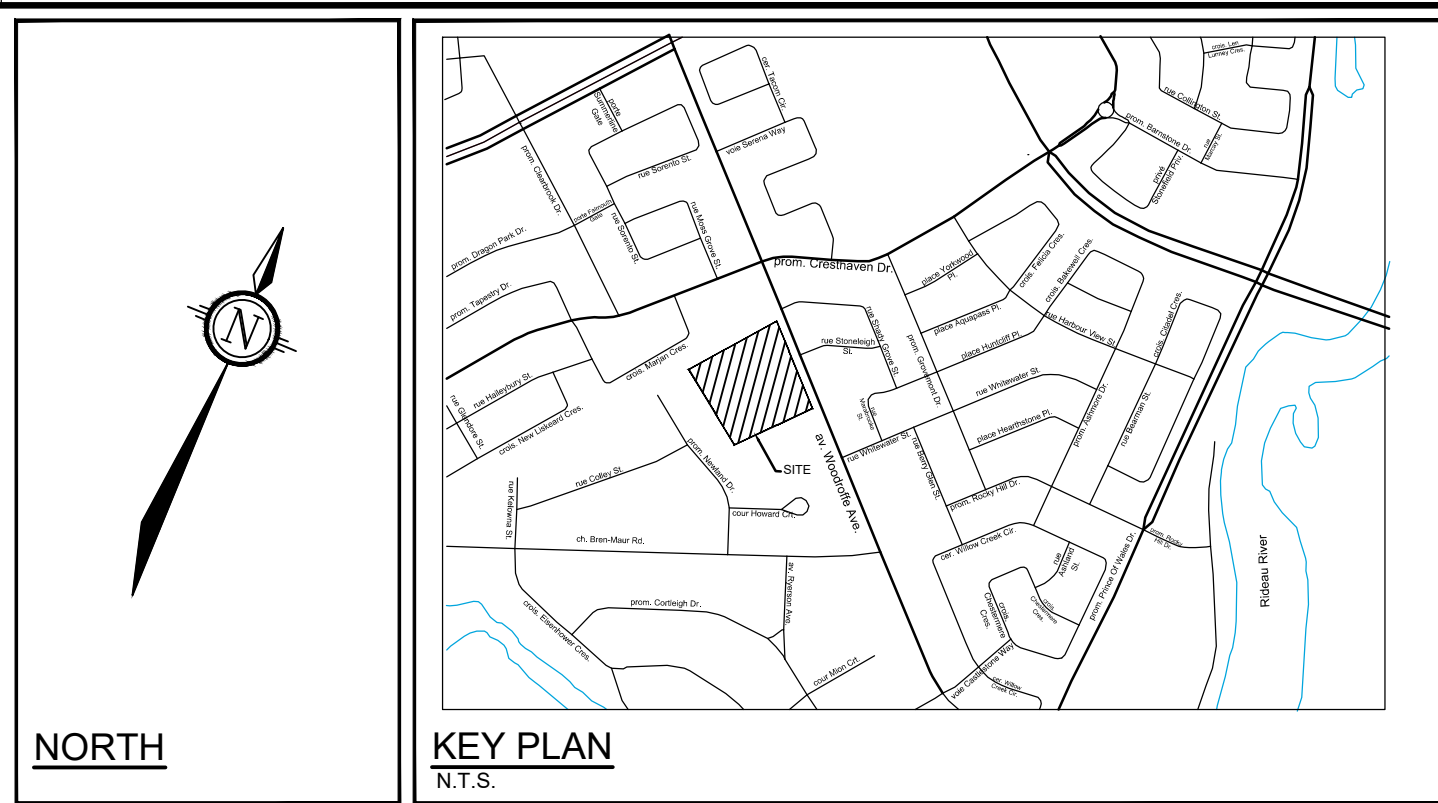
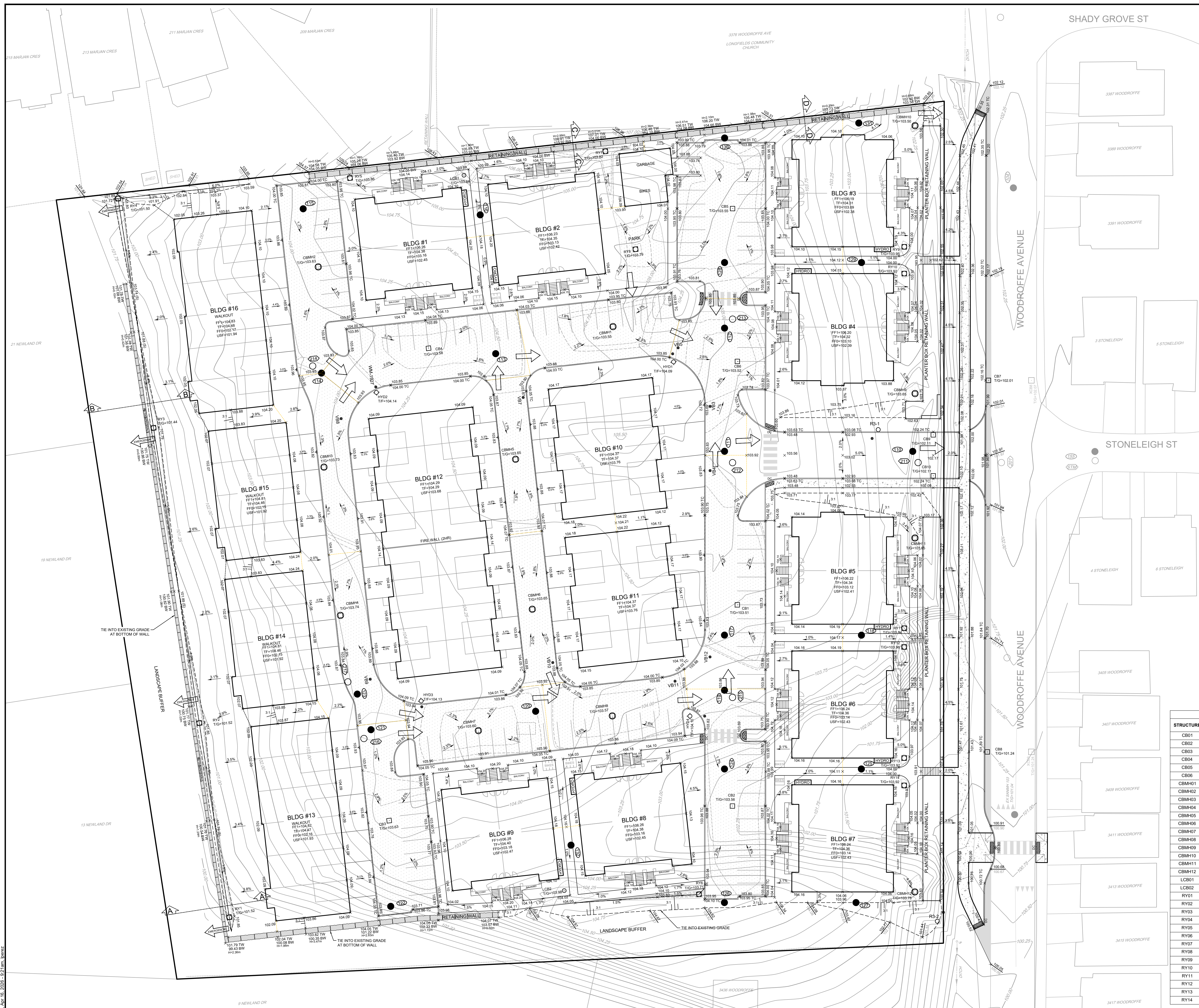
Source : National Research Council, Division of Building Research, December 1980.

Explanatory Notes :

- 1) Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
- 2) The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities
- 3) EW1 denotes exterior wall as in Note 2), plus sheathing, plus wood siding or metal siding and fibre backer board.  
 EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board.  
 EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material.  
 EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco.  
 EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer.  
 EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick.  
 EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick.  
 EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete.
- 4) R signifies the mounting of the interior gypsum board on resilient clips.
- 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm), 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
- 6) An exterior wall described in EW1 with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

**APPENDIX B**

**124147-GR (Grading Plan)  
Site Plan**

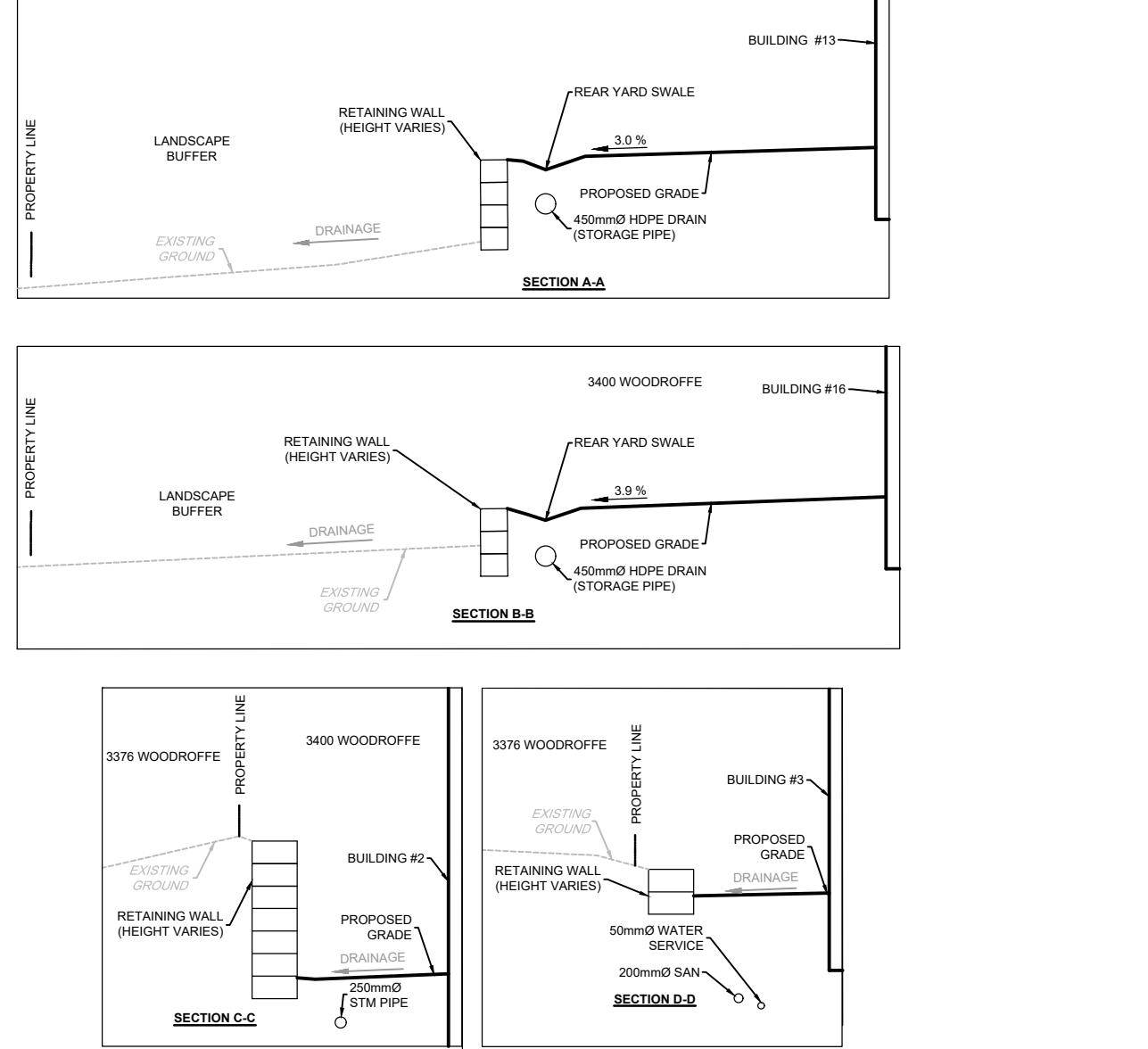


**LEGEND**

2.2%	PROPOSED GRADE AND DIRECTION OF FLOW	RY1	PROPOSED REAR YARD CATCHBASIN WITH TOP OF GRATE ELEVATION
76.90	PROPOSED ELEVATION	VB	PROPOSED VALVE & VALVE BOX LOCATION
76.90	PROPOSED ELEVATION	HYD	PROPOSED HYDRANT WITH TOP OF FLANGE ELEVATION
77.50	EXISTING ELEVATION	TF1	FINISHED FLOOR ELEVATION - 1 <sup>ST</sup> FLOOR
77.50	TERRACING (3:1 MAX)	TF	TOP OF FOUNDATION
[Symbol]	PROPOSED RETAINING WALL	FF0	FINISHED FLOOR ELEVATION - BASEMENT
[Symbol]	MAJOR OVERLAND FLOW DIRECTION	USF	UNDERSIDE OF FOOTING ELEVATION
[Symbol]	EMERGENCY FLOW DIRECTION	TW	TOP OF WALL ELEVATION
[Symbol]	EXISTING CONTOUR AND ELEVATION	BW	BOTTOM OF WALL ELEVATION
[Symbol]	PROPOSED SANITARY MANHOLE	[Symbol]	MAX STATIC PONDING LIMITS
[Symbol]	PROPOSED STORM MANHOLE	[Symbol]	100-YR PONDING LIMITS
[Symbol]	PROPOSED CATCHBASIN	[Symbol]	100-YR +20% PONDING LIMITS

**PAVEMENT STRUCTURE:**

40mm	ASPHALT SP12.5
50mm	ASPHALT SP19.0
150mm	GRAN "A"
450mm	GRAN "B" TYPE II
60mm	TOTAL DEPTH



STRUCTURE	PONDING				MAX STATIC PONDING ELEVATION	MAX STATIC PONDING DEPTH (m)
	100 YEAR PONDING ELEVATION	100 YEAR PONDING DEPTH (m)	100 YEAR +20% PONDING ELEVATION	100 YEAR +20% PONDING DEPTH (m)		
CB01	103.79	0.28	103.94	0.33	103.83	0.32
CB02	103.80	0.24	103.86	0.30	103.86	0.30
CB03	103.83	0.20	103.87	0.24	103.93	0.30
CB04	103.73	0.18	103.87	0.32	103.88	0.33
CB05	103.76	0.21	103.81	0.26	103.85	0.30
CB06	103.69	0.17	103.77	0.25	103.82	0.30
CBM#01	103.70	0.15	103.74	0.19	103.85	0.30
CBM#02	103.92	0.29	103.94	0.31	103.93	0.30
CBM#03	103.94	0.21	103.95	0.22	103.93	0.20
CBM#04	103.95	0.21	103.96	0.22	103.94	0.20
CBM#05	103.87	0.22	103.91	0.26	103.90	0.25
CBM#06	103.91	0.26	103.93	0.28	103.91	0.26
CBM#07	103.77	0.17	103.86	0.26	103.90	0.30
CBM#08	103.76	0.19	103.85	0.28	103.87	0.30
CBM#09	103.22	0.00	103.60	0.00	103.73	0.08
CBM#10	103.23	0.00	103.61	0.11	103.56	0.08
CBM#11	103.60	0.00	103.88	0.00	103.99	0.04
CBM#12	103.60	0.00	103.88	0.10	103.83	0.05
LCB01	103.92	0.06	103.95	0.09	103.94	0.08
LCB02	103.80	0.00	103.86	0.00	104.05	0.07
RY01	101.73	0.21	101.81	0.29	101.79	0.27
RY02	101.73	0.21	101.81	0.29	101.77	0.25
RY03	101.73	0.29	101.77	0.33	101.75	0.31
RY04	101.73	0.23	101.77	0.27	101.72	0.22
RY05	103.92	0.06	103.95	0.09	103.95	0.09
RY06	103.80	0.08	103.86	0.14	103.86	0.24
RY07	103.92	0.10	103.95	0.13	103.95	0.13
RY08	103.82	0.03	103.87	0.08	103.94	0.15
RY09	103.22	0.00	103.61	0.00	104.00	0.05
RY10	103.22	0.00	103.61	0.00	103.97	0.05
RY11	103.60	0.00	103.88	0.00	103.99	0.05
RY12	103.60	0.00	103.88	0.00	104.01	0.05
RY13	103.60	0.00	103.88	0.00	103.97	0.05
RY14	103.60	0.00	103.88	0.00	103.97	0.05

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

**PHOENIX HOMES**  
 SINCE 1988  
 18A BENTLEY AVE  
 OTTAWA, ON, K2E 6T8

SCALE

1:300

0 3 6 9 12

FOR REVIEW ONLY

LRW  
 MAB  
 LPA  
 MAB  
 MAB

2 ADDRESS CITY COMMENTS APR 14/28 MAB  
 1. SITE PLAN APPLICATION NOV 5/25 MAB

NO. REVISION DATE BY

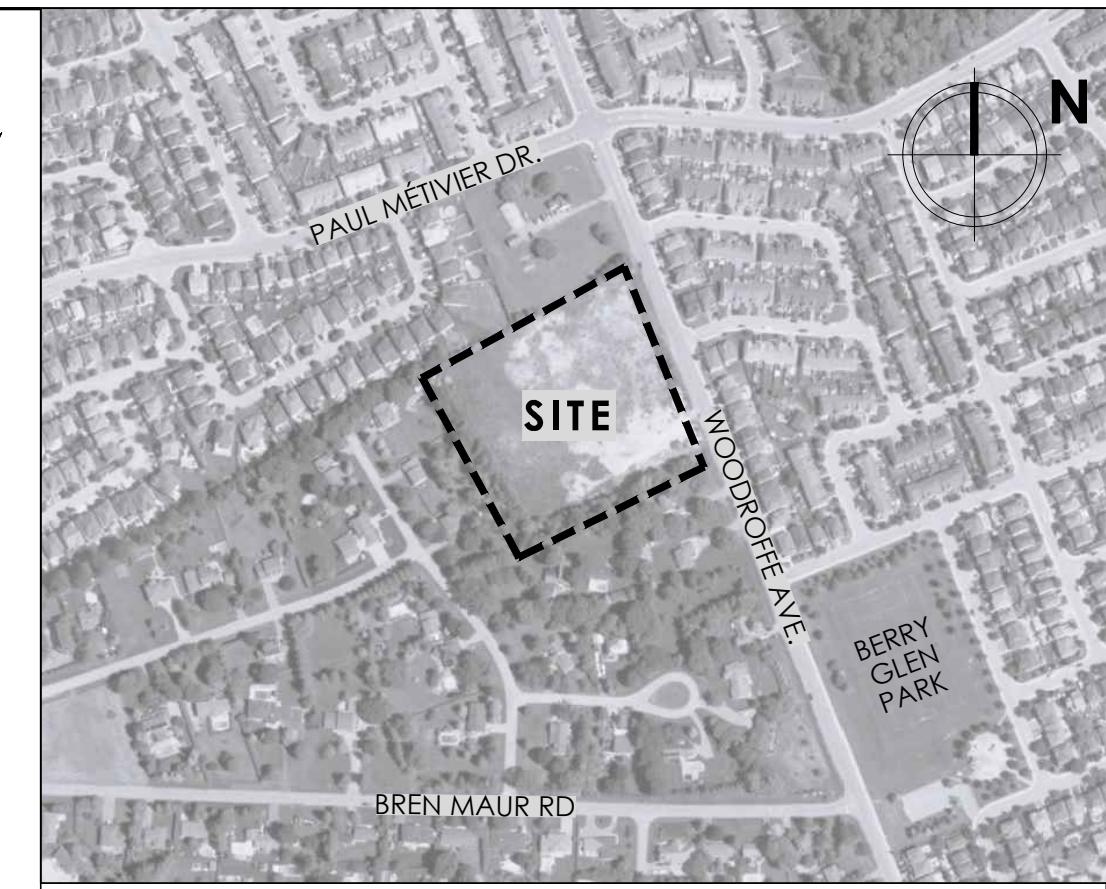
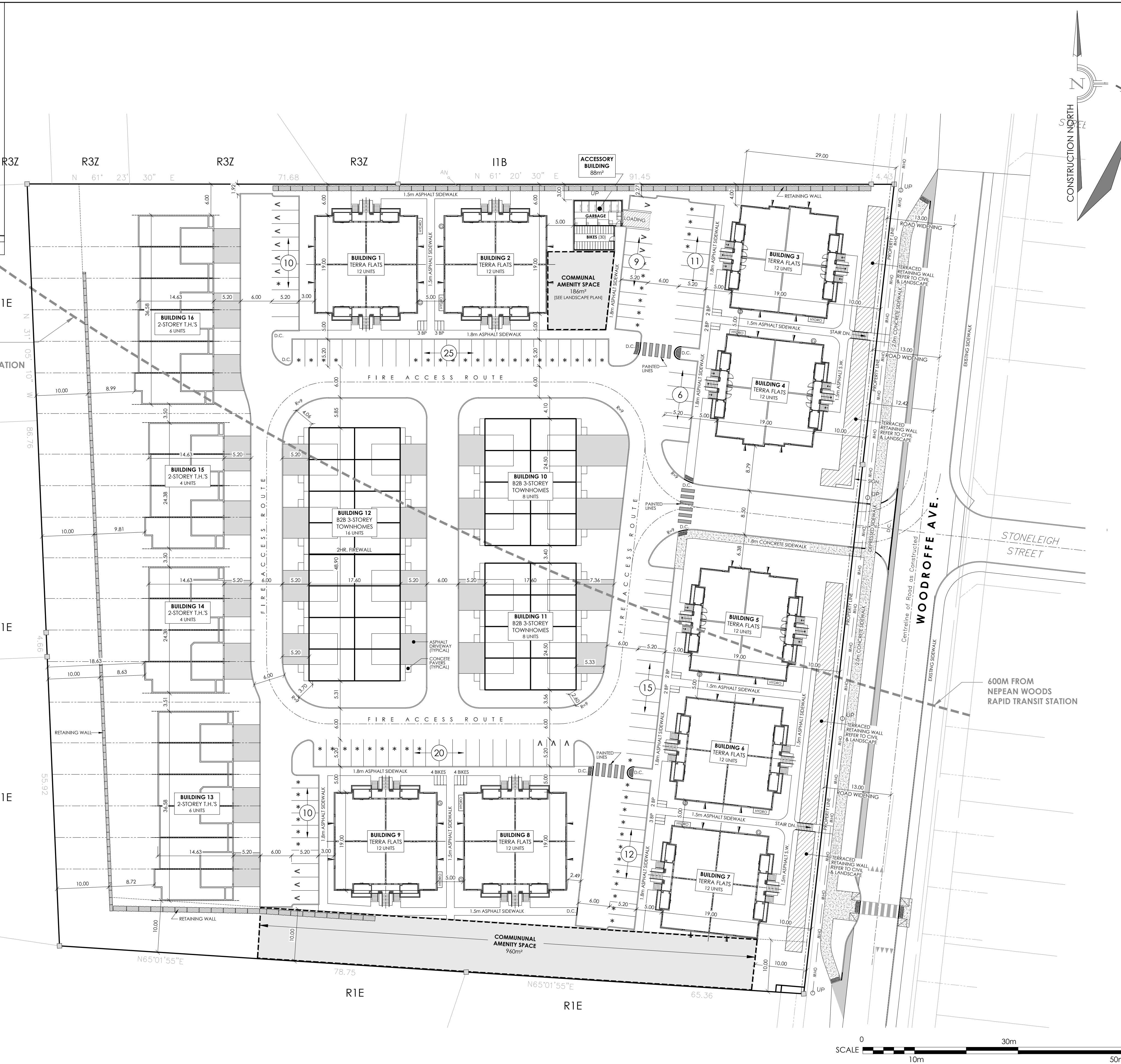
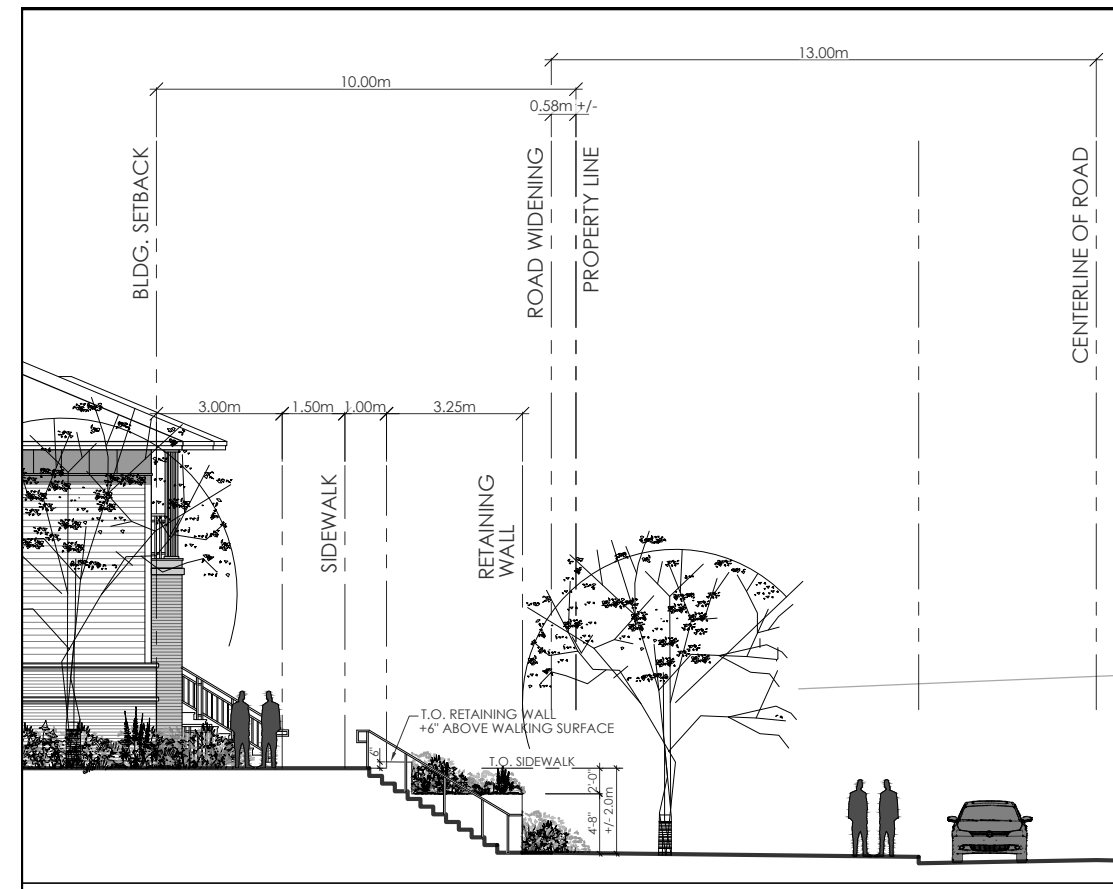
**NOVATECH**  
 Engineers, Planners & Landscape Architects  
 Suite 200, 240 Michael Copland Drive  
 Ottawa, Ontario, Canada K2M 1P6  
 Telephone: (613) 254-9643  
 Facsimile: (613) 254-5867  
 Website: www.novatech-eng.com

CITY OF OTTAWA  
 3400 WOODROFFE AVENUE

GRADING PLAN

PROJECT NO: 124147  
 REV: REV # 2  
 DRAWING NO: 124147-GR

D07-12-25-0158 & D02-02-25-0090



**SITE INFORMATION:**  
 SITE AREA = 2.37ha (5.85 Acres)  
 ZONING: R1VV(634)  
 PROPOSED ZONING: R4Z PUD

REQUIRED:	PROVIDED:
LOT WIDTH (MIN.): 18.00 m	157.39 m
LOT AREA (MIN.): 1,400 m <sup>2</sup>	23,661.35 m <sup>2</sup>
BUILDING HEIGHT (MAX.):	
TOWNHOUSE: 10.00 m	9.37 m
STACKED DWELLING: 11.00 m	10.02 m
FRONT YARD (MIN.): 3.00 m	10.00 m
REAR YARD (MIN.): 6.00 m	18.63 m
INTERIOR SIDE YARD (MIN.):	
TOWNHOUSE: 1.50 m (1ST 21.0m)	4.00 m
STACKED DWELLING: 6.00 m	6.00 m
ACCESSORY BLDG. SIZE (MAX.): 55.00 m <sup>2</sup>	88.00 m <sup>2</sup>
ACCESSORY BLDG. HEIGHT (MAX.): 3.60 m	3.54 m
ACCESSORY BLDG. INTERIOR SIDE YARD (MIN.): 6.00 m	3.00 m

**UNIT COUNTS:**

	TERRA FLATS	B2B TOWNHOMES	2-STORY TOWNHOMES
BUILDING 1= TERRA FLATS	12 UNITS		
BUILDING 2= TERRA FLATS	12 UNITS		
BUILDING 3= TERRA FLATS	12 UNITS		
BUILDING 4= TERRA FLATS	12 UNITS		
BUILDING 5= TERRA FLATS	12 UNITS		
BUILDING 6= TERRA FLATS	12 UNITS		
BUILDING 7= TERRA FLATS	12 UNITS		
BUILDING 8= TERRA FLATS	12 UNITS		
BUILDING 9= TERRA FLATS	12 UNITS		
BUILDING 10= B2B 3-STORY TOWNHOMES		8 UNITS	
BUILDING 11= B2B 3-STORY TOWNHOMES		8 UNITS	
BUILDING 12= B2B 3-STORY TOWNHOMES		16 UNITS	
BUILDING 13= 2-STORY TOWNHOMES			6 UNITS
BUILDING 14= 2-STORY TOWNHOMES			4 UNITS
BUILDING 15= 2-STORY TOWNHOMES			4 UNITS
BUILDING 16= 2-STORY TOWNHOMES			6 UNITS
<b>TOTAL =</b>	<b>108 UNITS</b>	<b>32 UNITS</b>	<b>20 UNITS</b>
<b>TOTAL ALL UNITS =</b>	<b>160 UNITS</b>		

**RESIDENT PARKING REQUIRED:**

AREA 'X' (WITHIN 600m (800m WALKING) TO RAPID TRANSIT)	AREA 'C'	TOTAL
TERRA FLATS [60 UNITS] PARKING REQUIRED= 0.5/ d.u. = 30 SPACES	TERRA FLATS [48 UNITS] PARKING REQUIRED= 1.2/ d.u. = 58 SPACES	<b>88 SPACES</b>
B2B TOWNHOMES [13 UNITS] PARKING REQUIRED= 0.75/ d.u. = 10 SPACES	B2B TOWNHOMES [19 UNITS] PARKING REQUIRED= 1.0/ d.u. = 19 SPACES	<b>29 SPACES</b>
TOWNHOMES [6 UNITS] PARKING REQUIRED= 0.75/ d.u. = 5 SPACES	TOWNHOMES [14 UNITS] PARKING REQUIRED= 1.0/ d.u. = 14 SPACES	<b>19 SPACES</b>
<b>TOTAL RESIDENT PARKING REQ. = 136 SPACES</b>		

**VISITOR PARKING REQUIRED:**

AREA 'X' (NONE REQUIRED FOR FIRST 12 UNITS) (NONE REQUIRED FOR UNITS WITH DRIVEWAYS)	AREA 'C'
TERRA FLATS [60 UNITS (-12)] PARKING REQUIRED= 0.1/ d.u. = 5 SPACES	TERRA FLATS [48 UNITS] PARKING REQUIRED= 0.2/ d.u. = 10 SPACES
<b>TOTAL VISITOR PARKING REQ. = 15 SPACES</b>	

**PARKING PROVIDED:**

<b>TERRA FLATS [108 UNITS]</b>	88 RESIDENT + 15 VISITOR
<b>TOTAL PROVIDED = 103 SPACES</b>	<b>103 RESIDENT + 15 VISITOR</b>
<b>B2B TOWNHOMES [32 UNITS]</b>	29 SPACES (DRIVEWAYS/ GARAGES)
<b>TOTAL PROVIDED = 64 SPACES</b>	
<b>TOWNHOMES [20 UNITS]</b>	19 SPACES (DRIVEWAYS/ GARAGES)
<b>TOTAL PROVIDED = 40 SPACES</b>	

PARKING SPACE DIMENSIONS ARE 2.4m X 5.2m STANDARD.  
 PARKING SPACES MARKED WITH \* ARE 2.4m X 5.2m (59 SPACES) (50% MAX.)

**BICYCLE PARKING REQUIREMENTS:**

BICYCLE PARKING REQUIRED= 0.5/d.u. x 108 d.u. = 54 SPACES	54 SPACES
BICYCLE PARKING PROVIDED = 57 SPACES (30 INDOORS, 27 SURFACE)	57 SPACES (30 INDOORS, 27 SURFACE)

ALL EXTERIOR BIKE SPACES ARE 0.60m X 1.80m HORIZONTAL w/ MIN. 1.50m ACCESS AISLE.  
 ALL INTERIOR BIKE SPACES ARE 0.50m X 1.50m VERTICAL w/ MIN. 1.50m ACCESS AISLE.  
 PROVIDE FIXED PARKING RACKS FOR ALL BIKE SPACES.

**AMENITY SPACE REQUIREMENTS:**

AMENITY SPACE REQUIRED = 6m <sup>2</sup> / d.u. x 108 d.u. = 648m <sup>2</sup>	648m <sup>2</sup>
50% COMMUNAL AMENITY AREA REQUIRED = 324m <sup>2</sup>	324m <sup>2</sup>
COMMUNAL AMENITY AREA PROVIDED = 1,148m <sup>2</sup>	1,148m <sup>2</sup>
PRIVATE AMENITY AREA PROVIDED = 432m <sup>2</sup> (4m <sup>2</sup> /BALCONY/d.u.)	432m <sup>2</sup> (4m <sup>2</sup> /BALCONY/d.u.)
<b>TOTAL AMENITY AREA PROVIDED = 1,578m<sup>2</sup></b>	<b>1,578m<sup>2</sup></b>

**LEGEND/ ABBREVIATIONS:**

D.C. DEPRESSED CURB	⊗ GAS METERS LOCATION	⊕ LIGHT STANDARD
CRW CONCRETE RETAINING WALL	⊙ WATER/ SANITARY CONNECTION	⊗ WALL MOUNTED LIGHT FIXTURE
W1 WOODWORK FINISH	⊙ STORM CONNECTION	⊗ TRANSFORMER
TWS TACTILE WALKING SURFACE INDICATOR	⊙ SIAMSESE CONNECTIONS	⊗ TWSI
CONC. CONCRETE	⊙ FIRE HYDRANT	⊗ BICYCLE PARKING (BP) SPACE
ASPH. ASPHALT		⊗ VISITOR PARKING SPACE

**NOTE:**  
 SITE PLAN TO BE READ IN CONJUNCTION WITH:  
 - SITE SERVICING AND GRADING PLANS PREPARED BY NOVATECH ENGINEERING CONSULTANTS.  
 - LANDSCAPE PLAN PREPARED BY JAMES B. LENNOX AND ASSOCIATES INC.  
**NOTE:**  
 SITE BOUNDARIES DERIVED FROM: PLAN 4R-37128  
 PLAN OF SURVEY OF PART OF LOT 12 CONVESSION 2 (RIDEAU FRONT)  
 Geographic Township of Nepean CITY OF OTTAWA  
 Surveyed by Annis, O'Sullivan, Vollebek Ltd.

**M. David Blakely Architect Inc.**  
 2200 Prince of Wales Dr., Suite 101, Ottawa, Ontario  
 Phone (613) 226-8811 Fax (613) 226-7942 K2E 6Z9

**GENERAL NOTES:**  
 1. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS. ANY DISCREPANCY MUST BE REPORTED TO M. DAVID BLAKELY ARCHITECT INC.  
 2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS, & BY-LAWS.  
 3. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST THE PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND PRECEDENCE AS IF THEY WERE INCLUDED WITH THE PLANS IN CONTRACT DOCUMENTS.  
 4. DO NOT SCALE DRAWINGS.  
 5. THE DRAWING SHALL NOT BE USED OR COPIED WITHOUT THE AUTHORIZATION OF THE ARCHITECT.  
 6. THIS DRAWING SHALL NOT BE USED FOR PERMIT OR CONSTRUCTION UNLESS THE DRAWING BEARS THE ARCHITECT'S SEAL AND SIGNATURE.

**OWNER:** PHOENIX HOMES  
 18A BENTLEY AVE.  
 OTTAWA, ON K2E 6T8  
 (613) 723-9227

**ARCHITECT:** M. DAVID BLAKELY ARCHITECT INC.  
 2200 PRINCE OF WALES DR., SUITE 101  
 OTTAWA, ON K2E 6Z9  
 (613) 226-8811

**CIVIL ENGINEER:**

**LANDSCAPE ARCHITECT:** NOVATECH ENGINEERING CONSULTANTS  
 240 MICHAEL COWPLAND DR., SUITE 101  
 KANATA, ON K2M 0H7  
 (613) 254-9443

**SURVEYOR:** ANNIS O'SULLIVAN VOLLEBEK LTD.  
 14 CONCORSE GATE, SUITE 500  
 NEPEAN, ON K2E 7S6  
 (613) 727-8850

NO.	DATE (D/M/Y)	DESCRIPTION	INT.	NO.	DATE (D/M/Y)	DESCRIPTION	INT.
12.				24.			
11.				23.			
10.				22.			
9.				21.			
8.	01/04/26	REVISED ENTRANCE WIDTH AS PER CIVIL	MB	20.			
7.	23/10/25	SITE INFO REVISED	MB	19.			
6.	22/10/25	2-STORY T.I.S REVISED FOR COORDINATION	MB	18.			
5.	17/09/25	ROAD WIDENING AS PER SURVEY FOR COORDINATION	MB	17.			
4.	15/09/25	AS PER CLIENT	MB	16.			
3.	16/07/25	REVISED AS PER CLIENT FOR REVIEW	MB	15.			
2.	01/04/25	AS PER CITY COMMENTS FOR COORDINATION	MB	14.			
1.	24/09/24	FOR REVIEW	MB	13.			
				12.			

**PROJECT:** 3400 WOODROFFE AVE.  
 PLANNED UNIT DEVELOPMENT  
 OTTAWA, ONTARIO

**CLIENT:** PHOENIX HOMES  
 18A Bentley Ave Ottawa, ON K2E 6T8

**DRAWING TITLE:** SITE PLAN

**DATE:** SEPT. 2024

**SCALE:** 1 : 400

**SHEET NO.:** SP1

**DESIGNED BY:** mdb

**CHECKED BY:** MDB