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Bridlewood 3
866, 898 Eagleson Road and 1335, 1365 Terry Fox Drive

Noise Impact Feasibility Report

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BRIDLEWOOD 3

866, 898 EAGLESON ROAD AND 1335, 1365 TERRY FOX DRIVE

NOISE IMPACT FEASIBILITY REPORT

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
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January 11, 2019
Revised: May 24, 2019

Novatech File: 117153
Ref: R-2019-011

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Engineers, Planners & Landscape Architects

May 24, 2019

City of Ottawa
Planning and Infrastructure Approvals
110 Laurier Street West, 4th Floor
Ottawa, ON, K1P 1J1

Attention: **Mr. Don Herweyer, Manager of Development Review South**

Reference: **Bridlewood 3 – 866, 898 Eagleson Road, 1335, 1365 Terry Fox Drive**
Noise Impact Feasibility Report
Our File No.: 117153

Novatech has prepared this revised Noise Impact Feasibility on behalf of Claridge Homes (Bridlewood Trails Phase 3) Inc. to support a Draft Plan of Subdivision application and Zoning By-law Amendment for lands municipally known as 866, 898 Eagleson Road and 1335, 1365 Terry Fox Drive, Ottawa, Ontario.

Claridge Homes is proposing to develop a residential subdivision with 394 units: 47 single houses, 227 townhouses and 120 back-to-back townhouses. Two parks are proposed; a 1.03 ha park at the northwest corner which will expand on the existing park, and a 0.53 ha parkette south of the proposed development.

This study evaluates the environmental impact of noise from traffic on the outdoor living areas and assesses the feasibility of mitigation measures to attenuate noise to acceptable levels.

Please contact the undersigned should you have any questions or comments pertaining to the enclosed report.

Yours truly,

NOVATECH

Drew Blair

Drew Blair, P. Eng.
Project Manager, Land Development Engineering

Cc: Shawn Malhotra, Claridge Homes

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Figures

Drawings

1.0 INTRODUCTION

Novatech has been retained by Claridge Homes to prepare this revised Noise Impact Feasibility Report in support of a Draft Plan of Subdivision and Zoning By-law Amendment (ZBLA) to allow for the development of the lands shown on **Figure 1** - Site Location known as 866, 898 Eagleson Road and 1335, 1365 Terry Fox Drive in Ward 23, Kanata South, herein called the 'Subject Site'. This report assesses the environmental impact of noise on the proposed development and outlines the recommended mitigation measures if required.

2.0 BACKGROUND

2.1 Project Description

The Subject Site is located at the corner of Eagleson Road and Terry Fox Drive as shown on **Figure 1** – Site Location: 866, 898 Eagleson Road and 1335, 1365 Terry Fox Drive.

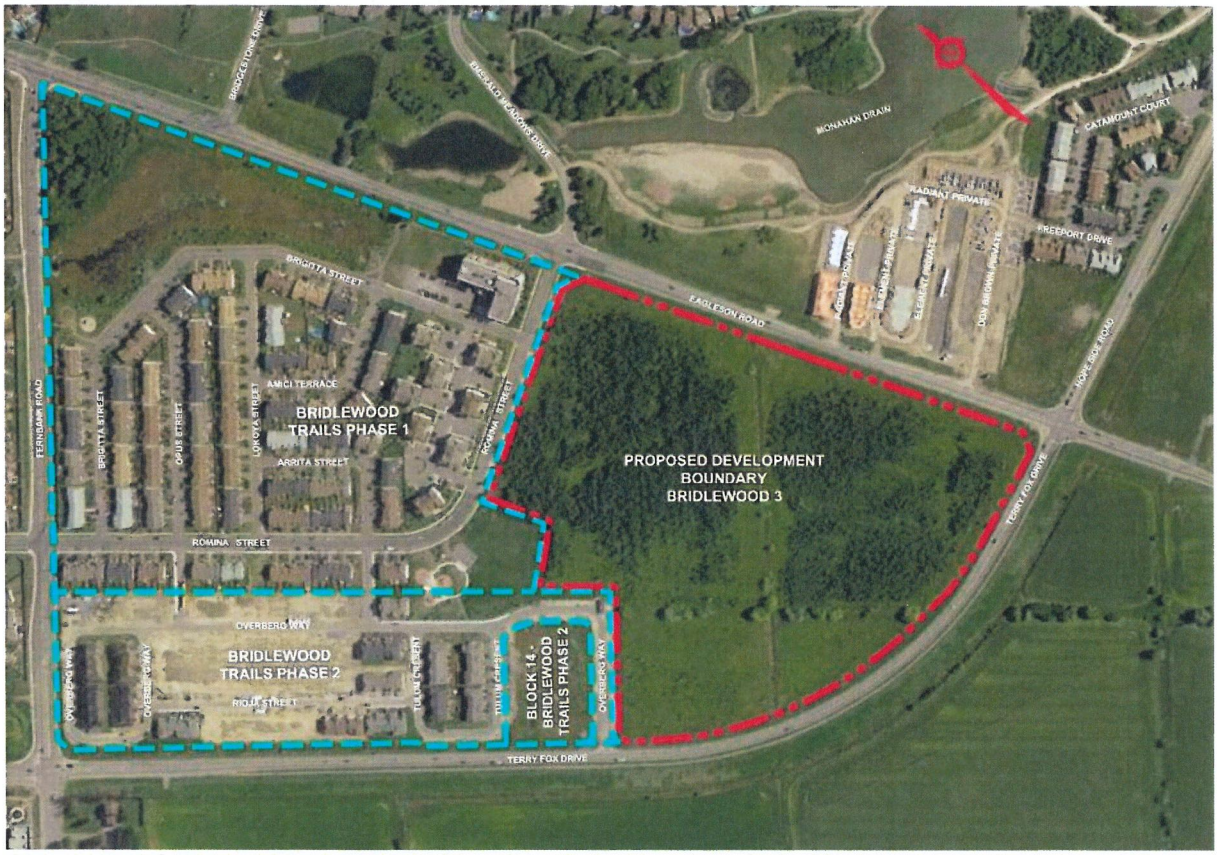

Figure 1 – Site Location: 866, 898 Eagleson Road and 1335, 1365 Terry Fox Drive (Image Source: Google Maps, 2018)

The Subject Site is approximately 13.8 hectares in area and is bounded by Terry Fox Drive to the west and south, Romina Street and Overberg Way to the north, and Eagleson Road to the east. The Subject Site has approximately 450 metres of frontage along Eagleson Road and approximately 510 metres of frontage along Terry Fox Drive. The topography is generally flat with a gentle slope from the southwest to the northeast towards Eagleson Road.

The following describes the existing and planned land uses adjacent to the subject site:

North: Residential lands known as Bridlewood Trails Phase 1 developed by Claridge containing a mix of low to medium-density developments abut the Subject Site.

East: The City of Ottawa owns and operates the Monahan Drain Stormwater Facility on the east side of Eagleson Road. These lands are also used as open space for the enjoyment of residents. Residential development has been constructed by Glenview Homes and Minto Communities immediately opposite of the Subject Site.

South and West: Across Terry Fox Drive, all lands are designated Agriculture Resource Area in the *Official Plan* and are used for such.

The proposed development of the Subject Site is as a residential subdivision, as shown on **Figure 2** – Concept Plan. The proposed residential subdivision will consist of a total of 394 units: 47 single houses, 227 townhouses and 120 back-to-back townhouses. Two parks are proposed; a 1.03 ha park at the northwest corner which will expand on the existing park, and a 0.53 ha parkette south of the proposed development.

2.2 Noise Sources

The City of Ottawa Official Plan stipulates that a noise study shall be prepared when a new development is proposed within 100 metres of an arterial, major collector or collector roadway, or a rapid-transit corridor.

The potential surface road noise sources that were considered for the purposes of this study are Terry Fox Drive, Eagleson Road, Romina Street, Hope Side Road and Emerald Meadows Drive as all other roadways within the zone of influence were not arterial or collector roadways. For the purposes of this report, Terry Fox Drive, Eagleson Road and Romina Street will be considered the primary noise sources with localized areas influenced by Hope Side Road and Emerald Meadows Drive.

Terry Fox Drive is classified as an urban arterial roadway with a 44.5m protected ROW in the City of Ottawa Transportation Master Plan and Official Plan. Terry Fox Drive is currently a 2-lane undivided arterial road with a posted speed of 80km/hr fronting 866 Eagleson Road. As per Map 11 in the Transportation Master Plan (TMP), Road Network – 2031 Affordable Network, there are no plans to widen Terry Fox Drive prior to 2031. Therefore, for the purposes of this report, a 2-lane undivided arterial road with an AADT level of 15,000 veh/day and a posted speed of 80km/hr will be utilized. Refer to **Appendix** A for the excerpt from the TMP.

Eagleson Road is classified as an urban arterial roadway with a 44.5m protected ROW in the City of Ottawa Transportation Master Plan and Official Plan. Eagleson Road is currently a 2-lane undivided arterial road with a posted speed of 80km/hr fronting most of 866 Eagleson Road changing to 60km/hr northbound approximately 160m from the Romina Street / Eagleson Road intersection. As per Map 11 in the Transportation Master Plan (TMP), Road Network – 2031 Affordable Network, Eagleson Road will be widened prior to

EMERALD MEADOWS DRIVE

EAGLESON ROAD

BRIDLEWOOD TRAILS RETIREMENT COMMUNITY

BRIGITTA STREET

ROMINA STREET

BRIDLEWOOD TRAILS PHASE 1

HOPE SIDE ROAD

TERRY FOX DRIVE

BLOCK 58

BLOCK 59

BLOCK 57

STREET 3

BLOCK 60 (BLOCK 60C)

BLOCK 60 (BLOCK 60B)

BLOCK 60 (BLOCK 60A)

STREET 4

BLOCK 61 (BLOCK 61C)

BLOCK 61 (BLOCK 61B)

BLOCK 61 (BLOCK 61A)

STREET 3

BLOCK 63

BLOCK 64

BLOCK 62

BLOCK 48

STREET 5

BLOCK 66

BLOCK 65

BLOCK 67

STREET 5

BLOCK 68 (BLOCK 68C)

BLOCK 68 (BLOCK 68B)

BLOCK 68 (BLOCK 68A)

STREET 2

BLOCK 72

STREET 2

BLOCK 71

BLOCK 70

STREET 1

STREET 1

BLOCK 21

PARK BLOCK 22

STREET 6

BLOCK 50

BLOCK 51

BLOCK 52

STREET 1

BLOCK 49

STREET 8

PARK BLOCK 69

EXISTING PARK LANDS

BRIDLEWOOD TRAILS PHASE 2

BLOCK 23

OVERBERG WAY

STREET 7

BLOCK 48

STREET 1

OVERBERG WAY

BLOCK 54

BLOCK 53

BLOCK 14 - BRIDLEWOOD TRAILS PHASE 2

TERRY FOX DRIVE

LEGEND

	SITE BOUNDARY
BLOCK 12C	BLOCK NUMBER AS PER DRAFT PLAN
(BLOCK 12C)	BLOCK NUMBER CORRESPONDS TO NOISE REPORT ONLY

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CITY OF OTTAWA
BRIDLEWOOD 3

CONCEPT PLAN

1 : 2000 (0, 20, 40, 60, 80)

MAY 2019 | 117153 | FIGURE 2

M:\2017\117153\CAD\Design\Figures\Noise\20190517-DP Sub#2\FIG2-CP.dwg, FIG2-CP, May 09, 2019 - 4:04pm, szorgel

2031. The speed on Eagleson Road will be reduced to 60km/hr to Flewellyn Road once the widening is complete. Therefore, for the purposes of this report, a 4-lane undivided arterial road with an AADT level of 35,000 veh/day and a posted speed of 60km/hr will be utilized. Refer to **Appendix** A for the excerpt from the TMP. A typical cross section for the Eagleson Road widening has been provided in **Appendix C.**

Hope Side Road is classified as an urban arterial roadway with a 44.5m protected ROW in the City of Ottawa Transportation Master Plan and Official Plan. Hope Side Road is currently a 2-lane undivided arterial road with a posted speed of 80km/hr. As per Map 11 in the Transportation Master Plan (TMP), Road Network – 2031 Affordable Network, Hope Side Road will be widened prior to 2031. The speed on Hope Side Road is assumed to remain at 80km/hr. Therefore, for the purposes of this report, a 4-lane undivided arterial road with an AADT level of 35,000 veh/day and a posted speed of 80km/hr will be utilized. Refer to **Appendix** A for the excerpt from the TMP.

Romina Street is classified as an urban collector roadway with a 24m protected ROW with an AADT level of 8,000 veh/day and a posted speed limit of 50km/hr.

Emerald Meadows Drive is classified as an urban collector roadway with a 24m protected ROW with an AADT level of 8,000 veh/day and a posted speed limit of 40km/hr. However, for simplicity and for the purposes of this report, Emerald Meadows Drive will be considered an extension of Romina Street.

There is no railway ROW within 250m that impacts the site.

There is no airport noise affecting this site.

There are no stationary noise sources that affect this site.

3.0 CITY OF OTTAWA NOISE CONTROL GUIDELINES

3.1 Sound Level Criteria

The City of Ottawa is concerned with noise from aircraft, roads, transitways, and railways, as expressed in Tables 2.2a: Sound Level Limit for Outdoor Living Areas – Road and Rail, Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail, and Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces – Road and Rail of the ENCG. The maximum suggested sound levels for outdoor and indoor living areas between 7am and 11pm are 55 dBA and 45 dBA, respectively. The maximum suggested sound level for indoor bedrooms is 40dBA between 11pm and 7am. For reference, Tables 2.2a, 2.2b and 2.2c of the ENCG are included in **Appendix A**.

Outdoor Living Area and Plane of Window receivers are defined as:

- **Outdoor Living Area (OLA):** The outdoor amenity area provided for quiet enjoyment of the outdoor environment during the daytime period (i.e., backyards,

terraces and patios). OLA noise levels are considered 3.0m from the building façade, 1.5m above grade.

- **Plane of Window (POW):** The indoor living space where the sound levels will affect the living room area during daytime hours and bedrooms during nighttime hours. POW noise levels are considered inside the building, 1.5m above the ground for the daytime and 4.5m above the ground for nighttime.

3.2 Alternative Methods for Noise Attenuation

When OLA sound levels are predicted to be approximately equal to or less than 55 dBA attenuation measures are not required. If the predicted noise levels are found to exceed 55 dBA, physical forms of mitigation is suggested and which may also include the provision of warning clauses to inform purchasers of the expected noise levels and specific mitigation measures.

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 zones;
- Construction of sound or acoustic barriers;
- Installation of air conditioning and ventilation; and
- Enhanced construction techniques and construction quality.

3.3 Noise Attenuation Requirements

When the noise attenuation measures listed above do not reduce noise levels below 55 dBA in the Outdoor Living Area, control measures (barriers) are required to reduce the Leq below or 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;
- Situated 0.30m inside the private property line;
- A surface mass density not less than 20kg/sq.m; and
- No holes or gaps.

3.4 Ventilation Requirements

A forced air heating system with provision for a central air conditioning system is required if the plane of window daytime noise levels are between 55 dBA and 65 dBA and/or the nighttime 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 the nighttime noise level exceeds 60 dBA.

3.5 Building Component Assessment

When plane of window noise levels exceeds 65 dBA (daytime) or 60 dBA (nighttime) the exterior cladding system of the building envelope must be acoustically assessed to ensure indoor sound criteria are 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} + 10 $\log_{10}$ (Number of Components) + 2dB

Where, N = Number of components (walls, windows and roof);

L = Sound Level expressed on a common decibel scale.

3.6 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 lease/rental/sale agreements to warn potential purchaser/buyers/tenants of the possible elevated noise levels.

Typical warning clauses should be registered as shown below. Warning clauses are extracted from Part 4, Appendix A the City of Ottawa ENCG and excerpts have been provided in **Appendix A** of this report. As stated in the City of Ottawa ENCG, due to the variation of noise impacts for any given site, it may be necessary to amend the example warning clauses to recognize the site conditions in each development.

It is recommended that the following noise clauses be registered on title and incorporated into the agreement of purchase and sales as required. Results can be found in **Table 3 and Table 8** from Section 4.3 of this report:

Type 1

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and Ministry of the Environment."

"To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area and indoor environment that is within provincial guidelines. Measures for sound attenuation include:

- An acoustic barrier"

"To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features."

"The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original."

Additionally, if a tolerance of 5 dBA is being considered in some areas, it is recommended an additional noise clause be registered on title and incorporated into the agreement of purchase and sales:

Type 2

"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/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment by up to 5 dBA."

"To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area and indoor environment that is within provincial guidelines. Measures for sound attenuation include:

- An acoustic barrier"

"To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features."

"The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original."

Type 3

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and Ministry of the Environment."

"To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area and indoor environment that is within provincial guidelines. Measures for sound attenuation may include:

- Multi-pane glass
- Double brick veneer"

"To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features."

"This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor

sound levels are within the sound level limits of the City and the Ministry of the Environment"

Type 4

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and Ministry of the Environment."

"To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area and indoor environment that is within provincial guidelines. Measures for sound attenuation may include:

- Multi-pane glass
- Double brick veneer
- High sound transmission class walls"

"To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features."

"This dwelling unit has also been supplied with a central air conditioning system and other measures 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 City and the Ministry of the Environment"

For units with multiple types of warning clauses, similar/identical wording can be combined as to not duplicate wording/information. Specific warning clauses will be identified for each unit during detailed design.

3.7 Summary of Noise Attenuation Requirements

Table 1 summarizes the required noise attenuation measures and warning clauses should sound criteria be exceeded. Excerpts from the MOE NPC-300 and City of Ottawa ENCG documents are included in **Appendix A** for reference.

Table 1: Noise Attenuation Measure Requirements

Assessment Location	L_{eq} (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 L_{eq} exceeds 55 dBA Type 1* or Type 2**
	More than 60	Barriers required	N/A	N/A	Required if resultant L_{eq} exceeds 55 dBA Type 1* or Type 2*
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 3
	More Than 65	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type 4
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 3
	More than 60	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type 4

*Type 1 warning clause refers to units requiring a noise barrier that mitigates noise below 55dBA.
**Type 2 warning clause refers to units requiring a noise barrier, but is technically or economically not feasible to reduce levels below 55dBA and a tolerance of up to 5dBA can be granted by the City.

4.0 PREDICTION OF OUTDOOR NOISE LEVELS

4.1 Roadway Traffic

Noise levels from Terry Fox Drive, Eagleson Road, Romina Street, Hope Side Road and Emerald Meadows Drive were assessed using the ultimate road (as per the 2031 Affordable Network Plan in the TMP) and traffic parameters below from "Appendix B of the City of Ottawa's Environmental Noise Control Guidelines, 2016". The posted speed for Terry Fox Drive, Romina Street, Hope Side Road are consistent with the current conditions. The posted speed for the ultimate condition of Eagleson Road will be reduced from 80km/hr to 60km/hr fronting 866 Eagleson Road. For the purposes of this report Emerald Meadows Drive was considered an extension of Romina Street and utilized the traffic parameters (posted speed) of Romina Street. The traffic and roadway parameters used for sound level predictions are shown in Table 2.

Table 2: Traffic and Roadway Parameters

	Terry Fox Drive	Eagleson Road	Romina Street	Hope Side Road
Roadway Classification	2-Lane Urban Arterial-Undivided	4-Lane Urban Arterial Divided	2-Lane Urban Collector	4-Lane Urban Arterial Divided
Annual Average Daily Traffic (AADT)	15,000 vehicles/day	35,000 vehicles/day	8,000 vehicles/day	35,000 vehicles/day
Day/Night Split (%)	92/8	92/8	92/8	92/8
Medium Trucks (%)	7	7	7	7
Heavy Trucks (%)	5	5	5	5
Posted Speed	80 km/hr	60 km/hr	50 km/hr	80 km/hr

For reference, excerpts from the ENCG confirming the Terry Fox Drive, Eagleson Road, Romina Street and Hope Side Road AADT are included in **Appendix A.**

4.2 Noise Level Analysis

The noise levels were analyzed using Version 5.03 of the STAMSON computer program issued by the MOE. Proposed grades were required for the software and were obtained from preliminary elevations on the Grading Plan (117153-GR), which has been included in **Appendix C** of this report.

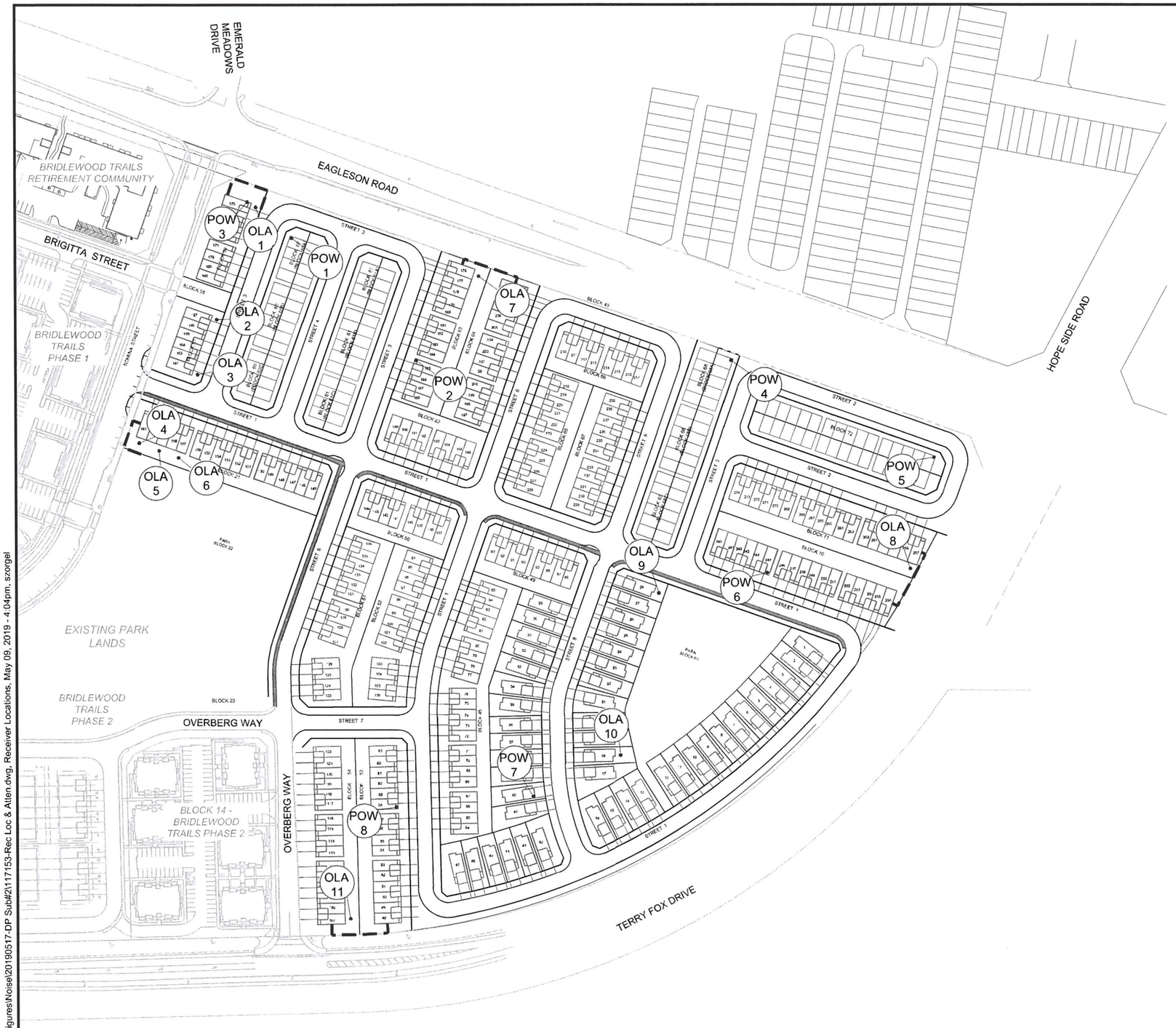
For the purposes of this report, townhouse units within the development used as barriers in the noise calculations have an assumed height of 6.0m (typical 2-storey).

Receiver locations used in the noise simulations are shown on **Figure 3** – Receiver Location Plan.

4.3 Noise Level Results

Simulated noise levels for the units adjacent to Terry Fox Drive, Eagleson Road, Romina Street and near Hope Side Road exceed the allowable noise level criteria, resulting in the requirement for outdoor noise mitigation (noise barriers) and indoor noise mitigation, which may include the installation of forced air ventilation, air conditioning, a building façade analysis and warning clauses. The building façade analysis, specific warning clauses and other indoor mitigation details will be confirmed as part of the detailed design.

The predicted noise levels and mitigated noise levels at the selected receiver locations within the development are illustrated in **Table 3.**



LEGEND

PROPERTY LINE

OLA 1 — RECEIVER - OUTDOOR LIVING AREA (OLA)

POW 1 — RECEIVER - PLANE OF WINDOW / INDOOR LIVING AREA (POW)

NOTES:

1. ROADWAY CLASSIFICATION AS PER CITY OF OTTAWA OFFICIAL PLAN, SCHEDULE E, OFFICIAL PLAN, URBAN ROAD NETWORK.
2. REFER TO GRADING PLAN (117153-GR) FOR ALL PRELIMINARY GRADING INFORMATION.
3. NOISE BARRIER REFERS TO ANY COMBINATION OF NOISE WALL, BERM AND/OR RETAINING WALL.

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CITY OF OTTAWA BRIDLEWOOD 3

RECEIVER LOCATION PLAN

SCALE 1 : 2000 (0, 20, 40, 60, 80)

DATE MAY 2019 | JOB 117153 | FIGURE FIGURE 3

Table 3: Simulation Results – Outdoor Living Areas

Receiver Location*	File	Calculated Noise Level (dBa) 7:00-23:00		Outdoor Mitigation Method**	Calculated Noise Level (dBa) 23-00-7:00
		Un-attenuated	Attenuated		
OLA 1	ola1.te / ola1unat.te	66.49	59.55	2.20m Barrier	59.41
OLA 2	ola2.te / ola2unat.te	55.31***	-	N/A	49.27
OLA 3	ola3.te / ola3unat.te	50.36	-	N/A	44.15
OLA 4	ola4.te / ola4unat.te	62.97	54.99	2.50m Barrier	55.41
OLA 5	ola5.te / ola5unat.te	56.39	53.80	2.50m Barrier (For OLA4)	49.28
OLA 6	ola6.te / ola6unat.te	53.52	-	N/A	46.52
OLA 7	ola7.te / ola7unat.te	68.11	59.82	2.50m Barrier	60.77
OLA 8	ola8.te / ola8unat.te	67.92	59.62	2.50m Barrier	60.70
OLA 9	ola9.te / ola9unat.te	49.71	-	N/A	44.18
OLA 10	ola10.te / ola10una.te	51.79	-	N/A	47.38
OLA 11	ola11.te / ola11una.te	66.24	59.99	2.20m Barrier	59.11

*Locations correspond to receivers found on Figure 3 – Receiver Location Plan
**Barrier height is any combination of noise wall, berm, and/or retaining wall
***Noise level exceeds maximum 55 dBA, however by a negligible margin. Any noise attenuation would be unfeasible and therefore not considered.

It should be noted that Blocks 1 and 3 have front doors (front yard) fronting Romina Street and the rear yard adjacent to the driveways fronting Street 3. Most of the townhouse units do not meet the required 37m^2 to be considered an OLA as defined in the ENCG (2016). Some end-units have additional land area at the rear of the unit totalling an area greater than 37m^2, which have been analyzed (OLA 1, 2, and 3) and mitigation measures provided (where necessary). Additionally, placing a noise wall adjacent to driveways for the interior townhouse units along Street 3 would be aesthetically unappealing and impractical.

Since the noise barriers are required to tie into the existing back of sidewalk at Romina Street, barrier heights along Romina Street are in reference to the total barrier height above existing ground. All other barrier heights are in reference to the total barrier height above finished ground.

Figures in **Appendix B** show angles used in the detailed modeling calculations. The noise levels for all receiver locations generated from STAMSON are listed in **Table 3** with detailed modeling results in **Appendix B.**

There is a significant reduction in outdoor noise levels throughout the site, however, most receivers are still above the OLA guideline of 55 dBA. To further reduce the noise levels to

meet this criteria would result in a noise wall height of 4.5m or greater in several locations exposed to the noise sources. A maximum barrier height of 4.5m refers to a combination of noise wall, berm and/or retaining wall above the road or bus transitway centreline to the OLA. A noise wall 3.0m in height would require approval by the City of Ottawa.

Large noise walls would be aesthetically unappealing to the local residents and its advantages (further reducing noise) would be minimal compared to additional cost along Terry Fox Drive, Eagleson Road and Romina Street. As per section 3.4 of the ENCG, if there's no technically or economically feasible way to achieve the City's criteria, a tolerance of up to 5 dBA may be granted at the City's discretion. **Tables 4, 5, 6 and 7** show the relationship between the height of wall and the predicted daytime and nighttime mitigated noise levels at various locations. These locations will also require an additional warning clause for the 5dBA tolerance.

Table 4: Predicted Noise Levels at Various Wall Heights, OLA 1

	OLA 1 – Barrier height is any combination of noise wall, berm, and/or retaining wall		
Height of Barrier (m)		**Noise Level Day (dBA)**	**Noise Level Night (dBA)**
2.5	ola125.te	58.69	59.41
3.0	ola130.te	57.37	57.39
3.5	ola135.te	56.25	55.17
4.0	ola140.te	55.32	54.23

Table 5: Predicted Noise Levels at Various Wall Heights, OLA 7

OLA 7	OLA 7 – Barrier height is any combination of noise wall, berm, and/or retaining wall		
Height of Barrier (m)	**File**	**Noise Level Day (dBA)**	**Noise Level Night (dBA)**
3.0	ola730.te	58.00	60.77
3.5	ola735.te	56.54	59.20
4.0	ola740.te	55.43	55.93
4.5	ola745.te	54.59	54.44

Table 6: Predicted Noise Levels at Various Wall Heights, OLA 8

OLA 8	OLA 8 – Barrier height is any combination of noise wall, berm, and/or retaining wall		
Height of Barrier (m)	**File**	**Noise Level Day (dBA)**	**Noise Level Night (dBA)**
3.0	ola830.te	57.68	60.70
3.5	ola835.te	56.19	60.70
4.0	ola840.te	55.09	56.79
4.5	ola845.te	54.25	55.42

Table 7: Predicted Noise Levels at Various Wall Heights, OLA 11

OLA 11	OLA 11 – Barrier height is any combination of noise wall, berm, and/or retaining wall		
Height of Barrier (m)	**File**	**Noise Level Day (dBA)**	**Noise Level Night (dBA)**
2.5	ola1125.te	58.80	59.11
3.0	ola1130.te	56.91	59.11
3.5	ola1135.te	55.40	59.11
3.7	ola1137.te	54.90	55.25

Most of the site has been oriented to minimize the noise effects from Terry Fox Drive and Eagleson Road with window streets and having only side yards exposed along Eagleson Road and Terry Fox Drive. As a result, only OLAs within close proximity to Terry Fox Drive and Eagleson Road require outdoor noise mitigation as units further away have significant shielding.

The predicted daytime and nighttime noise levels and required mitigation for the Plane of Window are shown in **Table 8.**

Table 8: Simulation Results – Plane of Window

Receiver Location*	File	Calculated Noise Level 7:00-23:00 (dBa) Un-attenuated	Calculated Noise Level 23:00-7:00 (dBa) Un-attenuated	Mitigation Method**
POW1	pow1.te	64.86	57.85	Indoor Mitigation Required** Warning Clauses
POW2	pow2.te	54.65	48.76	N/A
POW3	pow3.te	68.06	60.84	Indoor Mitigation Required** Warning Clauses
POW4	pow4.te	68.53	61.27	Indoor Mitigation Required** Warning Clauses
POW5	pow5.te	70.42	62.95	Indoor Mitigation Required** Warning Clauses
POW6	pow6.te	53.66	47.73	N/A
POW7	pow7.te	55.17	49.11	Indoor Mitigation Required** Warning Clauses
POW8	pow8.te	53.69	47.81	N/A

*Locations correspond to receivers found on Figure 3 – Receiver Location Plan
**Indoor mitigation refers to either the installation of forced air ventilation or air conditioning and a building façade analysis.

Figures in **Appendix B** show angles used in the detailed modeling calculations. The noise levels for all receiver locations generated from STAMSON are listed in **Table 3 and 8** with detailed modeling results in **Appendix B.**

Indoor mitigation requirements and specific warning clauses will be completed as part of the detailed design as stated in Part 4, Section 3.2 of the ENCG.

For units requiring a building façade analysis during detailed design, when the floor layouts are finalized, the AIF valves can be verified to ensure the appropriate window and wall type

assemblies are installed to mitigate the predicted noise levels. However, based on past experience, the minimum window and wall type assemblies required by the Ontario Building Code (OBC) will be sufficient to mitigate the indoor noise levels below the City's criteria for most of the site.

Refer to **Figure 4** – Noise Attenuation Measures Plan for locations and details of required mitigation measures.

5.0 CONCLUSIONS

An analysis of the roadway traffic along Terry Fox Drive, Eagleson Road, Romina Street, Hope Side Road and Emerald Meadows Drive indicates attenuation measures will be necessary for the Bridlewood 3 development.

The following is a summary of the attenuation measures and notice requirements to be placed on title for the following units. Block numbers correspond to **Figure 2 – Concept Plan**:

Residential – Block 59, Unit #175

- Installation of a 2.2m Noise Barrier

Residential – Block 21, Unit #161

- Installation of a 2.5m Noise Barrier

Residential – Block 63 Unit #176 and Block 64 Unit #209

- Installation of a 2.5m Noise Barrier

Residential –Block 70 Unit #256 and Block 71 Unit #257

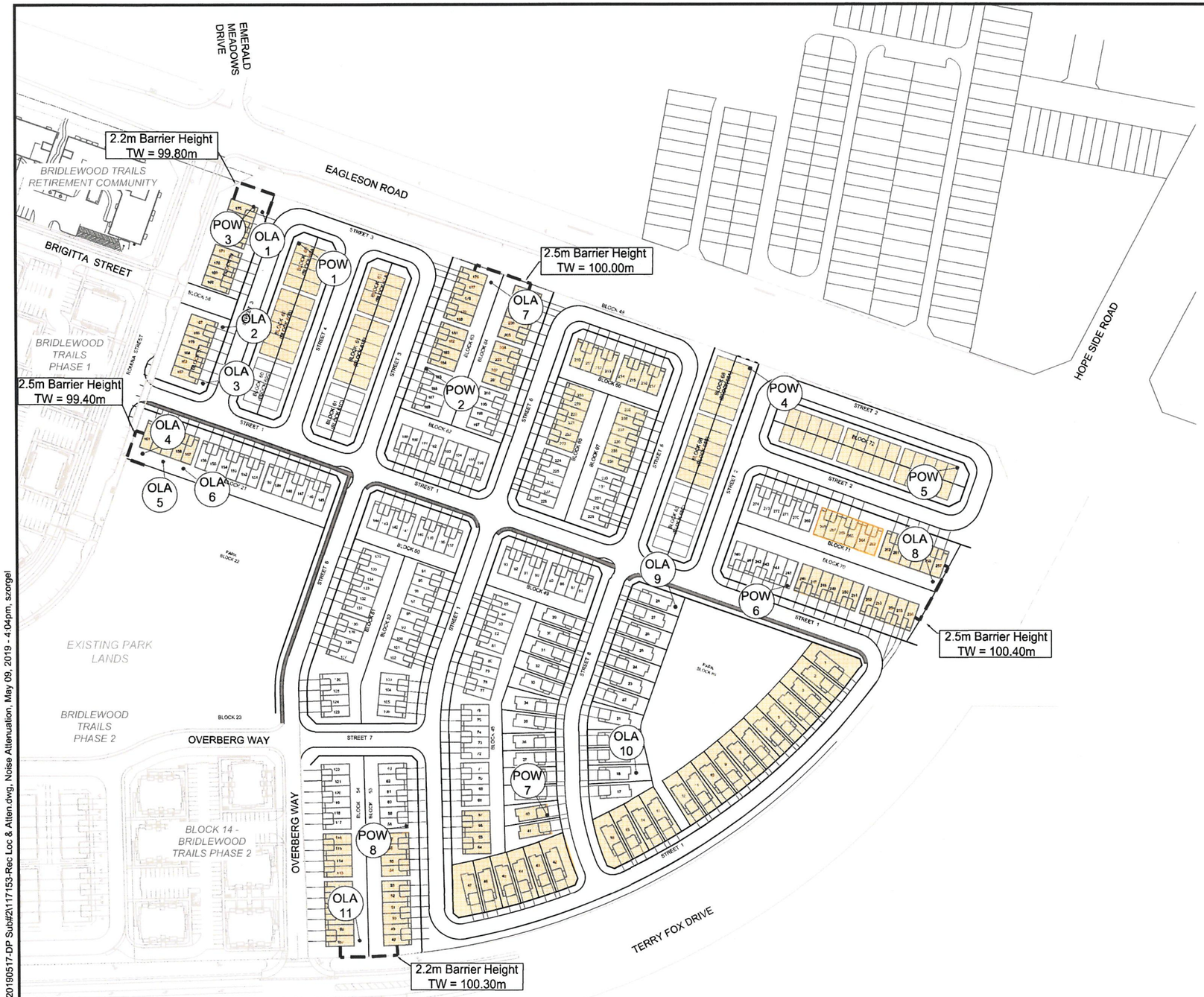
- Installation of a 2.5m Noise Barrier

Residential – Block 53 Unit#48 and Block 54 Unit #107

- Installation of a 2.2m Noise Barrier

Residential – Lot 1-16, Lot 40-47, Block 21 (Units 157-161), Block 48 (Units 64-67), Block 53 (Units 48-57), Block 54 (Units 107-116), Block 57, Block 59, Block 60A, Block 60B, Block 61A, Block 61B, Block 63 (Units 176-184), Block 64 (Units 201-209), Block 65 (Units 218-223), Block 66, Block 67 (Units 234-239), Block 68A, Block 68B, Block 70 (Units 246-256), Block 71 (Units 257-268) & Block 72

- Indoor noise mitigation required (may include the installation of forced air ventilation or air conditioning and a building façade analysis). To be confirmed during detailed design;
- Warning Clauses Required, to be confirmed during detailed design.



LEGEND

- PROPERTY LINE
- OLA 1 — RECEIVER - OUTDOOR LIVING AREA (OLA)
- POW 1 — RECEIVER - PLANE OF WINDOW / INDOOR LIVING AREA (POW)
- PROPOSED NOISE BARRIER (ANY COMBINATION OF NOISE WALL, BERM, AND/OR RETAINING WALL)
- INDOOR MITIGATION AND/OR BUILDING COMPONENT ANALYSIS REQUIRED AND WARNING CLAUSES BE REGISTERED ON TITLE AND INCORPORATED INTO THE AGREEMENT OF PURCHASE AND SALES

NOTES:

1. ROADWAY CLASSIFICATION AS PER CITY OF OTTAWA OFFICIAL PLAN, SCHEDULE E, OFFICIAL PLAN, URBAN ROAD NETWORK.
2. REFER TO GRADING PLAN (117153-GR) FOR ALL PRELIMINARY GRADING INFORMATION.
3. NOISE BARRIER REFERS TO ANY COMBINATION OF NOISE WALL, BERM AND/OR RETAINING WALL.

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CITY OF OTTAWA BRIDLEWOOD 3

NOISE ATTENUATION MEASURES PLAN

SCALE 1 : 2000 (0, 20, 40, 60, 80)
DATE MAY 2019 | JOB 117153 | FIGURE FIGURE 4

In closing, Novatech respectfully requests the City of Ottawa accept the findings of this Noise Impact Feasibility Report for Bridlewood 3 located at 866, 898 Eagleson Road and 1335, 1365 Terry Fox Drive as part of the Draft Plan of Subdivision Approval submission.

NOVATECH

Authored by:

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APPENDIX A

EXCERPTS FROM THE CITY OF OTTAWA ENVIRONMENTAL NOISE CONTROL GUIDELINES, THE MOE'S NPC-300, THE CITY OF OTTAWA'S TRANSPORTATION MASTER PLAN AND OFFICIAL PLAN

PLANNING AND GROWTH MANAGEMENT
URBANISME ET GESTION DE LA CROISSANCE

ENVIRONMENTAL NOISE CONTROL GUIDELINES: Introduction and Glossary

January 2016

Table 2.2a: Sound Level Limit for Outdoor Living Areas - Road and Rail
(from NPC-300, 2013 Table C-1)

Time Period	Required L_{eq} (16) (dBA)
16-hour, 07:00 – 23:00	55

Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail
(from NPC-300, 2013 Table C-2)

Type of Space	Time Period	Required L_{eq} (dBA) Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

The Province also provides for supplementary indoor sound level limits for land uses not generally considered noise sensitive (see Table 2.2c below). These good practice design objectives should be addressed in any noise study prepared for the City. These supplementary sound level limits are based on the windows and doors to an indoor space being closed.

Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces - Road and Rail (adapted from NPC-300 Table C-9)

Type of Space	Time Period	Required L_{eq} (dBA) Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Theatres, places of worship, libraries, individual or semi- private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

[2] The number of lanes is determined by the future mature state of the roadway.

Environmental Noise Guideline

Stationary and Transportation Sources – Approval and Planning

Publication NPC-300

Ontario

Table C-10
Supplementary Indoor Aircraft Noise Limits
(Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values listed in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

C7 Noise Control Measures

The following sections provide MOE guidance for appropriate noise control measures. These sections constitute requirements that are applied to MOE approvals for stationary sources. This information is also provided as guidance which land use planning authorities may consider adopting.

The definition in Part A describes the various types and application of noise control measures. All the noise control measures described in the definition are appropriate to address the impact of noise of transportation sources (road, rail and aircraft) on planned sensitive land uses. Only some of the noise control measures described in the definition are appropriate to address the noise impact of stationary sources on planned sensitive land uses.

C7.1 Road Noise Control Measures

C7.1.1 Outdoor Living Areas

If the 16-Hour Equivalent Sound Level, L_{eq} (16) in the OLA is greater than 55 dBA and less than or equal to 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA. If measures are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type A.

If the 16-Hour Equivalent Sound Level, L_{eq} (16) in the OLA is greater than 60 dBA, noise control measures should be implemented to reduce the level to 55 dBA. Only in cases where the required noise control measures are not feasible for technical, economic or administrative reasons would an excess above the limit (55 dBA) be acceptable with a warning clause Type B. In the above situations, any excess above the limit will not be acceptable if it exceeds 5 dBA.

C7.1.2 Plane of a Window – Ventilation Requirements

C7.1.2.1 Daytime Period, 07:00 – 23:00 Hours

Noise control measures may not be required if the L_{eq} (16) daytime sound level in the plane of a bedroom or living/dining room window is less than or equal to 55 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.

If the daytime sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA, installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216, Reference [32], and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, Reference [6], or should comply with other criteria specified by the municipality.

C7.1.2.2 Nighttime Period, 23:00 – 07:00 Hours

Noise control measures may not be required if the L_{eq} (8) nighttime sound level in the plane of a bedroom or living/dining room window is less than or equal to 50 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 50 dBA and less than or equal to 60 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.

If the nighttime sound level in the plane of a bedroom or living/dining room window is greater than 60 dBA, installation of central air conditioning should be implemented, with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216, Reference [32], and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, Reference [6], or should comply with other criteria specified by the municipality.

C7.1.3 Indoor Living Areas – Building Components

If the nighttime sound level outside the bedroom or living/dining room windows exceeds 60 dBA or the daytime sound level outside the bedroom or living/dining area windows exceeds 65 dBA, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the

sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) should be specified.

C7.2 Rail Noise Control Measures

C7.2.1 Outdoor Living Areas

Whistle noise is not included in the determination of the outdoor daytime sound level due to railway trains. All the provisions of Section C7.1.1 apply also to noise control requirements for rail noise.

C7.2.2 Plane of a Window – Ventilation Requirements

Whistle noise is not included in the determination of the sound level in the plane of a window. All the provisions of Section C7.1.2 apply also to noise control requirements for rail noise.

C7.2.3 Indoor Living Areas – Building Components

The sound level, L_{eq}, during the daytime (16-hour) and nighttime (8-hour) periods is determined using the prediction method STEAM, Reference [34], immediately outside the dwelling envelope. Whistle noise is included in the determination of the sound level.

If the nighttime sound level outside the bedroom or living/dining room windows exceeds 55 dBA or the daytime sound level outside the bedroom or living/dining area windows exceeds 60 dBA, building components including windows, walls and doors, where applicable, need to be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) needs to be specified.

In addition, the exterior walls of the first row of dwellings next to railway tracks are to be built to a minimum of brick veneer or masonry equivalent construction, from the foundation to the rafters when the rail traffic L_{eq} (24-hour), estimated at a location of a nighttime receptor, is greater than 60 dBA, and when the first row of dwellings is within 100 metres of the tracks.

C7.3 Combination of Road and Rail Noise

The noise impact in the OLA and in the plane of a window, and the requirements for outdoor measures, ventilation measures and warning clauses, should be determined by combining road and rail traffic sound levels.

The assessment of the indoor sound levels and the resultant requirement for the acoustical descriptors of the building components should be done separately for road

In Class 4 areas, where windows for noise sensitive spaces are assumed to be closed, the use of central air conditioning may be acceptable if it forms an essential part of the overall building designs.

C7.9 Verification of Noise Control Measures

It is recommended that the implementation of noise control measures be verified by qualified individuals with experience in environmental acoustics.

C8 Warning Clauses

The use of warning clauses or easements in respect of noise are recommended when circumstances warrant. Noise warning clauses may be used to warn of potential annoyance due to an existing source of noise and/or to warn of excesses above the sound level limits. Direction on the use of warning clauses should be included in agreements that are registered on title to the lands in question. The warning clauses would be included in agreements of Offers of Purchase and Sale, lease/rental agreements and condominium declarations. Alternatively, the use of easements in respect of noise may be appropriate in some circumstances. Additional guidance on the use of noise warning clauses is provided in Section C7.1.1, Section C7.1.2.1, Section C7.1.2.2, Section C7.3 and Section C7.4.

C8.1 Transportation Sources

The following warning clauses may be used individually or in combination:

TYPE A: (see Section C7.1.1)

> "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."

TYPE B: (see Section C7.1.1 and Section C7.4)

> "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."

TYPE C: (see Section C7.1.2.1, Section C7.1.2.2 and Section C7.4)

> "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."

TYPE D: (see Section C7.1.2.1, Section C7.1.2.2 and Section C7.4)

"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."

C8.2 Stationary Sources

It is not acceptable to use warning clauses in place of physical noise control measures to identify an excess over the MOE sound level limits. Warning clause (Type E) for stationary sources may identify a potential concern due to the proximity of the facility but it is not acceptable to justify exceeding the sound level limits.

TYPE E: (see Section C7.6)

"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times be audible."

C8.3 Class 4 Area Notification

TYPE F: (see Section B9.2 and Section C4.4.2)

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

Appendix A: Warning Clauses

Under the Official Plan and this guideline warning clauses may be required to be incorporated into development through development agreements, registration on title and inclusion in Agreements of Purchase and Sale. This requirement may be included in any development, regardless of whether it is considered a noise sensitive land use.

A warning clause provides recognition for the City, Province landowner or tenants that noise may be a concern, that noise may be audible at times or even quite loud, and, depending on the type of development, provincial guidelines for noise may be exceeded. Warning clauses also recognize that environmental noise is a potential health hazard that does impact people and neighbourhoods. It is for this reason that, unless a non-noise sensitive land use is established, a warning clause should also include noise mitigation.

A warning clause is not considered a form of noise mitigation. It is not acceptable therefore to use warning clauses in place of physical noise control measures to identify an excess over the MOE or City noise limits. The reason for a warning clause on all development is twofold. Firstly, it is important to note that a land use that although the development may not be considered noise sensitive it may include employees or tenants that are personally sensitive to noise. A warning clause provides protection against complaints to the ministry of Environment should provincial guidelines be exceeded. Secondly, a warning clause on title could obviate the need for a new noise study in the future. In a redevelopment scenario the warning clause would provide recognition of the extent noise conditions.

Given the variation in potential intensity and impact of noise it will often be necessary to amend warning clauses to recognize the site specific conditions in each development. Final wording of any warning clause is to be approved by the City.

The following subsections provide example text to be adapted into warning clauses.

Surface Transportation Warning Clauses

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
Generic	*Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area that is within provincial guidelines. Measures for sound attenuation include:* • *A setback of buildings from the noise source and* • *An acoustic barrier.* *To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features.* *The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.* *Additionally this development includes trees and shrubs to screen the source of noise from occupants.*	The generic warning clause outlines that MOE sound levels may be exceeded but the indoor environment and outdoor amenity areas are within guidelines. Mitigation measures are described including urban design features. Mention is also made of landscaping to screen the development visually from the source of noise.
Extensive mitigation of indoor and	*"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units,*	The warning clause makes reference to MOE sound levels

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
outdoor amenity area	*sound levels due to increasing road/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development includes:* • *multi-pane glass;* • *double brick veneer;* • *an earth berm; and* • *an acoustic barrier.* *To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.* *The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.* *This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment.*	being exceeded from time to time and that there are sound attenuation features and landscaping within the development that should be maintained. An option for air conditioning is noted as well as landscaping to screen the source of noise.

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
	Additionally this development includes trees and shrubs to screen the source of noise from occupants.	
No outdoor amenity area	*Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic will interfere with outdoor activities as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development includes:* • *multi-pane glass;* • *double brick veneer;* • *high sound transmission class walls.* *To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.* *This dwelling unit has been supplied with a central air conditioning system and other measures 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 City and the Ministry of the Environment*	This warning clause notes that only an indoor environment is being provided for.

Stationary Source Warning Clauses

The Province notes that it is not acceptable to use warning clauses in place of physical noise control measures to identify an excess over the MOE sound level limits for stationary sources. The generic warning clause for stationary sources (called Type E in NPC-300) may identify a potential concern due to the proximity of the facility but it is not possible to justify exceeding the sound level limits.
The wording of the generic stationary noise warning clause may also be used as the basis for new development adjacent to areas licensed for mineral aggregate extraction.

Note:
1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.

Note:
1) La présente carte fait partie du Plan directeur des transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente carte doit servir de guide en matière de planification et de conception;il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.

11

Rivière des Outaouais / Ottawa River

MARCH
CARP
HUNTMAR
CARLING
CAMPEAU
PALADIUM
HAZELDEAN
EAGLESON
TIMM
ROBERTSON
BASELINE
MEADOWLANDS
TERRY FOX
STITTSVILLE MAIN
FERNBANK
HOPESIDE
OLD RICHMOND
WEST HUNT CLUB
CEDARVIEW
GREENBANK
WOODROFFE
MERIVALE
FISHER
KIRKWOOD
HOLLAND
SCOTT
BRONSON
BANK
MAIN
RIVERSIDE
SMYTH
HERON
WALKLEY
HUNT CLUB
ARIPORT
CONROY
HEMLOCK
MONTREAL
McARTHUR
ST LAURENT
INDUSTRIAL
OGILVIE
BLAIR
INNES
BLACKBURN BYPASS
ANDERSON
HAWTHORNE
RAMSAYVILLE
ALBION
LEITRIM
RUSSELL
ORLEANS
JEANNE D'ARC
ST JOSEPH
TRIM
MER BLEUE
TENTH LINE
NAVAN
MILTON
FRANK KENNY
FALLOWFIELD
EAGLESON
MOODIE
PRINCE OF WALES
RIVER
CAMBRIAN
JOCKVALE
EARL ARMSTRONG
BANK
PERTH
BROPHY
BANKFIELD
MITCH OWENS

Phase 1 (2014 - 2019) Widening
Phase 1 (2014 - 2019) New Road
Phase 2 (2020 - 2025) Widening
Phase 2 (2020 - 2025) New Road
Phase 3 (2026 - 2031) Widening
Phase 3 (2026 - 2031) New Road

Phase 1 (2014 - 2019) Élargissement
Phase 1 (2014 - 2019) Nouvelle route
Phase 2 (2020 - 2025) Élargissement
Phase 2 (2020 - 2025) Nouvelle route
Phase 3 (2026 - 2031) Élargissement
Phase 3 (2026 - 2031) Nouvelle route

Ottawa

1 0.5 0 1 2 3 km

Prepared by: Planning and Growth Management Department, Mapping & Graphics Unit, 2015 Revision
Préparé par: Service de l'urbanisme et de la gestion de la croissance, Unité de la cartographie et des graphiques, Révision 2015

TRANSPORTATION MASTER PLAN - Map 11

ROAD NETWORK – 2031 AFFORDABLE NETWORK

PLAN DIRECTEUR DES TRANSPORTS - Carte 11

RÉSEAU ROUTIER - RÉSEAU ABORDABLE 2031

Note:
1) This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text.
2) This schedule is intended as a framework for planning and design;consequently alignments of proposed roads are approximate and subject to detailed study.
3) An unidentified new facility from Highway 416 to Highway 417 East is not shown.

Note:
1) La présente annexe fait partie du Plan officiel de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente annexe doit servir de guide en matière de planification et de conception;il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
3) **Une nouvelle installation non identifiée et située entre l'autoroute 416 et l'autoroute 417E n'apparaît pas.**

SEE SCHEDULE F
VOIR ANNEXE F

Rivière des Outaouais / Ottawa River

Notre-Dame-des-Champs

Fallowfield

Richmond

Manotick

Navan

Carlsbad Springs

Macdonald-Cartier International Airport
Aéroport International Macdonald-Cartier

City of Ottawa Official Plan Consolidation and Amendments

Ville d'Ottawa Plan officiel Amendement au plan directeur approuvé

# 14 (09/2004)	# 96 (03/2012)	# 192 (08/2017)
# 44 (06/2006)	# 97 (03/2012)	
# 50 (06/2006)	#113 (11/2012)	
# 77 (06/2009)	#123 (09/2019)	
# 76	#173 (01/2017)	

OMB decision/Décision de la CAMO - N° 1787; 2711;PL#160875

Official Plan - Schedule E
Urban Road Network

Prepared by: Planning and Growth Management Department, Mapping & Graphics Unit

Plan officiel - Annexe E
Routes Arterial - Urbain

Préparé par : Service de l'urbanisme et de la gestion de la croissance, Unité de la cartographie et des graphiques

Provincial Highway — **Route provinciale**
City Freeway — **Autoroute de ville**

Federally Owned Road
Existing — **Chemins de propriété fédéral**
Proposed — Établie
(Alignment defined) — Proposé
(Alignement déterminée)

Arterials
Existing — **Artère**
Proposed — Établie
(Alignment Defined) — Proposé
Conceptual — (Alignement déterminée)
(Alignment Undefined) — Conceptuelle
(Alignement à déterminée)

Major Collectors
Existing — **Grande collectrice**
Proposed — Établie
Proposé

Collectors
Existing — **Collectrice**
Proposed — Établie
Proposé

Scale / Échelle
2km 1 0 1 2 3 4km

APPENDIX B

SOUND LEVEL CALCULATIONS

- Part 1 - Attenuated Results
- Part 2 - Unattenuated Results
- Part 3 - Barrier Height / Sound Level Comparison Files
- Part 4 - Stamson Modelling Angles

PART 1 (APPENDIX B)

Attenuated Results

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 11:29:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.25 / 29.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 1.50 / 1.50 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.25 / 29.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.20 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -64.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            : -90.00 deg   Angle2 : -64.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :   1.50 / 1.50   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 4: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: Eagle Barr N (day/night)
----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.20 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 5: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
```

```
Road pavement          :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 5: Romina House (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 26.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 6: Romina Barr (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 6: Romina Barr (day/night)
--------------------------------------------
Angle1   Angle2           :  26.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
```

```
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2        (Flat/gentle slope; with
barrier)
Barrier angle1            :  26.00 deg   Angle2 : 67.00 deg
Barrier height            :   2.20 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.55	42.55
2.Eagle Barr S	1.50	56.78	56.78
3.EagleHouse N	1.50	40.87	40.87
4.Eagle Barr N	1.50	55.49	55.49
5.Romina House	1.50	41.07	41.07
6.Romina Barr	1.50	44.52	44.52
Total			59.55 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	39.86	39.86	
2.Eagle Barr S	1.50	57.09	57.09	*
3.EagleHouse N	1.50	38.43	38.43	
4.Eagle Barr N	1.50	54.87	54.87	*
5.Romina House	1.50	38.48	38.48	
6.Romina Barr	1.50	44.84	44.84	*
Total			59.41 dBA	

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 59.55
(NIGHT): 59.41

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:31:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola425.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	:	6477/563	veh/TimePeriod *
Medium truck volume	:	515/45	veh/TimePeriod *
Heavy truck volume	:	368/32	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)	:	8000
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: Romina Barr (day/night)

Angle1 Angle2	:	-79.00 deg	45.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	19.70 / 19.70	m
Receiver height	:	1.50 / 4.50	m
Topography	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-79.00 deg	Angle2 : 45.00 deg
Barrier height	:	2.50 m	
Barrier receiver distance	:	7.50 / 7.50	m
Source elevation	:	96.96 m	
Receiver elevation	:	96.90 m	
Barrier elevation	:	96.90 m	
Reference angle	:	0.00	

Road data, segment # 2: Romina House (day/night)

Car traffic volume	:	6477/563	veh/TimePeriod *
Medium truck volume	:	515/45	veh/TimePeriod *
Heavy truck volume	:	368/32	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)	:	8000
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: Romina House (day/night)

Angle1 Angle2	:	45.00 deg	83.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	19.70 / 19.70	m
Receiver height	:	1.50 / 4.50	m
Topography	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	45.00 deg	Angle2 : 83.00 deg
Barrier height	:	6.00 m	
Barrier receiver distance	:	3.00 / 3.00	m
Source elevation	:	96.96 m	
Receiver elevation	:	96.90 m	
Barrier elevation	:	97.30 m	
Reference angle	:	0.00	

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Barr	1.50	54.86	54.86
2.Romina House	1.50	39.60	39.60
Total			54.99 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.Romina Barr	1.50	55.35	55.35	*
2.Romina House	1.50	36.87	36.87	
Total			55.41	dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.99
(NIGHT): 55.41

STAMSON 5.0 SUMMARY REPORT Date: 08-01-2019 14:31:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola5.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 6477/563	veh/TimePeriod *
Medium truck volume	: 515/45	veh/TimePeriod *
Heavy truck volume	: 368/32	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)	: 8000
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: Romina Open (day/night)

Angle1 Angle2	: -71.00 deg	-29.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 32.00 / 32.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Romina Barr (day/night)

Car traffic volume	: 6477/563	veh/TimePeriod *
Medium truck volume	: 515/45	veh/TimePeriod *
Heavy truck volume	: 368/32	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)	: 8000
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: Romina Barr (day/night)
---------------------------------------------
Angle1   Angle2           : -29.00 deg   13.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -29.00 deg   Angle2 : 13.00 deg
Barrier height            :   2.50 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          :  96.96 m
Receiver elevation        :  96.90 m
Barrier elevation         :  96.90 m
Reference angle           :   0.00


Road data, segment # 3: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    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):   8000
    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 # 3: Romina House (day/night)
----------------------------------------------
Angle1   Angle2           :  13.00 deg   79.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  13.00 deg   Angle2 : 79.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  15.50 / 15.50  m
Source elevation          :  96.96 m
Receiver elevation        :  96.90 m
Barrier elevation         :  97.30 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.Romina Open	1.50	52.60	52.60	
2.Romina Barr	1.50	46.83	46.83	
3.Romina House	1.50	39.84	39.84	
Total			53.80	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.Romina Open	1.50	45.48	45.48	
2.Romina Barr	1.50	46.59	46.59	*
3.Romina House	1.50	35.87	35.87	
Total			49.28	dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.80
(NIGHT): 49.28

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:34:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola7.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -44.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   2.50 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

```
Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   2.50 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
```

```
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4        (Elevated; with barrier)
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	45.39	45.39
2.Eagle Barr S	1.50	56.01	56.01
3.EagleHouse S	1.50	42.40	42.40
4.EagleHouse N	1.50	45.81	45.81
5.Eagle Barr N	1.50	56.47	56.47
6.EagleHouse N	1.50	44.19	44.19
Total			59.82 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	42.53	42.53	
2.Eagle Barr S	1.50	57.57	57.57	*
3.EagleHouse S	1.50	39.21	39.21	
4.EagleHouse N	1.50	42.68	42.68	
5.Eagle Barr N	1.50	57.54	57.54	*
6.EagleHouse N	1.50	40.12	40.12	
Total			60.77	dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 59.82
                           (NIGHT): 60.77
```

STAMSON 5.0 SUMMARY REPORT Date: 22-04-2019 10:04:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola8.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -54.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.20 / 22.20 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -54.00 deg
Barrier height : 6.00 m
Elevation : 1.85 m
Barrier receiver distance : 2.60 / 2.60 m
Source elevation : 97.54 m
Receiver elevation : 97.90 m
Barrier elevation : 98.15 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -54.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -54.00 deg   Angle2 : 86.00 deg
Barrier height            :   2.50 m
Elevation                 :   1.85 m
Barrier receiver distance :   3.90 / 3.90   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  86.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  86.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   1.80 / 1.80   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.95 m
Reference angle           :   0.00


Road data, segment # 4: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse S (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr S (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Barr S (day/night)
----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00


Road data, segment # 7: Eagle Barr N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 7: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
```

Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.97 m
Receiver elevation : 97.90 m
Barrier elevation : 97.90 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	47.08	47.08	
2.TF Barrier	1.50	59.03	59.03	
3.TF House	1.50	41.32	41.32	
4.EagleHouse S	1.50	39.96	39.96	
5.Eagle Barr S	1.50	41.46	41.46	
6.EagleHouse N	1.50	40.57	40.57	
7.Eagle Barr N	1.50	42.16	42.16	
Total			59.62	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	44.17	44.17	
2.TF Barrier	1.50	60.45	60.45	*
3.TF House	1.50	37.62	37.62	
4.EagleHouse S	1.50	38.38	38.38	
5.Eagle Barr S	1.50	39.56	39.56	*
6.EagleHouse N	1.50	38.90	38.90	
7.Eagle Barr N	1.50	40.31	40.31	*
Total			60.70	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 59.62
(NIGHT): 60.70

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:32:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola11.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.70 / 25.70 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -74.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.70 / 3.70 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 97.85 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -74.00 deg   42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -74.00 deg   Angle2 : 42.00 deg
Barrier height            :   2.20 m
Elevation                 :   1.15 m
Barrier receiver distance :   6.60 / 6.60   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.10 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

Barrier angle1 : 42.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.30 / 3.30 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 98.25 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	45.33	45.33
2.TF Barrier	1.50	59.59	59.59
3.TF House	1.50	47.35	47.35
Total			59.99 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	42.63	42.63	
2.TF Barrier	1.50	58.85	58.85	*
3.TF House	1.50	44.74	44.74	
Total			59.11 dBA	

TOTAL Leq FROM ALL SOURCES (DAY): 59.99
(NIGHT): 59.11

PART 2 (APPENDIX B)

Unattenuated Results

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 11:30:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.25 / 29.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 1.50 / 1.50 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.25 / 29.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.80 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -64.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -64.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :   1.50 / 1.50   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
```

```
Barrier elevation          :  97.75 m
Reference angle            :   0.00


Road data, segment # 4: Eagle Barr N (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: Eagle Barr N (day/night)
----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.80 m
Reference angle           :   0.00


Road data, segment # 5: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 5: Romina House (day/night)
```

```
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 26.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 6: Romina Barr (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 6: Romina Barr (day/night)
-----------------------------------------------
Angle1   Angle2           :  26.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.55	42.55
2.Eagle Barr S	1.50	64.30	64.30
3.EagleHouse N	1.50	40.87	40.87
4.Eagle Barr N	1.50	61.94	61.94
5.Romina House	1.50	41.07	41.07
6.Romina Barr	1.50	51.91	51.91
Total			66.49 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	39.86	39.86
2.Eagle Barr S	1.50	57.09	57.09
3.EagleHouse N	1.50	38.43	38.43
4.Eagle Barr N	1.50	54.87	54.87
5.Romina House	1.50	38.48	38.48
6.Romina Barr	1.50	44.84	44.84
Total			59.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.49
(NIGHT): 59.41

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 13:16:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 97.25 / 97.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -3.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 70.00 / 70.00 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Open S (day/night)
-----------------------------------------------
Angle1   Angle2           :  -3.00 deg   21.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  97.25 / 97.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.80 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  21.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  97.25 / 97.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  21.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  59.70 / 59.70  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.70 m
```

```
Reference angle           :   0.00


Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   -3.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 109.00 / 109.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -3.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  70.00 / 70.00  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 5: Eagle Open N (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Open N (day/night)
-----------------------------------------------
Angle1   Angle2           :  -3.00 deg   21.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 109.00 / 109.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.80 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :  21.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 109.00 / 109.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  21.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  59.70 / 59.70  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

Road data, segment # 7: Romina House (day/night)

Car traffic volume	:	6477/563 veh/TimePeriod	*
Medium truck volume	:	515/45 veh/TimePeriod	*
Heavy truck volume	:	368/32 veh/TimePeriod	*
Posted speed limit	:	50 km/h	
Road gradient	:	2 %	
Road pavement	:	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	8000
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 # 7: Romina House (day/night)

Angle1 Angle2	:	-90.00 deg	27.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	1	(Absorptive ground surface)
Receiver source distance	:	38.70 / 38.70	m
Receiver height	:	1.50 / 4.50	m
Topography	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-90.00 deg	Angle2 : 27.00 deg
Barrier height	:	6.00 m	
Barrier receiver distance	:	3.00 / 3.00	m
Source elevation	:	96.69 m	
Receiver elevation	:	97.60 m	
Barrier elevation	:	97.75 m	
Reference angle	:	0.00	

Road data, segment # 8: Romina Open (day/night)

Car traffic volume	:	6477/563 veh/TimePeriod	*
Medium truck volume	:	515/45 veh/TimePeriod	*
Heavy truck volume	:	368/32 veh/TimePeriod	*
Posted speed limit	:	50 km/h	
Road gradient	:	2 %	
Road pavement	:	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	8000
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 # 8: Romina Open (day/night)
---------------------------------------------
Angle1   Angle2           :  27.00 deg   44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  38.70 / 38.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 9: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 9: Romina House (day/night)
----------------------------------------------
Angle1   Angle2           :  44.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  38.70 / 38.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  44.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  19.00 / 19.00  m
Source elevation          :  96.69 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	43.84	43.84
2.Eagle Open S	1.50	48.82	48.82
3.EagleHouse S	1.50	43.97	43.97
4.EagleHouse N	1.50	44.10	44.10
5.Eagle Open N	1.50	48.03	48.03
6.EagleHouse N	1.50	43.92	43.92
7.Romina House	1.50	41.19	41.19
8.Romina Open	1.50	48.69	48.69
9.Romina House	1.50	41.10	41.10
Total			55.31 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	38.20	38.20
2.Eagle Open S	1.50	41.97	41.97
3.EagleHouse S	1.50	38.75	38.75
4.EagleHouse N	1.50	38.78	38.78
5.Eagle Open N	1.50	41.21	41.21
6.EagleHouse N	1.50	38.95	38.95
7.Romina House	1.50	38.69	38.69
8.Romina Open	1.50	41.55	41.55
9.Romina House	1.50	36.39	36.39
Total			49.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.31
(NIGHT): 49.27

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 13:45:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola3unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 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): 8000
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: Romina House (day/night)

Angle1 Angle2 : -74.00 deg -53.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.70 / 38.70 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -74.00 deg Angle2 : -53.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 22.10 / 22.10 m
Source elevation : 96.75 m
Receiver elevation : 97.25 m
Barrier elevation : 97.25 m
Reference angle : 0.00

Road data, segment # 2: Romina Open (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 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):   8000
    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: Romina Open (day/night)
---------------------------------------------
Angle1   Angle2           : -53.00 deg   -27.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  38.70 / 38.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    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):   8000
    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 # 3: Romina House (day/night)
----------------------------------------------
Angle1   Angle2           : -27.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  38.70 / 38.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -27.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.75 m
Receiver elevation        :  97.25 m
Barrier elevation         :  97.40 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina House	1.50	35.30	35.30
2.Romina Open	1.50	49.72	49.72
3.Romina House	1.50	40.59	40.59
Total			50.36 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina House	1.50	30.96	30.96
2.Romina Open	1.50	42.60	42.60
3.Romina House	1.50	38.17	38.17
Total			44.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.36
(NIGHT): 44.15

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:31:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola4unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 6477/563	veh/TimePeriod	*
Medium truck volume	: 515/45	veh/TimePeriod	*
Heavy truck volume	: 368/32	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)	:	8000
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: Romina Open (day/night)

Angle1 Angle2	: -79.00 deg	45.00 deg	
Wood depth	: 0	(No woods.)	
No of house rows	: 0 / 0		
Surface	: 2	(Reflective ground surface)	
Receiver source distance	: 19.70 / 19.70	m	
Receiver height	: 1.50 / 4.50	m	
Topography	: 1	(Flat/gentle slope; no barrier)	
Reference angle	: 0.00		

Road data, segment # 2: Romina House (day/night)

Car traffic volume	:	6477/563	veh/TimePeriod *
Medium truck volume	:	515/45	veh/TimePeriod *
Heavy truck volume	:	368/32	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)	:	8000
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: Romina House (day/night)

Angle1 Angle2	:	45.00 deg	83.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	19.70 / 19.70	m
Receiver height	:	1.50 / 4.50	m
Topography	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	45.00 deg	Angle2 : 83.00 deg
Barrier height	:	6.00 m	
Barrier receiver distance	:	3.00 / 3.00	m
Source elevation	:	96.96 m	
Receiver elevation	:	96.90 m	
Barrier elevation	:	97.30 m	
Reference angle	:	0.00	

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Open	1.50	62.95	62.95
2.Romina House	1.50	39.60	39.60
Total			62.97 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Open	1.50	55.35	55.35
2.Romina House	1.50	36.87	36.87
Total			55.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.97
(NIGHT): 55.41

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:32:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola5unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	:	6477/563 veh/TimePeriod	*
Medium truck volume	:	515/45 veh/TimePeriod	*
Heavy truck volume	:	368/32 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)	:	8000
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: Romina Open (day/night)

Angle1 Angle2	:	-71.00 deg	-29.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	1	(Absorptive ground surface)
Receiver source distance	:	32.00 / 32.00	m
Receiver height	:	1.50 / 4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Road data, segment # 2: Romina Open (day/night)

Car traffic volume	:	6477/563 veh/TimePeriod	*
Medium truck volume	:	515/45 veh/TimePeriod	*
Heavy truck volume	:	368/32 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)	:	8000
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: Romina Open (day/night)

Angle1 Angle2	: -29.00 deg	13.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 32.00 / 32.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 3: Romina House (day/night)

Car traffic volume	: 6477/563	veh/TimePeriod *
Medium truck volume	: 515/45	veh/TimePeriod *
Heavy truck volume	: 368/32	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)	: 8000
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 # 3: Romina House (day/night)

Angle1 Angle2	: 13.00 deg	79.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 32.00 / 32.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: 13.00 deg	Angle2 : 79.00 deg
Barrier height	: 6.00	m
Barrier receiver distance	: 15.50 / 15.50	m
Source elevation	: 96.96	m
Receiver elevation	: 96.90	m
Barrier elevation	: 97.30	m
Reference angle	: 0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Open	1.50	52.60	52.60
2.Romina Open	1.50	53.87	53.87
3.Romina House	1.50	39.84	39.84
Total			56.39 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Open	1.50	45.48	45.48
2.Romina Open	1.50	46.59	46.59
3.Romina House	1.50	35.87	35.87
Total			49.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.39
(NIGHT): 49.28

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:32:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola6unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	:	6477/563 veh/TimePeriod	*
Medium truck volume	:	515/45 veh/TimePeriod	*
Heavy truck volume	:	368/32 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)	:	8000
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: Romina Open (day/night)

Angle1 Angle2	:	-64.00 deg 7.00 deg	
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	1	(Absorptive ground surface)
Receiver source distance	:	44.00 / 44.00 m	
Receiver height	:	1.50 / 4.50 m	
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Road data, segment # 2: Romina House (day/night)

Car traffic volume	:	6477/563 veh/TimePeriod	*
Medium truck volume	:	515/45 veh/TimePeriod	*
Heavy truck volume	:	368/32 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)	:	8000
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: Romina House (day/night)

```
Angle1   Angle2           :   7.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  44.00 / 44.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :   7.00 deg   Angle2 : 75.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  27.50 / 27.50  m
Source elevation          :  96.96 m
Receiver elevation        :  97.00 m
Barrier elevation         :  97.30 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Open	1.50	53.37	53.37
2.Romina House	1.50	38.88	38.88
Total			53.52 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Romina Open	1.50	46.27	46.27
2.Romina House	1.50	34.08	34.08
Total			46.52 dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 53.52
                           (NIGHT): 46.52
```

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:36:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola7unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -44.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Open S (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   0.87 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
```

```
Barrier elevation          :  97.80 m
Reference angle            :   0.00


Road data, segment # 4: EagleHouse N (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   -44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00


Road data, segment # 5: Eagle Open N (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Open N (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   0.87 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	45.39	45.39
2.Eagle Open S	1.50	64.90	64.90
3.EagleHouse S	1.50	42.40	42.40
4.EagleHouse N	1.50	45.81	45.81
5.Eagle Open N	1.50	65.13	65.13
6.EagleHouse N	1.50	44.19	44.19
Total			68.11 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.53	42.53
2.Eagle Open S	1.50	57.57	57.57
3.EagleHouse S	1.50	39.21	39.21
4.EagleHouse N	1.50	42.68	42.68
5.Eagle Open N	1.50	57.54	57.54
6.EagleHouse N	1.50	40.12	40.12
Total			60.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.11
(NIGHT): 60.77

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:26:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola8unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -54.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.20 / 22.20 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -54.00 deg
Barrier height : 6.00 m
Elevation : 1.85 m
Barrier receiver distance : 2.60 / 2.60 m
Source elevation : 97.54 m
Receiver elevation : 97.90 m
Barrier elevation : 98.15 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -54.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.85 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
--------------------------------------------
Angle1   Angle2           :  86.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  86.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   1.80 / 1.80   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
```

```
Barrier elevation         :  97.95 m
Reference angle           :   0.00


Road data, segment # 4: EagleHouse S (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse S (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00


Road data, segment # 5: Eagle Barr S (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
```

```
    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 # 5: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
```

Reference angle : 0.00

Road data, segment # 7: Eagle Barr N (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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 # 7: Eagle Barr N (day/night)

Angle1 Angle2 : 46.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 101.25 / 101.25 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	47.08	47.08
2.TF Barrier	1.50	67.78	67.78
3.TF House	1.50	41.32	41.32
4.EagleHouse S	1.50	39.96	39.96
5.Eagle Barr S	1.50	46.90	46.90
6.EagleHouse N	1.50	40.57	40.57
7.Eagle Barr N	1.50	47.69	47.69
Total			67.92 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	44.17	44.17
2.TF Barrier	1.50	60.45	60.45
3.TF House	1.50	37.62	37.62
4.EagleHouse S	1.50	38.38	38.38
5.Eagle Barr S	1.50	39.56	39.56
6.EagleHouse N	1.50	38.90	38.90
7.Eagle Barr N	1.50	40.31	40.31
Total			60.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.92
(NIGHT): 60.70

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:09:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola9unat.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -34.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -34.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 104.90 / 104.90 m
Source elevation : 98.03 m
Receiver elevation : 97.65 m
Barrier elevation : 97.95 m
Reference angle : 0.00

Road data, segment # 2: TF Open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Open (day/night)
-----------------------------------------
Angle1   Angle2           : -34.00 deg   -23.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 135.00 / 135.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           : -23.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 135.00 / 135.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -23.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  77.50 / 77.50  m
Source elevation          :  98.03 m
Receiver elevation        :  97.65 m
Barrier elevation         :  98.45 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	43.91	43.91
2.TF Open	1.50	44.13	44.13
3.TF House	1.50	46.34	46.34
Total			49.71 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	38.33	38.33
2.TF Open	1.50	37.44	37.44
3.TF House	1.50	41.41	41.41
Total			44.18 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 49.71
(NIGHT): 44.18

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 15:31:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola10una.te Time Period: Day/Night 16/8 hours
Description:

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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: TF House (day/night)

```
Angle1   Angle2           : -90.00 deg   -20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  75.60 / 75.60  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -20.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  18.10 / 18.10  m
Source elevation          :  97.65 m
Receiver elevation        :  97.95 m
Barrier elevation         :  98.30 m
Reference angle           :   0.00
```

Road data, segment # 2: TF Open (day/night)

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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: TF Open (day/night)
-----------------------------------------
Angle1   Angle2           : -20.00 deg   -10.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  75.60 / 75.60  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           : -10.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  75.60 / 75.60  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -10.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  18.10 / 18.10  m
Source elevation          :  97.65 m
Receiver elevation        :  97.95 m
Barrier elevation         :  98.30 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	45.82	45.82
2.TF Open	1.50	48.17	48.17
3.TF House	1.50	46.75	46.75
Total			51.79 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	42.58	42.58
2.TF Open	1.50	41.22	41.22
3.TF House	1.50	43.68	43.68
Total			47.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.79
(NIGHT): 47.38

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:30:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola11una.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.70 / 25.70 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -74.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.70 / 3.70 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 97.85 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -74.00 deg   42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.15 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  42.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.15 m
Barrier receiver distance :   3.30 / 3.30   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
```

Barrier elevation : 98.25 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	45.33	45.33
2.TF Barrier	1.50	66.15	66.15
3.TF House	1.50	47.35	47.35
Total			66.24 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	42.63	42.63
2.TF Barrier	1.50	58.85	58.85
3.TF House	1.50	44.74	44.74
Total			59.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.24
(NIGHT): 59.11

STAMSON 5.0 SUMMARY REPORT Date: 09-01-2019 14:42:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -69.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 36.25 / 36.25 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -69.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 10.30 / 10.30 m
Source elevation : 96.20 m
Receiver elevation : 97.70 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Open S (day/night)
-----------------------------------------------
Angle1   Angle2           : -69.00 deg   79.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  36.25 / 36.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  79.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  36.25 / 36.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  79.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  16.90 / 16.90  m
Source elevation          :  96.20 m
Receiver elevation        :  97.70 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

```
Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   -69.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -69.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  10.30 / 10.30  m
Source elevation          :  96.20 m
Receiver elevation        :  97.70 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00


Road data, segment # 5: Eagle Open N (day/night)
------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Open N (day/night)
-----------------------------------------------
Angle1   Angle2           : -69.00 deg   79.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :  79.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  79.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  16.90 / 16.90  m
Source elevation          :  96.20 m
Receiver elevation        :  97.70 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

Road data, segment # 7: Romina (day/night)

Car traffic volume	:	6477/563	veh/TimePeriod *
Medium truck volume	:	515/45	veh/TimePeriod *
Heavy truck volume	:	368/32	veh/TimePeriod *
Posted speed limit	:	50 km/h	
Road gradient	:	2 %	
Road pavement	:	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	8000
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 # 7: Romina (day/night)

Angle1 Angle2	:	-75.00 deg	58.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	1 / 1	
House density	:	75 %	
Surface	:	1	(Absorptive ground surface)
Receiver source distance	:	64.10 / 64.10	m
Receiver height	:	1.50 / 4.50	m
Topography	:	3	(Elevated; no barrier)
Elevation	:	1.20 m	
Reference angle	:	0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	43.02	43.02
2.Eagle Open S	1.50	62.54	62.54
3.EagleHouse S	1.50	41.30	41.30
4.EagleHouse N	1.50	41.86	41.86
5.Eagle Open N	1.50	60.52	60.52
6.EagleHouse N	1.50	40.28	40.28
7.Romina	1.50	48.92	48.92
Total			64.86 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	39.21	39.21
2.Eagle Open S	1.50	55.40	55.40
3.EagleHouse S	1.50	36.53	36.53
4.EagleHouse N	1.50	38.42	38.42
5.Eagle Open N	1.50	53.49	53.49
6.EagleHouse N	1.50	35.79	35.79
7.Romina	1.50	41.99	41.99
Total			57.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.86
(NIGHT): 57.85

STAMSON 5.0 SUMMARY REPORT Date: 09-01-2019 14:44:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow2.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -32.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 80.25 / 80.25 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -32.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 43.00 / 43.00 m
Source elevation : 96.82 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Open S (day/night)
-----------------------------------------------
Angle1   Angle2           : -32.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  80.25 / 80.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  80.25 / 80.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :   0.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   2.40 / 2.40   m
Source elevation          :  96.82 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
```

```
Reference angle           :   0.00


Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   -32.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : -32.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  43.00 / 43.00  m
Source elevation          :  96.82 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00


Road data, segment # 5: Eagle Open N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Open N (day/night)
-----------------------------------------------
Angle1   Angle2           : -32.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :   0.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   2.40 / 2.40   m
Source elevation          :  96.82 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	44.06	44.06
2.Eagle Open S	1.50	50.92	50.92
3.EagleHouse S	1.50	40.51	40.51
4.EagleHouse N	1.50	43.72	43.72
5.Eagle Open N	1.50	49.94	49.94
6.EagleHouse N	1.50	39.76	39.76
Total			54.65 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	39.18	39.18
2.Eagle Open S	1.50	44.00	44.00
3.EagleHouse S	1.50	38.54	38.54
4.EagleHouse N	1.50	39.12	39.12
5.Eagle Open N	1.50	43.07	43.07
6.EagleHouse N	1.50	37.88	37.88
Total			48.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.65
(NIGHT): 48.76

STAMSON 5.0 SUMMARY REPORT Date: 05-01-2019 12:55:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow3.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: Eagle Open S (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.25 / 22.25 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Eagle Open N (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: Eagle Open N (day/night)

Angle1 Angle2	: -90.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 39.50 / 39.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 3: Romina (day/night)

Car traffic volume	: 6477/563	veh/TimePeriod *
Medium truck volume	: 515/45	veh/TimePeriod *
Heavy truck volume	: 368/32	veh/TimePeriod *
Posted speed limit	: 50 km/h	
Road gradient	: 2 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	: 8000
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 # 3: Romina (day/night)

Angle1 Angle2	: 0.00 deg	71.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 33.00 / 33.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 3	(Elevated; no barrier)
Elevation	: 1.20 m	
Reference angle	: 0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Eagle Open S	1.50	66.37	66.37
2.Eagle Open N	1.50	62.23	62.23
3.Romina	1.50	56.00	56.00
Total			68.06 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Eagle Open S	1.50	59.08	59.08
2.Eagle Open N	1.50	55.16	55.16
3.Romina	1.50	48.82	48.82
Total			60.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.06
(NIGHT): 60.84

STAMSON 5.0 SUMMARY REPORT Date: 10-01-2019 09:26:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow4.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: Eagle Open S (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 20.85 / 20.85 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Eagle Open N (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: Eagle Open N (day/night)

Angle1 Angle2	:	-90.00 deg	90.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	1	(Absorptive ground surface)
Receiver source distance	:	32.60 / 32.60	m
Receiver height	:	1.50 / 4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Eagle Open S	1.50	66.84	66.84
2.Eagle Open N	1.50	63.61	63.61
Total			68.53 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Eagle Open S	1.50	59.52	59.52
2.Eagle Open N	1.50	56.47	56.47
Total			61.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.53
(NIGHT): 61.27

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 14:42:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow5.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Eagle Open S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: Eagle Open S (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.85 / 34.85 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Eagle Open N (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: Eagle Open N (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  46.60 / 46.60  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: Hope Side 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  :    80 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 # 3: Hope Side Rd (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   -53.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  91.00 / 91.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 4: TF Open (day/night)
-------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 4: TF Open (day/night)
-----------------------------------------
Angle1   Angle2           : -53.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.50 / 47.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   1.60 m
Reference angle           :   0.00


Road data, segment # 5: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 5: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  68.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.50 / 47.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  68.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.60 m
Barrier receiver distance :   6.30 / 6.30   m
Source elevation          :  97.43 m
Receiver elevation        :  98.05 m
Barrier elevation         :  98.10 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Eagle Open S	1.50	63.13	63.13
2.Eagle Open N	1.50	65.74	65.74
3.Hope Side Rd	1.50	61.47	61.47
4.TF Open	1.50	65.76	65.76
5.TF House	1.50	47.07	47.07
Total			70.42 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Eagle Open S	1.50	56.02	56.02
2.Eagle Open N	1.50	58.15	58.15
3.Hope Side Rd	1.50	53.87	53.87
4.TF Open	1.50	58.16	58.16
5.TF House	1.50	43.22	43.22
Total			62.95 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.42
(NIGHT): 62.95

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 15:02:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow6.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -16.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 91.80 / 91.80 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -16.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 2.40 / 2.40 m
Source elevation : 97.78 m
Receiver elevation : 97.95 m
Barrier elevation : 97.95 m
Reference angle : 0.00

Road data, segment # 2: TF Open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Open (day/night)
-----------------------------------------
Angle1   Angle2           : -16.00 deg   21.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  91.80 / 91.80  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  21.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  91.80 / 91.80  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  21.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :  53.00 / 53.00  m
Source elevation          :  97.78 m
Receiver elevation        :  97.95 m
Barrier elevation         :  98.25 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	41.20	41.20
2.TF Open	1.50	52.50	52.50
3.TF House	1.50	46.14	46.14
Total			53.66 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	39.92	39.92
2.TF Open	1.50	45.62	45.62
3.TF House	1.50	41.15	41.15
Total			47.73 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.66
(NIGHT): 47.73

STAMSON 5.0 SUMMARY REPORT Date: 18-04-2019 09:10:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow7.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -36.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 74.60 / 74.60 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -36.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 34.20 / 34.20 m
Source elevation : 97.37 m
Receiver elevation : 98.10 m
Barrier elevation : 98.30 m
Reference angle : 0.00

Road data, segment # 2: TF Open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Open (day/night)
-----------------------------------------
Angle1   Angle2           : -36.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  74.60 / 74.60  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :   5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  74.60 / 74.60  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :   5.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   2.40 / 2.40   m
Source elevation          :  97.37 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.10 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	45.91	45.91
2.TF Open	1.50	54.33	54.33
3.TF House	1.50	42.71	42.71
Total			55.17 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	41.35	41.35
2.TF Open	1.50	47.38	47.38
3.TF House	1.50	41.20	41.20
Total			49.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.17
(NIGHT): 49.11

STAMSON 5.0 SUMMARY REPORT Date: 18-04-2019 09:11:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow8.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -28.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 87.00 / 87.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -28.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 47.00 / 47.00 m
Source elevation : 97.78 m
Receiver elevation : 97.75 m
Barrier elevation : 98.00 m
Reference angle : 0.00

Road data, segment # 2: TF Open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Open (day/night)
-----------------------------------------
Angle1   Angle2           : -28.00 deg   6.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  87.00 / 87.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
-------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
-----------------------------------------
Angle1   Angle2           :   6.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  87.00 / 87.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :   6.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   2.40 / 2.40   m
Source elevation          :  97.78 m
Receiver elevation        :  97.75 m
Barrier elevation         :  97.85 m
```

Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	46.22	46.22
2.TF Open	1.50	52.48	52.48
3.TF House	1.50	41.79	41.79
Total			53.69 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	41.40	41.40
2.TF Open	1.50	45.58	45.58
3.TF House	1.50	40.19	40.19
Total			47.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.69
(NIGHT): 47.81

PART 3 (APPENDIX B)

Barrier Height / Sound Level Comparison Files

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 11:30:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola125.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.25 / 29.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 1.50 / 1.50 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.25 / 29.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -64.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            : -90.00 deg   Angle2 : -64.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :   1.50 / 1.50   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 4: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: Eagle Barr N (day/night)
----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 5: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
```

```
Road pavement          :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 5: Romina House (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 26.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 6: Romina Barr (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 6: Romina Barr (day/night)
--------------------------------------------
Angle1   Angle2           :  26.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
```

Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 26.00 deg Angle2 : 67.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.60 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	42.55	42.55	
2.Eagle Barr S	1.50	55.85	55.85	
3.EagleHouse N	1.50	40.87	40.87	
4.Eagle Barr N	1.50	54.66	54.66	
5.Romina House	1.50	41.07	41.07	
6.Romina Barr	1.50	42.90	42.90	
Total			58.69	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	39.86	39.86	
2.Eagle Barr S	1.50	57.09	57.09	*
3.EagleHouse N	1.50	38.43	38.43	
4.Eagle Barr N	1.50	54.87	54.87	*
5.Romina House	1.50	38.48	38.48	
6.Romina Barr	1.50	44.84	44.84	*
Total			59.41	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 58.69
(NIGHT): 59.41

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 11:31:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola130.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.25 / 29.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 1.50 / 1.50 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.25 / 29.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -64.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            : -90.00 deg   Angle2 : -64.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :   1.50 / 1.50   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 4: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: Eagle Barr N (day/night)
----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 5: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
```

```
Road pavement          :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 5: Romina House (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 26.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 6: Romina Barr (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 6: Romina Barr (day/night)
--------------------------------------------
Angle1   Angle2           :  26.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
```

Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 26.00 deg Angle2 : 67.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.60 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	42.55	42.55	
2.Eagle Barr S	1.50	54.43	54.43	
3.EagleHouse N	1.50	40.87	40.87	
4.Eagle Barr N	1.50	53.31	53.31	
5.Romina House	1.50	41.07	41.07	
6.Romina Barr	1.50	40.53	40.53	
Total			57.37	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	39.86	39.86	
2.Eagle Barr S	1.50	52.73	52.73	
3.EagleHouse N	1.50	38.43	38.43	
4.Eagle Barr N	1.50	54.87	54.87	*
5.Romina House	1.50	38.48	38.48	
6.Romina Barr	1.50	44.84	44.84	*
Total			57.39	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 57.37
(NIGHT): 57.39

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 11:31:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola135.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.25 / 29.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 1.50 / 1.50 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.25 / 29.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.50 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -64.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            : -90.00 deg   Angle2 : -64.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :   1.50 / 1.50   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 4: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: Eagle Barr N (day/night)
----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.50 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 5: Romina House (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
```

```
Road pavement          :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 5: Romina House (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 26.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 6: Romina Barr (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 6: Romina Barr (day/night)
-----------------------------------------------
Angle1   Angle2           :  26.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
```

Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 26.00 deg Angle2 : 67.00 deg
Barrier height : 3.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.60 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.55	42.55
2.Eagle Barr S	1.50	53.20	53.20
3.EagleHouse N	1.50	40.87	40.87
4.Eagle Barr N	1.50	52.11	52.11
5.Romina House	1.50	41.07	41.07
6.Romina Barr	1.50	38.66	38.66
Total			56.25 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	39.86	39.86
2.Eagle Barr S	1.50	51.76	51.76
3.EagleHouse N	1.50	38.43	38.43
4.Eagle Barr N	1.50	50.97	50.97
5.Romina House	1.50	38.48	38.48
6.Romina Barr	1.50	44.84	44.84 *
Total			55.17 dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 56.25
(NIGHT): 55.17

STAMSON 5.0 SUMMARY REPORT Date: 10-05-2019 11:32:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola140.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 29.25 / 29.25 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 6.00 m
Elevation : 1.80 m
Barrier receiver distance : 1.50 / 1.50 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.75 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.25 / 29.25  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   4.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -64.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            : -90.00 deg   Angle2 : -64.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.80 m
Barrier receiver distance :   1.50 / 1.50   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -64.00 deg   Angle2 : 90.00 deg
Barrier height            :   4.00 m
Elevation                 :   1.80 m
Barrier receiver distance :  11.30 / 11.30  m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.60 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Romina House (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
```

```
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 5: Romina House (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 26.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.08 m
Receiver elevation        :  97.60 m
Barrier elevation         :  97.75 m
Reference angle           :   0.00


Road data, segment # 6: Romina Barr (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 6: Romina Barr (day/night)
-----------------------------------------------
Angle1   Angle2           :  26.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
```

Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 26.00 deg Angle2 : 67.00 deg
Barrier height : 4.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.08 m
Receiver elevation : 97.60 m
Barrier elevation : 97.60 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.55	42.55
2.Eagle Barr S	1.50	52.15	52.15
3.EagleHouse N	1.50	40.87	40.87
4.Eagle Barr N	1.50	51.08	51.08
5.Romina House	1.50	41.07	41.07
6.Romina Barr	1.50	37.20	37.20
Total			55.32 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	39.86	39.86
2.Eagle Barr S	1.50	50.27	50.27
3.EagleHouse N	1.50	38.43	38.43
4.Eagle Barr N	1.50	50.18	50.18
5.Romina House	1.50	38.48	38.48
6.Romina Barr	1.50	44.84	44.84 *
Total			54.23 dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 55.32
(NIGHT): 54.23

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:34:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola730.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -44.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   3.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

```
Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   3.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
```

```
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4        (Elevated; with barrier)
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	45.39	45.39	
2.Eagle Barr S	1.50	53.88	53.88	
3.EagleHouse S	1.50	42.40	42.40	
4.EagleHouse N	1.50	45.81	45.81	
5.Eagle Barr N	1.50	54.31	54.31	
6.EagleHouse N	1.50	44.19	44.19	
Total			58.00	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	42.53	42.53	
2.Eagle Barr S	1.50	57.57	57.57	*
3.EagleHouse S	1.50	39.21	39.21	
4.EagleHouse N	1.50	42.68	42.68	
5.Eagle Barr N	1.50	57.54	57.54	*
6.EagleHouse N	1.50	40.12	40.12	
Total			60.77	dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 58.00
                           (NIGHT): 60.77
```

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:34:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola735.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -44.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   3.50 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

```
Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   3.50 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
```

```
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4        (Elevated; with barrier)
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	45.39	45.39	
2.Eagle Barr S	1.50	52.07	52.07	
3.EagleHouse S	1.50	42.40	42.40	
4.EagleHouse N	1.50	45.81	45.81	
5.Eagle Barr N	1.50	52.40	52.40	
6.EagleHouse N	1.50	44.19	44.19	
Total			56.54	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.EagleHouse S	1.50	42.53	42.53	
2.Eagle Barr S	1.50	53.20	53.20	
3.EagleHouse S	1.50	39.21	39.21	
4.EagleHouse N	1.50	42.68	42.68	
5.Eagle Barr N	1.50	57.54	57.54	*
6.EagleHouse N	1.50	40.12	40.12	
Total			59.20	dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 56.54
                           (NIGHT): 59.20
```

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:35:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola740.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -44.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
--------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   4.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00

Road data, segment # 3: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
--------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
```

```
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

```
Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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)	17500
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 # 5: Eagle Barr N (day/night)

Angle1 Angle2	-44.00 deg 76.00 deg
Wood depth	0 (No woods.)
No of house rows	0 / 0
Surface	2 (Reflective ground surface)
Receiver source distance	35.75 / 35.75 m
Receiver height	1.50 / 4.50 m
Topography	4 (Elevated; with barrier)
Barrier angle1	-44.00 deg Angle2 : 76.00 deg
Barrier height	4.00 m
Elevation	0.87 m
Barrier receiver distance	6.50 / 6.50 m
Source elevation	96.63 m
Receiver elevation	97.50 m
Barrier elevation	97.50 m
Reference angle	0.00

Road data, segment # 6: EagleHouse N (day/night)

Car traffic volume	14168/1232 veh/TimePeriod *
Medium truck volume	1127/98 veh/TimePeriod *
Heavy truck volume	805/70 veh/TimePeriod *
Posted speed limit	60 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)	17500
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 # 6: EagleHouse N (day/night)

Angle1 Angle2	76.00 deg 90.00 deg
Wood depth	0 (No woods.)
No of house rows	0 / 0
Surface	2 (Reflective ground surface)
Receiver source distance	35.75 / 35.75 m

Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 76.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.80 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	45.39	45.39
2.Eagle Barr S	1.50	50.54	50.54
3.EagleHouse S	1.50	42.40	42.40
4.EagleHouse N	1.50	45.81	45.81
5.Eagle Barr N	1.50	50.78	50.78
6.EagleHouse N	1.50	44.19	44.19
Total			55.43 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.53	42.53
2.Eagle Barr S	1.50	52.14	52.14
3.EagleHouse S	1.50	39.21	39.21
4.EagleHouse N	1.50	42.68	42.68
5.Eagle Barr N	1.50	52.38	52.38
6.EagleHouse N	1.50	40.12	40.12
Total			55.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.43
(NIGHT): 55.93

STAMSON 5.0 SUMMARY REPORT Date: 07-01-2019 13:35:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola745.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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): 17500
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: EagleHouse S (day/night)

Angle1 Angle2 : -90.00 deg -44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -44.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.70 m
Reference angle : 0.00

Road data, segment # 2: Eagle Barr S (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 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):  17500
    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: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           : -44.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -44.00 deg   Angle2 : 76.00 deg
Barrier height            :   4.50 m
Elevation                 :   0.87 m
Barrier receiver distance :   6.50 / 6.50   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.50 m
Reference angle           :   0.00


Road data, segment # 3: EagleHouse S (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 3: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           :  76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.80 m
Reference angle           :   0.00
```

```
Road data, segment # 4: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -44.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.75 / 35.75  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :   6.00 m
Elevation                 :   0.87 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.63 m
Receiver elevation        :  97.50 m
Barrier elevation         :  97.70 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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)	17500
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 # 5: Eagle Barr N (day/night)

Angle1 Angle2	-44.00 deg	76.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)
Receiver source distance	35.75 / 35.75	m
Receiver height	1.50 / 4.50	m
Topography	4	(Elevated; with barrier)
Barrier angle1	-44.00 deg	Angle2 : 76.00 deg
Barrier height	4.50 m	
Elevation	0.87 m	
Barrier receiver distance	6.50 / 6.50	m
Source elevation	96.63 m	
Receiver elevation	97.50 m	
Barrier elevation	97.50 m	
Reference angle	0.00	

Road data, segment # 6: EagleHouse N (day/night)

Car traffic volume	14168/1232	veh/TimePeriod *
Medium truck volume	1127/98	veh/TimePeriod *
Heavy truck volume	805/70	veh/TimePeriod *
Posted speed limit	60 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)	17500
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 # 6: EagleHouse N (day/night)

Angle1 Angle2	76.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	2	(Reflective ground surface)

Receiver source distance : 35.75 / 35.75 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 76.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Elevation : 0.87 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.63 m
Receiver elevation : 97.50 m
Barrier elevation : 97.80 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	45.39	45.39
2.Eagle Barr S	1.50	49.27	49.27
3.EagleHouse S	1.50	42.40	42.40
4.EagleHouse N	1.50	45.81	45.81
5.Eagle Barr N	1.50	49.39	49.39
6.EagleHouse N	1.50	44.19	44.19
Total			54.59 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.EagleHouse S	1.50	42.53	42.53
2.Eagle Barr S	1.50	50.01	50.01
3.EagleHouse S	1.50	39.21	39.21
4.EagleHouse N	1.50	42.68	42.68
5.Eagle Barr N	1.50	50.88	50.88
6.EagleHouse N	1.50	40.12	40.12
Total			54.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.59
(NIGHT): 54.44

STAMSON 5.0 SUMMARY REPORT Date: 22-04-2019 10:05:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola830.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -54.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.20 / 22.20 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -54.00 deg
Barrier height : 6.00 m
Elevation : 1.85 m
Barrier receiver distance : 2.60 / 2.60 m
Source elevation : 97.54 m
Receiver elevation : 97.90 m
Barrier elevation : 98.15 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -54.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -54.00 deg   Angle2 : 86.00 deg
Barrier height            :   3.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   3.90 / 3.90   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  86.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  86.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   1.80 / 1.80   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.95 m
Reference angle           :   0.00


Road data, segment # 4: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse S (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00

Road data, segment # 6: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00


Road data, segment # 7: Eagle Barr N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 7: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.00 m
Barrier receiver distance :   3.00 / 3.00   m
```

Source elevation : 96.97 m
Receiver elevation : 97.90 m
Barrier elevation : 97.90 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	47.08	47.08	
2.TF Barrier	1.50	56.78	56.78	
3.TF House	1.50	41.32	41.32	
4.EagleHouse S	1.50	39.96	39.96	
5.Eagle Barr S	1.50	40.28	40.28	
6.EagleHouse N	1.50	40.57	40.57	
7.Eagle Barr N	1.50	40.97	40.97	
Total			57.68	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	44.17	44.17	
2.TF Barrier	1.50	60.45	60.45	*
3.TF House	1.50	37.62	37.62	
4.EagleHouse S	1.50	38.38	38.38	
5.Eagle Barr S	1.50	39.56	39.56	*
6.EagleHouse N	1.50	38.90	38.90	
7.Eagle Barr N	1.50	40.31	40.31	*
Total			60.70	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 57.68
(NIGHT): 60.70

STAMSON 5.0 SUMMARY REPORT Date: 22-04-2019 10:06:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola835.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume	: 12144/1056	veh/TimePeriod *
Medium truck volume	: 966/84	veh/TimePeriod *
Heavy truck volume	: 690/60	veh/TimePeriod *
Posted speed limit	: 80	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)	: 15000
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: TF House (day/night)

Angle1 Angle2	: -90.00 deg	-54.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 22.20 / 22.20	m
Receiver height	: 1.50 / 4.50	m
Topography	: 4	(Elevated; with barrier)
Barrier angle1	: -90.00 deg	Angle2 : -54.00 deg
Barrier height	: 6.00	m
Elevation	: 1.85	m
Barrier receiver distance	: 2.60 / 2.60	m
Source elevation	: 97.54	m
Receiver elevation	: 97.90	m
Barrier elevation	: 98.15	m
Reference angle	: 0.00	

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume	: 12144/1056	veh/TimePeriod *
Medium truck volume	: 966/84	veh/TimePeriod *
Heavy truck volume	: 690/60	veh/TimePeriod *
Posted speed limit	: 80	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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -54.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -54.00 deg   Angle2 : 86.00 deg
Barrier height            :   3.50 m
Elevation                 :   1.85 m
Barrier receiver distance :   3.90 / 3.90   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  86.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  86.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   1.80 / 1.80   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.95 m
Reference angle           :   0.00


Road data, segment # 4: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse S (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Eagle Barr S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 5: Eagle Barr S (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00


Road data, segment # 6: EagleHouse N (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00


Road data, segment # 7: Eagle Barr N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 7: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.50 m
```

Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.97 m
Receiver elevation : 97.90 m
Barrier elevation : 97.90 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	47.08	47.08	
2.TF Barrier	1.50	54.94	54.94	
3.TF House	1.50	41.32	41.32	
4.EagleHouse S	1.50	39.96	39.96	
5.Eagle Barr S	1.50	39.33	39.33	
6.EagleHouse N	1.50	40.57	40.57	
7.Eagle Barr N	1.50	40.00	40.00	
Total			56.19	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	44.17	44.17	
2.TF Barrier	1.50	60.45	60.45	*
3.TF House	1.50	37.62	37.62	
4.EagleHouse S	1.50	38.38	38.38	
5.Eagle Barr S	1.50	39.56	39.56	*
6.EagleHouse N	1.50	38.90	38.90	
7.Eagle Barr N	1.50	40.31	40.31	*
Total			60.70	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 56.19
(NIGHT): 60.70

STAMSON 5.0 SUMMARY REPORT Date: 22-04-2019 10:06:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola840.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -54.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.20 / 22.20 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -54.00 deg
Barrier height : 6.00 m
Elevation : 1.85 m
Barrier receiver distance : 2.60 / 2.60 m
Source elevation : 97.54 m
Receiver elevation : 97.90 m
Barrier elevation : 98.15 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -54.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -54.00 deg   Angle2 : 86.00 deg
Barrier height            :   4.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   3.90 / 3.90   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00

Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
--------------------------------------------
Angle1   Angle2           :  86.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  86.00 deg   Angle2 : 90.00 deg
```

```
Barrier height            :   6.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   1.80 / 1.80   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.95 m
Reference angle           :   0.00


Road data, segment # 4: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse S (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00
```

Road data, segment # 5: Eagle Barr S (day/night)

Car traffic volume	: 14168/1232	veh/TimePeriod *
Medium truck volume	: 1127/98	veh/TimePeriod *
Heavy truck volume	: 805/70	veh/TimePeriod *
Posted speed limit	: 60	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)	:	17500
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 # 5: Eagle Barr S (day/night)

Angle1 Angle2	: 46.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 1	
House density	: 20	%
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 113.00 / 113.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: 46.00 deg	Angle2 : 90.00 deg
Barrier height	: 4.00	m
Barrier receiver distance	: 3.00 / 3.00	m
Source elevation	: 96.97	m
Receiver elevation	: 97.90	m
Barrier elevation	: 97.90	m
Reference angle	: 0.00	

Road data, segment # 6: EagleHouse N (day/night)

Car traffic volume	: 14168/1232	veh/TimePeriod *
Medium truck volume	: 1127/98	veh/TimePeriod *
Heavy truck volume	: 805/70	veh/TimePeriod *
Posted speed limit	: 60	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)	:	17500
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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00


Road data, segment # 7: Eagle Barr N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 7: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   4.00 m
```

Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 96.97 m
Receiver elevation : 97.90 m
Barrier elevation : 97.90 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	47.08	47.08	
2.TF Barrier	1.50	53.45	53.45	
3.TF House	1.50	41.32	41.32	
4.EagleHouse S	1.50	39.96	39.96	
5.Eagle Barr S	1.50	38.60	38.60	
6.EagleHouse N	1.50	40.57	40.57	
7.Eagle Barr N	1.50	39.25	39.25	
Total			55.09	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	44.17	44.17	
2.TF Barrier	1.50	56.14	56.14	
3.TF House	1.50	37.62	37.62	
4.EagleHouse S	1.50	38.38	38.38	
5.Eagle Barr S	1.50	39.56	39.56	*
6.EagleHouse N	1.50	38.90	38.90	
7.Eagle Barr N	1.50	40.31	40.31	*
Total			56.79	dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 55.09
(NIGHT): 56.79

STAMSON 5.0 SUMMARY REPORT Date: 22-04-2019 10:07:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola845.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -54.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.20 / 22.20 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -54.00 deg
Barrier height : 6.00 m
Elevation : 1.85 m
Barrier receiver distance : 2.60 / 2.60 m
Source elevation : 97.54 m
Receiver elevation : 97.90 m
Barrier elevation : 98.15 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -54.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -54.00 deg   Angle2 : 86.00 deg
Barrier height            :   4.50 m
Elevation                 :   1.85 m
Barrier receiver distance :   3.90 / 3.90   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.90 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
--------------------------------------------
Angle1   Angle2           :  86.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.20 / 22.20  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  86.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.85 m
Barrier receiver distance :   1.80 / 1.80   m
Source elevation          :  97.54 m
Receiver elevation        :  97.90 m
Barrier elevation         :  97.95 m
Reference angle           :   0.00


Road data, segment # 4: EagleHouse S (day/night)
-----------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 4: EagleHouse S (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 113.00 / 113.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00
```

Road data, segment # 5: Eagle Barr S (day/night)

Car traffic volume	: 14168/1232	veh/TimePeriod *
Medium truck volume	: 1127/98	veh/TimePeriod *
Heavy truck volume	: 805/70	veh/TimePeriod *
Posted speed limit	: 60	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)	: 17500
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 # 5: Eagle Barr S (day/night)

Angle1 Angle2	: 46.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 1	
House density	: 20	%
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 113.00 / 113.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: 46.00 deg	Angle2 : 90.00 deg
Barrier height	: 4.50	m
Barrier receiver distance	: 3.00 / 3.00	m
Source elevation	: 96.97	m
Receiver elevation	: 97.90	m
Barrier elevation	: 97.90	m
Reference angle	: 0.00	

Road data, segment # 6: EagleHouse N (day/night)

Car traffic volume	: 14168/1232	veh/TimePeriod *
Medium truck volume	: 1127/98	veh/TimePeriod *
Heavy truck volume	: 805/70	veh/TimePeriod *
Posted speed limit	: 60	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)	: 17500
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 # 6: EagleHouse N (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :   6.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  96.97 m
Receiver elevation        :  97.90 m
Barrier elevation         :  98.15 m
Reference angle           :   0.00


Road data, segment # 7: Eagle Barr N (day/night)
-------------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 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):  17500
    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 # 7: Eagle Barr N (day/night)
-----------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.25 / 101.25 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with
barrier)
Barrier angle1            :  46.00 deg   Angle2 : 90.00 deg
Barrier height            :   4.50 m
Barrier receiver distance :   3.00 / 3.00   m
```

Source elevation : 96.97 m
Receiver elevation : 97.90 m
Barrier elevation : 97.90 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	47.08	47.08
2.TF Barrier	1.50	52.21	52.21
3.TF House	1.50	41.32	41.32
4.EagleHouse S	1.50	39.96	39.96
5.Eagle Barr S	1.50	38.05	38.05
6.EagleHouse N	1.50	40.57	40.57
7.Eagle Barr N	1.50	38.69	38.69
Total			54.25 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	44.17	44.17
2.TF Barrier	1.50	54.55	54.55
3.TF House	1.50	37.62	37.62
4.EagleHouse S	1.50	38.38	38.38
5.Eagle Barr S	1.50	38.98	38.98
6.EagleHouse N	1.50	38.90	38.90
7.Eagle Barr N	1.50	39.59	39.59
Total			55.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.25
(NIGHT): 55.42

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:34:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1125.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.70 / 25.70 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -74.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.70 / 3.70 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 97.85 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -74.00 deg   42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -74.00 deg   Angle2 : 42.00 deg
Barrier height            :   2.50 m
Elevation                 :   1.15 m
Barrier receiver distance :   6.60 / 6.60   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.10 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

```
Barrier angle1            :  42.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.00 m
Elevation                 :   1.15 m
Barrier receiver distance :   3.30 / 3.30   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.25 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	45.33	45.33	
2.TF Barrier	1.50	58.26	58.26	
3.TF House	1.50	47.35	47.35	
Total			58.80	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	42.63	42.63	
2.TF Barrier	1.50	58.85	58.85	*
3.TF House	1.50	44.74	44.74	
Total			59.11	dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 58.80
                           (NIGHT): 59.11
```

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:33:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1130.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.70 / 25.70 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -74.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.70 / 3.70 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 97.85 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -74.00 deg   42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -74.00 deg   Angle2 : 42.00 deg
Barrier height            :   3.00 m
Elevation                 :   1.15 m
Barrier receiver distance :   6.60 / 6.60   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.10 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  42.00 deg   Angle2 : 90.00 deg
```

```
Barrier height            :   6.00 m
Elevation                 :   1.15 m
Barrier receiver distance :   3.30 / 3.30   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.25 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	45.33	45.33	
2.TF Barrier	1.50	56.05	56.05	
3.TF House	1.50	47.35	47.35	
Total			56.91	dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)	
1.TF House	1.50	42.63	42.63	
2.TF Barrier	1.50	58.85	58.85	*
3.TF House	1.50	44.74	44.74	
Total			59.11	dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 56.91
                           (NIGHT): 59.11
```

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:34:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1135.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.70 / 25.70 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -74.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.70 / 3.70 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 97.85 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -74.00 deg   42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -74.00 deg   Angle2 : 42.00 deg
Barrier height            :   3.50 m
Elevation                 :   1.15 m
Barrier receiver distance :   6.60 / 6.60   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.10 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

Barrier angle1 : 42.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.30 / 3.30 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 98.25 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	45.33	45.33
2.TF Barrier	1.50	54.12	54.12
3.TF House	1.50	47.35	47.35
Total			55.40 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	42.63	42.63
2.TF Barrier	1.50	58.85	58.85 *
3.TF House	1.50	44.74	44.74
Total			59.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.40
(NIGHT): 59.11

STAMSON 5.0 SUMMARY REPORT Date: 17-04-2019 14:35:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1137.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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): 15000
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: TF House (day/night)

Angle1 Angle2 : -90.00 deg -74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.70 / 25.70 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -74.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.70 / 3.70 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 97.85 m
Reference angle : 0.00

Road data, segment # 2: TF Barrier (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 80 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):  15000
    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: TF Barrier (day/night)
--------------------------------------------
Angle1   Angle2           : -74.00 deg   42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -74.00 deg   Angle2 : 42.00 deg
Barrier height            :   3.70 m
Elevation                 :   1.15 m
Barrier receiver distance :   6.60 / 6.60   m
Source elevation          :  97.93 m
Receiver elevation        :  98.10 m
Barrier elevation         :  98.10 m
Reference angle           :   0.00


Road data, segment # 3: TF House (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    80 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):  15000
    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 # 3: TF House (day/night)
------------------------------------------
Angle1   Angle2           :  42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.70 / 25.70  m
Receiver height           :   1.50 / 4.50   m
Topography                :      4       (Elevated; with barrier)
```

Barrier angle1 : 42.00 deg Angle2 : 90.00 deg
Barrier height : 6.00 m
Elevation : 1.15 m
Barrier receiver distance : 3.30 / 3.30 m
Source elevation : 97.93 m
Receiver elevation : 98.10 m
Barrier elevation : 98.25 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	45.33	45.33
2.TF Barrier	1.50	53.43	53.43
3.TF House	1.50	47.35	47.35
Total			54.90 dBA

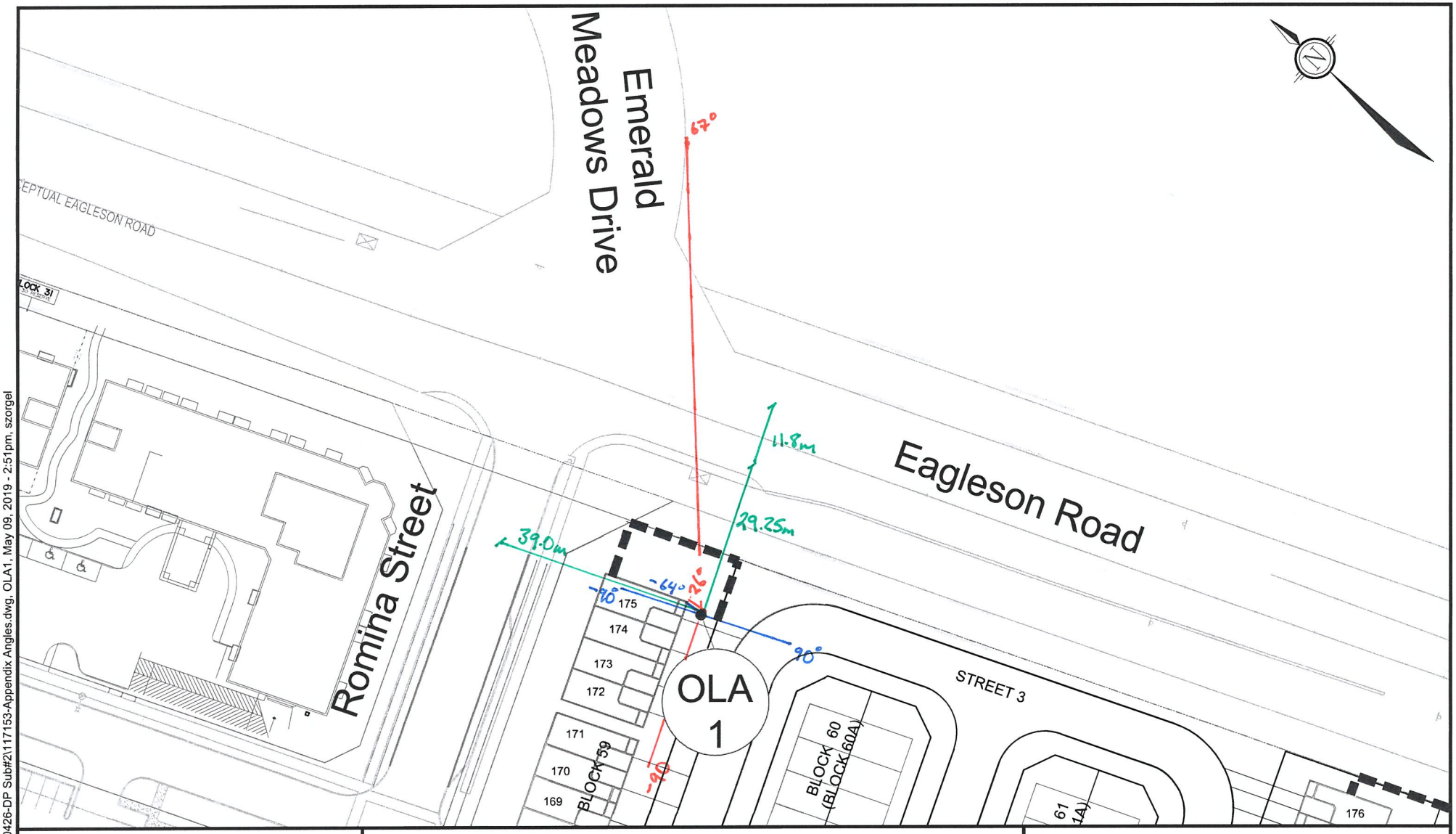
Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.TF House	1.50	42.63	42.63
2.TF Barrier	1.50	54.58	54.58
3.TF House	1.50	44.74	44.74
Total			55.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.90
(NIGHT): 55.25

PART 4 (APPENDIX B)

Stamson Modelling Angles



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CITY OF OTTAWA
BRIDLEWOOD 3

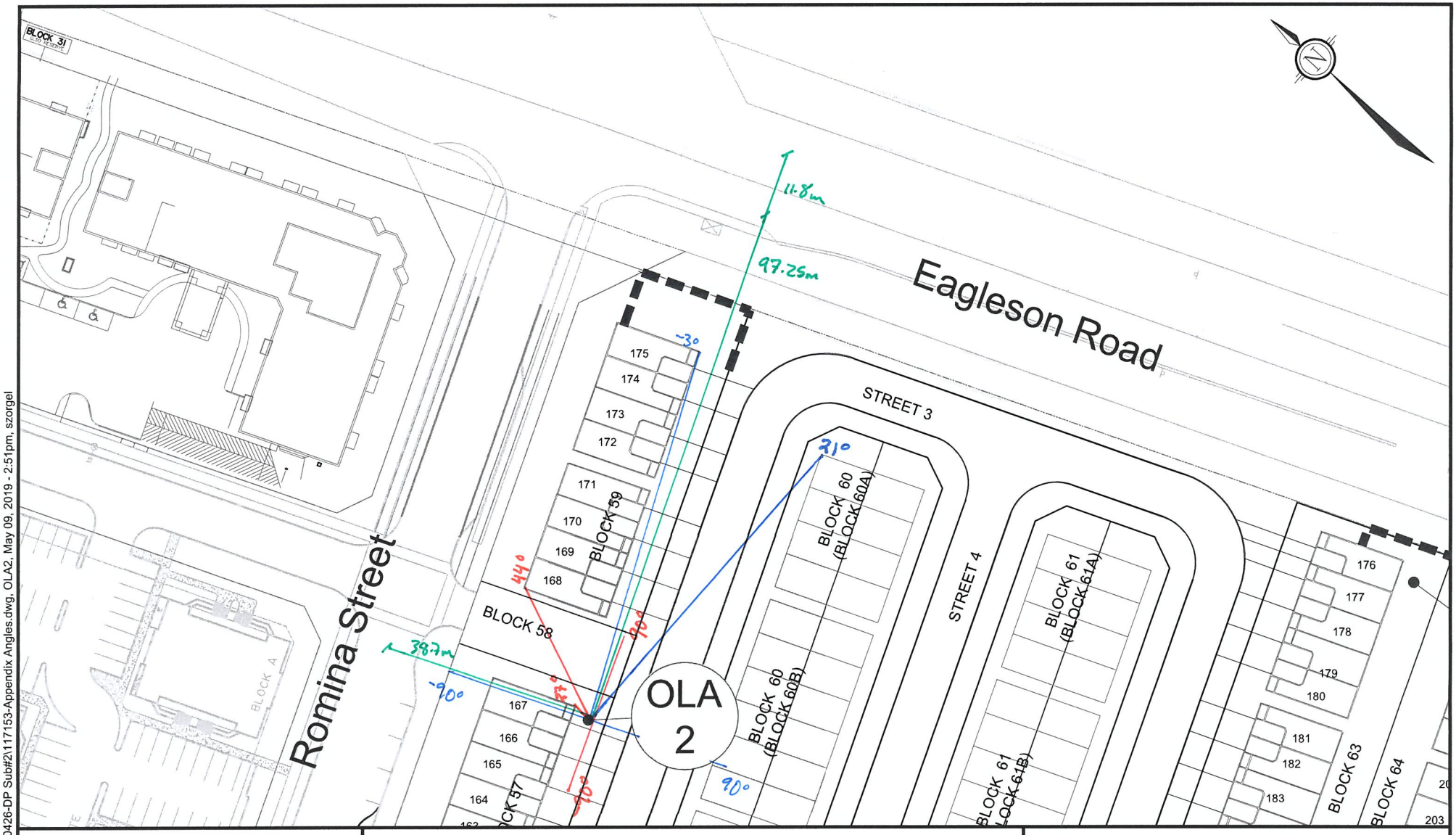
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA1

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA1, May 09, 2019 - 2:51pm, szorgel



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Eagleson Road Angles
Romina Street Angles

CITY OF OTTAWA
BRIDLEWOOD 3

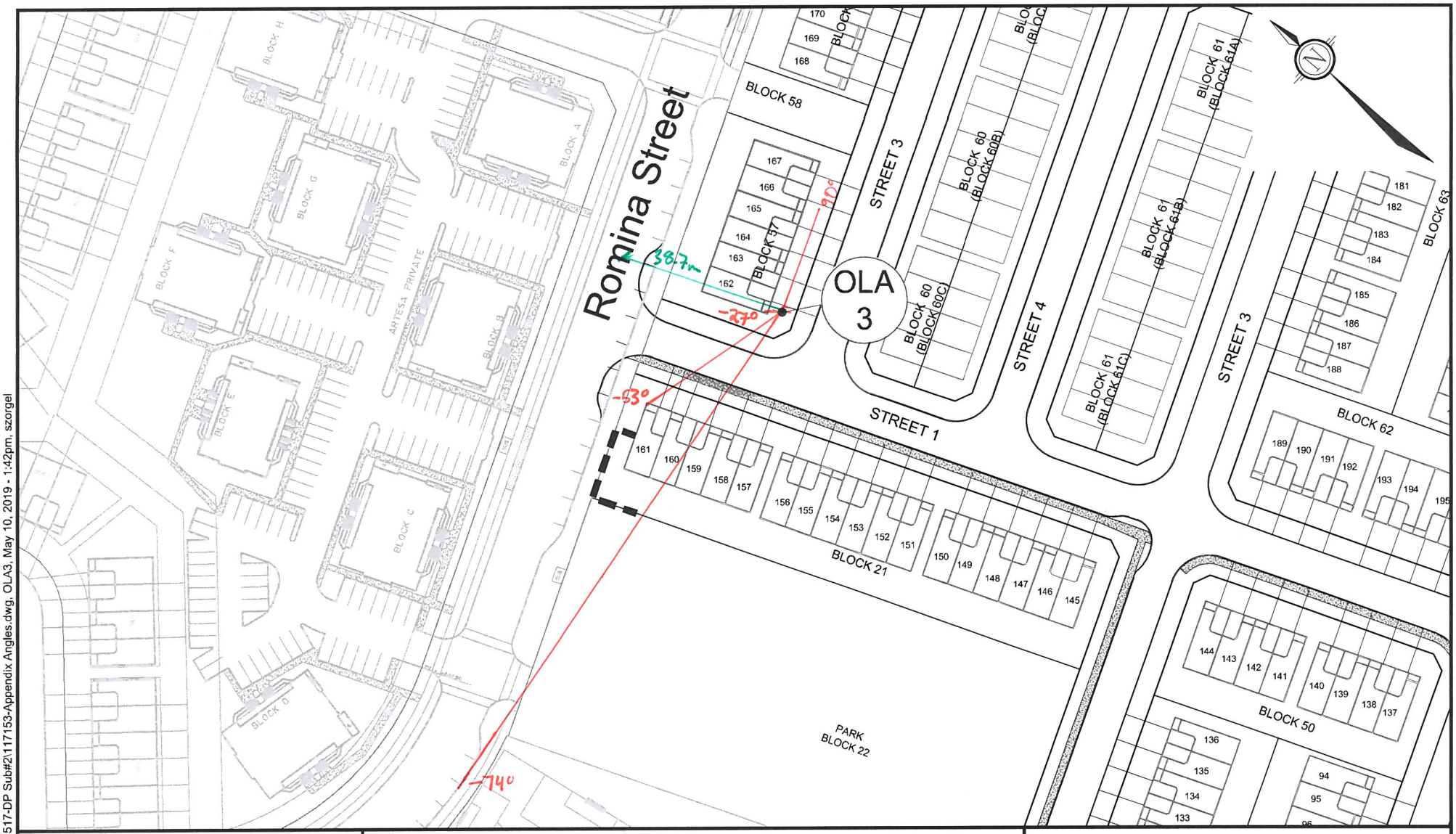
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA2

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA2, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

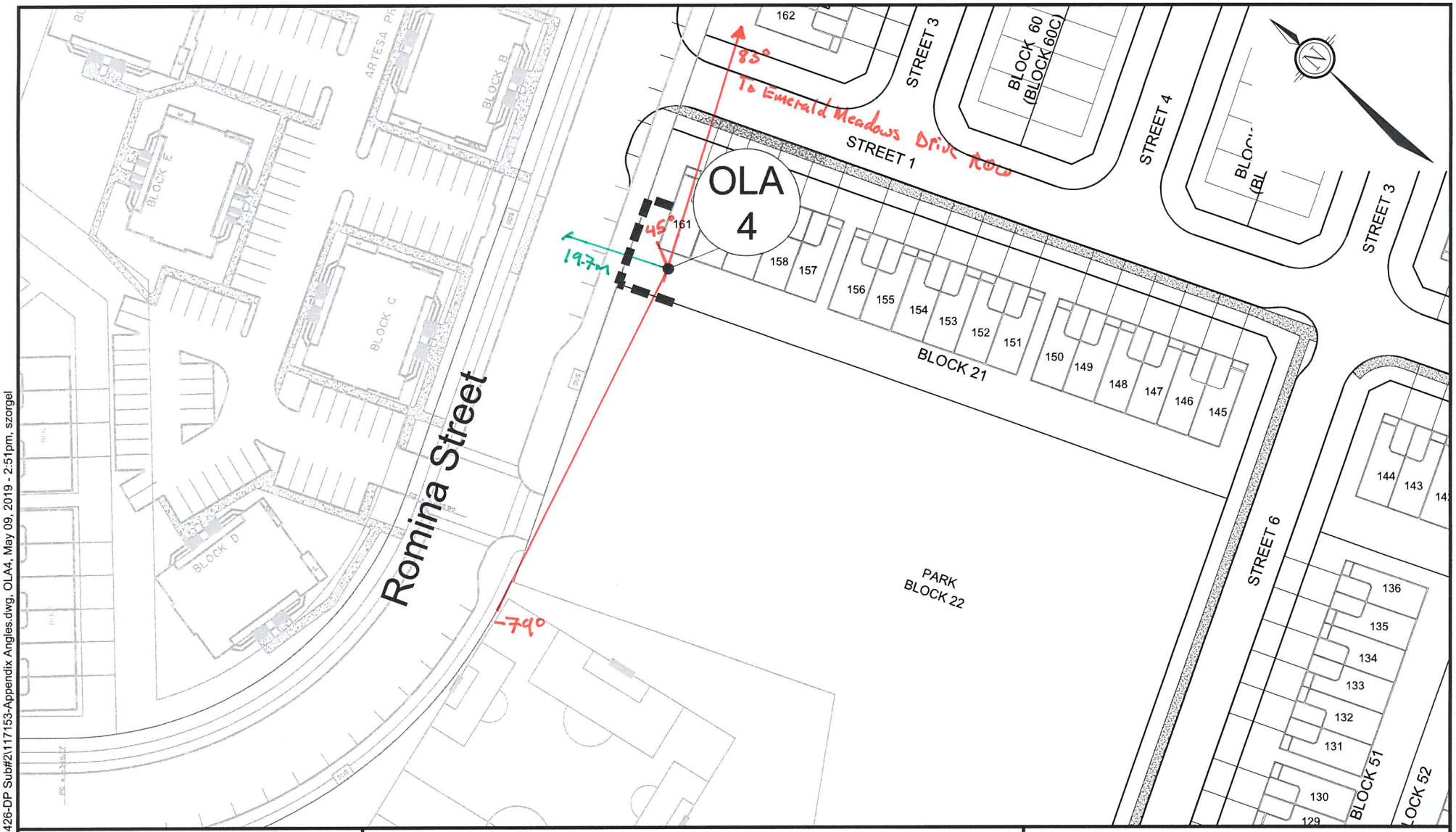
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1250 (0, 10, 20, 30, 40, 50)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA3

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190517-DP Sub#2\117153-Appendix Angles.dwg, OLA3, May 10, 2019 - 1:42pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

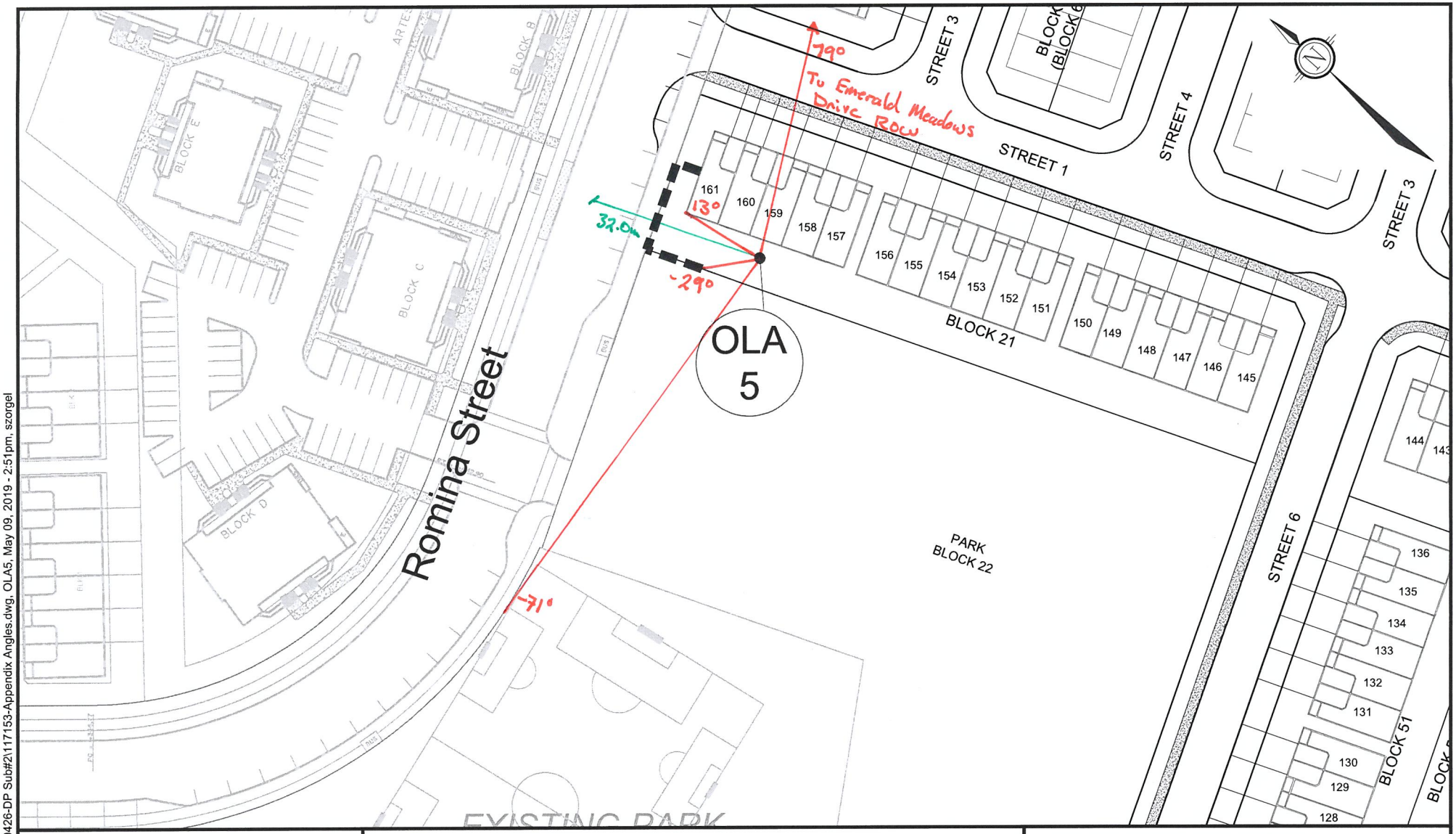
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA4

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA4, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

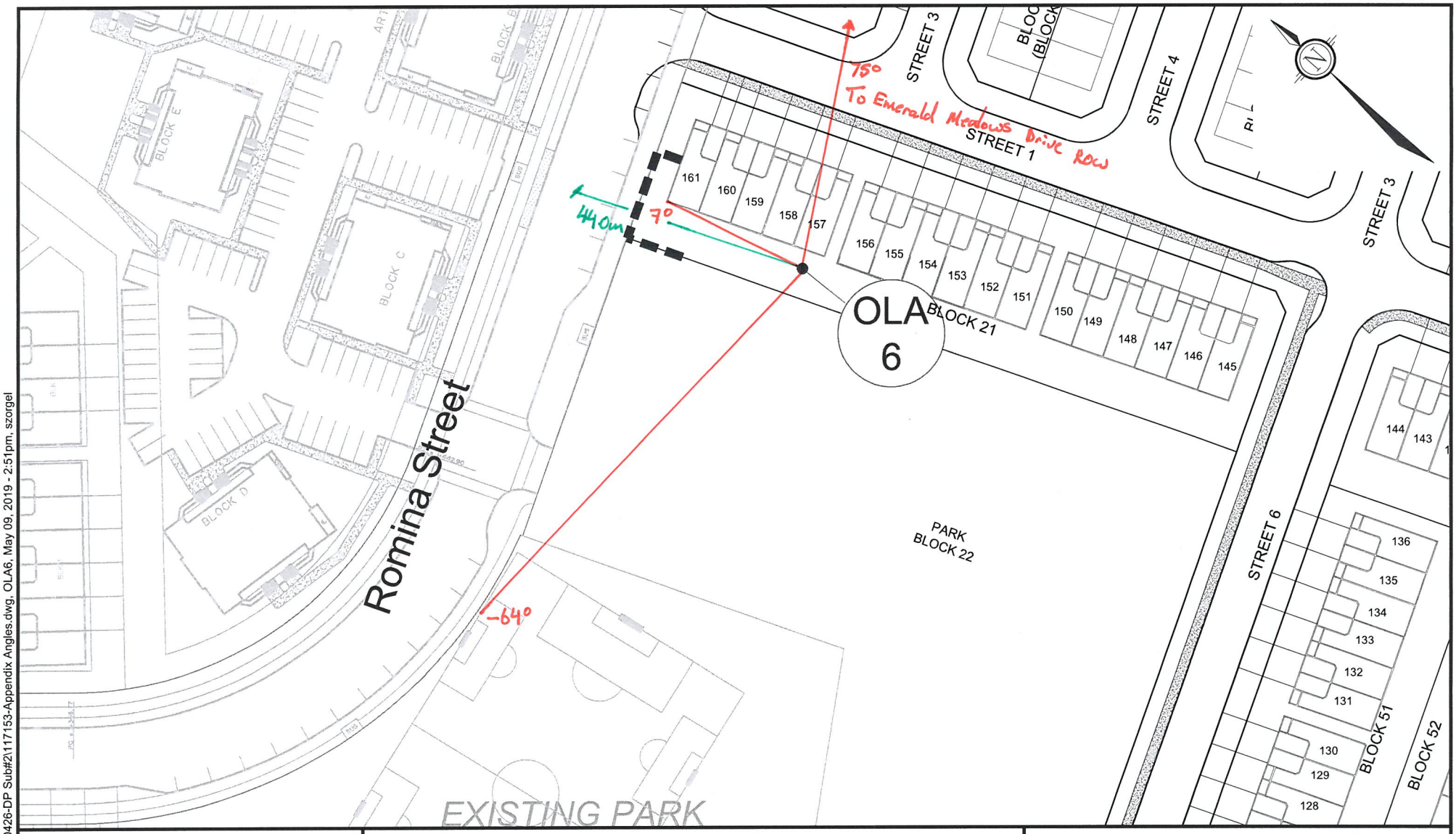
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE MAY 2019 | JOB 117153 | FIGURE FIG-OLA5

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA5, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

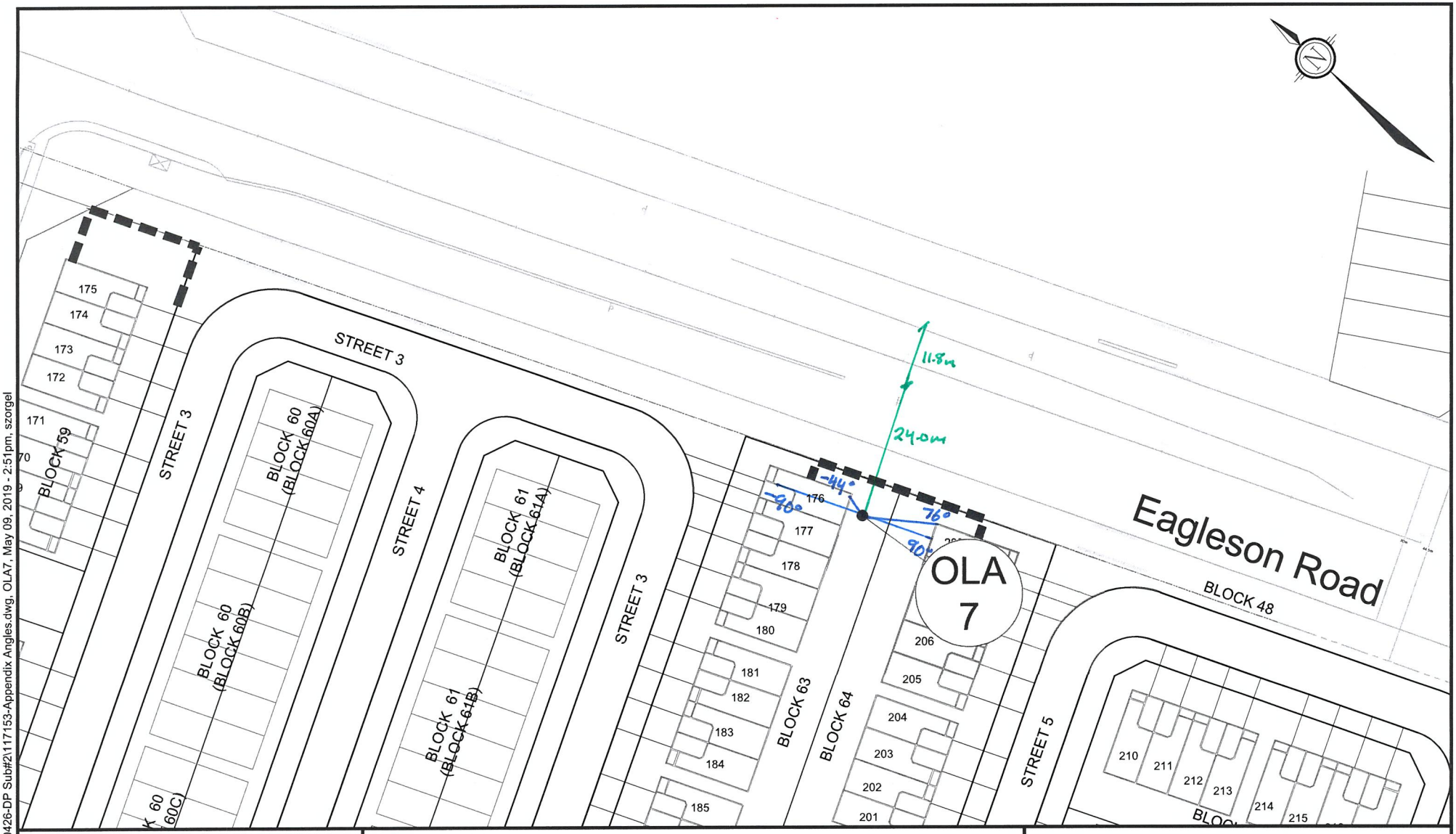
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA6

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA6, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

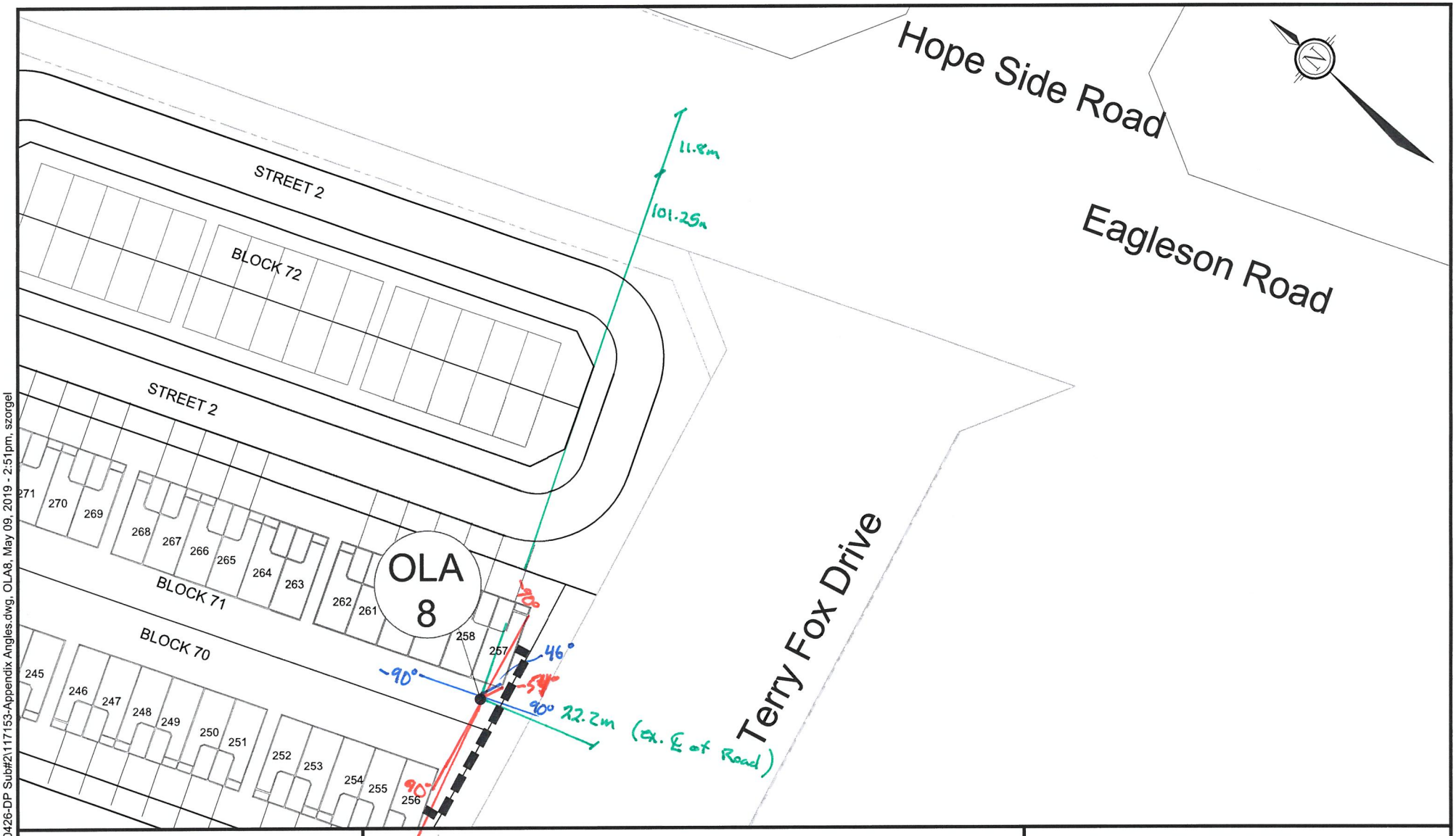
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA7

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA7, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

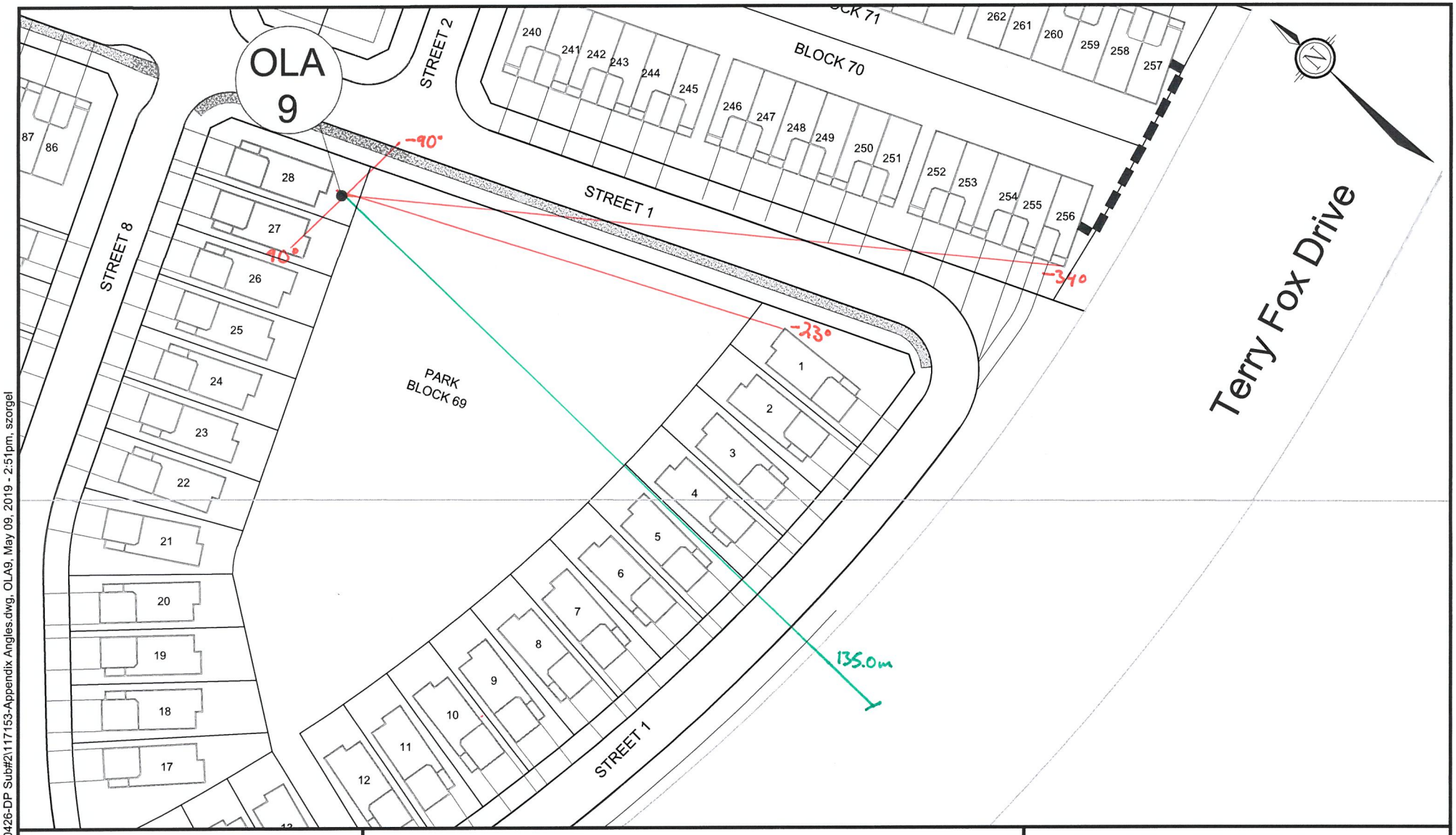
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE MAY 2019 | JOB 117153 | FIGURE FIG-OLA8

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA8, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

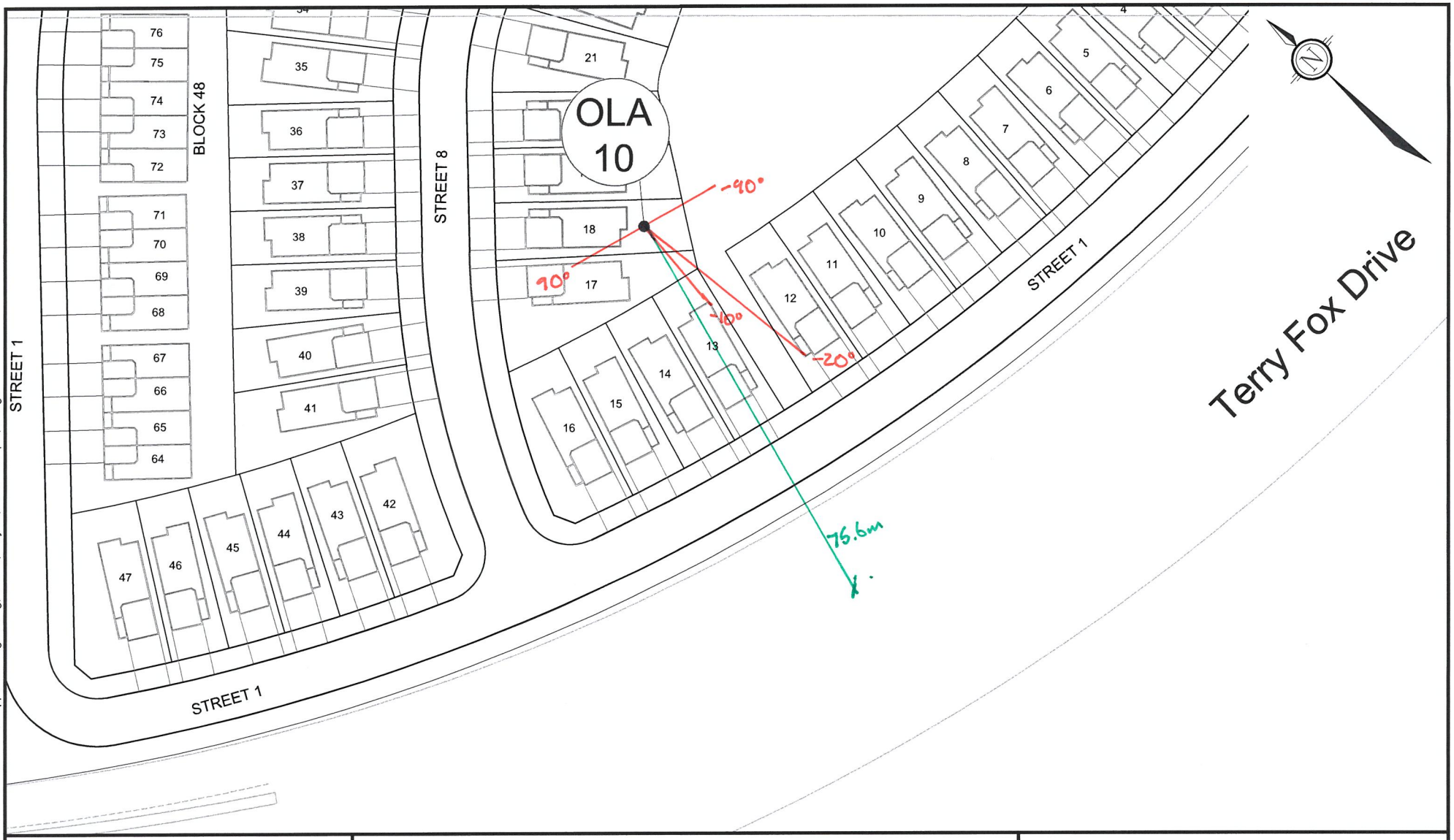
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA9

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA9, May 09, 2019 - 2:51pm, szorgel

SHT8X11.DWG - 216mmx279mm



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CITY OF OTTAWA
BRIDLEWOOD 3

RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-OLA10

SHT8X11.DWG - 216mmx279mm

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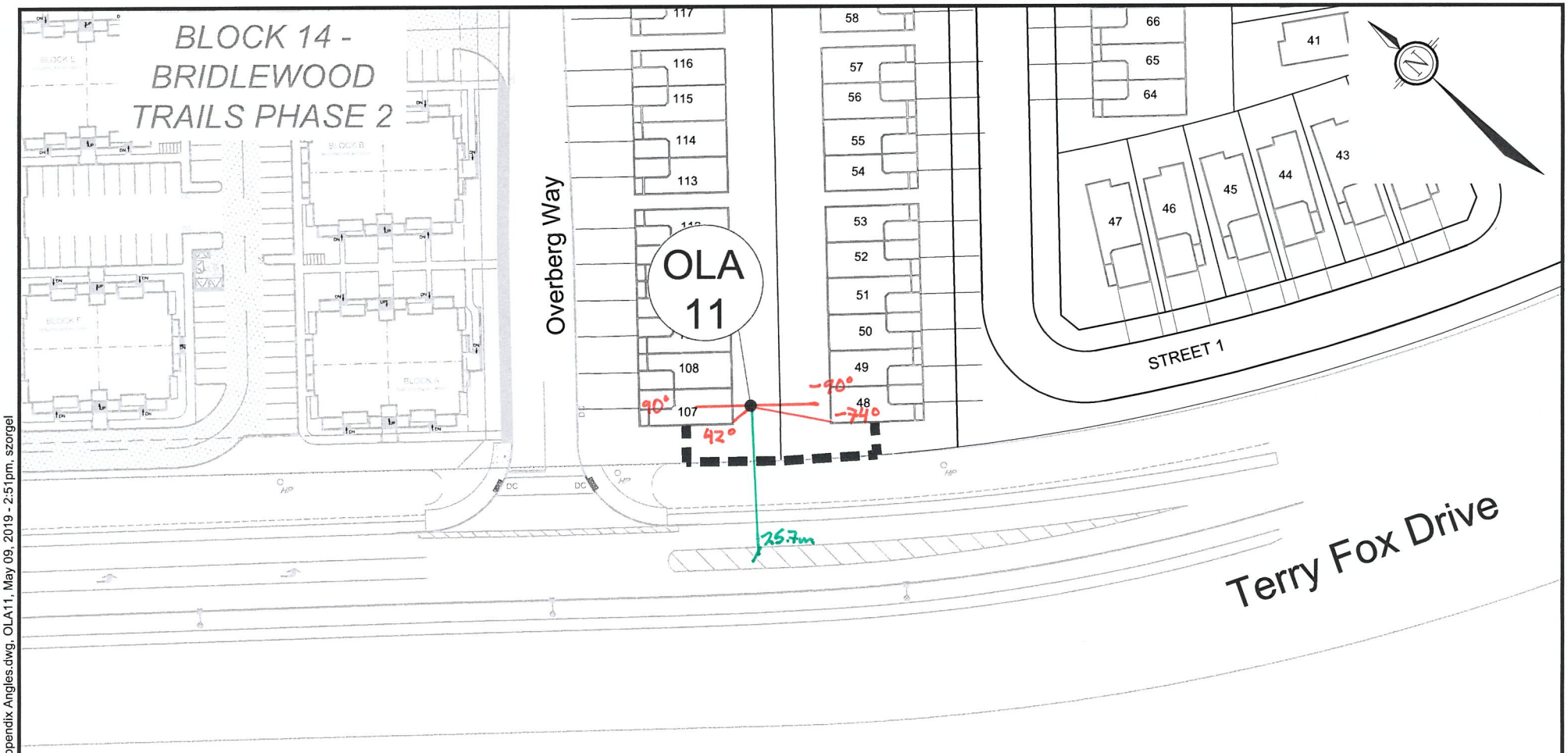

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CITY OF OTTAWA
BRIDLEWOOD 3

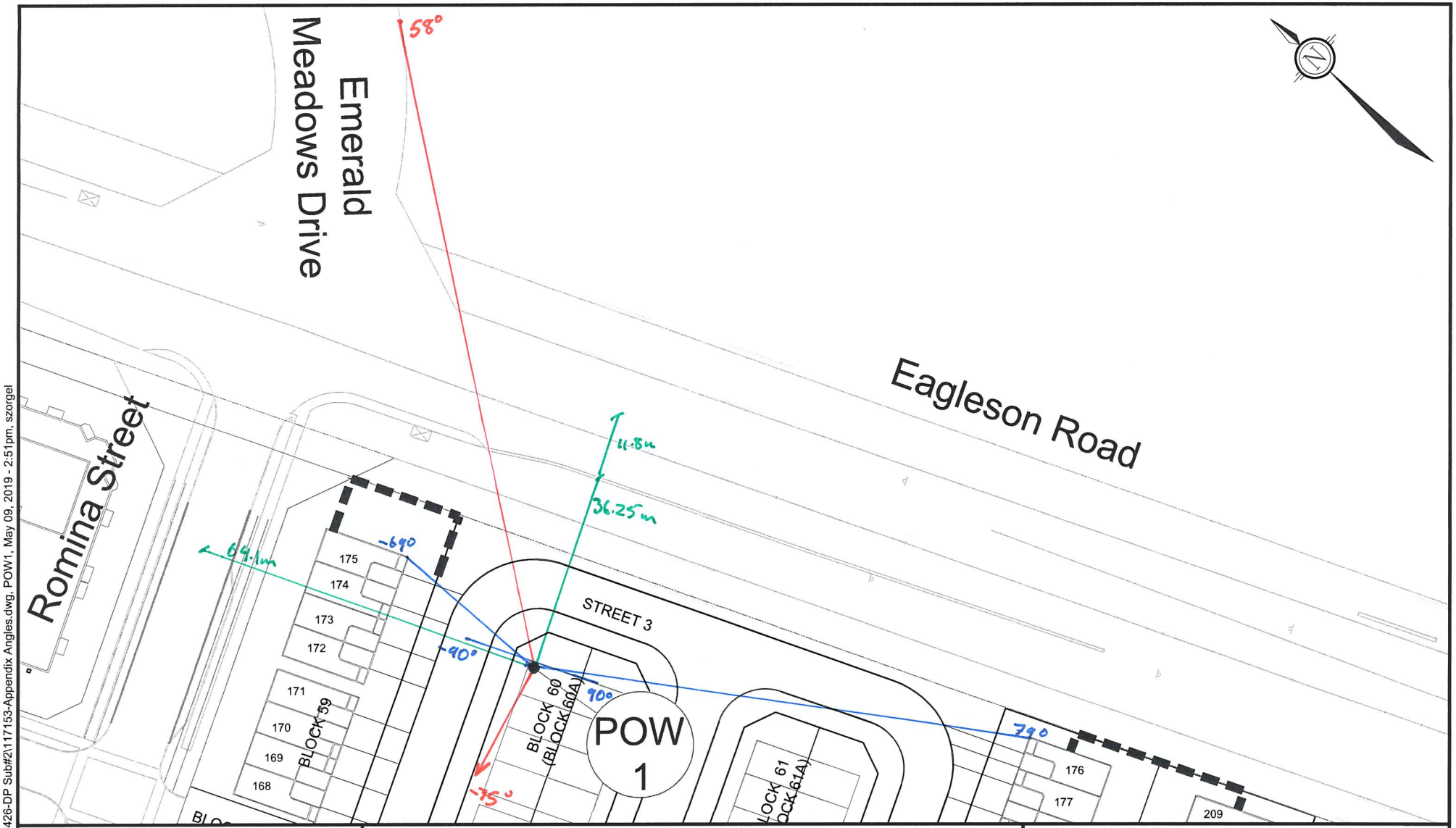
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE MAY 2019 | JOB 117153 | FIGURE FIG-OLA11

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CADDesign\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, OLA11, May 09, 2019 - 2:51pm, szorgel



(Romina St. at corner)

Eagleson Road Angles

Romina Street Angles

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CITY OF OTTAWA
BRIDLEWOOD 3

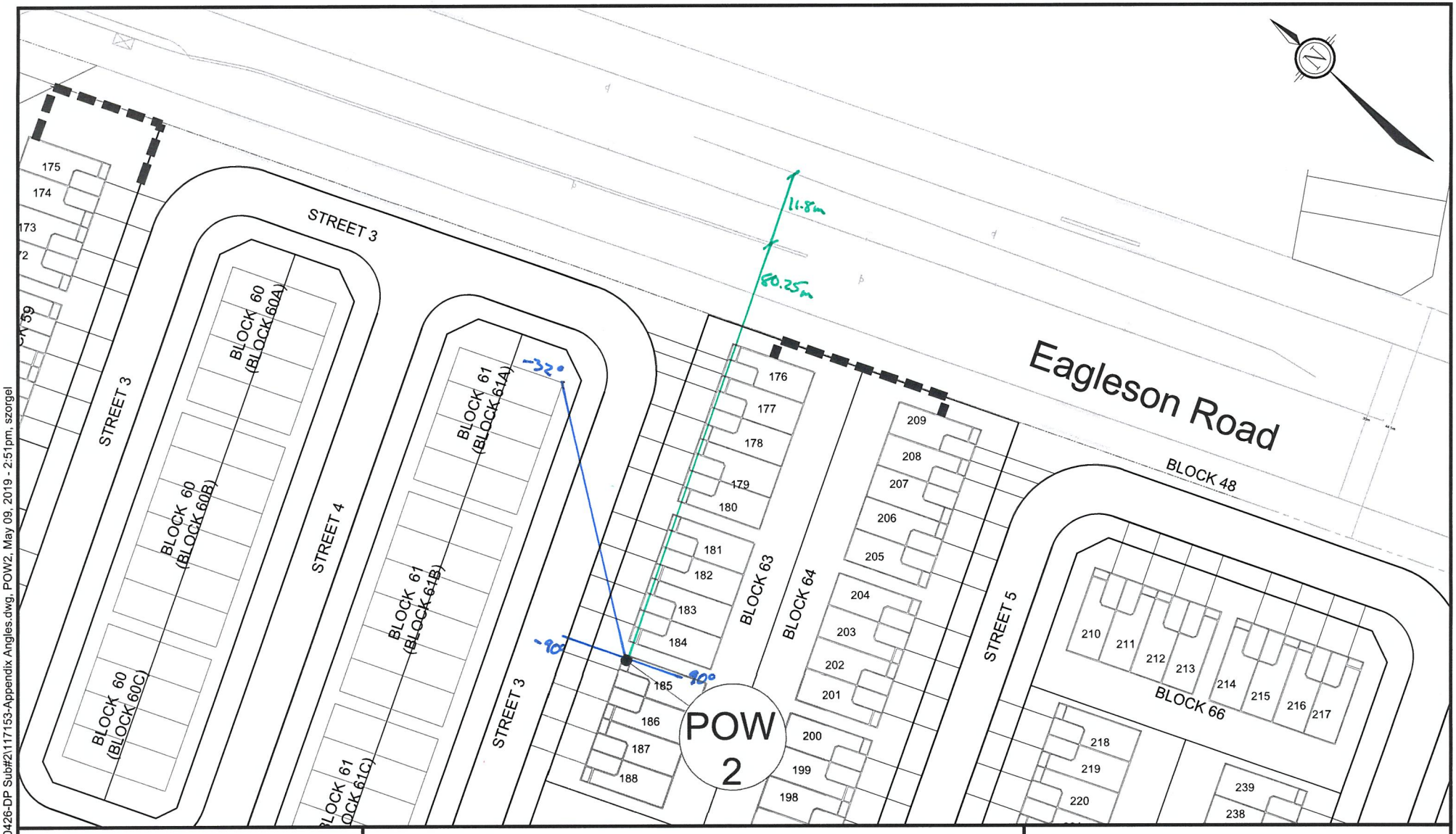
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE MAY 2019 | JOB 117153 | FIGURE FIG-POW1

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW1, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

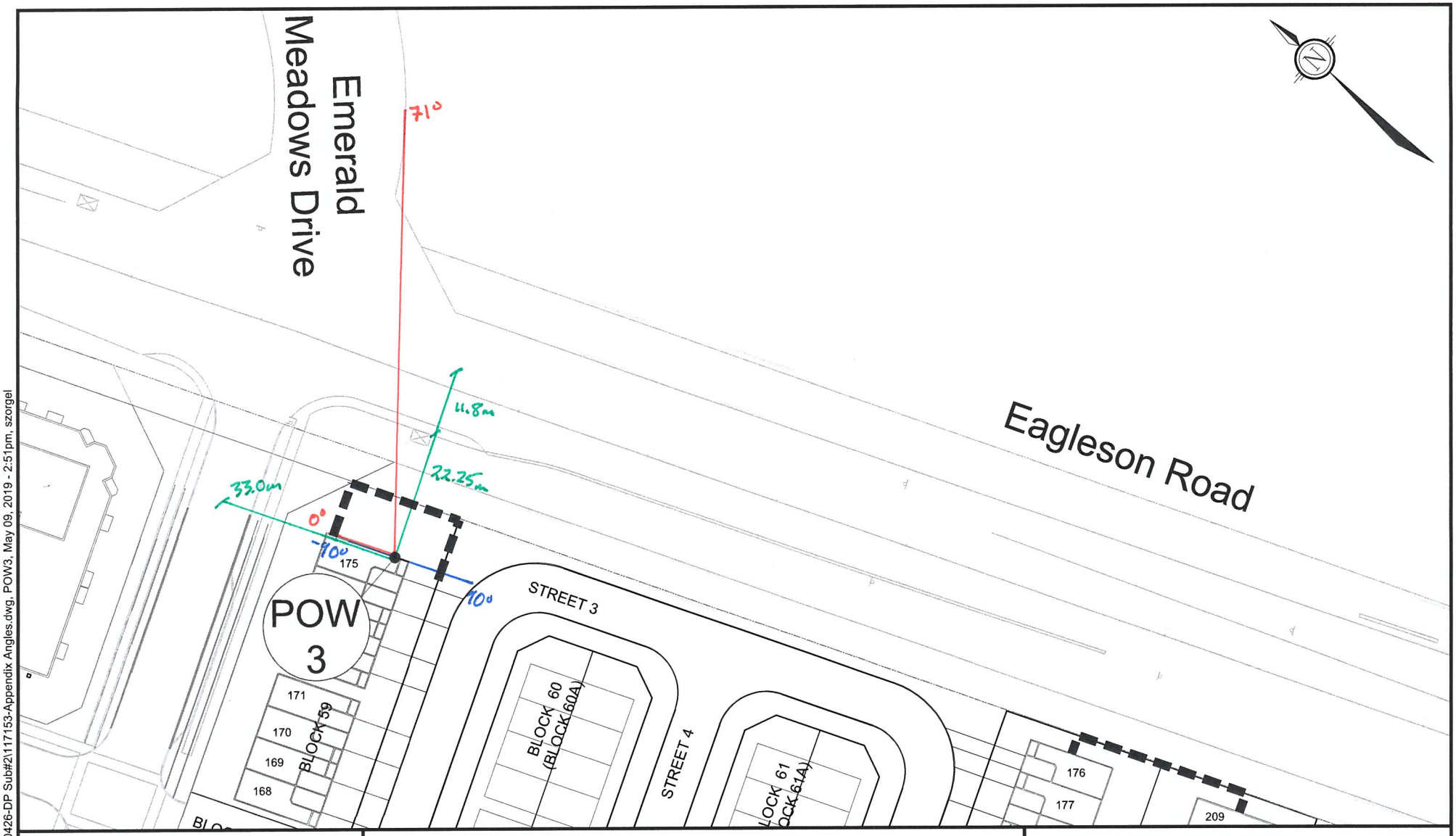
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-POW2

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW2, May 09, 2019 - 2:51pm, szorgel



Eagleson Road Angles

Romina Street Angles

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CITY OF OTTAWA
BRIDLEWOOD 3

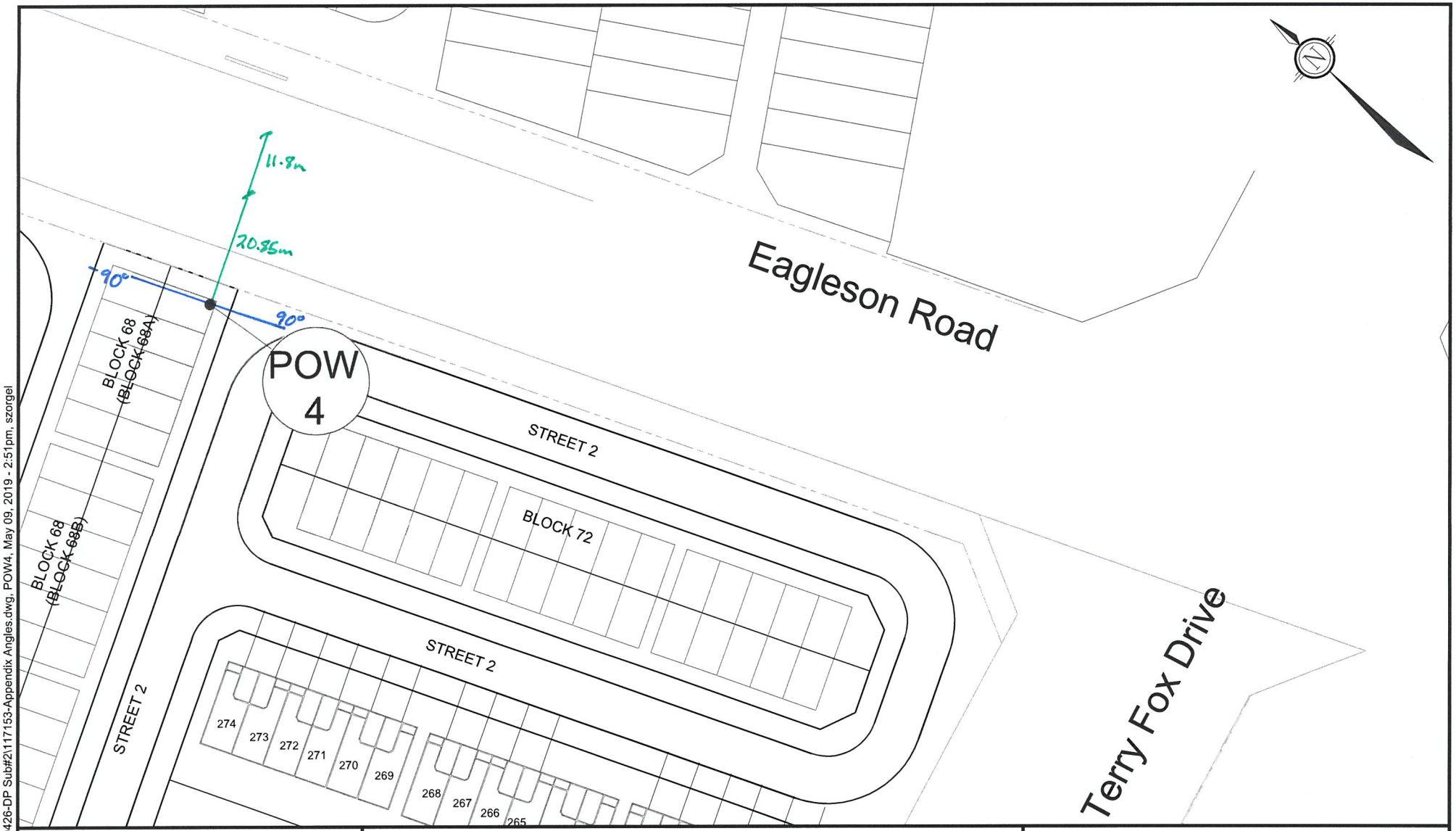
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0 10 20 30 40)

DATE MAY 2019 | JOB 117153 | FIGURE FIG-POW3

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW3, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA BRIDLEWOOD 3

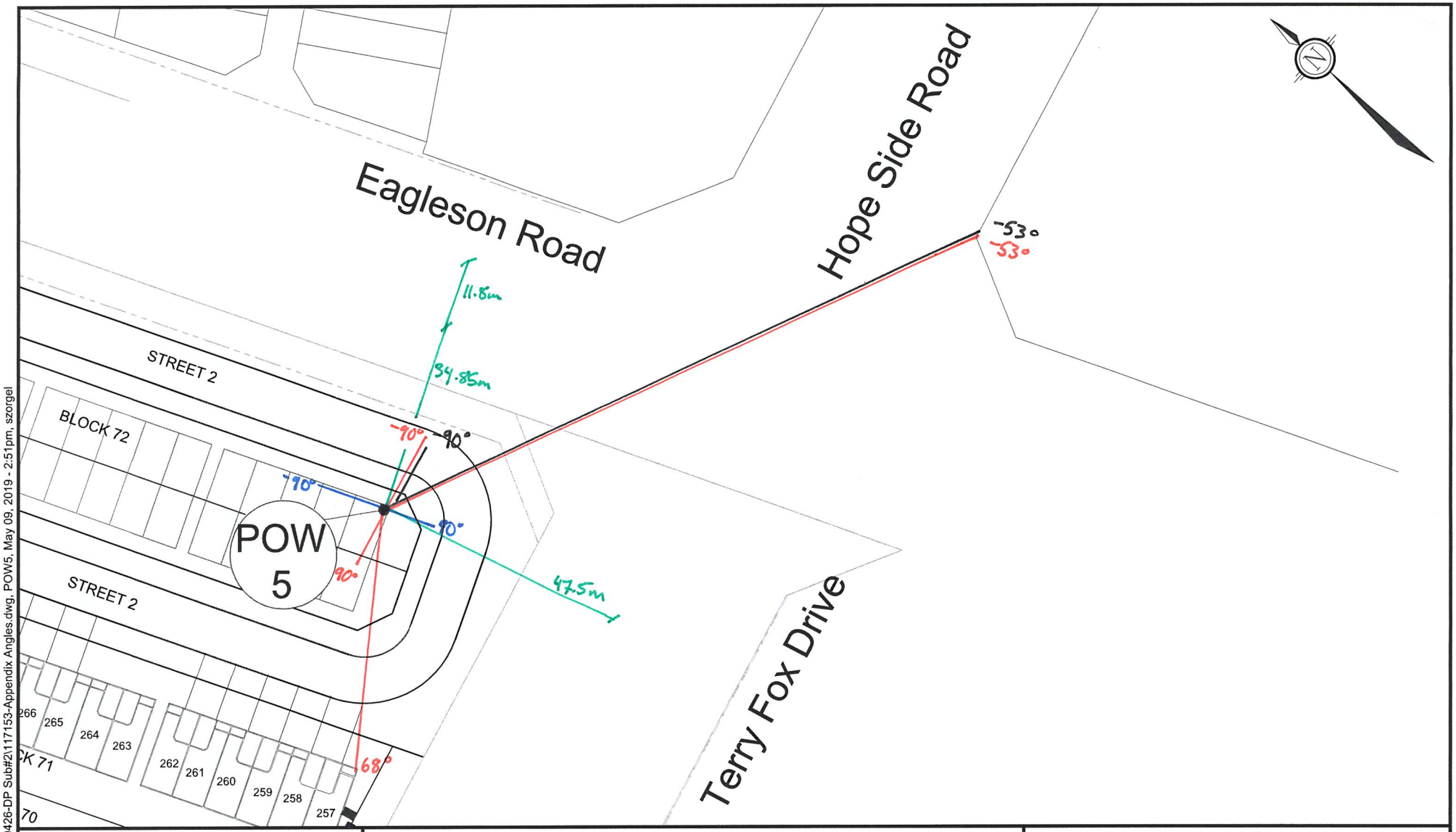
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-POW4

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW4, May 09, 2019 - 2:51pm, szorgel



M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW5, May 09, 2019 - 2:51pm, szorgel

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Eagleson Angles
Terry Fox Angles
Hope Side Road Angles

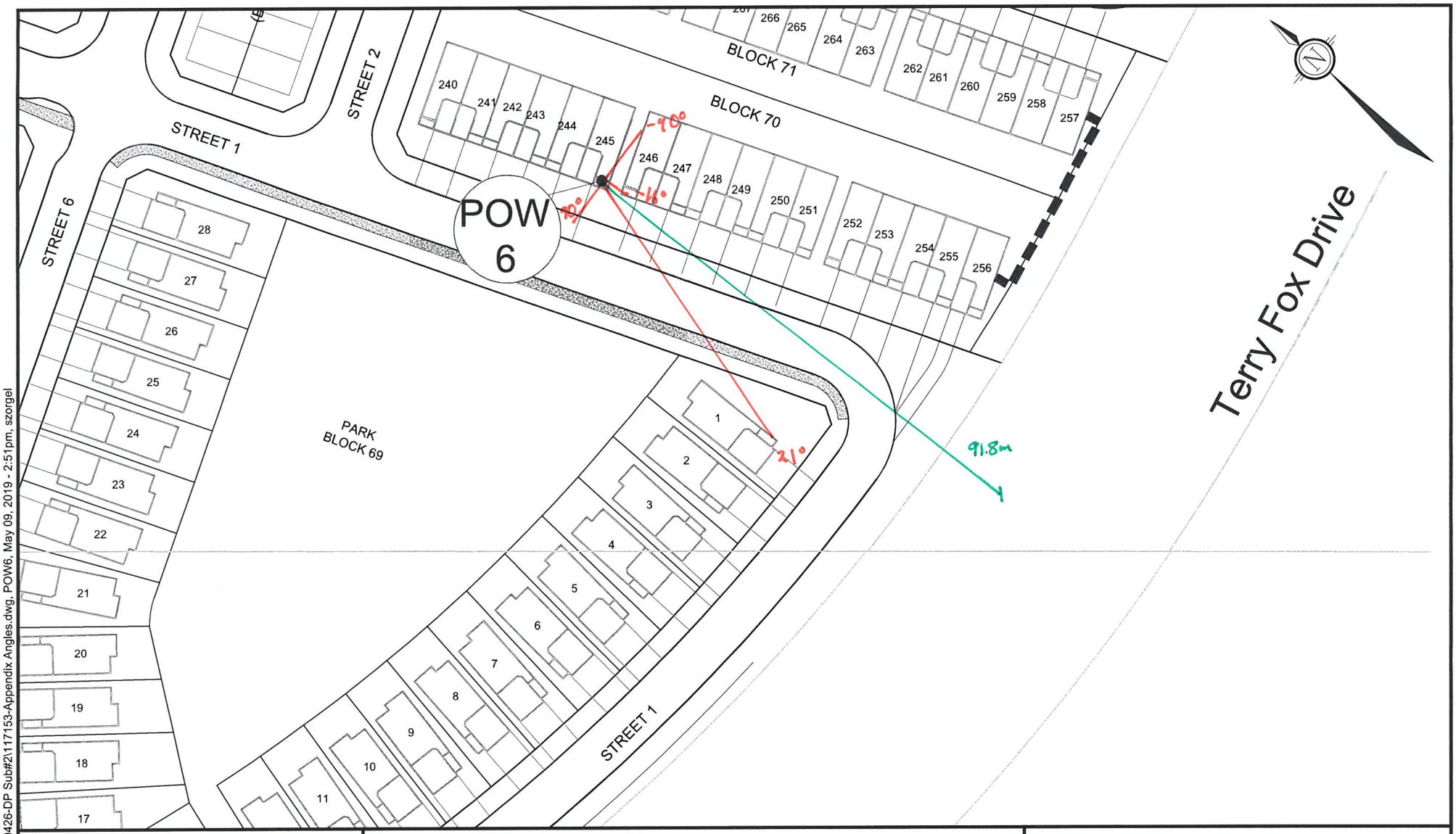
CITY OF OTTAWA
BRIDLEWOOD 3

RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-POW5

SHT8X11.DWG - 216mmx279mm



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CITY OF OTTAWA
BRIDLEWOOD 3

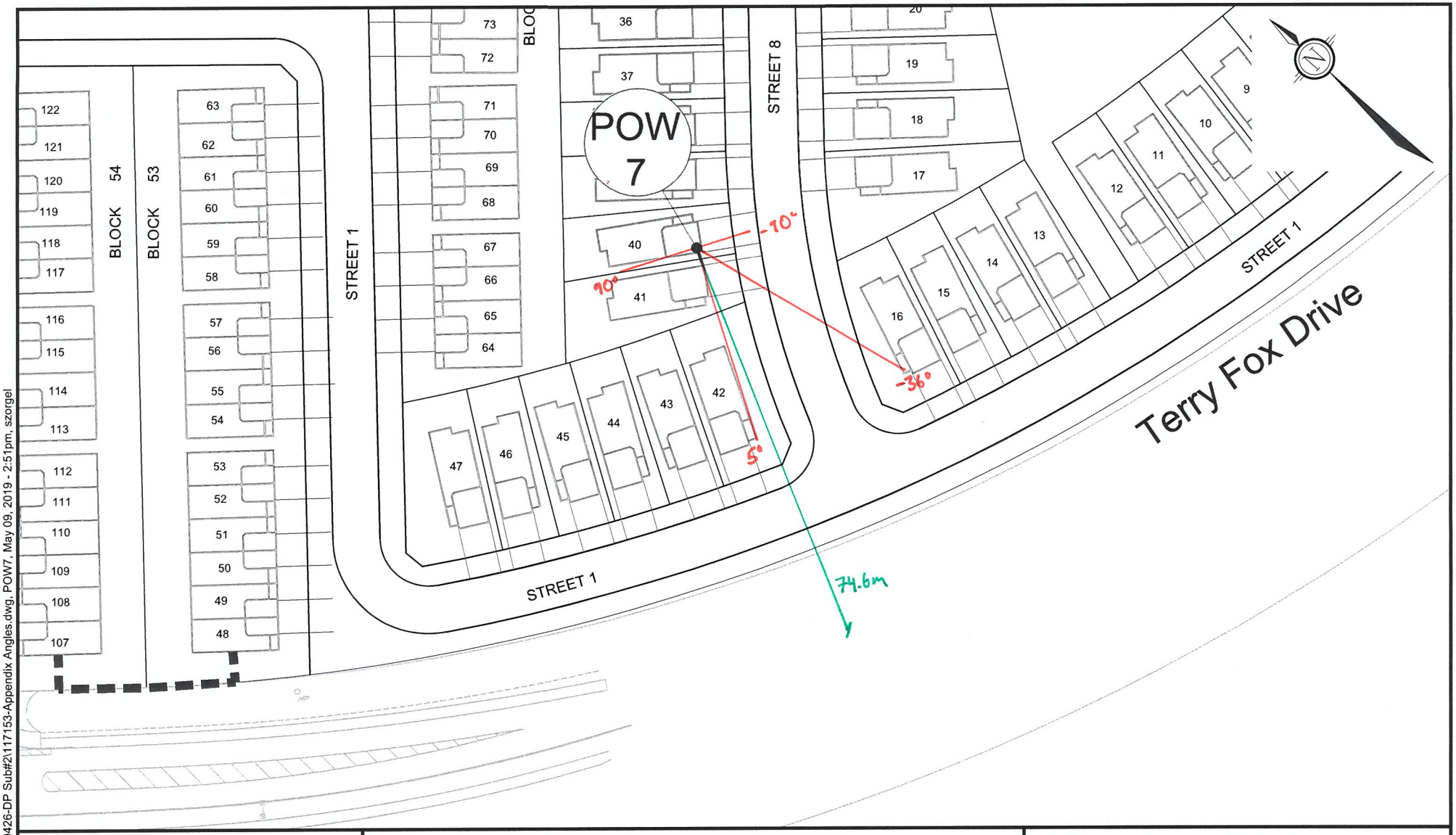
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE	JOB	FIGURE
MAY 2019	117153	FIG-POW6

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW6, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA
BRIDLEWOOD 3

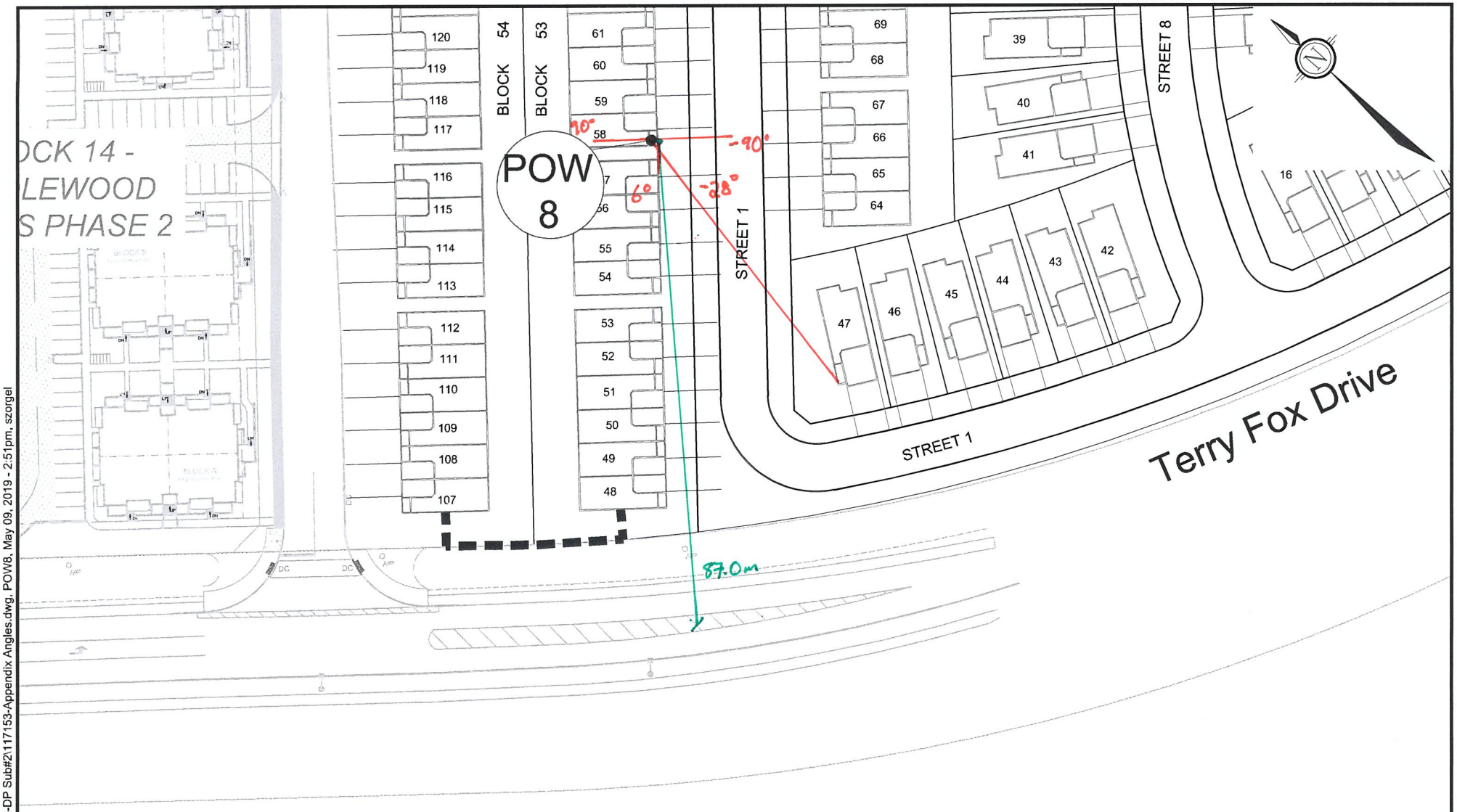
RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE MAY 2019 | JOB 117153 | FIGURE FIG-POW7

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW7, May 09, 2019 - 2:51pm, szorgel



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CITY OF OTTAWA BRIDLEWOOD 3

RECEIVER DISTANCE AND ANGLES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

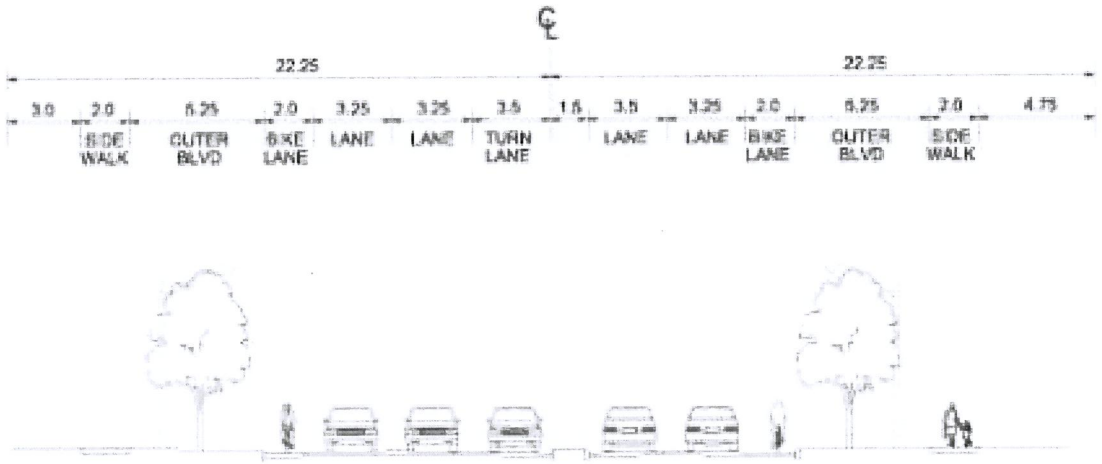
DATE	JOB	FIGURE
MAY 2019	117153	FIG-POW8

SHT8X11.DWG - 216mmx279mm

M:\2017\117153\CAD\Design\Figures\Noise\20190426-DP Sub#2\117153-Appendix Angles.dwg, POW8, May 09, 2019 - 2:51pm, szorgel

APPENDIX C

- Eagleson Road Ultimate Condition Typical Cross Section
- Grading Plan – 117153-GR

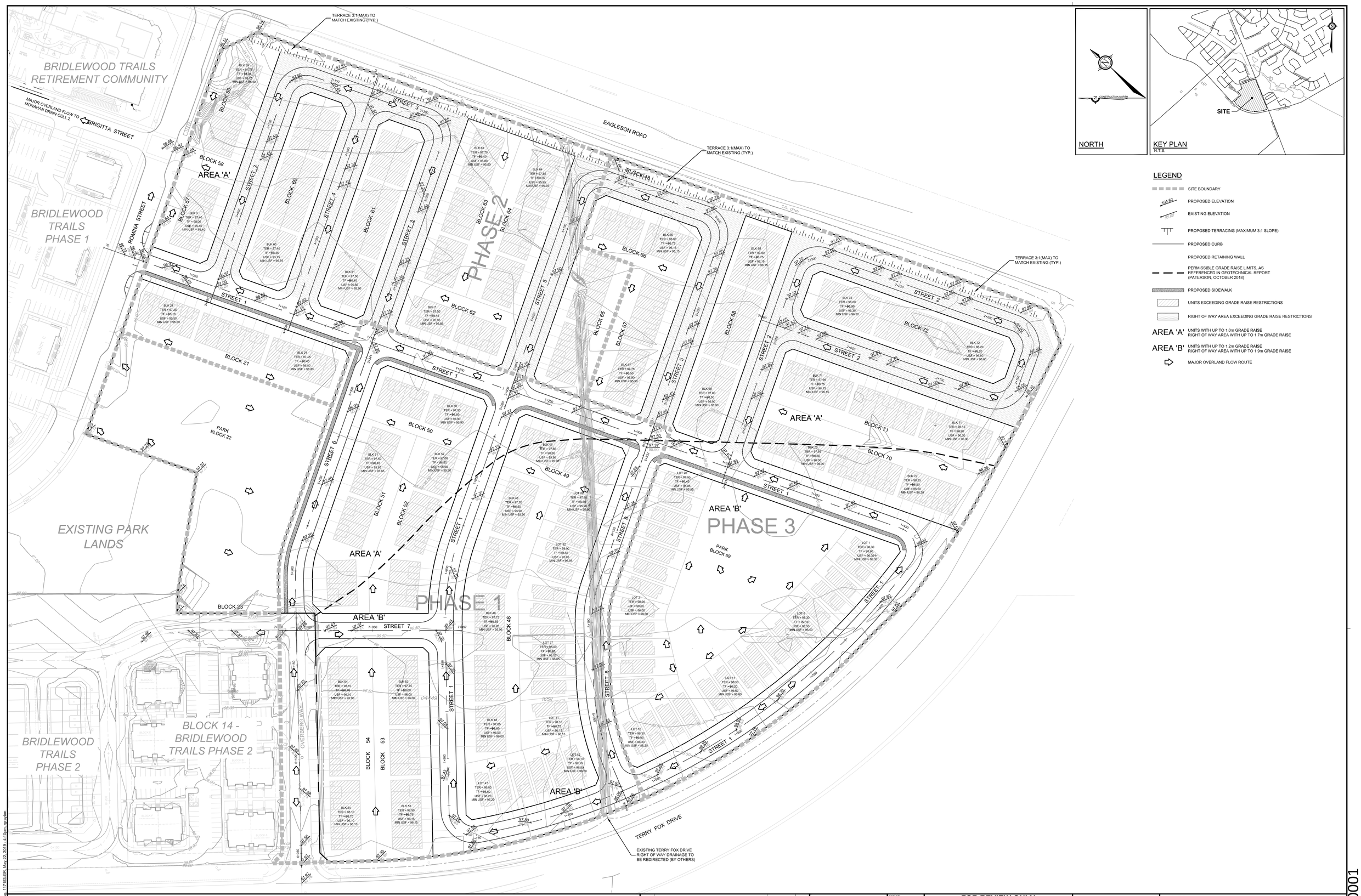


DILLON CONSULTING

EAGLESON ROAD RECOMMENDED TYPICAL CROSS-SECTION

EAGLESON ROAD ENVIRONMENTAL ASSESSMENT
COPE ROAD TO FERNBANK ROAD

DATE	August, 2007
SCALE	1:200
FIGURE NO	1



NORTH

KEY PLAN
N.T.S.

LEGEND

- SITE BOUNDARY
- 104.62 PROPOSED ELEVATION
- 99.00 EXISTING ELEVATION
- PROPOSED TERRACING (MAXIMUM 3:1 SLOPE)
- PROPOSED CURB
- PROPOSED RETAINING WALL
- PERMISSIBLE GRADE RAISE LIMITS, AS REFERENCED IN GEOTECHNICAL REPORT (PATERSON, OCTOBER 2018)
- PROPOSED SIDEWALK
- UNITS EXCEEDING GRADE RAISE RESTRICTIONS
- RIGHT OF WAY AREA EXCEEDING GRADE RAISE RESTRICTIONS
- AREA 'A' UNITS WITH UP TO 1.0m GRADE RAISE; RIGHT OF WAY AREA WITH UP TO 1.7m GRADE RAISE
- AREA 'B' UNITS WITH UP TO 1.2m GRADE RAISE; RIGHT OF WAY AREA WITH UP TO 1.9m GRADE RAISE
- MAJOR OVERLAND FLOW ROUTE

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, 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.

PRELIMINARY
NOT FOR
CONSTRUCTION

No.	REVISION	DATE	BY
3.	REVISED AS PER CITY OF OTTAWA COMMENTS	MAY 24/19	MSP
2.	ISSUED FOR GEOTECHNICAL REVIEW	MAY 6/19	MSP
1.	ISSUED FOR DRAFT PLAN SUBMISSION	JAN11/19	MSP

SCALE 1:750 (1:750, 0 10 20 30)

DESIGN TJM
CHECKED DDB
DRAWN RBG
CHECKED TJM
APPROVED MSP

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER — D.D. BLAIR 100122737 — May 24, 2019 — PROVINCE OF ONTARIO

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LOCATION
CITY OF OTTAWA
BRIDLEWOOD 3

DRAWING NAME
PRELIMINARY GRADING PLAN

PROJECT No. 117153-00
REV REV # 3
DRAWING No. 117153-GR

D07-16-19-0001

#17847