

April 27, 2020

John Spina  
The Manors of Belfountain Corp.  
7681 Hwy 27, Unit 16  
Woodbridge, On L4L 4M5

**Re: Noise Impact Study Addendum – Manors of Belfountain – Shaws Creek Road, Caledon**

**1. Introduction**

Swallow Acoustic Consultants Ltd. / Thornton Tomasetti (SACL/TT) prepared a Noise Impact Study (NIS) dated April 23, 2019 for a proposed residential development Manors of Belfountain located on the east side of Shaws Creek Road between Bush Street and The Grange Side Road. SACL/TT has been informed by MDTR Group that the draft plan of subdivision of the proposed residential development has been revised. Therefore SACL/TT provides this addendum to update the findings in the NIS.

The revised draft plan is shown in Figure 1. The number of lots has been increased to 75. The size and orientation of some of the lots have been changed. The lot numbers have also been revised accordingly. In addition, we also update the predicted traffic sound levels with the traffic volume data being projected from 2017 to 2040, that is 23 years. The revised draft plan does not affect the finding for stationary noise sources assessment in the NIS.

The following sections outline the updates on lot numbers of critical noise receptors, calculated traffic sound levels and noise control recommendations.

**2.C Critical Noise Receptors for Transportation Noise Source**

The locations of the critical receptors with the updated lot numbers are listed in Table 1 and shown in Figure 1. It was assumed in the NIS that the minimum setback of the house is 6 m from the west property line for all residential lots along Shaws Creek Road regardless of the orientation of the house. Therefore the distances between Shaws Creek Road and POR1 and OLA1 remain the same with the revised draft plan. POR2 and OLA 2 are closer to Shaws Creek Road due to a smaller Lot 22.

Table 1: Critical Noise Receptors

| Receptor ID | Receptor Location | Height (m) |
|-------------|-------------------|------------|
| POR1        | House on Lot 1    | 4.5        |
| POR2        | House on Lot 23   | 4.5        |
| OLA1        | Lot 1             | 1.5        |
| OLA2        | Lot 22            | 1.5        |

### 3. Calculated Sound Levels

The traffic noise calculations have been updated for distances from Shaws Creek Road and for projecting the road traffic volume to 2040. The calculated outdoor sound levels are summarized in Table 2. Calculations are provided in the appendix.

Table 2: Calculated Outdoor Sound Levels

| Receptor ID | Calculated Sound Level (dBA) |                      |
|-------------|------------------------------|----------------------|
|             | Day<br>Leq (16 hrs)          | Night<br>Leq (8 hrs) |
| POR1        | 59                           | 53                   |
| POR2        | 51                           | 45                   |
| OLA1        | 50                           | -                    |
| OLA2        | 55                           | -                    |

### 4. Noise Control Measures

Noise control recommendations for the critical receptors are summarized in Table 3 and discussed in the subsequent sections.

Table 3: Noise Control Measures

| Receptor ID | Noise Barrier | Ventilation  | Building Components   | Warning Clause |
|-------------|---------------|--|-----------------------|----------------|
| POR1        | N/A           | Forced air heating with provision for central air conditioning | Ontario Building Code | Yes, Type C    |
| POR2        | N/A           | None   | Ontario Building Code | No             |
| OLA1        | No            | N/A  | N/A                   | No             |
| OLA2        | No            | N/A  | N/A                   | No             |

#### 4.1. Outdoor Amenity Area

Since the predicted daytime sound levels at OLA1 and OLA 2 are at or below 55 dBA, no noise control is required for outdoor amenity areas.

#### 4.2. Ventilation

Since the predicted levels for POR1 are between 55 dBA and 60 dBA during daytime and between 50 and 55 dBA during night-time, dwellings on Lot 1, Lot 9 to Lot 15, and Lot 22 should be designed with forced air heating with provision for installation of central air conditioning in the future.

#### 4.3. Building Components

Since the predicted sound levels are below 65 dBA during daytime and below 60 dBA during night-time, building components that meet the Ontario Building Codes will be sufficient to meet the indoor sound level limits.

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#### 4.4. Warning Clauses

Since forced air heating with provision for central air conditioning is required for Lot 1, Lot 9 to Lot 15, and Lot 22 along Shaws Creek Road, the following Type C warning clause should be inserted in all development agreements of each of these dwellings:

“This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment.”

#### 5. Concluding Remarks

With the incorporation of the updated noise control measures as presented in Section 4 of this addendum, the noise impact on the proposed residential development will meet the MECP criteria. The proposed residential development Manors of Belfountain should therefore be approved from the noise aspect.

Please do not hesitate to contact us if there are any questions.

Yours Truly,  
Swallow Acoustic Consultants Ltd.



Pearlie Yung, M.Sc., P.Eng.  
Senior Project Engineer

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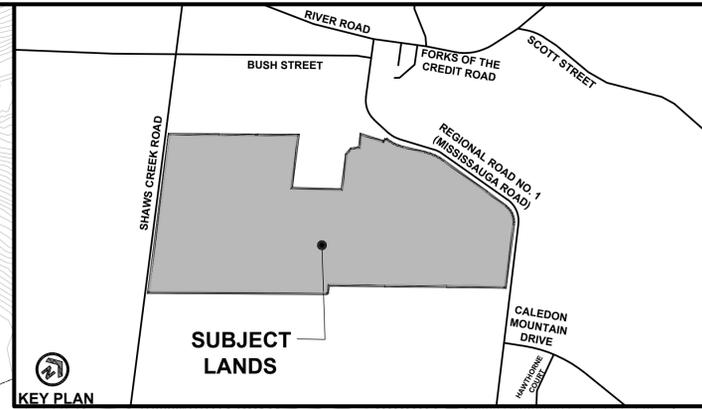
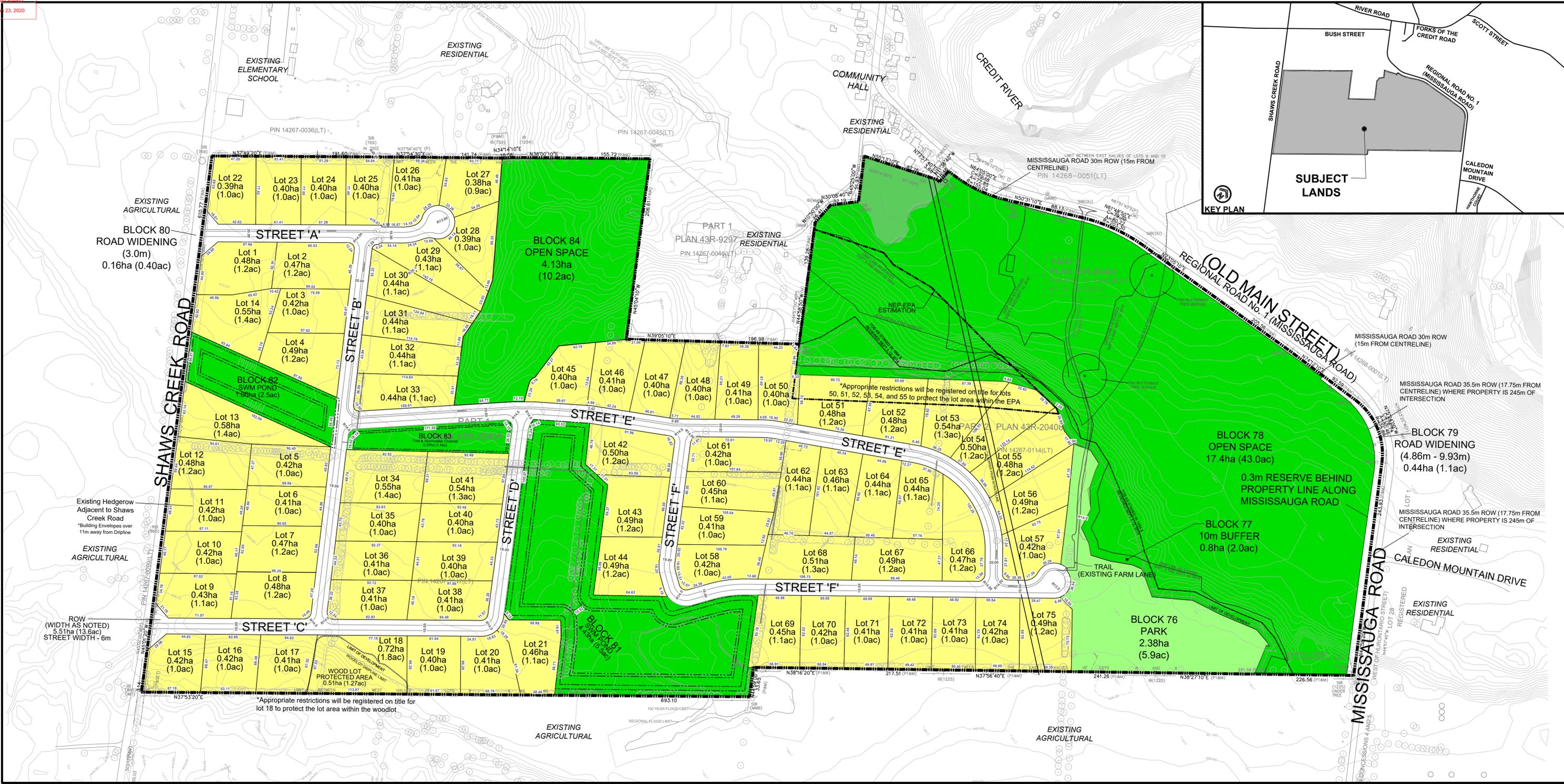


**Attachments**

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**Figure 1**



**DRAFT PLAN OF SUBDIVISION**  
**MANORS OF BELFOUNTAIN CORP**

**FILE # 21T-91015C**

PART OF EAST HALF AND WEST HALF LOT 9  
 CONCESSION 5, W.H.S.  
 (HAMLET OF BELFOUNTAIN)  
 TOWN OF CALEDON,  
 REGIONAL MUNICIPALITY OF PEEL

**SURVEYORS CERTIFICATE**  
 I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 ALISTER SANKEY, OLS  
 DAVID B. SEARLES SURVEYING LTD.  
 4255 SHERWOODTOWNE BLVD. SUITE 206  
 MISSISSAUGA, ON, L4Z 1Y5  
 PHONE: 905-273-6840  
 EMAIL: info@dbsearles.ca

**OWNER'S AUTHORIZATION**  
 I AUTHORIZE MDTR GROUP TO PREPARE AND SUBMIT THIS PLAN FOR DRAFT APPROVAL.

SIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 JOHN SPINA, ASO  
 THE MANORS OF BELFOUNTAIN CORP.  
 7881 HWY 27 UNIT 16  
 WOODBRIDGE, ONTARIO  
 L4L 4M5

**ADDITIONAL INFORMATION**  
 (UNDER SECTION 51(17) OF THE PLANNING ACT) INFORMATION REQUIRED BY CLAUSES A,B,C,D,E,F,G, & J ARE SHOWN ON THE DRAFT AND KEY PLANS.  
 H) INDIVIDUAL WELLS TO BE PROVIDED  
 I) SANDY LOAM AND CLAY LOAM  
 K) INDIVIDUAL SEPTIC TO BE PROVIDED; MUNICIPAL STORM SEWERS TO BE PROVIDED  
 L) NIL

**NOTES**  
 -Pavement illustration is diagrammatic only  
 -Local to local radii - approx. 14m  
 -Streets 'A' & 'C' to Shaws Creek Rd. daylight triangles - 15.0 x 15.0  
 -Top of Slope as staked in 1994, reviewed September 4 & 12, 2014  
 -Dripline staked September 4 & 12, 2014

| REVISIONS |                                  |                   |      |
|-----------|----------------------------------|-------------------|------|
| #         | Description                      | Date (YYYY-MM-DD) | By   |
| 1         | ISSUED FOR MEETING WITH AGENCIES | 2018-12-21        | N.Y. |
| 2         | REVISION                         | 2020-02-21        | N.Y. |
| 3         | REVISION                         | 2020-01-17        | N.Y. |
| 4         | REVISION                         | 2020-02-21        | N.Y. |
| 5         | REVISION                         | 2020-01-17        | N.Y. |
| 6         | ISSUED FOR RESUBMISSION          | 2020-03-02        | N.Y. |
| 7         | REVISION                         | 2020-03-31        | N.Y. |
| 8         | REVISION                         | 2020-04-21        | N.Y. |
| 9         | REVISION                         | 2020-04-24        | N.Y. |

| LAND USE SCHEDULE   |             |           |           |       |
|---|-------------|-----------|-----------|-------|
| LAND USE  | LOTS/BLOCKS | AREA (HA) | AREA (AC) | UNITS |
| ESTATE RESIDENTIAL  | 1-75        | 33.48     | 82.7      | 75    |
| OPEN SPACE  | 76-84       | 21.53     | 53.2      |       |
| PARK  | 76          | 2.38      | 5.9       |       |
| 10m BUFFER  | 77          | 0.80      | 2.0       |       |
| STORMWATER PONDS  | 81,82       | 5.41      | 13.4      |       |
| STORMWATER CHANNEL  | 83          | 0.57      | 1.4       |       |
| ROAD WIDENING<br>18.0m/20.0m ROW<br>(2,840m APPROX. LENGTH) | 79, 80      | 0.60      | 1.5       |       |
| TOTAL   | 84          | 70.28     | 173.7     | 75    |

**Appendix**

STAMSON 5.0                    NORMAL REPORT                    Date: 27-04-2020 16:03:31  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1.te                    Time Period: Day/Night 16/8 hours  
Description: Predicted Traffic Sound Level at OLA1

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

-----  
Car traffic volume    : 10145/1127    veh/TimePeriod    \*  
Medium truck volume : 2471/275    veh/TimePeriod    \*  
Heavy truck volume   : 390/43    veh/TimePeriod    \*  
Posted speed limit   : 70 km/h  
Road gradient        : 4 %  
Road pavement       : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8190  
Percentage of Annual Growth        : 2.50  
Number of Years of Growth         : 23.00  
Medium Truck % of Total Volume    : 19.00  
Heavy Truck % of Total Volume      : 3.00  
Day (16 hrs) % of Total Volume    : 90.00

Data for Segment # 1: ShawCreek (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         : 36.00 / 36.00 m  
Receiver height                    : 1.50 / 1.50 m  
Topography                        : 2            (Flat/gentle slope; with barrier)  
Barrier angle1                     : -45.00 deg    Angle2 : 45.00 deg  
Barrier height                     : 6.00 m  
Barrier receiver distance         : 3.00 / 3.00 m  
Source elevation                   : 0.00 m  
Receiver elevation                 : 0.00 m  
Barrier elevation                  : 0.00 m  
Reference angle                    : 0.00

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Results segment # 1: ShawCreek (day)

Source height = 1.32 m

Barrier height for grazing incidence

| Source Height (m) | Receiver Height (m) | Barrier Height (m) | Elevation of Barrier Top (m) |
|-------------------|---------------------|--------------------|------------------------------|
| 1.32              | 1.50                | 1.48               | 1.48                         |

ROAD (56.66 + 43.90 + 56.66) = 59.78 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj  | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|--------|
| -90    | -45    | 0.66  | 72.02  | 0.00  | -6.31 | -9.05 | 0.00  | 0.00  | 0.00   | 56.66  |
| -45    | 45     | 0.31  | 72.02  | 0.00  | -4.96 | -3.15 | 0.00  | 0.00  | -20.00 | 43.90  |
| 45     | 90     | 0.66  | 72.02  | 0.00  | -6.31 | -9.05 | 0.00  | 0.00  | 0.00   | 56.66  |

Segment Leq : 59.78 dBA

Total Leq All Segments: 59.78 dBA

Results segment # 1: ShawCreek (night)

Source height = 1.31 m

Barrier height for grazing incidence

| Source Height (m) | Receiver Height (m) | Barrier Height (m) | Elevation of Barrier Top (m) |
|-------------------|---------------------|--------------------|------------------------------|
| 1.31              | 1.50                | 1.48               | 1.48                         |

ROAD (50.12 + 37.36 + 50.12) = 53.24 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj  | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|--------|--------|
| -90    | -45    | 0.66  | 65.48  | 0.00  | -6.31 | -9.05 | 0.00  | 0.00  | 0.00   | 50.12  |
| -45    | 45     | 0.31  | 65.48  | 0.00  | -4.96 | -3.15 | 0.00  | 0.00  | -20.00 | 37.36  |
| 45     | 90     | 0.66  | 65.48  | 0.00  | -6.31 | -9.05 | 0.00  | 0.00  | 0.00   | 50.12  |

Segment Leq : 53.24 dBA

Total Leq All Segments: 53.24 dBA

TOTAL Leq FROM ALL SOURCES (DAY) : 59.78  
 (NIGHT) : 53.24

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STAMSON 5.0                    NORMAL REPORT                    Date: 27-04-2020 16:03:52  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2.te                    Time Period: Day/Night 16/8 hours  
 Description: Predicted Traffic Sound Level at OLA2

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

```
-----
Car traffic volume   : 10145/1127   veh/TimePeriod   *
Medium truck volume : 2471/275    veh/TimePeriod   *
Heavy truck volume  : 390/43     veh/TimePeriod   *
Posted speed limit  : 70 km/h
Road gradient       : 4 %
Road pavement      : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 8190
Percentage of Annual Growth       : 2.50
Number of Years of Growth         : 23.00
Medium Truck % of Total Volume    : 19.00
Heavy Truck % of Total Volume     : 3.00
Day (16 hrs) % of Total Volume    : 90.00
```

Data for Segment # 1: ShawCreek (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 : 33.32 / 49.60 m
Receiver height  : 1.50 / 1.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: ShawCreek (day)

Source height = 1.32 m

ROAD (0.00 + 64.81 + 0.00) = 64.81 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.66  | 72.02  | 0.00  | -5.75 | -1.46 | 0.00  | 0.00  | 0.00  | 64.81  |

Segment Leq : 64.81 dBA

Total Leq All Segments: 64.81 dBA

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Results segment # 1: ShawCreek (night)

-----  
Source height = 1.31 m

ROAD (0.00 + 55.40 + 0.00) = 55.40 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.66  | 65.48  | 0.00  | -8.62 | -1.46 | 0.00  | 0.00  | 0.00  | 55.40  |

-----  
Segment Leq : 55.40 dBA

Total Leq All Segments: 55.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.81

(NIGHT): 55.40

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STAMSON 5.0                    NORMAL REPORT                    Date: 27-04-2020 16:04:13  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por1.te                    Time Period: Day/Night 16/8 hours  
 Description: Predicted Traffic Sound Level at POR1

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

```
-----
Car traffic volume   : 10145/1127   veh/TimePeriod   *
Medium truck volume : 2471/275    veh/TimePeriod   *
Heavy truck volume  : 390/43     veh/TimePeriod   *
Posted speed limit  : 70 km/h
Road gradient       : 4 %
Road pavement      : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 8190
Percentage of Annual Growth       : 2.50
Number of Years of Growth         : 23.00
Medium Truck % of Total Volume    : 19.00
Heavy Truck % of Total Volume     : 3.00
Day (16 hrs) % of Total Volume    : 90.00
```

Data for Segment # 1: ShawCreek (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 : 18.00 / 18.00 m
Receiver height    : 4.50 / 4.50 m
Topography         : 1 (Flat/gentle slope; no barrier)
Reference angle    : 0.00
```

Results segment # 1: ShawCreek (day)

Source height = 1.32 m

ROAD (0.00 + 69.46 + 0.00) = 69.46 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.58  | 72.02  | 0.00  | -1.25 | -1.31 | 0.00  | 0.00  | 0.00  | 69.46  |

Segment Leq : 69.46 dBA

Total Leq All Segments: 69.46 dBA

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Results segment # 1: ShawCreek (night)

-----  
Source height = 1.31 m

ROAD (0.00 + 62.92 + 0.00) = 62.92 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.58  | 65.48  | 0.00  | -1.25 | -1.31 | 0.00  | 0.00  | 0.00  | 62.92  |

-----  
Segment Leq : 62.92 dBA

Total Leq All Segments: 62.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.46

(NIGHT): 62.92

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Filename: por2.te                    Time Period: Day/Night 16/8 hours  
 Description: Predicted Traffic Sound Level at POR2

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

```
-----
Car traffic volume   : 10145/1127   veh/TimePeriod   *
Medium truck volume : 2471/275    veh/TimePeriod   *
Heavy truck volume  : 390/43     veh/TimePeriod   *
Posted speed limit  : 70 km/h
Road gradient       : 4 %
Road pavement      : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 8190
Percentage of Annual Growth      : 2.50
Number of Years of Growth        : 23.00
Medium Truck % of Total Volume   : 19.00
Heavy Truck % of Total Volume     : 3.00
Day (16 hrs) % of Total Volume   : 90.00
```

Data for Segment # 1: ShawCreek (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 : 60.63 / 60.63 m
Receiver height  : 4.50 / 4.50 m
Topography       : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: ShawCreek (day)

Source height = 1.32 m

ROAD (0.00 + 61.15 + 0.00) = 61.15 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.58  | 72.02  | 0.00  | -9.56 | -1.31 | 0.00  | 0.00  | 0.00  | 61.15  |

Segment Leq : 61.15 dBA

Total Leq All Segments: 61.15 dBA

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Results segment # 1: ShawCreek (night)

-----  
Source height = 1.31 m

ROAD (0.00 + 54.61 + 0.00) = 54.61 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|
| -90    | 90     | 0.58  | 65.48  | 0.00  | -9.56 | -1.31 | 0.00  | 0.00  | 0.00  | 54.61  |

-----  
Segment Leq : 54.61 dBA

Total Leq All Segments: 54.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.15

(NIGHT): 54.61