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Noise Feasibility Study
Proposed Residential Development
Marsville South Subdivision
Marsville, Ontario

Prepared for:

Thomasfield Homes Limited
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Guelph, N1H 6N3

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August 12, 2024

HGC Project No. 02300226

VERSION CONTROL

Noise Feasibility Study,

Marsville South Subdivision,

Marsville, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	August 12, 2024	Noise Feasibility Study prepared as part of the planning and approvals process.	Y.Lo

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1 Introduction and Summary

HGC Engineering was retained by Thomasfield Homes Limited to conduct a noise feasibility study for a proposed residential development ("Marsville South Subdivision") located at the southwest corner of County Road 3 and 13th Line in Marsville, Dufferin County, Ontario. The study is required by the Municipality as part of the draft plan of subdivision and zoning by-law amendment application.

The primary noise source impacting the site is road traffic on County Road 3. Road traffic data for County Road 3 was obtained from Salvini Consulting, the traffic consultant for the proposed development. The data was used to predict future traffic sound levels at various locations around the proposed development. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the Municipality.

The sound level predictions indicate that future road traffic sound levels will exceed MECP guidelines at the proposed residential development. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant will be required for the dwelling units with flanking exposure to County Road 3. Building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for all proposed dwelling units. Warning clauses are also recommended to inform future occupants of the traffic noise impacts, to address sound level excesses and to indicate the presence of the existing retail/commercial/industrial uses.

There is a public works facility to the northeast of the subject site with truck and loader activity that have potential noise impact on the proposed development. The results of the assessment indicate that the predicted noise emissions from the nearby facility will be within the applicable noise guideline limits of the MECP at the proposed residential development. The acoustic recommendations may be subject to modifications if the water treatment facility is changed significantly and/or operating scenarios are significantly different to those assumed in the assessment.

2 Site Description and Sources of Sound

A key plan showing the location of the proposed site is indicated in Figure 1. The development is located at the southeast corner of County Road 3 and 13th Line, in Marsville, Ontario. A site plan prepared by GSP Group dated June 7, 2024 is attached as Figure 2. The proposed residential development will consist of 91 single-detached dwelling units, a park and roadways.

A site visit was performed by HGC Engineering personnel in May 2024 to investigate the surrounding land uses and to identify the significant noise sources in the vicinity. The primary source of noise is road traffic on County Road 3. The lands are currently vacant. There are existing residential uses to the west and agricultural lands to the south and east. There is a former sawmill located to the further north across 13th Line that is no longer in operation, as observed on the site visit, company website and Google Maps information.

Public Works Yard

A public works yard and several small retail/commercial buildings are located to the northeast. The public works yard includes a salt dome, the potential use of snow removal equipment, truck and loader movement and associated back-up alarms. According to NPC-300, backup beepers on vehicles are not considered stationary sources of noise and noise from snow removal activities is subject to municipal noise by-laws. According to the Township of East Garafraxa's Noise By-Law 43-2004 Section 3.1 (included in Appendix C), noise by-laws do not apply "where noise arises from the necessary work being performed by the municipality or its agents and contractors". Snow removal is considered necessary work and the associated noise impact therefore do not need to be considered further. However, noise from other activities such as the use of front end loaders in the storage area and truck movement at the public works yard need to be considered. An acoustical model is provided in Section 4 of the study.

Future Water Treatment Facility

As part of the Marsville water system expansion, there is also a potential future water treatment facility located to the northeast of the site, within the proposed park area, as indicated in Figure 4. The facility is also labelled as "water infrastructure" on Figure 2. It is understood that there will be a

small 20 kW emergency generator (Briggs & Stratton model) associated with the future water treatment operations. Based on the model number, manufacturer's sound level data (included in Appendix C), distance from the generator to the nearest dwelling unit, cursory calculations indicate that the resultant sound level from the emergency generator is expected to be within MECP limits at the proposed dwelling units. The acoustic recommendations may be subject to modifications if the water treatment facility is changed significantly and/or operating scenarios are significantly different to those assumed in the assessment.

During the site visit, traffic sounds dominated the site, nevertheless, a noise warning clause informing future owners and occupants of the building of the proximity to existing commercial/retail/industrial uses is recommended as included in Section 5. There are no other significant sources of stationary sound within 500 m of the subject site.

3 Road Traffic Noise Assessment

3.1 Road Traffic Noise Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Part C release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A weighted decibels [dBA].

Table 1: Road Traffic Noise Criteria

	Daytime $L_{EQ(16\ hour)}$ Road	**Nighttime $L_{EQ(8\ hour)}$ Road**
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the sound level in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements and offers of purchase and sale for the property. When OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom/living/dining room windows exceed 60 dBA or daytime sound levels exceed 65 dBA outside bedroom/living room windows. A forced air ventilation system with ducts sized for the future provision of air conditioning, or some other alternative form of mechanical ventilation, is required where nighttime sound levels at bedroom/living/dining room windows are in the range of 51 – 60 dBA or daytime sound levels are in the range of 56 – 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of bedroom/living/dining room window sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom/living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to road traffic.

3.2 Traffic Sound Level Assessment

3.2.1 Road Traffic Data

Road traffic data for County Road 3 in the form of Turning Movement Counts (TMC) was provided by Salvini Consulting, the traffic consultant for the development and is included in Appendix A. A commercial vehicle percentage of 13.2% heavy trucks and 1.7% medium trucks was calculated. The data was projected 10 years to the year 2034 using a 2.5% growth rate. A day/night split of 90%/10% and a posted speed limit of 50 km/h were used in the analysis.

According to the TMC data, 13th Line is considered to be a low traffic roadway and is not considered further in the study.

The projected road traffic volumes are shown in Table 2 below.

Table 2: Projected Road Traffic Data to 2034

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
County Road 3	Daytime	5 305	106	823	6 234
	Nighttime	589	12	91	693
	Total	**5 894**	**118**	**914**	**6 926**

3.2.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which would impact the site in the future, road traffic predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Prediction locations were chosen around the site to obtain a good representation of the future sound levels at various dwelling units with exposure to the surrounding roadways. Sound levels were also predicted at the top-storey façade during the daytime and nighttime hours to investigate ventilation requirements and building envelope construction and in the outdoor amenity areas to determine acoustic barrier requirements. A minimum 7 m front yard setback and 7.5 m rear yard setback along with a 1.2 m interior side yard setback were used in the analysis. The results of these predictions are summarized in Table 3.

Table 3: Future Road Traffic Sound Levels, [dBA], Without Mitigation

Prediction Location	Block	Description	Daytime in OLA $L_{EQ-16\ hr}$	Daytime at Façade $L_{EQ-16\ hr}$	Nighttime at Façade $L_{EQ-8\ hr}$
[A]	1, 74	North façade of dwelling unit with flanking exposure to County Road 3	60	65	58
[B]	2	West façade of townhouse block with some exposure to County Road 3	<55	<55	<50

3.3 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the proposed dwelling units closest to County Road 3. Recommendations to address these excesses are discussed below.

3.3.1 Outdoor Living Areas

The predicted sound level in the rear yards of the proposed dwelling units with flanking exposure to County Road 3 (Prediction Location [A]) will be 60 dBA, 5 dBA in excess of the MECP's limit of 55 dBA. This minor exceedance is acceptable to the MECP with the use of a noise warning clause if it is acceptable to the Municipality. Physical mitigation is not required.

The predicted sound levels in the rear yards of the remaining proposed dwelling units will be less than 55 dBA. Physical mitigation in the form of an acoustic barrier will not be required.

3.3.2 Indoor Living Areas

Provision for the Future Installation of Air Conditioning

The predicted future sound levels outside the top storey living/dining room/bedroom windows of the proposed dwelling units with flanking exposure to County Road 3 (Prediction Location [A]) will be between 56 and 65 dBA during the daytime hours and between 51 and 60 dBA during the nighttime. To address this excess, the MECP guidelines recommend that this dwelling be equipped with a forced air ventilation system with ducts sized to accommodate the future installation of air conditioning by the occupant.

These dwelling units are indicated in Figure 3. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300, as applicable. The guidelines also recommend warning clauses for all units with ventilation requirements.

3.3.3 Building Façade Constructions

All proposed dwelling units in the development will have daytime sound levels less than 65 dBA and nighttime sound levels at the top storey façade that will be less than 60 dBA. Any exterior wall, and double glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the dwelling units.

4 Stationary Source Noise Assessment

4.1 Description of Nearby Industrial Facilities

HGC Engineering visited the subject site to observe the nearby industrial operations and identify potentially significant sources of sound during the month of June 2024. There is a public works yard located to the northeast of the subject site, which stores equipment for roadway maintenance and operates 24 hours per day. Activity was not observed in the yard during the site visit. Based on experience with other similar facilities, one loader is assumed to be operating in the storage area, loading the idled truck with salt during the site visit.

4.2 Assumptions

Steady Sources

Source sound levels for typical trucking and loading activities, and assumed operational information (outlined below) were used as input to a predictive computer model (*Cadna/A version 2023 MR2 (32 bit) build: 201.5366*), in order to estimate the sound levels from the existing industrial buildings at the future residences. *Cadna/A* is a computer implementation of ISO Standard 9613-2, “Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation”, which takes into account attenuation due to distance (geometrical spreading), shielding by intervening

structures, air attenuation and ground absorption (coefficient of 0.25 globally except for soft covers where 0.9 was used).

The sound power levels measured and obtained from similar facilities examined under other studies by HGC Engineering were used in the analysis and are summarized in Table 4.

Table 4: Source Sound Power Levels [dB re 10-12 W]

Source	ID	Octave Band Centre Frequency [Hz]								
		63	125	250	500	1k	2k	4k	8k	A
Truck Passby	TRK	101	100	94	96	97	95	91	86	101
Idling Truck Engine	IDLE	96	91	88	88	91	90	81	70	95
Loader	LOAD	110	110	105	102	97	95	90	89	104

The above outlined sound levels and various features of the site were used as input to a predictive computer model. Idling trucks and loaders are shown as green crosses and truck routes are identified as green lines in Figure 5.

The following information and assumptions were used in the analysis:

- The height of the public works building and dome was assumed to be 3.0 to 6.5 m.
- Proposed 2-storey dwellings located as shown in Figure 5.

Assumed worst-case busiest hour scenario (steady sources):

- One loader is assumed to access the outdoor storage area for 15 minutes during the daytime and night-time hour.
- One truck is assumed to enter and depart the facility with trucks idling for 15 minutes.

4.3 Results

Steady Source Noise

The calculations consider the acoustical effects of distance and shielding by the buildings. The predicted sound levels due to the trucking activities/deliveries (arriving, idling and departing) at the closest façade of the proposed residences during an assumed worst-case busiest hour operating scenario, are summarized in Tables 5 and indicated in Figure 6.

Table 5: Predicted Steady Sources Sound Levels at Subject Site during a Worst-case Operating Scenario Hour [dBA]

Receptor	Criteria Day/ Eve/Night (dBA)	Daytime & Evening (07:00-23:00)	Night-time (23:00-07:00)
R1	50 / 50 / 45	42	42
R2	50 / 50 / 45	44	44
R3	50 / 50 / 45	39	39
R4	50 / 50 / 45	35	35
R5	50 / 50 / 45	32	32
R6	50 / 50 / 45	30	30
R7	50 / 50 / 45	31	31
R8	50 / 50 / 45	38	38

Note: Highest sound levels predicted at each dwelling

The results of this analysis indicate that the predicted stationary sources of sound is expected to be within the applicable sound level limits at the proposed development. Mitigation is not required.

5 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses. Examples are provided below.

Suggested wording for dwellings which have sound level excesses but do not require mitigation measures is given below.

Type A:

> Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

A suggested wording for future dwellings requiring forced air ventilation systems is given below.

Type B:

> This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant 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, Conservation and Parks.

Suggested wording for future dwellings adjacent to commercial/retail/industrial facilities is given below.

Type C:

> Purchasers are advised that due to the proximity of the existing commercial/retail/industrial facilities, sound levels from these facilities may at times be audible.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

6 Summary and Recommendations

The following list and Table 6 summarize the recommendations made in this report.

For Transportation Noise

1. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning system will be required for the proposed dwelling units with flanking exposure to County Road 3. The location, installation and sound ratings of the air conditioning devices should comply with NPC-300, as applicable.

2. Building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the indoor spaces of all dwelling units.

3. Warning clauses should be used to inform future residents of the traffic noise issues and the presence of the surrounding commercial/retail/industrial facilities.

For Stationary Noise

1. If the location of the dwellings are significantly different, an acoustical consultant should review to confirm that the sound levels at the proposed development are still applicable.

Table 6: Summary of Noise Control Requirements and Noise Warning Clauses

Description	Block	Acoustic Barrier	Ventilation Requirements *	Type of Warning Clause	Building Façade Constructions
Dwelling units with flanking exposure to County Road 3	1, 74	--	Forced Air	A, B, C	OBC
Remaining units	--	--	--	C	OBC

Notes:
-- no specific requirement
* The location, installation and sound rating of the air conditioning condensers must be compliant with MOE Guideline NPC-300, as applicable
OBC – meeting the minimum requirements of the Ontario Building Code

6.1 Implementation

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

1. The acoustic recommendations may be subject to modifications if the water treatment facility is changed significantly and/or operating scenarios for the water treatment facility are significantly different to those assumed in the assessment.

2. Prior to the issuance of occupancy permits for this development, the municipal building inspector or a Professional Engineer qualified to provide acoustical engineering services in Ontario shall certify that the sound control measures have been properly installed and constructed, as required.

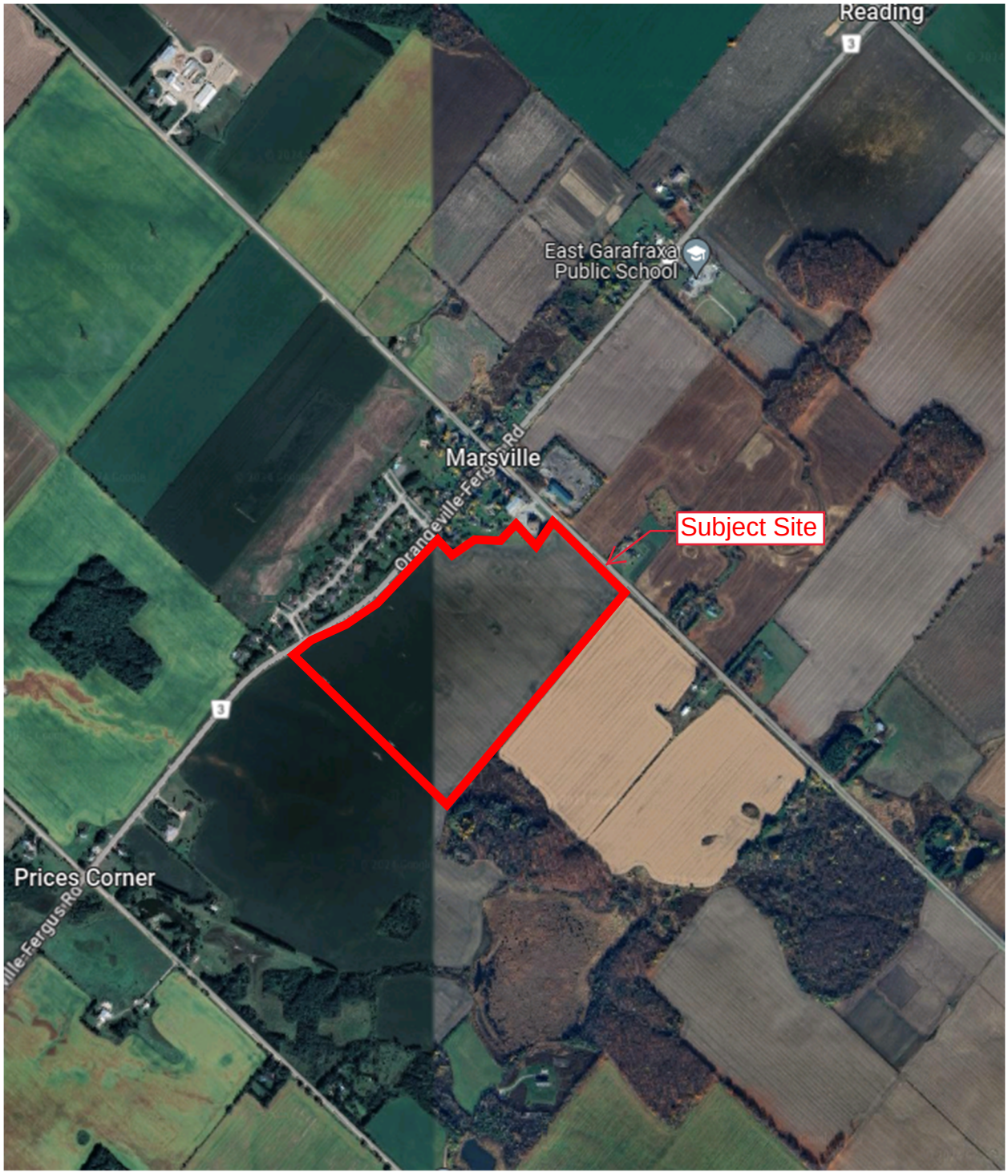
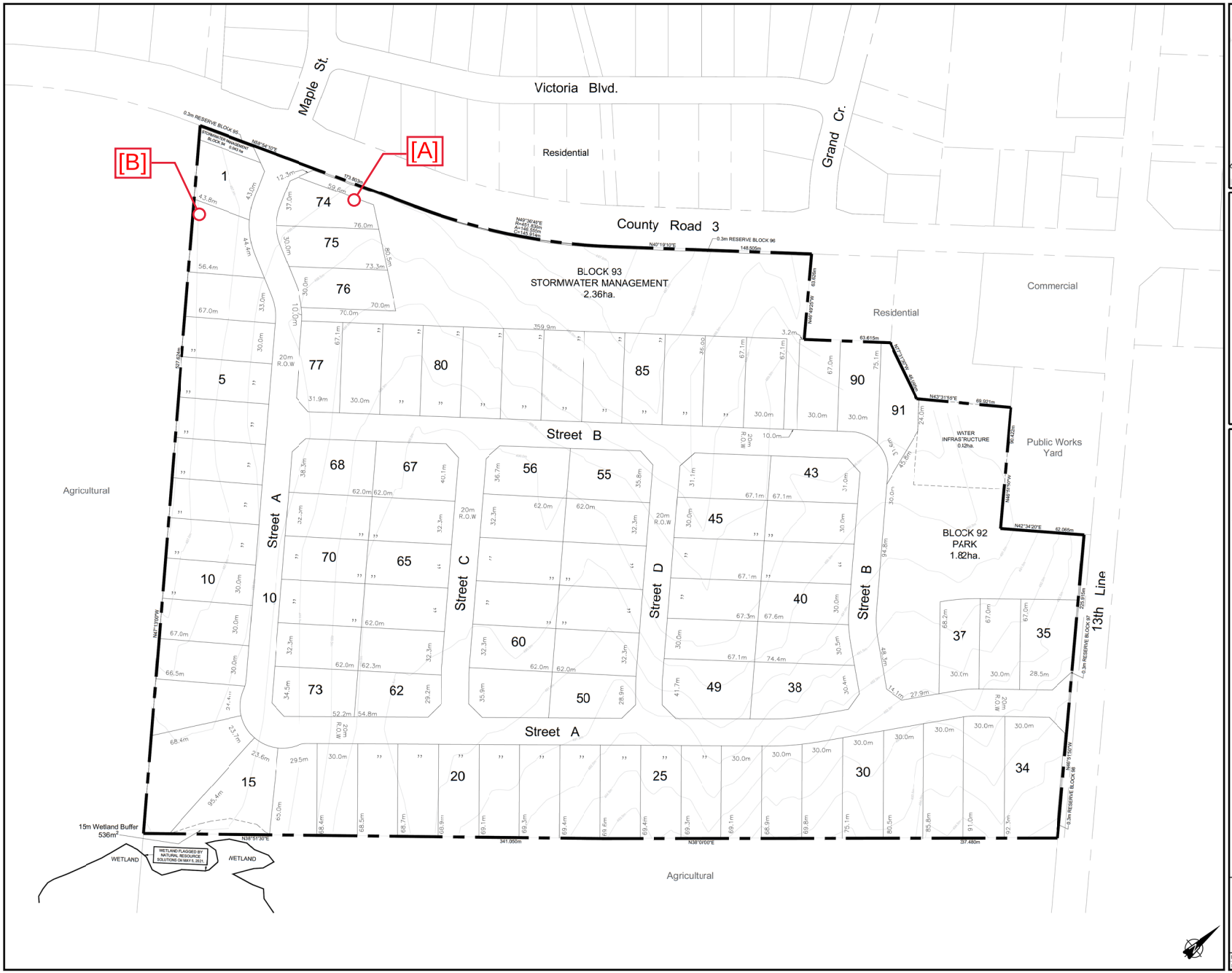
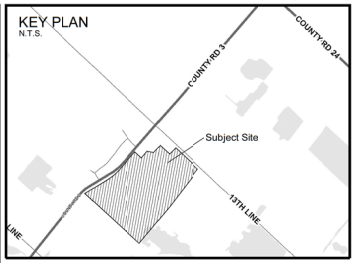


Figure 1: Key Plan



KEY PLAN
N.T.S.



DRAFT PLAN OF SUBDIVISION

PART OF EAST HALF LOT 5, CONCESSION 13
TOWNSHIP OF EAST GARAFRAXA,
COUNTY OF DUFFERIN

LAND USE SCHEDULE

DESCRIPTION	LOTS/BLKS.	UNITS	AREA (ha.)
Residential	1 - 91	91	19.53
Park	92		1.82
Stormwater Management	93-95		2.36
0.3m Reserve	95-98		
Roads			4.23
TOTAL		91	27.94

ADDITIONAL INFORMATION

(UNDER SECTION 51(17) OF THE PLANNING ACT)

INFORMATION REQUIRED BY CLAUSES a,b,c,d,e,f,g,j and l ARE AS SHOWN ON THE DRAFT PLAN.
h) Municipal water supply
i) Sand and gravel
k) All sanitary and storm sewers as required

OWNER'S CERTIFICATE

I AUTHORIZE THE GSP GROUP INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO

KATHERINE MCLAUGHLIN
THOMASFIELD HOMES LIMITED — DATE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

JAMES M. LAWS, O.L.S.
VAN HARTEN SURVEYING INC. — DATE

GSP group
PLANNING | URBAN DESIGN | LANDSCAPE ARCHITECTURE
gspgroup.ca

REVISIONS

Date: June 7, 2024 | Drawn By: ML | Dwg. File Name: dp23080c.dwg
Scale: 1: 1250 | Project No.: 23080

Figure 2: Proposed Site Plan Showing Prediction Locations

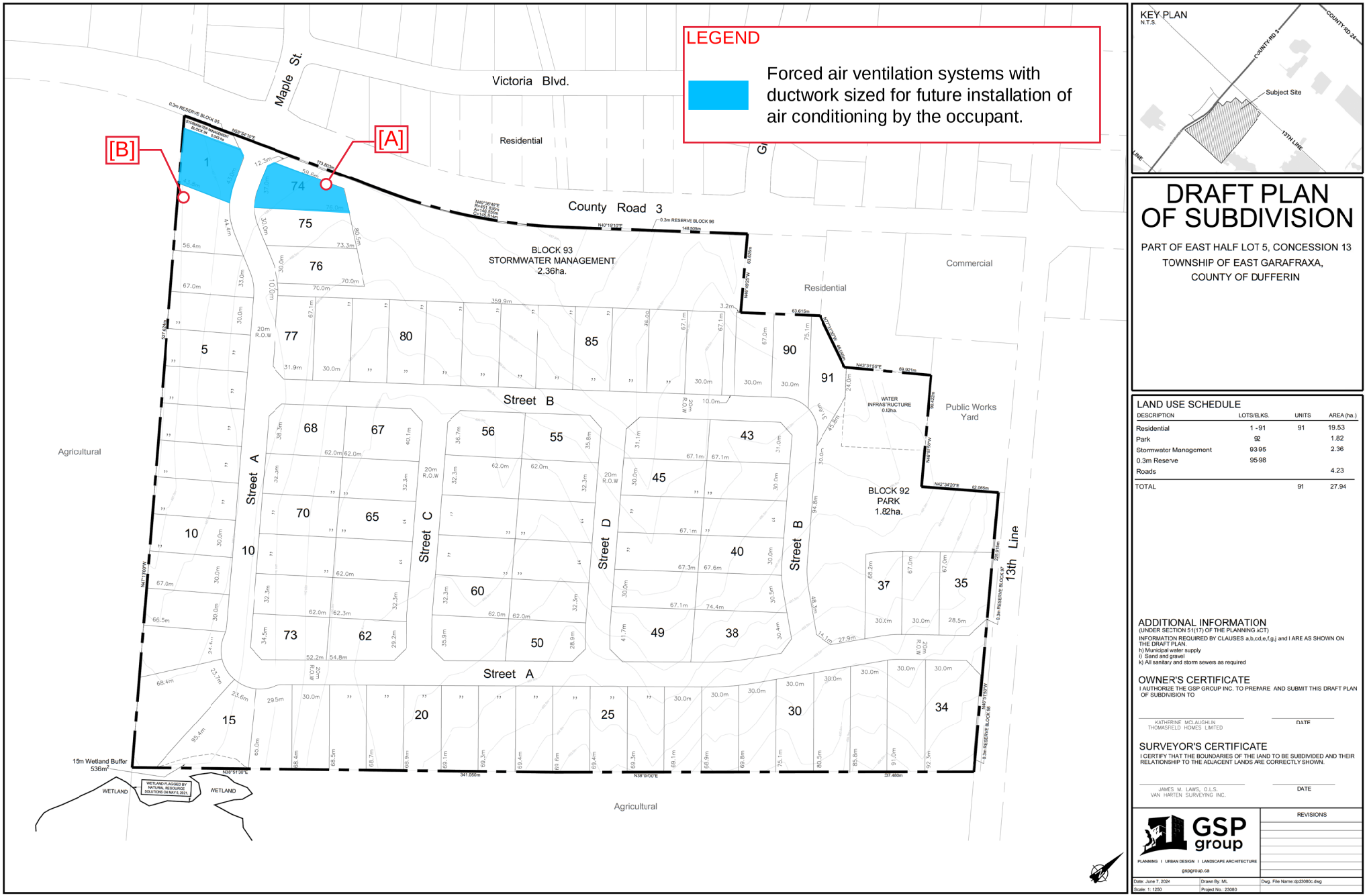
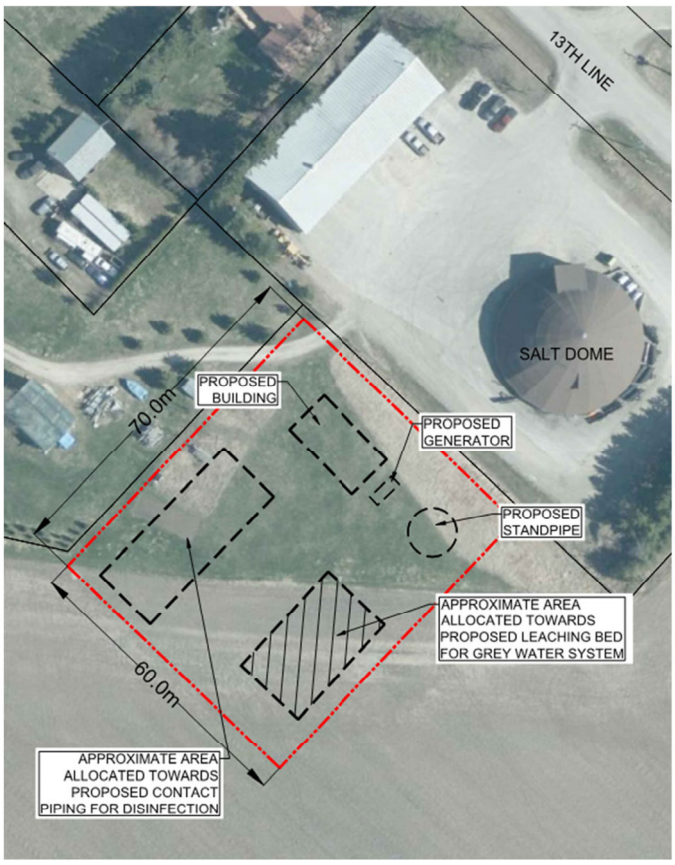


Figure 3: Proposed Site Plan Showing Ventilation Requirements

SITE 1: PROPOSED MARSVILLE SOUTH PARK (BEHIND PUBLIC WORKS YARD)



CONCEPTUAL FIGURE. FINAL LOCATIONS DETERMINED AT DETAIL DESIGN.

Natural Environment	Socio-economic / Cultural Environment	Technical Factors
- A back-up generator (in case of a power outage for example) is required which have air & noise impact during testing and emergency use.	- The additional storage would be designed to accommodate future growth areas designated in the Official Plan. - No impact anticipated on cultural resources as an archeological assessment was completed on the site in 2021. - Potential impacts on air quality during construction (noise, dust, emissions). - Site is located on land that has an active planning application. Land costs would be considered in terms of cost sharing/recovery among future benefiting developers.	- The site is on future development land within the current proposed park location. There is significant flexibility at this time to ensure the layout is easily accommodated for within the subdivision as well as considering how that could be coordinated with future park development as the subdivision layout could be modified if needed. - Access to the building could be through the public works yard with secondary future access considered should the public works yard be re-located in the future. -The site is approximately mid-point between PW2 and the West Test Well. It is the most cost effective in terms of providing generator backup to the wells via one generator. -MECP Guidelines indicate a water supply system should have firm capacity which equates to the system providing maximum day demand with the largest well out of service. This alternative would have two wells, a West Well, and PW2.

PRELIMINARY PREFERRED ALTERNATIVE

Figure 4: Location of Future Water Treatment Facility

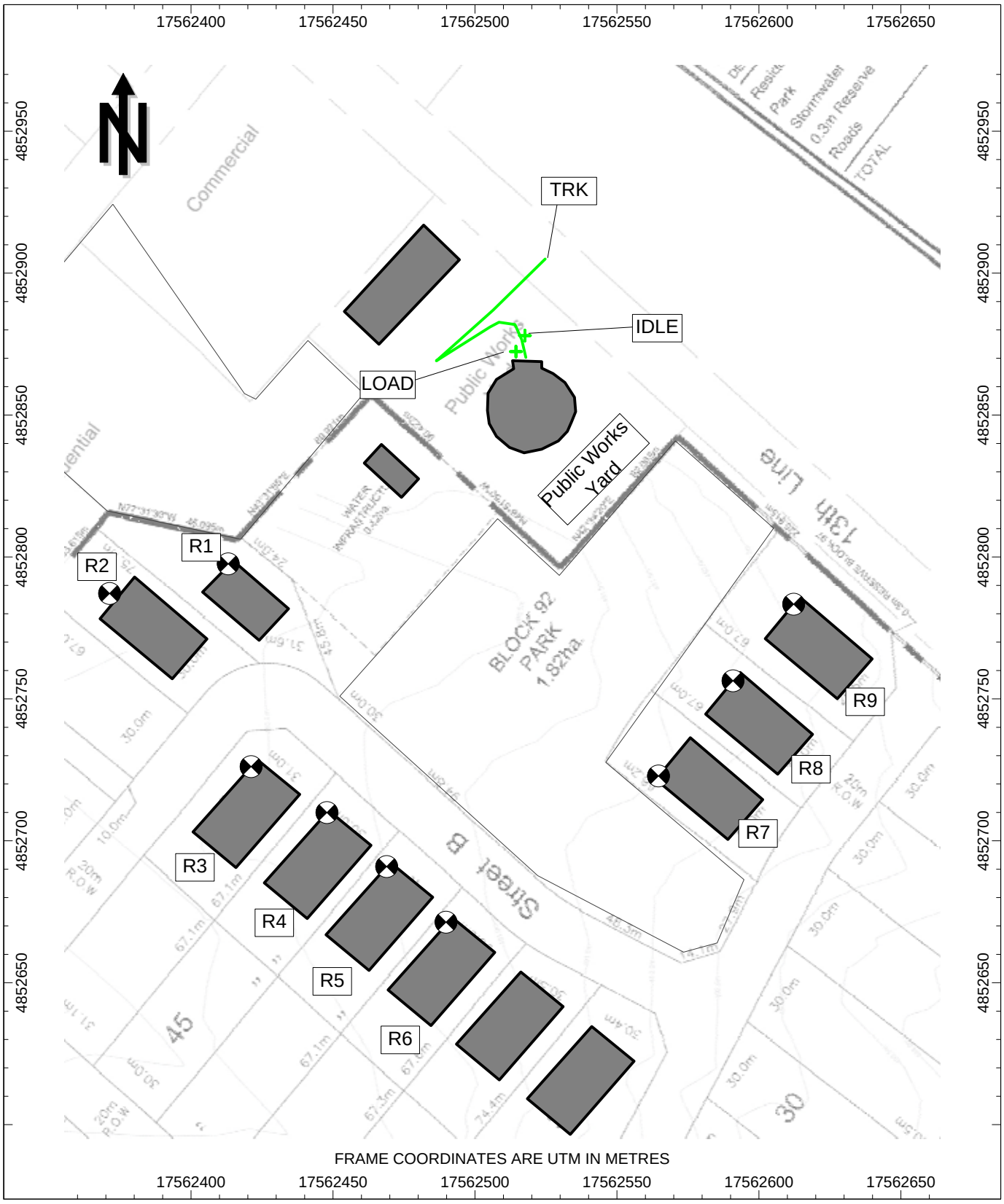


Figure 5: Existing Noise Source Locations

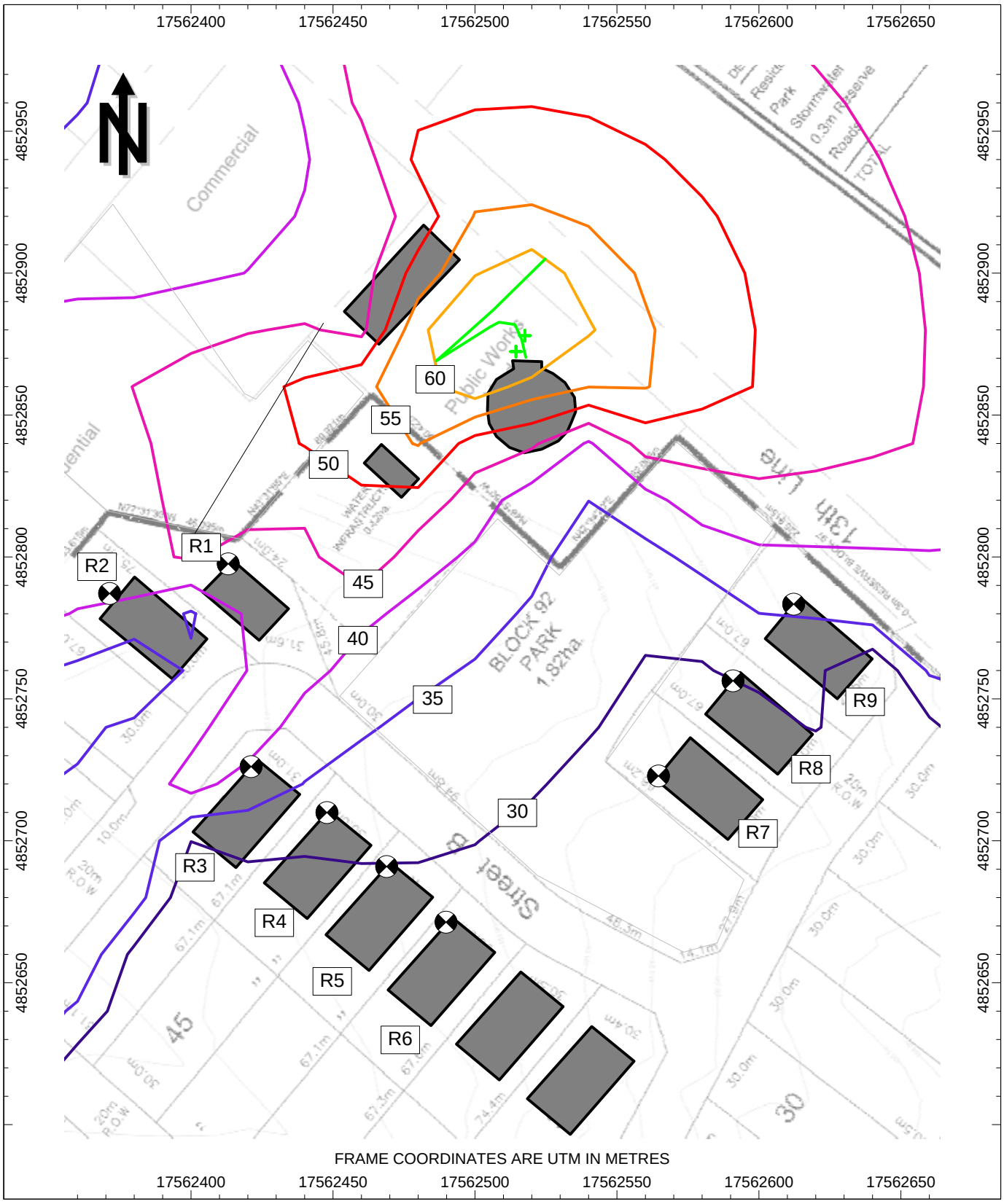


Figure 6: Predicted Stationary Noise Sound Level Contours, 4.5 m in height, dBA

APPENDIX A

Road Traffic Information

County Rd 3 @ 13th Line

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

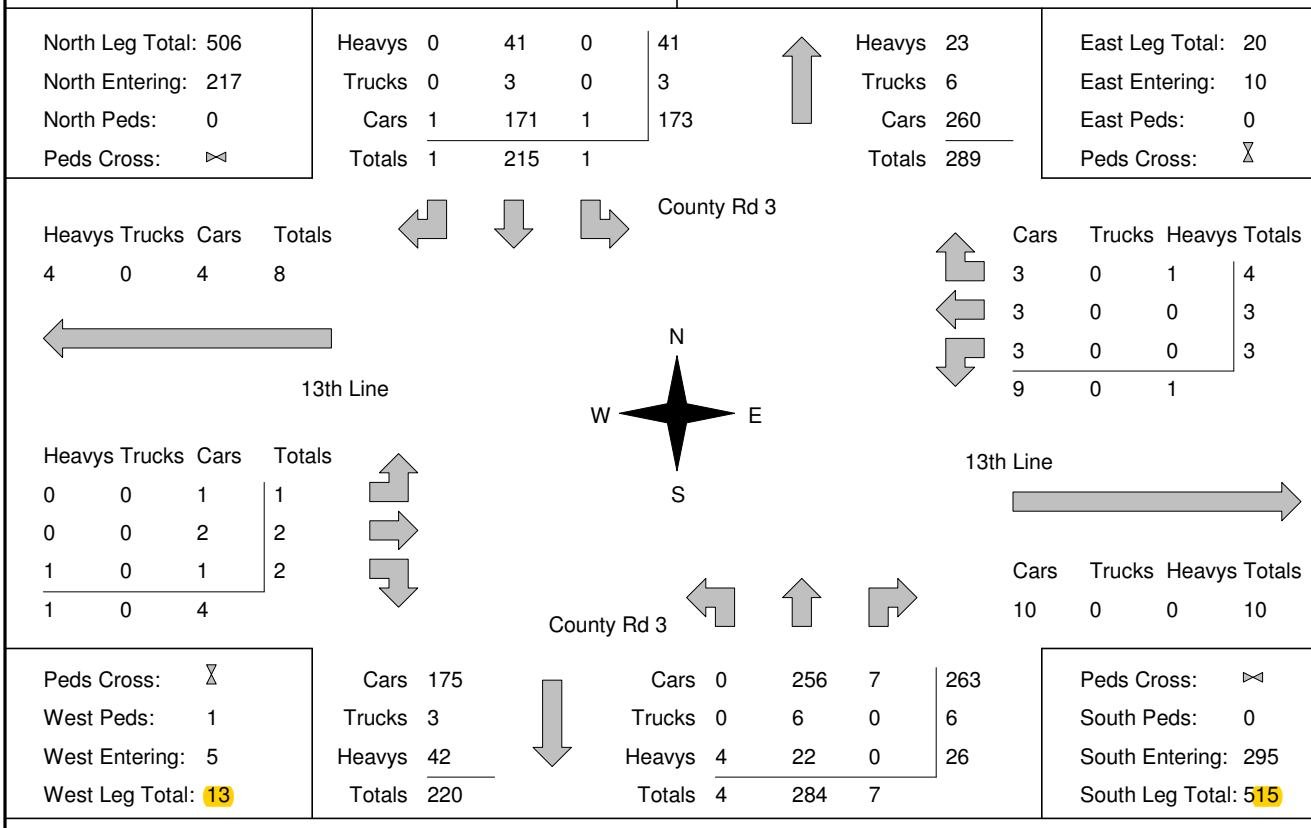
Municipality: Marsville
Site #: 0000000001
Intersection: County Rd 3 & 13th Line
TFR File #: 1
Count date: 15-Nov-2022

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: County Rd 3 runs N/S



Comments

County Road 3
Heavy = (26+42)/515= 13.2%
Medium = (6+3)/515 = 1.7%

13th Line
Heavy = (1+4)/13 = 38%

County Rd 3 @ 13th Line

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

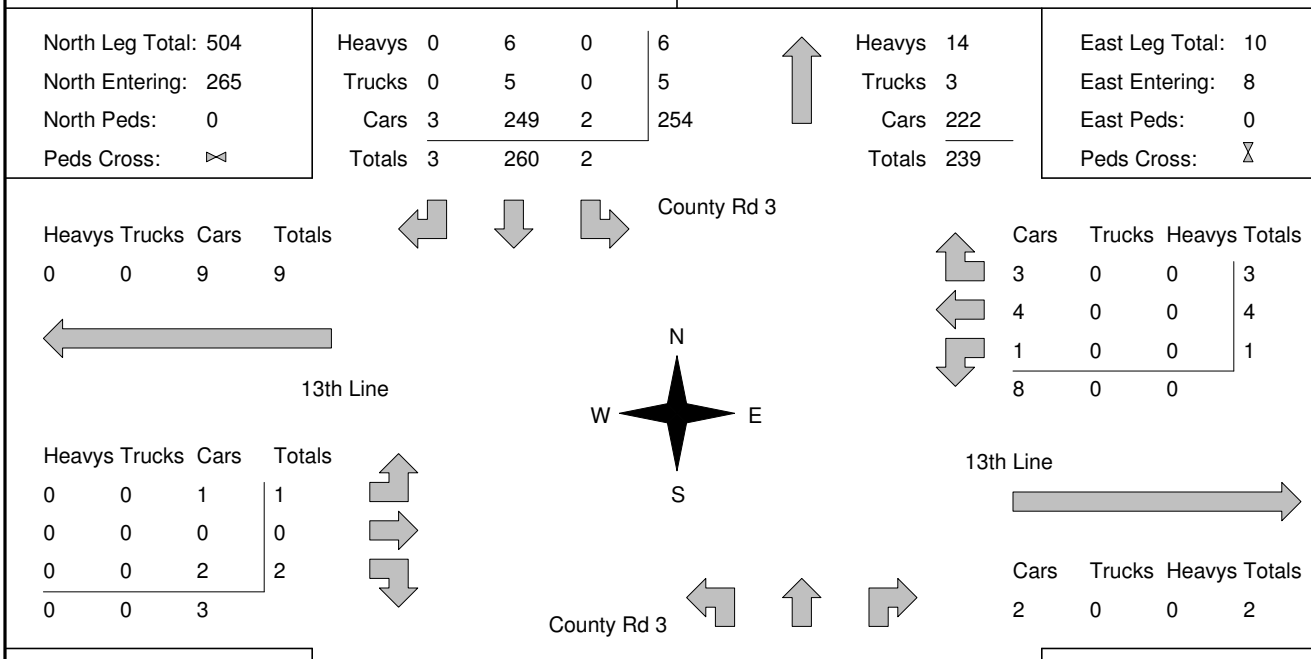
Municipality: Marsville
Site #: 0000000001
Intersection: County Rd 3 & 13th Line
TFR File #: 1
Count date: 15-Nov-2022

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: County Rd 3 runs N/S



Comments

County Rd 3 @ 13th Line

Total Count Diagram

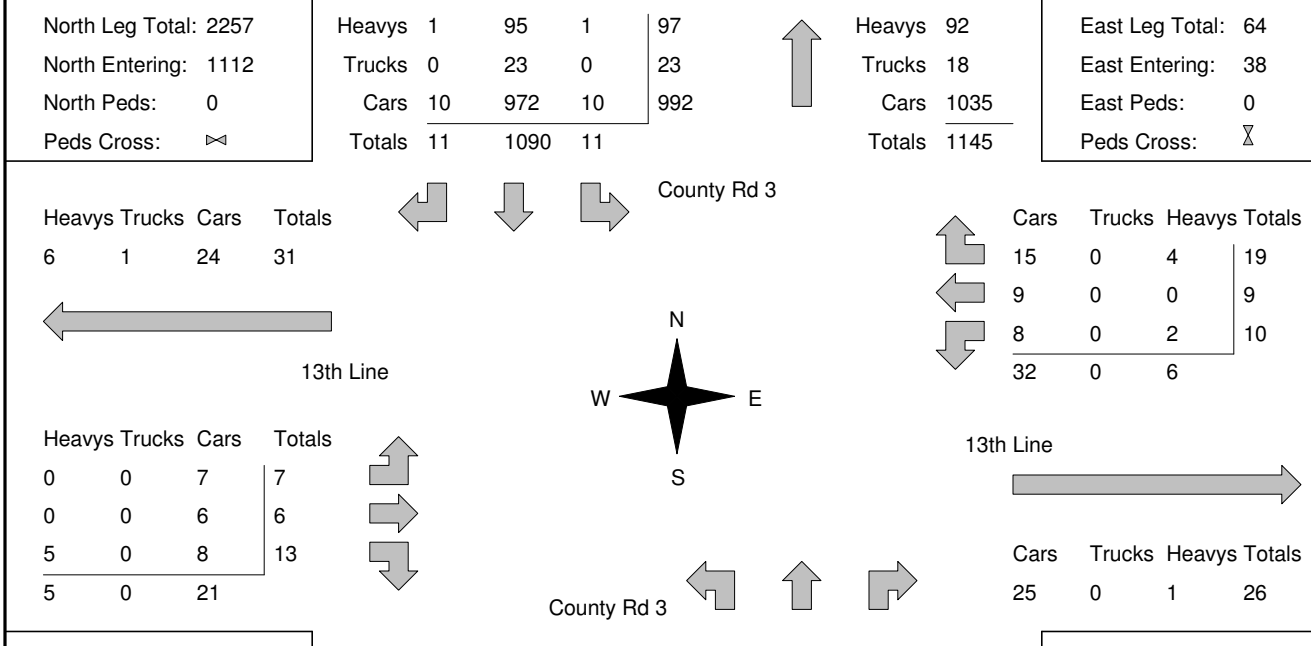
Municipality: Marsville
Site #: 0000000001
Intersection: County Rd 3 & 13th Line
TFR File #: 1
Count date: 15-Nov-2022

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: County Rd 3 runs N/S



Comments

APPENDIX B

Sample STAMSON 5.04 Output

```
STAMSON 5.0        NORMAL REPORT        Date: 31-07-2024 10:04:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te                  Time Period: Day/Night 16/8 hours
Description: Predicted sound levels at the north façade of the proposed
dwelling unit with flanking exposure to County Road 3, Prediction Location
[A].

Road data, segment # 1: County Rd 3 (day/night)
-----------------------------------------------
Car traffic volume  :  5305/589   veh/TimePeriod  *
Medium truck volume :   106/12    veh/TimePeriod  *
Heavy truck volume  :   823/91    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   5150
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  12.00
    Medium Truck % of Total Volume     :   1.70
    Heavy Truck  % of Total Volume     :  13.20
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: County Rd 3 (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  :  27.00 / 30.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: County Rd 3 (day)
---------------------------------------

Source height = 1.91 m

ROAD (0.00 + 65.17 + 0.00) = 65.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.72   0.00  -2.55   0.00   0.00   0.00   0.00  65.17
-------------------------------------------------------------------------------

Segment Leq : 65.17 dBA

Total Leq All Segments: 65.17 dBA

Results segment # 1: County Rd 3 (night)
-----------------------------------------
```

```
Source height = 1.90 m

ROAD (0.00 + 58.16 + 0.00) = 58.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  61.17   0.00  -3.01   0.00   0.00   0.00   0.00  58.16
-------------------------------------------------------------------------------

Segment Leq : 58.16 dBA

Total Leq All Segments: 58.16 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.17
                           (NIGHT): 58.16
```

APPENDIX C

Supporting Information

THE CORPORATION OF THE TOWNSHIP OF EAST GARAFRAXA

BY-LAW NUMBER 43-2004

BEING A BY-LAW TO PROHIBIT EXCESSIVE NOISE

WHEREAS Municipal Act, S.O. 2001, Section 129(1) provides that the Council may prohibit and regulate noise, or vibration

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWNSHIP OF EAST GARAFRAXA HEREBY ENACTS AS FOLLOWS:

1. **Definitions**

In this Bylaw, "excessive noise" means any unusual noise, or any noise likely or intended to disturb the inhabitants, when inside their dwelling, and without limiting the generality of the foregoing, includes the following:

1.1 The sound or noise from or created by any radio, stereo, or television, or any musical or sound-producing instrument when such device is played or operated in such a manner or with such volume as to disturb the inhabitants from inside their dwelling.

1.2 Any noise made by a domestic animal which disturbs the inhabitants from inside their dwelling.

1.3 Any noise arising between the hours of 11:00 p.m. of any day till 6:00 a.m. of the next day from excavation or construction work, lawn mowers or other power tools.

1.4 Any noise arising from operation of any motorized vehicle, including automobiles, trailers, motorcycles, dirt bikes, snowmobiles, etc., which disturbs the inhabitants from inside their dwelling.

1.5 Any noise arising from a large social gathering being held on any property which disturbs the inhabitants from inside their dwelling.

1.6 Any noise arising from the use of an engine brake (Jake Brake) in any residential settlement or other area as specified by Council, subject to the posting of signs.

2. **Excessive Noise Prohibited**

2.1 No person shall cause or permit any excessive noise. Any person who holds any ownership interest, whether registered or unregistered, by way of being a trustee or otherwise, in property which has been shown to be the origin of excessive noise prohibited under this by-law shall be presumed to have power and authority over the making of the noises.

3. **Exceptions**

Section 2 does not apply to the following:

3.1 Where the noise arises from necessary work being performed by the municipality or its agents or contractors.

3.2 To the noise or sounds normally associated with an agricultural operation , including the operation of farm machinery, animals, livestock, etc.

3.3 To the noise or sounds normally associated with and necessary to any legal commercial/industrial use, or home occupation/home industry.

3.4 To the noise caused by any police, fire, ambulance or public service/emergency vehicle while in the process of carrying out their duty.

3.5 To noise or sounds normally associated with social and community functions held at halls, churches, schools, and public facilities.

3.6 The noise associated with the use of Engine Brakes (Jake Brakes) in the case of an emergency.

4. **Offence**

4.1 Every person who contravenes any of the provisions of this by-law is guilty of an offence and is liable to the penalty provided for under the Provincial Offences Act.

4.2 Any person aggrieved by excessive noise may appear before a Justice of the Peace and swear out an information charging any person who contravenes any of the provisions of the Noise By-law.

5. **Enactment**

5.1 This by-law comes into force upon adoption by Council of the Corporation of the Township of East Garafraxa.

5.2 That By-Law 27-2002 be hereby repealed.

BY-LAW READ A FIRST AND SECOND TIME THIS 12TH DAY OF OCTOBER, 2004

BY-LAW READ A THIRD TIME AND PASSED THIS 12TH DAY OF OCTOBER, 2004

Susan M Stone
CLERK

HEAD OF COUNCIL

PROVINCIAL OFFENCES ACT

PART I

IT IS ORDERED pursuant to the provisions of the Provincial Offences Act and the rules for the Ontario Court of Justice, that the amount set opposite each of the offences in the attached schedule of offences under the Provincial Statutes and Regulations thereunder and the Municipal By-Law No. 43-2004, of the Corporation of the Township of East Garafraxa, attached hereto are the set fines for those offences to take effect November 7, 2005.

DATED at Hamilton, this 7th day of November, 2005.

TIMOTHY CULVER, Regional Senior Justice
Central West Region
Ontario Court of Justice

Township of East Garafraxa
By-law no. 43-2004: Excessive Noise
Part I Provincial Offences Act

Item	Short Form Wording	Provision creating or defining offence	Set Fine
1	Causing or permitting the emission of noise from a radio, stereo, or television, or any musical or sound-producing instrument	Sections 1.1, 2.1	$155.00
2	Causing or permitting the emission of noise from a domestic animal	Sections 1.2, 2.1	$155.00
3	Causing or permitting the emission of noise from excavation or construction work, lawn mowers or other power tools during a prohibited time	Sections 1.3, 2.1	$155.00
4	Causing or permitting the emission of noise from a motorized vehicle	Sections 1.4, 2.1	$155.00
5	Causing or permitting the emission of noise during a large social gathering	Sections 1.5, 2.1	$155.00
6	Causing or permitting the emission of noise from the use of an engine brake (Jake Brake) in a residential settlement or other area as prescribed by Council	Sections 1.6, 2.1	$155.00

NOTE: the general penalty provision for the offences listed above is section 4 of bylaw 43-2004, a certified copy of which has been filed.

STANDBY GENERATORS

20kW[1] STANDBY GENERATOR

CORROSION RESISTANT

BRIGGS & STRATTON®
THE SMART CHOICE

For the discerning homeowner that is looking for the smartest, most reliable permanent backup power solution.

FORTRESS™

Corrosion Resistant Enclosure & Base

- Rust resistant aluminum and a stainless steel base to protect the generator from the elements. Robust protection against damage from the elements caused by strong winds, high humidity and salt air.
- Powder-coated paint for years of protection against chips and abrasions
- Certified to withstand hurricane-force winds up to 175 mph

6 YEAR PARTS • LABOR • TRAVEL LIMITED WARRANTY

Unique Airflow Technology

- Making these models 50% quieter than most portable generators
- The unique design pushes engine exhaust out the front, directly away from your home

Symphony® II Power Management System

- Customizable to your home's needs
- Automatically balances the power of your home's electrical load including high wattage items like air conditioning units and electric ovens
- Offers whole house power with a more affordable home generator

Commercial-Grade Briggs & Stratton Vanguard™ Engine

- Powerful V-Twin OHV engine
- Easy conversion between natural gas (NG) and liquid propane gas (LP) during installation

Quality Clean Power

- Ensures your electronics are safely powered

Flexible Placement

- Approved for installation as close as 18" to a building[2]

c UL us LISTED

GENERATOR SET RATINGS

					LIQUID PROPANE GAS		NATURAL GAS		LIMITED WARRANTY[3]
MODEL	VOLTAGE	PHASE	HZ	BREAKER	LP kW	LP AMPS	NG kW	NG AMPS	PARTS, LABOR, TRAVEL
Fortress 040573	120/240	1	60	100	20	83.3	18	75	6 Year
Briggs & Stratton 040574	120/240	1	60	100	20	83.3	18	75	5 Year

[1] This generator is rated in accordance with UL (Underwriters Laboratories) 2200 (stationary engine generator assemblies) and CSA (Canadian Standards Association) standard C22.2 No. 100-14 (motors and generators).

[2] The installation manual contains specific instructions related to generator placement in addition to NFPA 37, including the requirement that carbon monoxide detectors be installed and maintained in your home.

[3] Warranty details available at www.briggsandstratton.com

ENGINE SPECIFICATIONS

ENGINE

Engine Model	Briggs & Stratton Vanguard™
Engine Model Type Trim Number	613275-0003-E1
Engine Speed (RPM)	3600
Engine Fuel	Liquid Propane (LP) or Natural Gas (NG)
Engine Cylinder Configuration	OHV
Number of Cylinders	2
Displacement (cc)	60.6 / 993
Bore & Stroke (in)	3.37 / 3.41
Compression Ratio	8.5:1
Governor Type	Electronic
Frequency Regulation	+/- 1%
Valves	OHV with Hardened Seats
Ignition System	Fixed timing Magnetron® Electric Ignition
Starter Motor Rating Voltage	12 Volt
Battery	12 Volt

LUBRICATION

Oil Capacity (oz)	79
Lubrication System	Full Pressure
Recommended Oil	5W30 Full Synthetic
Low Oil Pressure Sensor	Yes

ALTERNATOR SPECS

Manufacturer	Briggs & Stratton
Type	Self-Excited, Rotation Field
Voltage Regulator	Automatic
Insulation	Class F

CONTROLLER FEATURES

Hour Meter	Yes
LED Digital Display	Yes
Fault Code Display	Yes
Weekly Exerciser	Yes

OPERATIONS

FUEL CONSUMPTION[1]

	50% Load		100% Load	
Liquid Propane	83 ft^3 / hr	2.31 gal / hr	135 ft^3 / hr	3.75 gal / hr
Natural Gas	187 ft^3 / hr	—	260 ft^3 / hr	—

SOUND RATING AT 7 METERS PER ISO 3744

64dB(A)

Lowest measurement of 12 microphones around generator. Sound level measurement at other locations around generator may be different depending upon installation configuration.

[1] Fuel consumption rates are estimated based on normal operating conditions. Generator operation may be greatly affected by elevation and the cycling operation of multiple electrical appliances – fuel flow rates may vary depending on these factors.

ADDITIONAL INFORMATION

OTHER FEATURES

Enclosure Material	Aluminum with Corrosion Resistant Paint
Overcrank Protection	Yes
Engine Warm Up (sec)	20 or 50 Automatic Transfer Switch Controlled
Engine Cool Down (min)	1
Response Time (sec)	26 or 56 Automatic Transfer Switch Controlled
Monitoring Options (Only available with optional monitoring kits)	Basic Wireless Monitor InfoHub™ Monitor
Continuous Battery Charging	Yes

WEIGHT AND DIMENSIONS

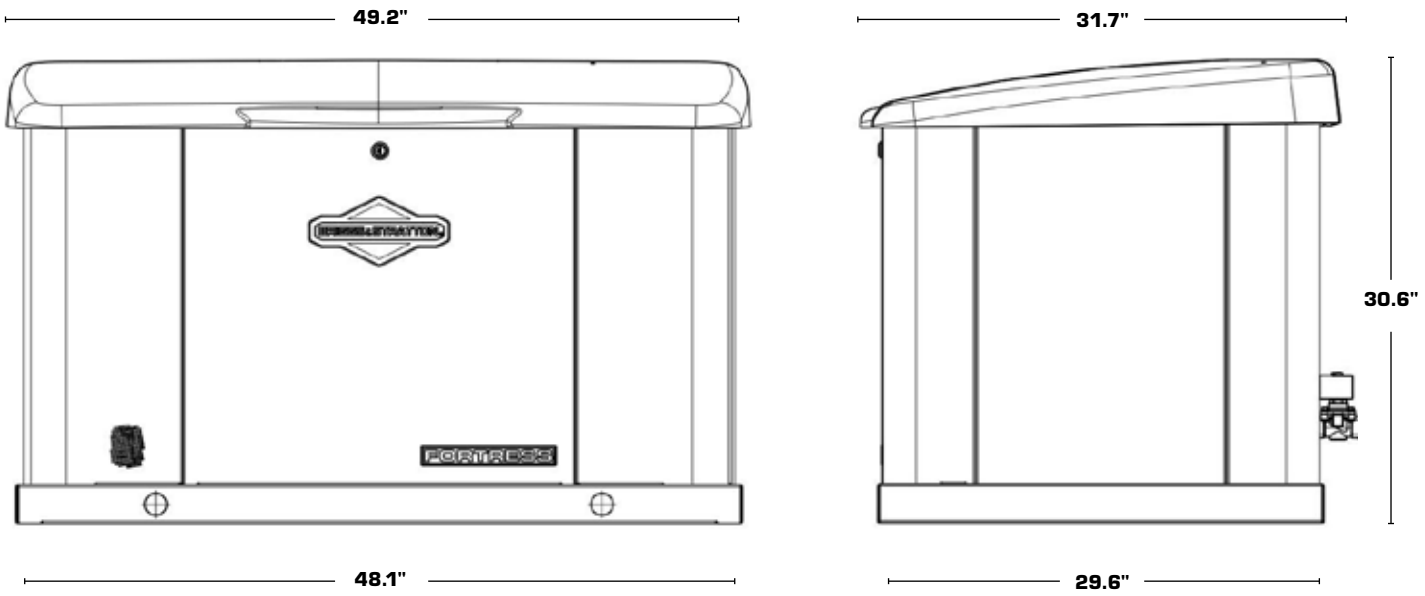
Assembled Weight (lbs)	443
Overall Dimensions (in)	49.2 x 31.7 x 30.6
Packaged Weight (lbs)	588
Packaged Dimensions (in)	68.1 x 41 x 39.5

CERTIFICATION

CARB Compliant	Yes
NFPA Approved	Yes
cUL Listed to CSA 22.2 NO 100-04	Yes
NEMA Compliant	Yes
EPA Certified Fuel System	Yes

AVAILABLE ACCESSORIES

Maintenance Kit		6035
Cold Weather Kit	Fortress	6404
	Briggs & Stratton	6231
Basic Wireless Monitor		6276
InfoHub		6260
Remote Status Monitor		6144



FUEL PIPE SIZE RECOMMENDATION CHART (CAPACITY IN THOUSANDS OF BTU/HOUR)

Natural Gas/Inlet Pressure less than 2 PSI/ Pressure drop .5" w.c./ Specific Gravity 0.60

	1/2" pipe capacity	3/4" pipe capacity	1" pipe capacity	1-1/4" pipe capacity	1-1/2" pipe capacity	2" pipe capacity
20' Length*	118	247	466	957	1,430	2,760
40' Length*	81	170	320	657	985	1,900
60' Length*	65	137	257	528	791	1,520
80' Length*	56	117	220	452	677	1,300
100' Length*	50	104	195	400	600	1,160

Liquid Propane / Inlet Pressure 11" Water Column / Pressure Drop 0.5" Water Column / Specific Gravity 1.50

	1/2" pipe capacity	3/4" pipe capacity	1" pipe capacity	1-1/4" pipe capacity	1-1/2" pipe capacity	2" pipe capacity
20' Length*	200	418	788	1,617	2,423	4,666
40' Length*	137	287	541	1,111	1,665	3,207
60' Length*	110	231	435	892	1,337	2,575
80' Length*	94	198	372	764	1,144	2,204
100' Length*	84	175	330	677	1,014	1,954

*Total length of piping from outlet of regulator to appliance furthest away.

ADDITIONAL INFORMATION

TRANSFER SWITCH SPECIFICATIONS

Prewired 16 Circuit	100 AMP	Model #071076
Standard 16 Circuit	100 AMP	Model # 071047
Symphony® II	100 AMP	Model # 071071
Symphony® II	150 AMP	Model # 071070
Symphony® II	200 AMP	Model # 071068
Symphony® II Dual 200 Amp	2x200/400	Model # 071057
Voltage Rating	120/240	
Number of Protected Circuits	Select Circuit: 16 Symphony® II: Whole House	
UL Approved	Yes	
NEMA 3R Rated	Yes	

Disclaimer: Not for Prime Power or use where standby systems are legally required, for serious life safety or health hazards, or where lack of power hampers rescue of fire-fighting operations.

BRIGGS&STRATTON

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