Land Use Compatibility Assessment – 452 Tobacco Road, Castleton

December 12, 2024

Prepared for:
Bruce Voskamp

Cambium Reference: 20862-001

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Version Control

Revision	Date	Revision Description	Prepared By:	Submitted To:
1.0	2024-12-12	Land Use Compatibility Assessment – 452 Tobacco Road, Castleton	Cambium Inc.	Bruce Voskamp

Executive Summary

Cambium Inc. has been retained by Bruce Voskamp in response to a request by the Township of Cramahe, to complete a land use compatibility study of the proposed development site located at 452 Tobacco Road, Castleton. The proposed development consists of the construction of a single dwelling on an existing residential lot.

Cambium's understanding is that the township is primarily concerned with the potential compatibility of the development with nearby land uses, specifically nearby aggregate operations. Guidance documents on this subject matter include the Ontario Ministry of the Environment, Conservation, and Parks *D-Series Environmental Land Use Planning Guides*. Noise impacts from other stationary noise sources were assessed as described in the Ministry of the Environment, Conservation, and Parks publication: *Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning, NPC-300*.

Cambium has completed an initial D-6 assessment of the site and located one site that is within the area of influence. As such, Cambium has completed the further detailed assessments that are required to support the compatibility of the proposed development. Such assessments consider a potential worst-case scenario of operations.

As a single dwelling, the potential noise impacts from the proposed development onto itself and onto the surrounding receptors are expected to be negligible were not considered in the scope of this report.

A review of the region's meteorological data indicated that adverse air quality impacts onto the sensitive uses at the proposed development are unlikely

Based on the terms, conditions, and assumptions in this report, it is Cambium's opinion that the proposed development is compatible with nearby land uses provided that the recommendations and controls of this report are implemented.

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1.0 Introduction

Cambium Inc. (Cambium) has been retained by Bruce Voskamp to complete a land use compatibility (LUC) study of a proposed development site located at 452 Tobacco Road, Castleton, ON (the Site). The proposed development consists of the construction of a single dwelling on an existing residential lot (the Proposed Development).

Cambium's understanding is that the Township of Cramahe is primarily concerned with the potential compatibility of the Proposed Development with nearby land uses, specifically a nearby aggregate operation. Therefore, the potential for environmental noise and air impacts onto the Proposed Development has been assessed.

Cambium utilized the Ontario Ministry of the Environment, Conservation, and Parks (the Ministry): *D-Series Environmental Land Use Planning Guides* (Ontario Ministry of the Environment, Conservation, and Parks, 2016). Cambium also used aspects of the Ministry publication: *Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning* (NPC-300) (Ontario Ministry of the Environment, Conservation, and Parks, 2017) for guidance.

An evaluation of railway noise or vibration impacts was not required as the proposed development location is not within the 300 metres noise influence distance published by the Rail Authorities (RAC and FCM, 2013).

Airport noise is not a concern at this location as the nearest airport is more than 10 km away.

2.0 Site Description

The proposed development site is located at 452 Tobacco Road, Castleton, ON, and consists of the construction of a single dwelling on an existing residential lot.

The current zoning of the Site is ‘RR-1 – Rural Residential One Zone’, with adjacent ‘RU-122 – Rural 122 Zone’, ‘RU – Rural Zone’, ‘RR – Rural Residential Zone’, and ‘ME – Extractive Industrial Zone’ lots.

The Site location is shown in Figure 1 and Figure 2.

Cambium staff conducted a site visit on August 21, 2024, and inspected the Proposed Development site as well as the surrounding area. No significant air quality or odour emissions were observed during the visit, although an aggregate operation located in proximity to the Site has potential to emit air and noise emissions. It should be noted that the site visit was completed by a Cambium technologist experienced in air and noise analysis, however no specific field method for odour assessment was completed.

3.0 Land Use Compatibility Assessment

The Ministry has developed a series of environmental considerations and requirements for adjacent industrial land use and sensitive lands. The Ministry has issued these D-Series guidelines to aid in minimizing the adverse effects from the encroachment of incompatible land uses.

3.1 Ministry D-series Land Use Compatibility Guides

Guideline D-1, *Land Use Compatibility* (Guideline D-1) recommends separation distances and control measures for land use planning. These recommendations seek to minimize potential adverse effects for an existing or proposed facility. Adverse effects considered under Guideline D-1 may include:

- Noise and vibration,
- Visual impact (only for landfills), and,
- Air emissions including odour and dust.

Utilizing appropriate separation distances is the recommended method for minimizing the impact between incompatible sites. Municipalities may increase the Ministry's recommended setbacks and place restrictions for the land use or activities on the land. Where setback distances are not feasible, barriers and control measures must be designed to mitigate the impact of concern.

Guideline D-6, *Compatibility Between Stationary Industrial Facilities and Sensitive Land Uses* (Guideline D-6) indicates the applicability of Guideline D-1 for industrial facilities. Guideline D-6 suggests separation distances between industrial and sensitive land uses from the effects of normal industrial operations; however, Guideline D-6 notes that detailed studies should be conducted to determine site-specific separation distances if the generalized separation distances are not met.

Guideline D-6 provides an 'area of influence' and a 'minimum separation distance'. The area of influence acts as a flag identifying if further detailed studies may be required. The minimum

separation distance does not preclude development but triggers specific conditions and considerations to be made by the municipal planning authority.

Guideline D-6 categorizes industrial facilities into three class designations, each of which have an expected influence area and minimum separation distance. We have provided these distances and classification descriptions in the table below.

Embedded Table 1 - Guideline D-6 Summary of Ministry Identified Areas of Influence and Minimum Separation Distances

Class	Description	Potential Area of Influence (m)	Minimum Separation Distance (m)
Class I	• Small scale, self-contained facility • Low probability of fugitive dust • Infrequent not intense point source outputs of dust and odour • Day time operation hour • No outdoor storage • Not audible off site • No ground-borne vibration	**70**	**20**
Class II	• Medium scale processing facility • Outdoor storage of waste material • Periodic releases of odour, and/dust that could result in minor annoyance • Odour and dust can be occasionally intense • Frequent movement of product/heavy trucks during daytime • Sound is occasionally audible off property • Minimal ground-borne vibration	**300**	**70**
Class III	• Large Scale Manufacturing and Processing	**1000**	**300**

Class	Description	Potential Area of Influence (m)	Minimum Separation Distance (m)
	• Outdoor storage of final and waste material • Large footprint and production capacity • Continues movement of products and employees during shifts • Frequent outputs of point source odour or dust casing major annoyance • Odour and Dust emissions are intense • Sound is often audible off site • Vibration can be perceived off site		

It should be emphasized that none of the setback distances in the D-6 guidelines completely preclude development. In specific cases the separation distances can be less, provided that supporting reports are provided for odour, air emissions, noise, and vibration. These specific cases include re-development, infilling, and mixed-use areas. The definition of this property as such should be determined by the planning authority.

3.2 Municipal Official Plan

The municipal official plan can also inform land use compatibility setbacks, or how to interpret the provincial guidance. Cambium's understanding is that typically the official plan is considered to be the applicable regulation, and the D-6 guidance is simply guidance from the Ministry of the Environment to the planning process.

The Official Plan of the Township of Cramahe (The Township of Cramahe, 2024) states the following.

5.11.7 Protection of Mineral Aggregate Resources and Operations

> *The construction of buildings and changes of land use which are deemed to be incompatible with future aggregate extraction in and adjacent to areas designated*

Aggregate Resources will be discouraged, to protect such resources for development at some future time.

It is recognized by this Plan, however, that extraction may not be feasible or advisable in all areas identified as Aggregate Resources. The municipality, in consultation with the Ministry of Natural Resources and Forestry, may permit non-aggregate land uses or developments in or adjacent to existing operations and areas designated for Aggregate Resources under carefully considered circumstances:

a) Sensitive land uses should not be permitted within 300 metres of licensed sand and gravel pit operations and 500 metres of licensed quarry operations, unless studies are completed to demonstrate that the encroachment of the sensitive land uses will not be impacted by such matters as groundwater interference, noise, dust, traffic and vibration.

This statement further supports that in this municipality separation distances can be less, provided that supporting reports are provided.

3.3 Application of Ministry Guidelines

There are few existing commercial/industrial facilities within 1,000 metres of the Proposed Development that need to be considered with respect to the Ministry D-Series guidelines. Many of the facilities are located outside of the influence area which would apply to that commercial/industrial facilities' class designation and therefore are not likely to have any compatibility concerns.

3.3.1 Inward Impacts of Nearby Facilities onto the Proposed Development

All offsite commercial and/or industrial facilities that have the potential to be considered as Class II and III facilities within 1,000 metres are discussed below and represented in Figure 1.

Offsite commercial and/or industrial facilities that clearly fit the Class I description of the guidelines and which are located at a distance greater than the Class I, 70 metre area of influence are generally not included.

3.3.1.1 Facilities of potential concern

As shown in Figure 1 and Figure 3, there is only one facility that is located within the applicable minimum separation distance or located within the applicable area of influence, and therefore this facility requires more detailed assessment. The detailed assessment is included in this report in sections 4.0 and 5.0.

- F01 – Blake Construction Services Gravel Pit (the Pit), is located at 449 Tobacco Road, Castleton. This pit operates under a 'class B' aggregate licence with a site ID of 3070. The separation distance from the proposed development to this facility is less than the minimum separation distance of 300 metres for existing pits or quarries. This facility potentially includes truck movement, and extraction activities including the use of a loader and screening plant. However realistically, the site is infrequently active. While it was communicated from Blake Construction Services that only the north field area of the Pit is left to extract, it is likely that sound could be occasionally audible off property. D-6 guidance suggests that aggregate facilities must be classified as Class III.

While there are other licensed aggregate operations in the area, none are within 1000 m of the proposed development: No other facilities were identified within the applicable 1000 m area of influence.

Per Section 3.1 of this report, the Guideline D-6 area of influence acts as a flag identifying that further detailed studies may be required. The area of influence or minimum separation distance does not preclude development but triggers specific conditions and considerations to be made a municipal planning authority. Note however that the D-6 document is a guideline and the local Official Plan typically is considered the applicable requirement. The local Official Plan indicates development within this distance of an aggregate operation is acceptable if supporting reports are provided.

The Ministry requires that either an Environmental Compliance Approval (ECA) or an Environmental Activity and Sector Registry (EASR) are obtained for a facility discharging a contaminant into any part of the natural environment, other than water. This requirement encompasses the same 'adverse effects' considered under Guideline D-1 including noise and

vibration, and air emissions including odour and dust. Therefore, any proposed industrial facility must undertake detailed studies of their potential environmental impacts before obtaining environmental approval. These same detailed studies would satisfy the requirement of the D-series Guidelines.

4.0 Noise Impact Assessment

As described in Section 3.3.1 of this report, there is only one facility which represents a noise concern, and which is located at a distance less than the area of influence and less than the applicable minimum separation distance from the proposed development. Guideline D-6 notes that detailed studies should be conducted to determine site-specific separation distances if the generalized separation distances are not met. The local Official Plan also indicates that development within the setbacks of an aggregate operation is acceptable if supporting reports are provided.

Also, per the NPC-300 guideline, the potential for noise impacts onto the sensitive land use within the proposed development from the surrounding environment, including rail and road noise, and stationary noise sources should be considered in municipal planning decisions.

Therefore, Cambium has conducted the following feasibility level noise impact assessment.

4.1 Assessment Criteria

For land use planning purposes, the noise criteria are provided in NPC-300. The guideline limits are set for rail and road noise impacts onto a proposed noise sensitive land use, as well as limits for the impacts of stationary noise sources (commercial/industrial operations).

In the case of this proposed development, the important limits are:

- Sound level limits for rail and road impacts onto the proposed lot,
- Sound level limits for Stationary Noise Sources.

An assessment of the existing ambient sound levels due to rail and road traffic in the area could be relevant since the limits for Stationary Noise Sources can be increased in the situation of high ambient sound levels. Specifically, if the ambient noise in an area exceeds the exclusionary limits published in NPC-300 that ambient noise level may act as the sound level limit. This only applies to stationary noise sources.

4.1.1 Road Noise Criteria

The criteria for acceptable levels of road traffic noise are provided in NPC-300. It requires that for land use compatibility, a future sound level be used for assessment. Generally, a 10-year prediction is considered appropriate by NPC-300.

For road impacts, noise controls are not specifically required if predicted sound levels are less than 55 dBA during daytime and less than 50 dBA during nighttime.

If the sound level thresholds listed above are exceeded, the recommended indoor sound level criteria for road noise impacts are included in the table below. In the case of interior noise limits, these values assume closed windows and doors.

Embedded Table 2 - Outdoor and Indoor Sound Level Limits (Road Noise)

Type of Space	07:00 to 23:00	23:00 to 07:00
	Road (dBA)	Road (dBA)
Outdoor Living Area NPC-300 Table C-1)	55	-
Living/Dining/Den Areas of Residence Indoor (NPC-300 Table C-2)	45	45
Sleeping Quarters Indoor (NPC-300 Tale C-2)	45	40

In NPC-300, an outdoor living area (OLA) is part of a noise sensitive land use (e.g. residential dwelling) that is intended and designed for the quiet enjoyment of the outdoor environment and is readily accessible from the building.

If the 16-Hour Equivalent Sound Level, Leq (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, Leq (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.

Noise control measures may not be required if the Leq (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 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 user's discretion. Warning Clause Type C is also required.

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, Warning Clause Type D is required, and building components including windows and walls should be designed so that the indoor sound levels are achieved.

Noise control measures may not be required if the Leq (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 nighttime 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 owner's discretion. Warning Clause Type C is also required.

If the nighttime sound level in the plane of a room window is greater than 60 dBA, installation of central air conditioning should be implemented, Warning Clause Type D is required, and building components including windows and walls should be designed so that the indoor supplementary indoor sound levels are achieved.

4.1.2 Stationary Noise Source Criteria

NPC-300 Part C provides limits for stationary noise source impacts onto proposed residential or commercial developments with noise sensitive commercial uses. Points of reception are classified as Class 1, Class 2, Class 3 or Class 4. The definitions of these classifications are:

- Class 1: an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum."
- Class 2: an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas:
  - Sound levels characteristic of Class 1 during daytime (07:00 to 19:00 or to 23:00); and,
  - Low evening and night background sound level defined by natural environment and infrequent human activity starting as early as 19:00 (19:00 or 23:00 to 07:00).
- Class 3: a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:
  - a small community,
  - agricultural area,
  - a rural recreational area such as a cottage or a resort area, or
  - a wilderness area.
- Class 4: an area or specific site that would otherwise be defined as Class 1 or 2 and which:
  - is an area intended for development with new noise sensitive land use(s) that are not yet built,
  - is in proximity to existing, lawfully established stationary source(s), and
  - has formal confirmation from the land use planning authority with the Class 4 area classification which is determined during the land use planning process,
  - Additionally, areas with existing noise sensitive land use(s) cannot be classified as Class 4 areas.

Stationary noise source limits for each of the points or reception classes are included in the following tables:

Embedded Table 3 - Stationary Noise Criteria Outdoor Living Areas

	Class 1	Class 2	Class 3	Class 4
Time of Day	(dBA)	(dBA)	(dBA)	(dBA)
07:00-19:00	50	50	45	55
19:00-23:00	50	45	40	55

Embedded Table 4 - Stationary Noise Criteria Plane of Window

	Class 1	Class 2	Class 3	Class 4
Time of Day	(dBA)	(dBA)	(dBA)	(dBA)
07:00-19:00	50	50	45	60
19:00-23:00	50	50	40	60
23:00-07:00	45	45	40	55

These limits are exclusionary for each class and time period under NPC-300, the higher of either the exclusionary limits, or the current ambient noise levels measured or predicted in accordance with Ministry guidelines in the area shall be used as the sound level limits. The compliance assessment within this study has been based upon exclusionary limits, as provided above.

Based upon site observations, site measurements, existing nearby land use, and distance from points of reception to significant rail lines and roadways, the area can best be described with a noise Class 3 designation.

4.2 Inward Noise Impact of the Environment on the Proposed Development

Cambium has completed an assessment of the potential for noise impacts onto the sensitive land use within the Proposed Development from the surrounding environment, including transportation, and stationary noise sources.

4.2.1 Future Traffic Noise Assessment

The road traffic noise assessment would be conducted using predictive calculations of road noise developed by the Ministry: *Ontario Road Noise Analysis Method for Environment and Transportation* (ORNAMENT) (Ontario Ministry of the Environment, 1999).

The traffic data used for the road noise assessment was from the average annual daily traffic (AADT) data provided by the Township of Cramahe, forecasted according to Ministry preferences. For arterial roadways, Cambium has used the ORNAMENT recommended day/night split of 90/10 percent for regional roads, which assumes 90 percent of the daily traffic occurs between 07:00 and 23:00. Cambium also assumed a medium truck percent of 7 % and 5 % for heavy trucks, as a conservative reference from noise guidance and Cambium experience for similar roadways.

The applicable AADT for Tobacco Road is only 199 vehicles, which is well below the ORNAMENT calculation lower limit of 40 vehicles per hour. There are no other significant roadways within the ORNAMENT calculation upper distance limit of 500m.

Therefore, the worst-case potential noise impacts due to roads onto the Proposed Development are predicted to be insignificant and less than applicable limits. No specific controls are required.

Traffic data is provided in Appendix A.

4.2.2 Stationary Noise Impact Predictions

The following relates to the impacts of existing stationary noise sources in the vicinity onto the Proposed Development. NPC-300 states that a proposed sensitive land use is required to ensure that compliance is maintained for any nearby approved stationary noise source.

Ontario Regulation 528/98 exempts many types of smaller stationary noise sources from approval. Therefore, many nearby businesses may not have approvals in place. However as outlined in NPC-300 an exemption from approval does not mean exemption from compliance with noise guidelines in the context of land use planning. Cambium has reviewed all nearby commercial and/or industrial operations, as well as those that have approvals or registrations in place.

Cambium staff conducted a site visit on August 21, 2024. During the site visit, a noise survey was completed to identify all off-site potential sources of noise that should be considered. These include traffic noise, commercial, institutional, and industrial noise sources as applicable.

The Township of Cramahe Noise By-Law (The Corporation of the Township of Cramahe, 2001) would be applicable to the nearby off-site operations.

Where applicable, noise modelling has been conducted with sources that best represent the potential noise sources associated with the facility of concern. As a conservative approach, Cambium has generally modelled a higher volume of transportation activities than expected during typical operations associated with the facility.

The noise impact calculations were performed using the Bruel Kjaer *Predictor Type 7810 version V2023* (Predictor) environmental noise prediction and control software. The calculations completed by this software are based on established prediction methods accepted by the Ministry; mainly ISO 9613-2 *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation* (ISO, 1996). Predictor is an internationally marketed software package that offers calculation algorithms that comply with ISO 9613-2.

4.2.2.1 F01 – Blake Construction Services Gravel Pit

The gravel pit (the Pit), operated on by Blake Construction Services, is describe in section 3.3.1.1 of this report.

This facility operates under The Aggregate Resources Act (the Act), License # 3070. This Act is specific to the management and regulation of aggregate resources and does not necessarily

account for noise impact, however based on correspondence with the client, along with analysis of available imagery, photos, and Cambium's experience with this type of operation, the following assumed stationary sources to be included in the noise impact calculations are as follows.

- TR01- A point sources representing one potential idling truck for 30 minutes of any given hour (50%), during daytime hours only.
- TR02 – A moving source representing truck movement. This has been modelled as potentially one truck within an hour period during daytime hours only.
- LD01- A point source representing one potential loader working in a specific area for 30 minutes of any given hour (50%), during daytime hours only.
- LD02 – A moving source representing truck movement. This has been modelled as potentially one truck within an hour period during daytime hours only.
- SP02 - A point source representing one potential aggregate screening plant, operating during daytime hours only.

A noise source summary is provided in Table 1.

4.2.3 Stationary Noise Impact Results

To be conservative, this noise assessment has considered a potential reasonable worst-case scenario of operations for the nearby stationary noise source, not the expected regular operations. Also, the Proposed Development is proposed to be developed adjacent to an existing residence that would experience similar noise impacts from the nearby stationary noise source operations. This other existing use generally supports compatibility.

The noise modelling impact results are summarized in Table 2. The supporting calculations and impact results are provided in Appendix B.

The predicted noise impacts onto the potential sensitive land use within the Proposed Development are greater than the applicable limits. Therefore, some form control is required.

Per NPC-300:

- *"Where practicable, the preferred mitigation option is a reduction of noise emissions at the stationary source by modifying the design or the operation of the source, or by implementing noise control measures directly at the source. A cooperative effort on the part of the proponent and the stationary source owner is desirable."*
- *"The implementation of noise control measures for the mitigation of the noise impact of the stationary sources should be specified in agreements, involving the proponent of the new noise sensitive land use, the owner of the stationary source, and the land use planning authority."*
- *"These agreements should outline the framework for cooperation among the land use planning authority, the stationary source, and the noise sensitive land use. Agreements are intended to provide protection for both the stationary source and the noise sensitive land use."*

It is Cambium's understanding that both the proponent of the new noise sensitive land use, Bruce Voskamp, and the owner of the stationary source are open to developing a mitigation agreement. We defer to the land use planning authority for the specific structure of this agreement, but it should contain the following noise control description.

- If a screening plant is active at the pit, it will operate such that there is always a barrier, berm, working face, or stockpile that is at least 7 metres tall and approximately 20 m long (10 metres on either side of the line-of-sight), located within approximately 20 metres of the screening plant, such that it blocks the noise path 'line-of-sight' from the screening plant to the Proposed Development.

5.0 Air Quality

Environmental air quality, as impacted by emitting facilities, is generally regulated by the Ministry under O. Reg. 419/05 (Ontario Ministry of the Environment, Conservation, and Parks, 2019). The Ministry standards for general air contaminants and dust for any source are required to be met at all off property locations (called the Point of Impingement). The regulations do not discriminate between neighbouring commercial land use, vacant land use, or residential land use.

Limits defined in Ontario Regulation 419/05 are applied to all off property locations including the property line. Effectively, all facilities that discharge emissions into the natural environment have an existing requirement to comply at the Site regardless of this proposed land use.

Considering the D-6 guidelines, and as described in Section 3.3 of this report, there is only one operation with air quality concerns, that is located at a distance less than the applicable areas of influence from the proposed development. However, as noted above, any significant emissions would require environmental emissions approval from the Ministry. The change in use of the property does not create any new compliance or compatibility requirement for any industry with regard to air pollution in the area.

- The Blake Construction Services Gravel Pit (F01) has been reviewed and appears not to have significant manufacturing processes or tall exhaust stacks suggesting that air emissions are likely to be highest at the property line and decrease with distance. Currently the activities at the Pit are minimal, and the last stage of extraction will be limited to the north hay field which is at the northeast end of the Pit away from the proposed development. The property line to the west separating the Pit and the proposed development, has some forest cover and the north and east property lines are generally well vegetated. This Pit operates under License number 3070 of the Aggregate Resources Act.

There is at least one existing low-rise sensitive use that is at similar proximity and direction to the identified Pit, indicating potential compatibility. Cambium understands the Proposed

Development consists of a one-story (i.e., low-rise) residential building, consistent with the adjacent sensitive land use.

It is not within the scope of this report to confirm compliance for any specific facility, only to identify compatibility issues. It is Cambium's opinion that the Proposed Development would not create a compatibility issue for the identified nearby facility with regard to air quality.

5.1 Fugitive Dust and Wind Conditions

Fugitive dust from the aggregate processing, trucking, and outdoor stockpiling can be of concern from industrial facilities.

Cambium has created a wind frequency distribution diagram (a wind rose), which is provided in Appendix D. The wind rose is based on five years of data from the Trenton Airport weather station, the nearest Environment Canada station with applicable data, located 27 kilometres south of the proposed development. A review of the wind rose can clarify if any potential for nuisance dust exists in directions of concern. The wind rose demonstrates that wind in the area around the Site generally blows from the southwest to the northeast.

In addition to wind direction, wind speed is also critical to the potential for dust issues. As noted in the Good Practice Guide for Assessing and Managing Dust (Ministry For The Environment Wellington, 2016), generally dust pickup from stockpiles and surfaces is only a concern when winds are in excess of 5 m/s (10 knots). The wind rose is coloured such that winds above 5 m/s are highlighted in red and it can be seen that the vast majority of the time, wind speeds are less than this 5 m/s threshold.

It should be noted here that compliance with Ministry limits and guidelines does not imply there will never be dust impacts. The offsite limit for dust under Ministry regulations is not zero, meaning at times it is possible that dust may be regarded as obvious from surrounding environments. Furthermore, these sites may have Fugitive Dust Best Management Practices plans, which are designed to ensure that the site does everything it reasonably can to contain dust on site, however extreme weather events may still cause dust to leave the site, regardless of best practices and regulatory compliance.

- F01 – Blake Construction Services Gravel Pit facility is located directly to the east of the Proposed Development. As can be see in the wind rose, wind blowing from the east to the west, which could transport dust from the facility onto the Proposed Development, occurs less than 1% of the time at speeds over 5 m/s. Furthermore, the site is infrequently active, and trucking movements are expected to be minimal.

Based on the above assessment nuisance dust impacts from the nearby off-site operations are not anticipated onto the Proposed Development.

As described in Section 3.3 of this report, there are no facilities which present specific odour concerns that are located at a distance less than the applicable area of influence or the minimum separation distance from the proposed development.

Therefore, considering the D-6 guidelines, the air quality and odour impacts of nearby operations are not likely to create compatibility concerns onto the Proposed Development.

6.0 Summary of Recommendations

In summary Cambium has made the following recommendations:

- Layout of the Proposed Development site may affect the environmental impacts and land use compatibility. This land use compatibility study should be updated if significant changes are made development plan.
- The Ministry D-Series guidelines aid in minimizing the adverse effects from the encroachment of incompatible land uses. This study concludes that there is one nearby facility (F01 – Blake Construction Services Gravel Pit) that is closer than the applicable Minimum Separation Distances. Therefore, an air quality impact assessment, and a detailed noise impact assessment is required and has been undertaken within this report.
- Detailed Noise Impact Assessment Controls:
    - An operations agreement is required, involving the proponent of the new noise sensitive land use, the owner of the stationary source, and the land use planning authority. As described in section 4.2.3 of this report, the agreement will specify the noise control description.
    - Cambium recommends application of NPC 300 warning clause Type E for Stationary Sources. The warning clause text example is provided in Appendix C.
- It is recommended that some type of municipal procedure be in place to verify the recommendations of this report are implemented and considered during later planning stages and construction either by design team professionals, or acoustic professionals.

7.0 Closing

Cambium Inc. has been retained by Bruce Voskamp to complete a land use compatibility study of a proposed development site located at 452 Tobacco Road, Castleton, ON.

Cambium's understanding is that the municipal planning authority is primarily concerned with the potential compatibility of the Proposed Development with nearby land uses, specifically a nearby aggregate pit.

Based on the terms, conditions, and assumptions in this report, it is Cambium's opinion that the proposed development is compatible with nearby land uses provided that the recommendations and controls of this report are implemented.

Respectfully submitted,

Signed by:

Cambium Inc.

2024-12-12

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The Township of Cramahe. (2024). *Official Plan - Office Consolidation 2024.*

9.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

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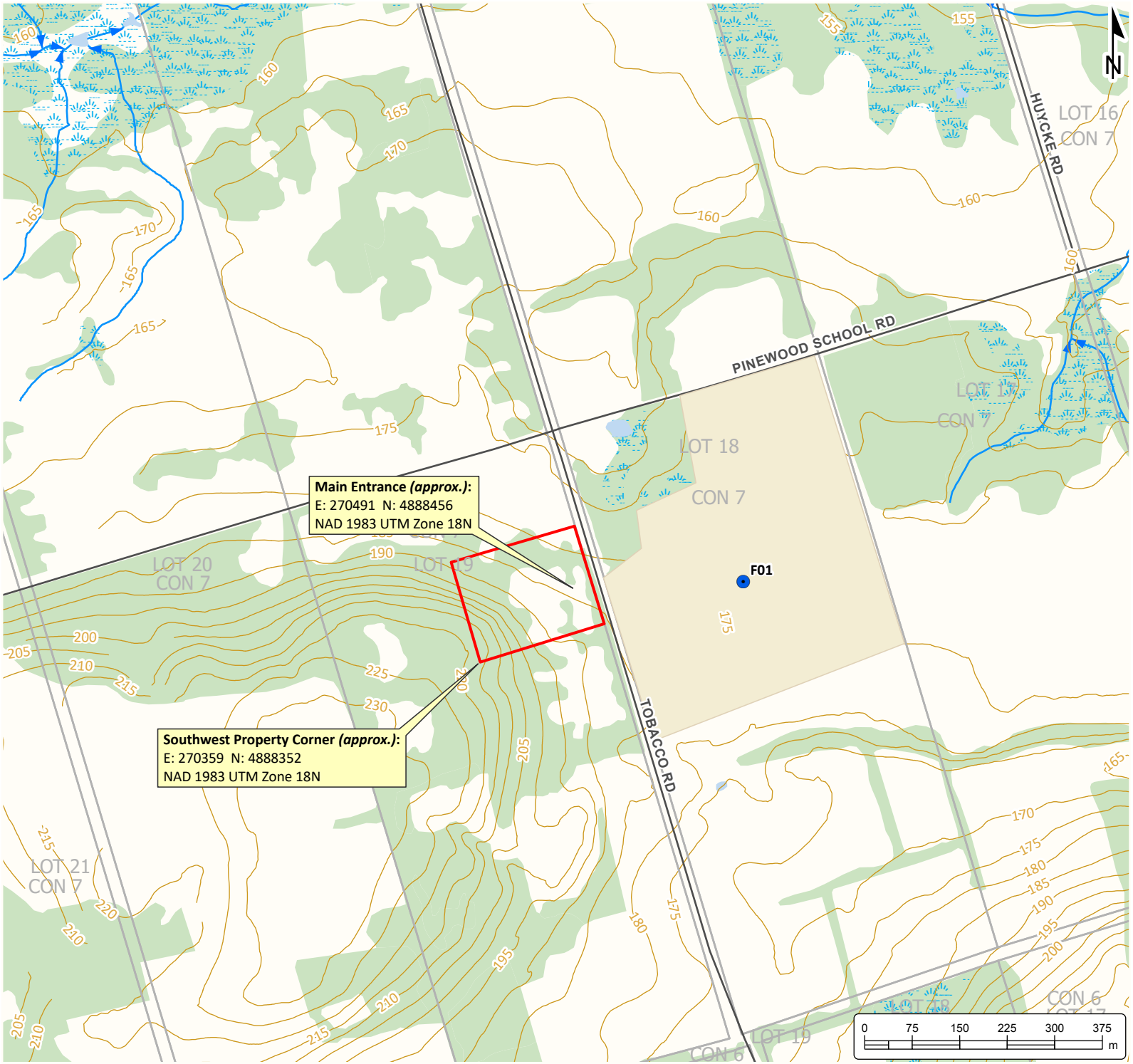
Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.

Appended Figures



LAND USE COMPATIBILITY

BRUCE VOSKAMP
452 Tobacco Road
Castleton, Ontario

LEGEND

- Facility - Blake Construction Services Gravel Pit
- Minor Road
- Contour (5m Interval)
- Watercourse, Permanent
- Unevaluated Wetland
- Water Area
- Lot/Concession
- Wooded Area
- Hard Ground
- Site (approximate)

Notes:
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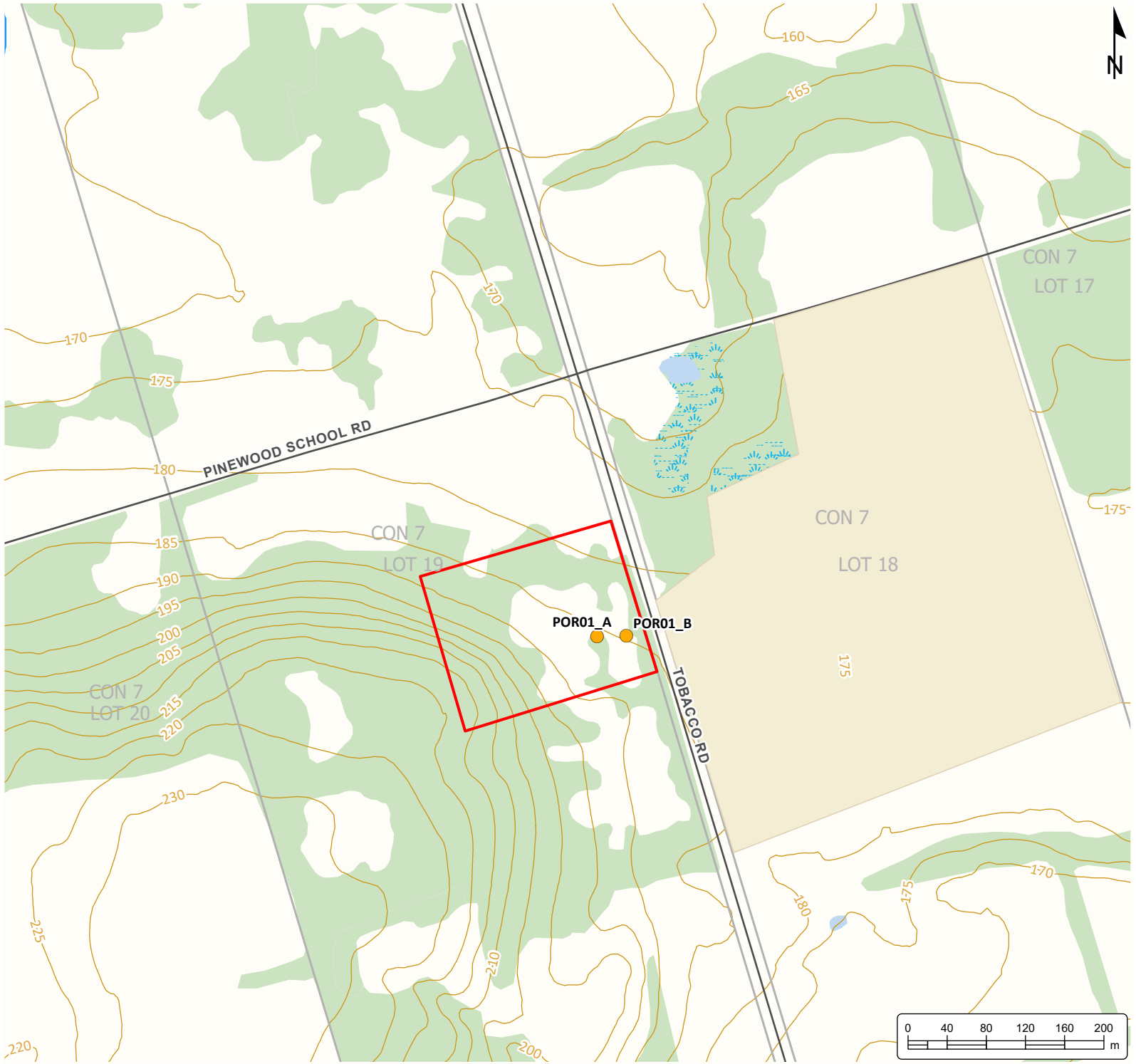
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

CAMBIUM
194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

SITE LOCATION PLAN

Project No.: 20862-001		Date: December 2024 Rev.:	
Scale: 1:8,500		Projection: NAD 1983 UTM Zone 18N	
Created by: DBC	Checked by: TMC	Figure:	1

O:\GIS\MXDs\20800-20899\20862-001 Bruce Voskamp - ENV- 452 Tobacco Rd\2024-12-12 LUC.aprx



LAND USE COMPATIBILITY

BRUCE VOSKAMP
452 Tobacco Road
Castleton, Ontario

LEGEND

- Receiver
- Minor Road
- Contour (5m Interval)
- Watercourse, Permanent
- Unevaluated Wetland
- Water Area
- Lot/Concession
- Wooded Area
- Hard Ground
- Site (approximate)

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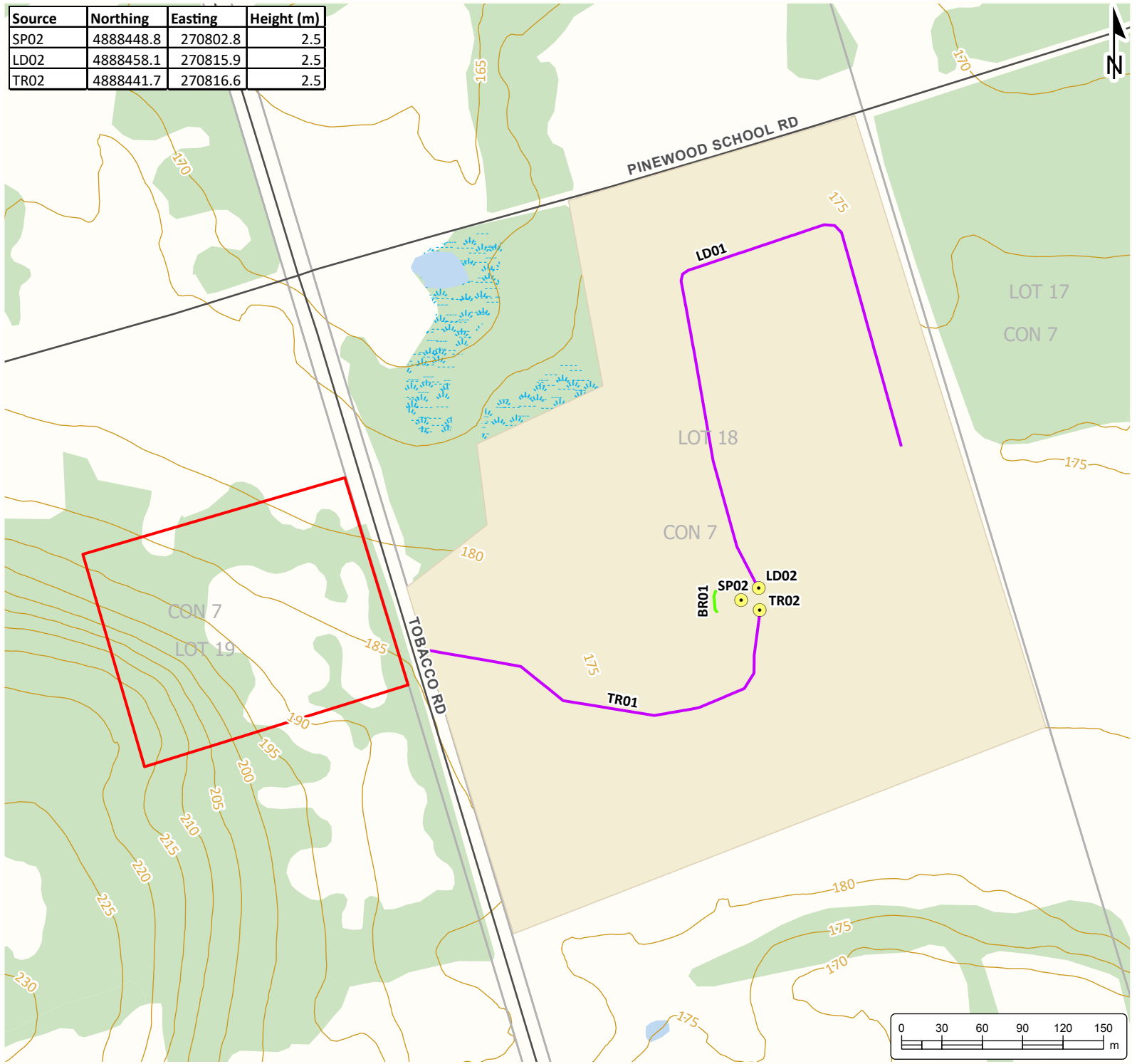
SITE PLAN

Project No.: 20862-001		Date: December 2024	Rev.:
Scale: 1:5,500		Projection: NAD 1983 UTM Zone 18N	
Created by: DBC	Checked by: TMC	Figure: 2	

O:\GIS\MXDs\20800-20899\20862-001 Bruce Voskamp - ENV- 452 Tobacco Rd\2024-12-12 LUC.aprx

Source	Northing	Easting	Height (m)
SP02	4888448.8	270802.8	2.5
LD02	4888458.1	270815.9	2.5
TR02	4888441.7	270816.6	2.5



LAND USE COMPATIBILITY

BRUCE VOSKAMP
452 Tobacco Road
Castleton, Ontario

LEGEND

- Point Source
- Barrier
- Moving Source
- Minor Road
- Contour (5m Interval)
- Unevaluated Wetland
- Water Area
- Lot/Concession
- Wooded Area
- Hard Ground
- Site (approximate)

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SOURCE LAYOUT

Project No.: 20862-001	Date: December 2024 Rev.:	
Scale: 1:4,000	Projection: NAD 1983 UTM Zone 18N	
Created by: DBC	Checked by: TMC	Figure: 3

O:\GIS\MXDs\20800-20899\20862-001 Bruce Voskamp - ENV- 452 Tobacco Rd\2024-12-12 LUC.aprx

Appended Tables

Table 1 - Stationary Source - Noise Source Summary Table

Source ID	Description	A-Weighted Sound Power Level								Total	Data Source	Equipment Location	Operating Times/Limits day,evening,night (%) or Truck Numbers/hour	Proposed Noise Control[1]	Noise Quality[2]	Source Location	UTM Easting	UTM Northing	Height Above Rooftop or Ground
		63	125	250	500	1000	2000	4000	8000	dBA									
SP02	Screener Processing Material	82	89	87	103	109	110	105	97	114	Cambium Noise Source Library	Aggregate Pit	100,--,--	**Barrier**	SS	At Grade	270803	4888449	2.5
LD01	Loader Driving	78	86	90	99	96	93	88	81	102			100,--,--	-	SS	At Grade	270809	4888463	2.5
LD02	Loader Engine Idle	83	84	95	95	97	94	89	77	102			50,--,--	-	SS	At Grade	270811	4888461	2.5
TR01	Truck - Moving	85	84	85	88	92	90	83	72	96			100,--,--	-	SS	At Grade	270813	4888436	2.5
TR02	Truck - Idling	73	79	82	88	91	91	86	74	96			50,--,--	-	SS	At Grade	270812	4888437	2.5

- Steady State
T - Tonal
I - Impulse

Table 2A - Stationary Source - Noise Impact Summary - Steady State - Unmitigated

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Evening Limit (dBA)	Nighttime Limit (dBA)	Compliant with Limit
	Description	UTM Easting	UTM Northing	Height POW	Height OLA									
POR01_A	Second Story Home	270479	4888422	4.5	-	Steady State Leq	53	--	--	N	**45**	**40**	**40**	No
POR01_B	OLA	270465	4888495	-	1.5	Steady State Leq	54	--	--	N	**45**	**40**	**-**	No

Table 2B - Stationary Source - Noise Impact Summary - Steady State - Mitigated

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Evening Limit (dBA)	Nighttime Limit (dBA)	Compliant with Limit
	Description	UTM Easting	UTM Northing	Height POW	Height OLA									
POR01_A	Second Story Home	270479	4888422	4.5	-	Steady State Leq	45	--	--	N	**45**	**40**	**40**	Yes
POR01_B	OLA	270465	4888495	-	1.5	Steady State Leq	44	--	--	N	**45**	**40**	**-**	Yes

Appendix A

Traffic Verification Support

Road Needs Study Report - 2017

Township of Cramahe

D.M. Wills Project No.17-4623

D.M. Wills Associates Limited
PARTNERS IN ENGINEERING
Peterborough

November 2017

Prepared for
Township of Cramahe

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Structural Adequacy	Surface Type Need	Surface Width Need
170	Industrial Park Rd.	Purdy Rd.	Elgin St.	0.80	399	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
67	Cowie Rd.	Dingman Rd.	Barlow Rd.	1.30	199	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
82	Honey Rd.	Telephone Rd.	Herley Rd.	2.60	199	*ST2 - Double Surface Treatment*	*$103*	ADEQ	ADEQ	ADEQ
27	Mount Pleasant Rd.	County Rd. 22	County Rd. 25	5.50	199	*ST2 - Double Surface Treatment*	*$218*	ADEQ	ADEQ	ADEQ
175	Little Lake Rd.	Lake Rd.	Purdy Rd.	1.00	999	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
60	Shelter Valley Rd.	Old Shelter Valley Rd.	Neil McGregor Rd.	0.50	199	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
32	Tobacco Rd.	County Rd. 25	Dingman Rd.	3.90	199	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
99	Trenear Rd.	Little Lake Rd.	HWY 2	2.70	199	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
171	Industrial Park Rd.	Purdy Rd.	Dead End	0.10	199	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
183	Purdy Rd.	Herley Rd.	County Rd. 25	1.70	1799	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
108	Arthur's Lane	Purdy Rd.	Dead End	0.70	49	*G - Gravel (75mm)*	*$10*	ADEQ	ADEQ	ADEQ
189	Barlow Rd.	Jones Rd.	Dead End West of Cowie Rd.	0.60	49	*Preventative Maintenance*	-	ADEQ	ADEQ	ADEQ
18	Begg Rd.	County Rd. 27	Unmaintained	1.10	49	*GW - Gravel Road Widening*	*$26*	ADEQ	ADEQ	NOW
118	Bellamy Rd.	HWY 2	Dead End	1.30	49	*GW - Gravel Road Widening*	*$31*	ADEQ	ADEQ	NOW
123	Blythe Park Rd.	Simpson Rd.	Dead End	1.00	49	*G - Gravel (75mm)*	*$14*	ADEQ	ADEQ	ADEQ
98	Branscombe Rd.	HWY 2	Dead End	0.90	49	*G - Gravel (75mm)*	*$12*	ADEQ	ADEQ	ADEQ
88	Burbridge Rd.	Telephone Rd.	Dead End	1.30	49	*G - Gravel (75mm)*	*$18*	ADEQ	ADEQ	ADEQ
120	C.N. Crossing Rd.	Peters Rd.	Blythe Park Rd.	0.40	49	*G - Gravel (75mm)*	*$6*	ADEQ	ADEQ	ADEQ

Appendix B

Noise Modelling Supporting Information

Ontario

Search Criteria

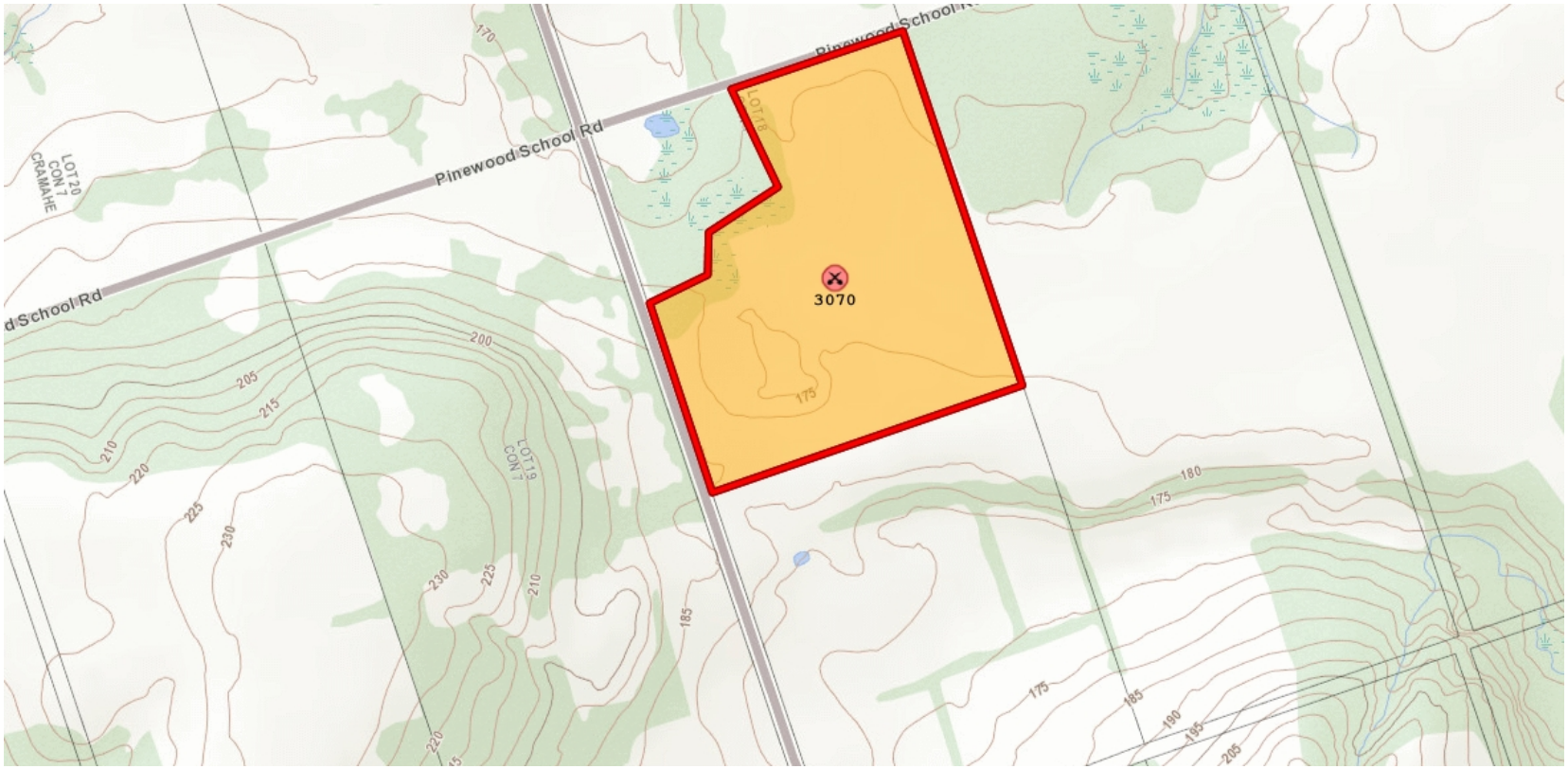
Geographic Location: Map Center 77.86424° W, 44.11387° N

Approval Type: Class A Licence or Class B Licence or Aggregate Permit or Wayside Permit or MTO Permit

Current Status: Active

Operation Type: All

Search Results: 1



Site ID	Client Name	Approval Type	Operation Type
3070	F. BLAKE CONSTRUCTION SERVICES LTD.	CLASS B LICENCE <= 20000 TONNES	Pit
	Location Name	Max. Annual Tonnage	Licensed Area (ha)
		20000	16.8

Raw Measurement Data

Source ID	1/3rd Octave Centre Frequency (Hz), Sound Pressure Level (dB)																							
	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
LD01	66.6	68.3	80.2	73.0	70.2	76.6	74.0	67.0	69.1	73.3	74.8	71.2	68.5	67.9	67.1	64.3	63.1	62.2	59.3	57.7	58.8	55.6	52.4	52.4
LD02	78.5	87.4	80.2	72.2	72.3	77.6	81.9	79.4	75.1	71.8	74.3	71.9	72.3	71.6	71.0	68.4	68.7	68.6	66.4	60.2	58.6	55.4	52.4	48.1
TR01	84.3	82.4	67.0	70.8	69.2	70.7	67.2	60.9	60.7	61.8	61.4	60.9	59.9	64.0	61.3	61.6	58.1	56.1	54.8	51.6	48.4	45.8	42.2	39.5
TR02	75.5	69.4	66.3	69.6	64.7	66.5	65.0	63.1	61.4	62.9	66.0	61.5	64.2	65.0	62.7	63.1	62.7	62.3	60.8	56.0	54.2	50.9	46.4	42.8
SP02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Point Source Sound Power Level Calculations

*[1]Lw=Lp+20*log(r)+11-10*log(Q)*
*Lp(total)=10*log(10(Lp(31Hz)/10)+10(Lp(63Hz)/10)+…+10(Lp(8kHz)/10))*
r is distance measurement was taken, Q is directivity index

						SPL (dB)		PWL (dB)									
File Name	Source ID	Total Measurement Distance (m)	Directivity Factor (Q)	Quasi Steady (Yes/No)	Tonal (Yes/No)	Total (dB)	Total (dBA)	63	125	250	500	1000	2000	4000	8000	Total (dB)	Total (dBA)
L_00008	LD01	6.00	2	No	No	**85**	78	104	102	99	102	96	92	87	82	**109**	102
L_00015	LD02	4.03	2	No	No	**91**	82	109	100	104	98	97	93	88	78	**111**	102
L_00001	TR01	7.00	2	No	No	**87**	71	111	100	94	91	92	89	82	73	**112**	96
L_00002	TR02	5.25	2	No	No	**80**	74	99	95	91	91	91	90	85	75	**102**	96
Specs01	SP02	10.00	2	No	No	**87**	86	108	105	96	106	109	109	104	98	**115**	114

McCloskey® INTERNATIONAL

S130 HIGH ENERGY SCREENER

Available in a three and four way split, the McCloskey® S130 High Energy Screener is used across a wide range of applications, including aggregate, coal, crusher circuits and wood chips. The S130 is renowned for its fine sand screening and is impressing customers worldwide with its production capacities.

FEATURES

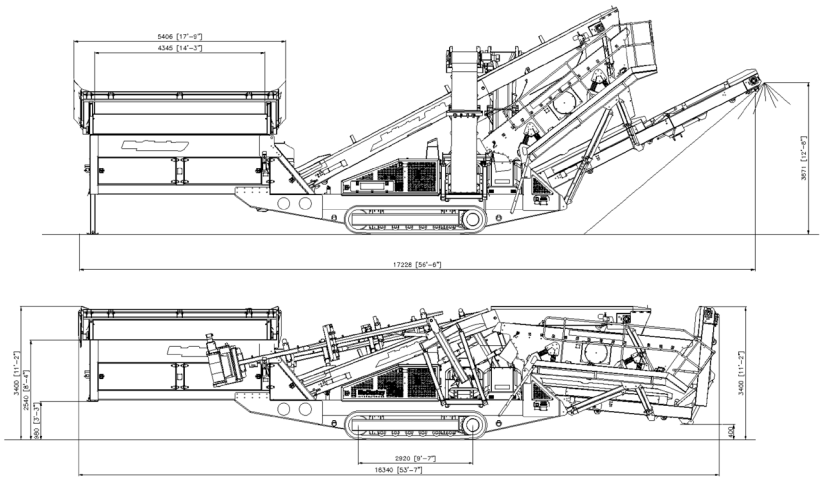
- ✓ 4270mm x 1524mm (14’ x 5’) heavy duty high energy 2 bearing 2 deck screenbox
- ✓ 97kW (130Hp) Engine
- ✓ Track or wheel mobile
- ✓ Integrated hydraulic folding stockpiling conveyors
- ✓ 3 Deck auxiliary conveyor attaches to machine for one unit transport
- ✓ Remote control tipping grid
- ✓ Fast on-site setup time – 15 minutes typically

For more information, contact your dealer: mccloskeyinternational.com/dealer-map

McCloskey® INTERNATIONAL

With the S130, you get class-leading S-Range features like the aggressive High Energy Screenbox and user-friendly operation.

The S130 screener is also available as a Triple Deck and boasts an array of features and benefits which elevate the models above all the competitors in its class. The S130 Triple Deck has comparable production capacity to larger models at a far more cost effective price. The dual power model boosts fuel efficiency, reducing costs, and is perfect where environmental, legislative, or noise constraints are present.



TECH SPECS

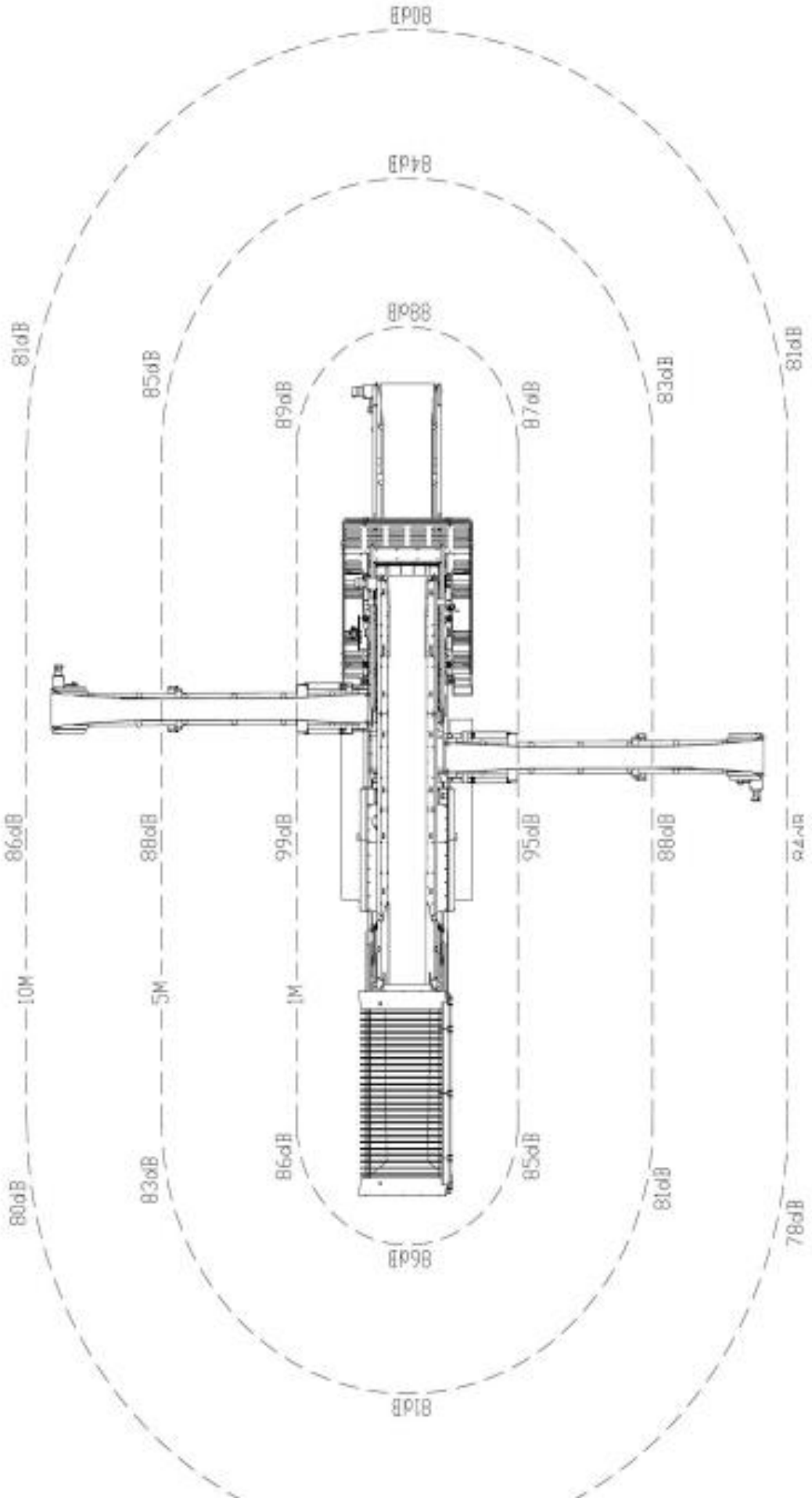
Engine	97kW (130 Hp) Diesel or Dual Power
Stockpile Height	
Tail Conveyor	3871mm (12’ 8”)
Side Conveyor	4600mm (15’ 1”)
Screenbox	
Top Deck	4270mm x1524mm (14’ x 5’)
Bottom Deck	3660mm x1524mm (12’ x 5’)

TRANSPORT

Transport Height	3.40m (11’ 2”)
Transport Length	
12’ Hopper	15.61m (51’ 2”)
15’ Hopper	16.52m (54’ 2”)
Transport Width	
2 Deck	3m (9’ 11”)
3 Deck	3.34m (10’ 8”)
Weight 2 Deck	
2 Deck	28,000kgs (71,729 lbs)
3 Deck	32,000kgs (70,547 lbs)

OPTIONS

Single or double deck live head | Single shaft shredder | Dual power



Appendix C

Warning Clauses

NPC 300 Type E: Stationary Source

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

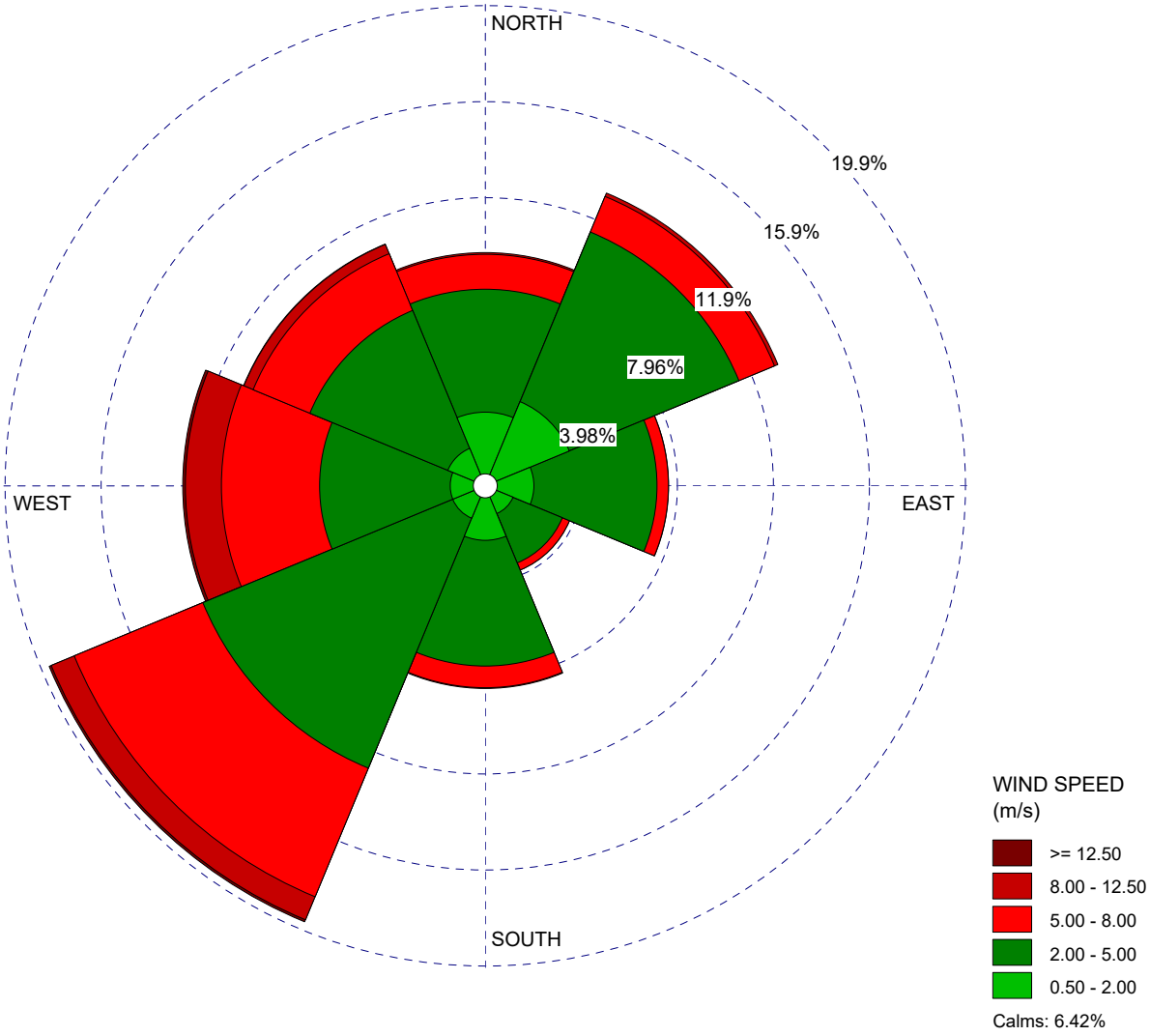
Appendix D
Wind Rose

WIND ROSE PLOT:

Bruce Voskamp Wind Rose

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Station #6158875	**Start Date: 1/1/2018 - 00:00** **End Date: 12/31/2023 - 23:00**	**Bruce Voskamp**	
	CALM WINDS:	TOTAL COUNT:	
	6.42%	**48224 hrs.**	
	AVG. WIND SPEED:	DATE:	PROJECT NO.:
	3.40 m/s	**9/23/2024**	**20862-001**