Land Use Compatibility Study (Air and Noise)- Melody Bay Trailer Park

Cambium Reference No.: 6225-001

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Prepared for: Parkbridge Lifestyle Communities
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EXECUTIVE SUMMARY

The Melody Bay trailer park is located at 33 Melody Bay Road, Buckhorn, Ontario and is proposing to add 11 more trailers to the Site in the northwestern portion of the property. This expansion will be within the 150 m setback from the Buckhorn Sand and Gravel pit as set by the Municipality of Trent Lakes. As such, a compatibility study was required from the Municipality that determined if the proposed trailer park expansion would be impacted by the gravel pit from an air, noise and odour perspective.

Cambium visited the Melody Bay Trailer Park of August 3rd, 2017 to collect background noise levels at Melody Bay and complete dust, noise, and odour observations. A site visit was also completed by Cambium's Water Quality specialist on July 4th, 2017.

Additionally, Buckhorn Sand and Gravel was contacted to gain information pertaining to the sewage lagoons and gravel crushing equipment operated at the gravel pit.

The conclusions drawn from the study indicate that the operations of the Buckhorn Sand and Gravel pit will not significantly impact the proposed expansion for the following reasons:

- Modelling results indicate air quality levels are predicted to be less than Ontario Standards for both suspended particulate and nitrogen oxides emitted from crusher units including generators used to power the crushing operations.
- Fugitive dust from the site is required to be supressed as part of Buckhorn Sand and Gravels aggregate license. Further, fugitive dust emissions from Buckhorn Sand and Gravel do not contain metals.
- Odour complaints have not be logged at Melody Bay Trailer Park and no odour was detected during either of Cambium's site visits.
- Assuming Buckhorn Sand and Gravel is using an approved mobile crushing unit with Environmental Compliance Approvals, Melody Bay Trailer Park should be able to reasonably mitigate any noise generated from the site during the design phase of the expansion. This will require more information of the crusher unit operated at Buckhorn

Sand and Gravel as well as its operating procedure for noise modelling purposes. A complete Noise Assessment will be required to determine appropriate mitigation measures.

- It is considered to be good practice to notify future occupants of trailers encroaching Buckhorn Sand and Gravel of the possible nuisances prior to signing a lease.

The proposed expansion of the Melody Bay Trailer Park is considered compatible with the Buckhorn Sand and Gravel operations provided Cambium's assumptions regarding Buckhorn Sand and Gravel's operations are correct. In addition, Cambium has recommended that Melody Bay install a 4.5 metre noise barrier, or work with Buckhorn Sand and Gravel to identify on-site noise controls. This is due to the fact that the proposed trailers are closer to site than the existing nearest dwelling.

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1.0 INTRODUCTION

Cambium Inc. (Cambium) was retained by EcoVue Consulting Services Inc. (EcoVue) to complete a compatibility study at the Melody Bay Trailer Park (referred to herein as the Site), located at 33 Melody Bay Road, Buckhorn, Ontario. Parkbridge Lifestyle Communities Inc. (the owner of the Melody Bay Trailer Park) is proposing to add 11 additional trailers into the park. The 11 trailers are proposed to be placed in the northwestern corner of the Site. An aggregate pit, owned by Buckhorn Sand and Gravel, is located adjacent to the Site to the north. The proposed location of the 11 trailers is within the 150 m buffer of the pit as set by the Municipality of Trent Lakes in their Master Plan; as such, the Municipality of Trent Lakes requires a compatibility study to ensure that the operations of the aggregate pit will not interfere with the proposed trailer park expansion.

Cambium has therefore prepared an air, noise, and odour review based on the Ministry of the Environment and Climate Change's (MOECC's) procedures D-1, D-2 and D-6, with respect to the trailer park expansion in proximity to the existing gravel pit. Procedure D-1, section 2.4 (5) specifies that adverse effects must be determined and mitigated when incompatible sites encroach on one another. Furthermore, Procedure D-6 is to be implemented for pits and quarries, in the absence of site specific studies, when a sensitive land use encroaches on an existing pit and/or quarry.

1.1 SITE DESCRIPTION

The property area of the trailer park is approximately 13.8 hectares (ha) in size and is located on Buckhorn Lake with 124 trailers currently onsite. The proposed addition of 11 trailers will increase the number of onsite trailers to 135. Each of the 11 proposed trailers are within the 150 m buffer zone required by the Municipality of Trent Lakes for Development near existing pits and quarries. See Appendix A for the Proposed Site Development (Provided by EcoVue)

In addition to the trailers found on-site there is an administration building, two (2) pools, what is known as a comfort station (which includes washrooms, the water treatment system and laundry

facilities), and a sports pad. A maintenance shed is located in the northern portion of the Site near the main entrance.

There is also a dwelling located in the northern portion of the Site. The proposed expansion of the trailer park will occur to the west of the dwelling, adjacent to the western property boundary. See the details of the site and the surroundings in Figure 1 - Site Map.

1.1.1 METEOROLOGY OF THE SURROUNDING ENVIRONMENT

From the statistics obtained from the weather station at the Peterborough Airport, the predominant wind direction is from the west, with an average wind speed of 4.5 mph during the operational season of the facility (April to October). The proposed trailers are located south-west of the property as noted in Figure 1.

1.1.2 SURROUNDING LAND USE OF CONCERN

There is a current aggregate pit located adjacent to the Site to the north is owned by numbered company 1106488 Ontario Limited; local signage indicates that Buckhorn Sand and Gravel operates out of the pit. The pit is licenced under Aggregate Resource Act Licence Number 3286. The pit is licenced under Aggregate Resource Act Licence Number 3286 as a Class A pit and, according to Buckhorn Sand and Gravel, has been approved to extract aggregate materials from below the water table.

As per satellite imagery, there are ponds located onsite and it was confirmed that these ponds are from the historic extraction of materials below the water table. Wastewater lagoons are also operated at the pit positioned in the northwestern corner of the pit and located approximately 240 m from the property boundary of the Site. These lagoons can be seen in Appendix A. A copy of the Certificate of Approval (C of A) that governs the operation of the wastewater lagoon could not be acquired by Cambium; however, the following information was acquired from the Environmental Registry (Government of Ontario, 2017):

- C of A number: A710161;

- Approved to use and operate a waste disposal site, winter storage lagoon with a total area of 4,000 m^2;
- Household and commercial sewage is approved for transfer at the site at a maximum rate of 16,500 litres/day and at a maximum total storage volume of 3,800 m^3;
- Sewage generated from Counties of Peterborough, Victoria and Northumberland can be deposited in the lagoon; and
- An additional 16,500 litres/day was approved by the Ministry in 2006 for winter operations bringing the total permissible rate of septic waste input to 33,000 litres/day.

2.0 ONTARIO GUIDELINES

2.1 D-1 LAND USE COMPATIBILITY

The guideline applies any time a sensitive land use, such as a proposed trailer, is within the area of influence of an existing facility or a facility that is proposed. This guideline seeks to protect all forms of life from having any adverse effects caused by the proposed/existing facility. The guideline also recognizes that buffer/controls may be used as a means to do this while the sensitive receptor remains within the area of influence. Adverse effects can relate to any impact, however they generally include noise/vibration, dust and other particulates, odour, and air pollution.

This guideline applies when there is a change in land use that changes the point of impingent in the surrounding environment; a point of impingement is considered to be a point at which a contaminant contacts the ground or a building.

Utilizing an appropriate separation distance from incompatible sites is the recommended method to preventing issues between industrial and sensitive land. Municipalities may increase the minimum setback for such sites and/or by placing a restriction on outdoor storage. It is however understood that maintaining an adequate separation distance is not always feasible; in these cases, barriers and control measures must be designed to mitigate the impact on the surroundings.

2.1.1 APPLICABILITY TO SITE

As the proposed trailers are within the area of influence of Buckhorn Sand and Gravel this guideline applies to the Site. These trailers are proposed to be located closer to the pit than the current trailers at the Site.

2.2 D-2 COMPATIBILITY BETWEEN SEWAGE TREATMENT AND SENSITIVE LAND USE

Waste stabilization ponds are recommended to have a 100 m to 400 m buffer from the property line of a sensitive receptor. This distance depends on the characteristics of the wastewater

present. It is noted that the setback from the proposed trailers will be approximately 260 metres, which is within the recommended minimum setback. Site interviews with personnel at the trailer park also indicate that there is no current complaints regarding odour from the neighbouring operations.

2.2.1 APPLICABILITY TO SITE

At present, the septage lagoons at the neighbouring pit are located 240 m from the property line of Melody Bay Resort. These lagoons only accept waste during winter months and are used as a storage facility until the waste is extracted by a separate company for treatment off site. The water quality of these lagoons is unknown but no complaints of odours have been made by past or present trailer occupants to the best of our knowledge. As the water quality within the lagoons is unknown and may be altered over time it is recommended that a setback of 400 m be considered for the purpose of additional assessment if required; since the proposed trailers are within this distance, an odour study may be necessary if odour complaints arise.

2.3 D-6 COMPATIBILITY BETWEEN INDUSTRIAL FACILITIES

The D-6 guideline was created by the Ontario Ministry of the Environment and Climate Change (MOECC) to minimalize issues between sensitive land sources and industrial sites when either one begins encroaching on the other due to proposed land use changes. This guide specifies separation distances for industries to sensitive receptors and can be seen in Table 1 below.

Table 1: Industrial Classification according to D-6 Guideline and Corresponding Separation Distances

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	Recommended Minimum Separation Distance: 20 m Potential Area of Influence: 70 m
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	Recommended Minimum Separation Distance: 70 m Potential Area of Influence: 300 m
Class III	• Large Scale Manufacturing and Processing • 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	Recommended Minimum Separation Distance: 300 m Potential Area of Impact: 1,000 m

2.3.1 BUCKHORN SAND AND GRAVEL CLASSIFICATION

Subsection 1.3.4 in the guideline requires all pits, regardless of size and operation, are to be treated as a **Class III** industrial site. It is therefore understood that the recommended minimum separation distance for this site is 300 m, with a potential area of influence of 1,000 m. It should, however be noted that the facility is only operational during the day, has outdoor storage units, entails the use of large trucks frequently, is occasionally audible off site, and may occasionally release odour and/or fugitive dust that is of a minor nuisance to the surrounding community.

2.3.2 APPLICABILITY TO SITE

As Melody Bay Resort is proposing to place trailers (a sensitive receptor) within the 300 m minimum separation distance for a Class III industrial site; Melody Bay Resort is therefore required by the D-6 guideline to fully acknowledge, investigate and mitigate possible negative effects from choosing to complete the expansion of its trailer resort. It should be noted that many of Melody Bay's trailer homes are currently within this 300 m distance; however, only the proposed are currently subject to the D-6 guideline due to a change in land use.

3.0 METHODOLOGY

Utilizing the information gathered about the Buckhorn Sand and Gravel Pit from the site owners, the C of A, site development plans, google satellite images, and other similar sites previously studied, models were created for the noise, odour, and fugitive dust emitted from the site using MOECC approved software. Air Quality results were based on the MOECC's Ontario Regulation 419/05 (O. Reg. 419/05) Air Pollution - Local Air Quality (July 2016) standards and utilized the Air Contaminants Benchmarks List: standards, guidelines and screening levels for assessing the point of impingement concentrations of air contaminants (Ontario Ministry of the Environment and Climate Change, December, 2016). The proposed trailers were used as the point of impingement (POI) for air contaminants emitted. The Dust Management Plan of Buckhorn Sand and Gravel was not reviewed, however, based upon commitments to their Aggregate Resource Act Licence, dust management is included in order to maintain their licence (Ministry of Natural Resources , 2015).

Dust was also assessed in a site visit to Melody Bay Resort through visual inspection and interviews with Melody Bay staff, which indicated minimal fugitive dust impacts on the Site. Dust sources that have the potential to be present onsite, such as a mobile crusher, were modelled as a worst case scenario based on similar site's Cambium has previously assessed.

Sound monitoring was completed at the site on August 3rd, 2017 using a Bruel & Kjaer 2250 Light Hand-Held Sound Monitor. Although open for business, there was not any excavating, crushing or other noise producing activities occurring on-site at the time of noise data collection; the data collected was therefore used as ambient condition data for classification and modeling purposes. This ambient data indicates that the trailers should be considered as Class 3 receptors as per the MOECC guidelines (namely the Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300) (Ministry of Environment and Climate Change, August, 2013)).

In order to estimate the sound emitted during operation of noise producing equipment at the pit, sound emitted from the site was assessed using known data from similar models of noise producing equipment previously studied and modelled by Cambium for the purpose of obtaining

mobile Environmental Compliance Approvals (ECA) for mobile crushing operations. It is understood from information gathered from Buckhorn Sand and Gravel that the mobile crusher that is typically used onsite should have a mobile ECA for its operations. The predicted noise levels were modeled using the Bruel and Kjaer Predictor sound modeling software utilizing the ISO 9613-2 calculation algorithm.

4.0 ASSESSMENT OF EMISSIONS FROM SURROUNDING ENVIRONMENT

It has been determined that the only source of emissions generating activities that are in the vicinity of the proposed expanded trailer park would be from Buckhorn Sand and Gravel and therefore the following sections are focused on what would be generated from the potential activities that may occur on such a site and how that may impact the surrounding environment.

4.1 AIR QUALITY ASSESSMENT OF SURROUNDINGS

Air Quality Emissions must be compliant with Ontario Regulation 419/05: *Air Pollution – Local Air Quality* (Ontario Ministry of the Environment and Climate Change, July 2016) and may also need to be assessed using Ontario Regulation 1/17 (*Registrations under Part II.2 of the Act – Activities Requiring Assessment of Air Emissions*) (Ontario Ministry of the Environment and Climate Change, January 2017). Sites with an ECA or one that is registered via the Environmental Activity Sector Registry (EASR) for air and noise emissions must meet the above mentioned standards at the property line and this is often demonstrated through the use of modelling software and comparison with approved standards in order to obtain approval. Every contaminant that could cause a negative effect on the environment must be modelled and be below levels present on the *Air Contaminants Benchmarks List: standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants* (December, 2016) created by the MOECC.

If the concentration of a contaminant is not on the ACB list or exceeds a value provided, the adverse effect must be determined through a variety of different means; this may include the need mitigate a source of emissions in order to ensure that negative effects are not incurred to the surrounding environment. In cases where a source is a mobile unit that can be used on a number of sites for up to 60 days per calendar year per site, such as rental rock crushers which are generally used intermittently on sites, these mobile units possess their own mobile ECA to be operated in compliance with the MOECC regulation. These mobile units have operating conditions that are specific to the unit, such as operating time restrictions and minimum setback distances defined for which they need comply with in order to minimize the impact on sensitive receptors.

4.1.1 POTENTIAL NEARBY AIR EMISSION SOURCES

Contaminants such as particulate matter (total and fine), and crystalline silica have the potential to be released from the crushing of gravel via a mobile crushing units. It is understood that the nearby pit operated by Buckhorn Sand and Gravel may have such a crushing unit present on site for up to two (2) weeks at a time during the summer months. Other sources of particulate matter that may also be present at the pit would be generated due to wind erosion and vehicle traffic on unpaved or dusty roads; however, those sources are presumed to be controlled by Buckhorn Sand and Gravel mandatory Dust Management Plan.

Additionally Nitrogen Oxides (NOx) has the potential to be emitted from diesel generators present for grinding/crushing and screening processes. The detailed emissions that may be generated from such processes would be outlined in the mobile ECA that could not be obtained for the specific machinery used at the pit.

4.1.1.1 Possible Fugitive Dust Generating Activities

Fugitive Dust is dust is expected to be generated from two (2) physical processes that may occur on the Buckhorn Sand and Gravel Pit site; these include generation from turbulent air force (wind) over 19 km/hr or from the application of a physical force such as wheels over unpaved surfaces. Both of these processes result in dust becoming suspended and leading to the ability of the dust to migrate from the property. The rate of which settling is expected to occur can be estimated using values from Chapter 13 of the AP-42 (United States Environmental Protection Agency, September,2016).

Dust emissions in Ontario are regulated through O. Reg. 419/05. Suspended Particulate Matter can be modelled using AERMOD 14134 to determine the spread of plumes. In cases where the dust emissions are considered to only be nuisance sources and are not expected to contain metals, a detailed Fugitive Dust Control Plan can be implemented instead of modelling.

Dust emissions can be varied heavily by the particle size of stock piled material, the mechanical movement of material, its moisture content and finally the wind speed/weather variation. This means that dust emissions can vary drastically at a site. A Best Practices Fugitive Dust Control

Plan is typically utilized to minimize the variability by which dust is emitted to keep suspended dust generation to a minimum at all times. This often includes the application of water or other dust suppressant chemicals to areas of known dust generation. Other mitigation measures can be lowering speed of traffic onsite or applying a low dust generating material to the top of stock piles that will not be disturbed frequently. This is explained in more detail in the Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources (Ministry of Environment and Climate Change, 2017).

Given that the staff at Melody Bay indicated they have not encountered any issues with fugitive dust emanating from the Buckhorn Sand and Gravel site, it will not be assessed as a concern, only equipment sources of dust will be assessed.

4.1.2 ESTIMATING AIR EMISSIONS FROM THE POTENTIAL SOURCES

Dust and NOx have been estimated to be released from the mobile crushing operations based on calculations produced by Cambium for similar studies; typical working hours and worst case rates of crushing of such a unit have been presumed and were accounted for in order to assess the maximum emissions that may potentially be generated from the Buckhorn Sand and Gravel facility as a worst case.

4.1.3 AIR MODELLING RESULTS FOR PM AND NOX

Results from modelling the emissions generated from the previously studied mobile crusher unit and its corresponding generator, assuming it was operated near the center of the Buckhorn Sand and Gravel facility property, yielded results at the proposed trailer locations below that of the Ontario Benchmark list for both suspended particulate matter (<44µm) and Nitrous Oxide emissions for the 30 minute averaging period.

4.1.4 DUST CONTROL MEASURES CONSIDERED

In order to maintain their aggregate license through the Ministry of Natural Resources, Buckhorn Sand and Gravel must meet all prescribed conditions that apply to Class A licences; as described in the document, Provincial Standards of Ontario- Category 1 - Class A Below Water Pit (Ministry

of Natural Resources , 2015), dust must be mitigated on site. Worthy of noting is that the Standard also specifies the need for the following:

- The use of dust suppressant and/or water on internal haul roads and processing areas when required for dust suppression; and
- Processing equipment used on site must be fitted with dust suppressing or collecting devices when being operated within 300 m of a sensitive receptor.

4.1.5 SITE OBSERVATIONS RELATED TO AIRBORNE PARTICULATE

There was no dust generation observed from offsite when looking towards the trailer park site from the Melody Road Buckhorn Sand and Gravel entrance nor from the south while in Melody Bay Resort. Although conditions at the time were dry, there was precipitation the previous evening (August 2nd, 2017) resulting in approximately nine (9) millimetres of rain accumulated in the area.

4.2 ODOUR ASSESSMENT OF SURROUNDINGS

Odour impacts in Ontario are discussed in the Ministry of Environment and Climate Change technical bulletin entitled "Methodology for Modelling Assessments for Contaminants with 10 minute Average Standards and Guidelines as an addition to O.Reg 419/05". This guideline presents one (1) odour unit/m^3 as the acceptable limit for odour in a 10-minute averaging period. This limit was determined by the point in which 99.5% of the population can perceive the odour. When determining odour impact it is not just important to consider concentration, but also to consider the frequency of the odour for compatibility purposes.

4.2.1 POTENTIAL SOURCES OF NEARBY ODOUR

The sources of potential odour from the Buckhorn Sand and Gravel Pit site include the onsite lagoons containing septic waste. It is observed that all lagoons on the Buckhorn Sand and Gravel property are at a distance of 300 m from the proposed expanded trailer park; however, based upon the D-2 Guidelines it is recommended that the buffer of 250 m to 400 m be upheld

depending on water quality. The distance from the proposed trailers to the waste lagoons can be seen in Figure 1. This distance is approximately 265 m from the property line of Melody Bay.

One main consideration is that the ponds are licenced to only accept waste during the winter months.

4.2.2 ESTIMATING ODOUROUS EMISSIONS

Odourous emissions have not been estimated for the site due to lack of data associated with the lagoons and the inability to determine the quantity of odours generated as a worst case.

4.2.3 POSSIBLE ODOUR CONTROL MEASURES

In general, odour issues may occur when a lagoon is not functioning correctly and would need to be corrected for normal operational purposes that would also act to reduce an odour issue that may have arose. Although contact regarding this matter was not successfully made with Buckhorn Sand and Gravel to obtain whether there are control measures already in place at the site, common control measures of odour for other similar sites include adding oxygen to ponds via aeration of oxygen tablets is typical.

4.2.4 ODOUR COMPLAINTS

There are no registered odour complaints within the municipality related to Buckhorn Sand and Gravel. Upon asking residents of the site, no issues of odour was demonstrated.

4.2.5 SITE OBSERVATIONS RELATED TO ODOUR

There were no odourous emissions detected during the site visit that was conducted on August 3, 2017 at no location that was investigated on and in the surrounding environment of the Melody Bay trailer park.

4.3 NOISE

Noise is regulated in Ontario by NPC-300, Environmental Guideline, Stationary and Transportation Sources - Approval and Planning (Ministry of Environment and Climate Change, August, 2013).

Melody Bay Resort is in an area classified as a Class 3 Rural area as per NPC-300. This type of noise designation necessitates daytime and nighttime noise guideline limits levels of 45 dBA and 40 dBA, respectively.

This means that new developments must not result in, L_{eq} noise levels that exceed the one hour ambient noise level at the closest receptor to the source of noise in the corresponding hour. The closest proposed trailer will be used as the closest receptor for the purpose of this analysis.

4.3.1 POTENTIAL SOURCES OF OFFSITE NOISE

At Buckhorn Sand and Gravel the gravel crushers and heavy machinery used to move the sand and gravel will potentially be the primary noise and vibration sources at the site. The gravel crushers are not expected to be present on site for the majority of the year. They are usually only present for up to (2) weeks according to the property manager at Melody Bay Resort. It is not known where onsite the crushing occurs.

4.3.2 NOISE EMISSION ESTIMATES

As stated above, the major noise emissions that could potentially be generated at the Buckhorn Sand and Gravel Site are assumed to be the result of the use of a portable mobile crushing unit onsite. The noise that the mobile crusher may have the ability to produce was therefore required for the sake of modelling the emissions generated from its use at the Buckhorn Sand and Gravel site; hence, a similar type of operation that was previously analyzed by Cambium in 2014 which received approval from the MOECC in 2015 was used for the purpose of noise propagation modelling.

4.3.3 NOISE MODELLING RESULTS

The noise modelling was conducted using sound modeling software utilizing the calculation algorithm approved by the MOECC (ISO 9613-2); the results indicate that there is a risk present that noise levels may be greater than the NPC-300 daytime standards when the previously approved mobile crusher unit was used as the noise source operating in the centre of the Buckhorn Sand and Gravel Pit in an uncontrolled manner.

As the controls that the facility may have in place and type of crusher(s) that are used onsite are unknown, further reassessment cannot be completed at this time.

4.3.4 NOISE COMPLAINTS

It was stated by an employee of the Site that when the crusher is in use at the aggregates pit it is deemed to be loud in their opinion. It was however stated that this is infrequent as the crusher is only rented at Buckhorn Sand and Gravel for a few weeks per year; when it is onsite, it was noted to be used frequently during that time.

4.3.5 SITE OBSERVATION

While onsite, Cambium noted that there was no notable noise sources from Buckhorn Sand and Gravel. All noise levels recorded on the noise meter were determined to be typical of background levels for the area.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 AIR QUALITY AND DUST

It is expected that:

- No measures are required by Melody Bay to mitigate air pollution from Buckhorn Sand and Gravel; and
- No measures are required by Melody Bay to mitigate fugitive dust transmission from Buckhorn Sand and Gravel. It is recommended to maintain the treeline along the property line to aid in the capture of fugitive dust. If dust does begin to migrate off of Buckhorn Sand and Gravel, it is the responsibly of the aggregate pit to supress the dust and a complaint can be filed.

5.2 ODOUR

Odour is not anticipated to be of major concern to the residence of the proposed additional trailers. This conclusion mainly derives from current knowledge of odour surrounding the site being undetectable. As odour emissions from lagoons can be variable and change based on the condition of the lagoon, it is recommended that odour frequency be recorded at Melody Bay. If odour becomes a nuisance, Buckhorn Sand and Gravel has the responsibility to remediate the issue.

In order to obtain the most accurate odour results, the odour should be measured at the source and then further modelled to depict the dispersion of the odour and levels and frequency at the closest sensitive receptor. If required a full odour impact assessment should be completed, however this would require the full cooperation of the Site Owner

5.3 NOISE

Noise is expected to be the greatest nuisance to the residences on the Site during operating hours when the crushing unit is present at Buckhorn Sand and Gravel.

Mobile crusher units in Ontario are required to possess a mobile ECA for both air and noise. Based on previous mobile crusher units assessed by Cambium as well as ECAs found through the MOECC Access Environment database of historical and current approvals, mobile crusher units require separation distances of between 800 m and 1,820 m without any noise mitigation measures from the nearest sensitive receptors. With appropriate noise barriers in place, this distance can be reduced to 350 m in a Class 3 rural setting with a 10 m noise barrier present.

Assuming Buckhorn Sand and Gravel's mobile crusher unit operates in compliance with a mobile ECA and with the considerations mentioned above, this would mean that the present operating conditions would be that the crusher would be restricted to being operated in the North-West corner of the site and include the use of a noise barrier.

From observations from the available google maps satellite view, a permanent noise barrier on the property was not observed. It may be that a berm or other type of temporary barrier be constructed for when the mobile unit is used onsite..

Given the assumption that the facility currently uses a mobile crusher with an up to date ECA, the new proposed trailers are approximately 61 metres closer to the property line than the existing home, this represents a 1.5 dB increase in sound levels. This excess sound level could be controlled either with a 4.5 meter barrier blocking line of site from the new trailers to the pit operations, or alternatively if Buckhorn Sand and Gravel is open to cooperation, the 1.5 dB reduction could be created on site with additional barriers.

5.4 ADDITIONAL CONSIDERATIONS

As Melody Bay is a seasonal, predominately weekend occupied facility, and the guidelines in this report often refer to permanent residences; it could therefore be said that less of a compatibility issue is present at the site. Buckhorn Sand and Gravel does not complete major extraction or processing on weekends and only operates during business hours during the week. Any noise generated from the site would only occur during those hours.

Dust generated from wind flow across the stock piles could occur at any time; however, as stated earlier it is a low risk nuisance for trailer owners close to the industrial site. These considerations

make Melody Bay's expansion less susceptible to nuisances caused by operations at Buckhorn Sand and Gravel. Also, it would be good practice and feasible to inform the prospective renter/buyer of the trailer(s) of the details of the possible nuisances and such details are included in the seasonal lease agreement allowing seasonal renters to occupy the proposed lots.

5.5 FUTURE INDUSTRIAL DEVELOPMENT

Buckhorn Sand and Gravel's aggregate licence includes all of the property in Figure 1 included in the "extractable zoning" portion of their property, as such further development can occur of the aggregate pit. This could result in unforeseen nuisances in the future. In the case that such activity occurs, it is not the responsibility of Melody Bay to ensure compliance is achieved as it is on the production side that control measures would have to be implemented if deemed necessary.

5.6 FINAL RECOMMENDATION

It is recommended that either a 4.5 m high noise barrier be constructed to block line of site, or if it can be coordinated with Buckhorn Sand and Gravel on site noise controls could be installed based on the use of a typical mobile crusher being used onsite.

It is also recommended that a log of odour nuisances be kept by Site operators.

6.0 CONCLUSIONS

Based on the observations and modelling of this study, it is possible that the new trailers could be compatible with Buckhorn Sand and Gravel, it is not anticipated that dust, nitrogen oxides, or odour will be an issue. Noise will require that Melody Bay construct a noise barrier of 4.5 metres height with no cracks or gaps, with a surface weight of 20 kilograms per square meter blocking line of sight of the new trailers to the pit operations. Alternatively, Melody Bay could work with Buckhorn Sand and Gravel to identify on-site controls that may be more effective for the time in which the crushing operations take place at the facility. A final noise assessment should ideally be completed to confirm the full length of the barrier that is required.

Respectfully submitted,

Cambium Inc.

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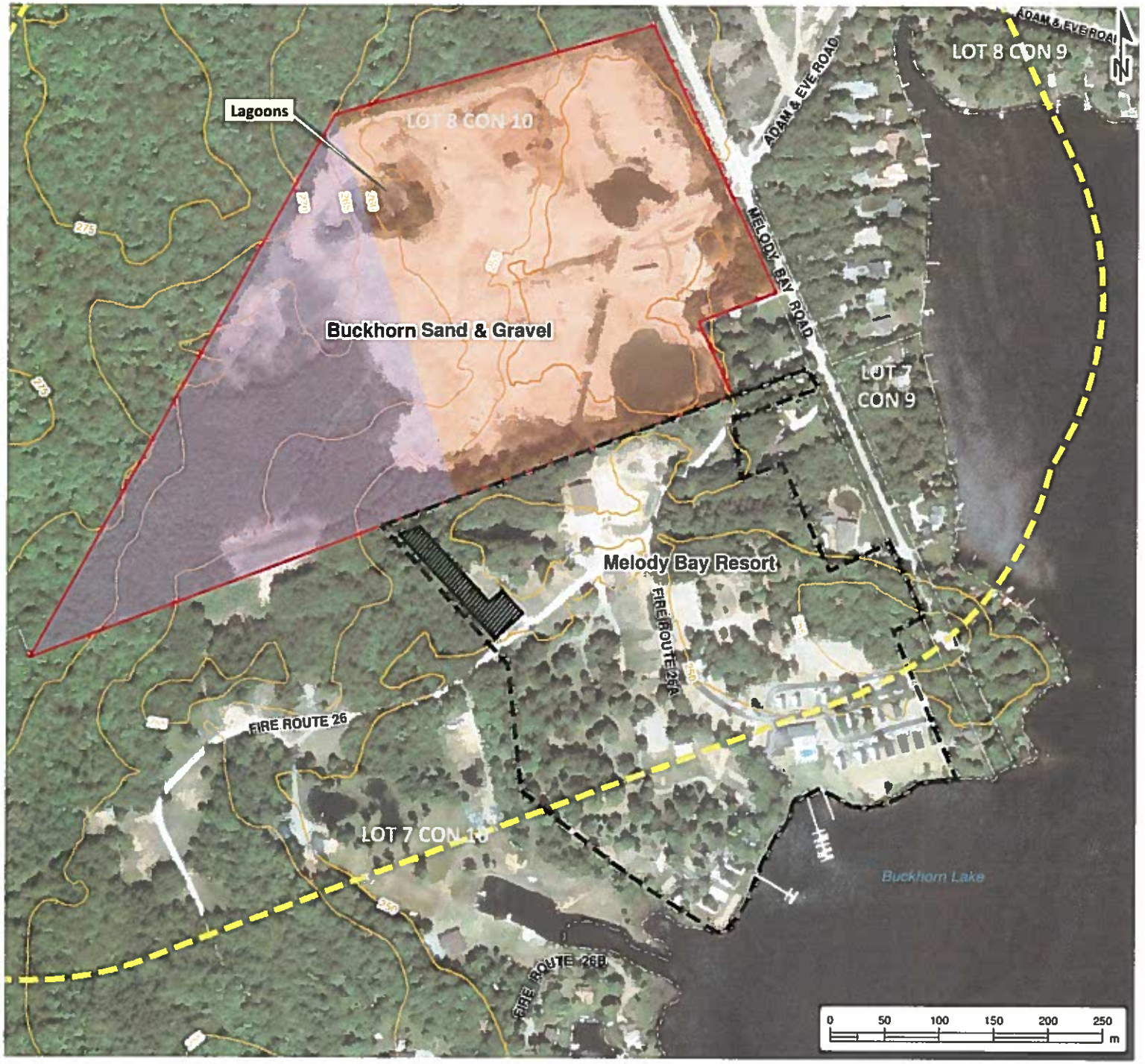
Appended Figures



LAND USE COMPATIBILITY STUDY - MELODY BAY TRAILER PARK

MUNICIPALITY OF TRENT LAKES

33 Melody Bay Road, Buckhorn, Ontario

LEGEND

- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Lot / Concession
- Melody Bay Resort (Approximate)
- Proposed Location for Additional Trailers (Approximate)
- Buckhorn Sand & Gravel (Approximate)
- 300m Buffer from Buckhorn Sand & Gravel

Zoning (Approximate)

- Industrial
- Extractable Industrial

Notes:
2016 aerial imagery accessed August, 2017 from ArcGIS Online Source Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Base mapping features are © Queen's Printer of Ontario, 2017 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government)
Distances on this plan are in metres and can be converted to feet by dividing by 0.3048
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

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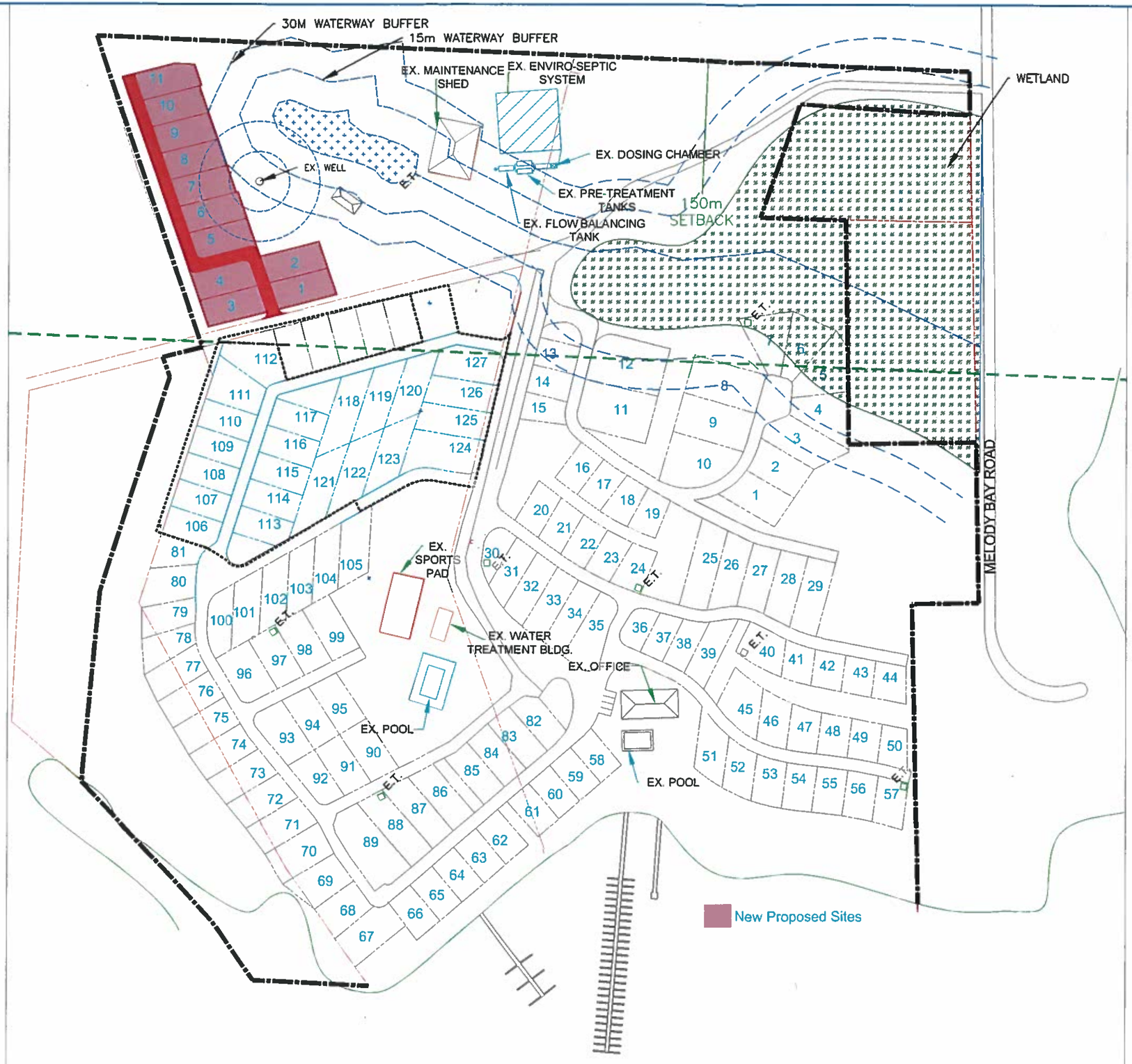
SITE MAP (AIR AND NOISE ASSESSMENT)

Project No.: 6225-001		Date: August 2017	Rev.:
Scale: 1:5,000		Projection: NAD 1983 UTM Zone 17N	
Created by: GJM	Checked by: KDW	Figure: 1	

O:\GIS\project_MRD\6225-629\6225-001 Parkbridge Lifestyles Communities Inc - Land Use Compatibility Study - Melody Bay Trailer Park\2017-08-09 AeN FIG 1 Compatability Study.mxd

Appendix A

Proposed Site Development (Provided by EcoVue)



PROPERTY AREA	13.8 Hectares	
TOTAL SITES	EXISTING 105 PROPOSED 127	
SITE AREA (MIN)	279 m2	385 m2
LOT COVERAGE (MAX)	20%	13%
SITE COVERAGE (MIN)	24%	32%
Description	ZONING	PROPOSED

E.T. – EX. TRANSFORMER (8 TOTAL)

No	Date	Description	By
3			
2			
1	APR 13 2018	Revised for 2018 Lots	ML

REVISIONS

Do not scale drawings.

Contractor is to check all dimensions and report any omissions or discrepancies to the Architect before proceeding with construction.

Parkbridge LIFESTYLE COMMUNITIES INC.

Date	JULY 2015
Drawn	BB
Checked	RW
Approved	
CAD Version	AUTOCAD 2013

MELODY BAY

33 Melody Bay Rd ·
LAKEFIELD ONTARIO

DRAFT
SITE
PLAN

Scale 1:2000	Revision No 3
Project No MEL2014DS01	Drawing No SP-1