

## TECHNICAL MEMORANDUM

Project No. 21457143

**DATE** January 21, 2022

**TO** Mr. Shawn Tylee, C.E.T., MBA  
Rankin Construction Inc.

**CC** Joe Tomaselli, Timothy Gully

**FROM** Tomasz Nowak

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### ADDENDUM TO THE NOISE IMPACT ASSESSMENT REPORT - PORT COLBORNE QUARRIES INC. PIT 3 EXTENSION

Please find herein an addendum to be read in conjunction with the December 2020 Noise Impact Assessment Report (2020 NIA) prepared by Golder Associates Ltd. (Golder) for the proposed extension of the existing Port Colborne Quarries to support a Category 2, Class "A" Quarry Below Water license application under the Aggregate Resources Act (the Site). This addendum has been completed to address selected Joint Agency Review Team (JART) peer review comments as summarized in the Table 1 and should be considered as supplement document to the JART response report submitted on December 3, 2021. In particular, this addendum includes an assessment of updated operating scenarios which reflect the future relocation of the processing plant onto the central region of the existing Pit 3 lands, and the assessment of a new quarry entrance.

**Table 1: JART Comments Addressed in this Addendum Letter**

Comment ID	Comment	Location in Addendum
2.d	Page 4 indicates that the processing equipment may be moved to an alternative location in the future. Based on the video summary ( <a href="https://portcolbornequarries.ca/quarry-expansion-document">https://portcolbornequarries.ca/quarry-expansion-document</a> ) of the proposed extension it is understood that this location is planned to be in Pit 3. In this case, the NIA should include an assessment of this scenario, and depending on the results include mitigation measures to achieve compliance.	Section 2 of the addendum presents details of noise impact assessment for operations of the relocated processing plant. Predicted noise levels associated with Phase 2 and Phase 3 operations are presented in Section 2.1.
2.k	No reference as to how traffic noise will be affected by the change at the quarry	Section 3 of the addendum presents the results of a traffic noise assessment considering the new proposed Site entrance
2.l	Video presentation states clearly that after phase 1 the processing plant will be moved to Pit 3 and a new quarry entrance will be added. The entrance will be located directly on Highway 3. NIA does not include an assessment of the	Section 3 of the addendum presents the results of a traffic noise assessment considering the new proposed Site entrance

Comment ID	Comment	Location in Addendum
	change in the level of traffic noise along Highway 3 as a result of the proposed entrance. Truck entrance and egress in particular needs to be addressed. The NIA requires a statement from Golder regarding the assessment of noise from the new truck entrance.	

## 1.0 INTRODUCTION

Based on the provided information, the processing plant is proposed to be moved to the existing Pit 3 lands during the Phase 1 extraction, anticipated to be within the next 8 – 12 years, and will be used to process extracted material for the remaining phases within the Pit 3 expansion lands. It is expected that the relocated processing plant will use new equipment for the acoustically significant components as opposed to the equipment used in the current processing plant design. In the absence of the detailed design of the new processing plant, Golder considered the same equipment as assessed for current processing plant.

## 2.0 OPERATIONS

The Site’s noise model was updated to reflect the future relocation of the processing plant and new Site entrance which is expected to be representative of a worst case operating scenario as noise propagation from Phase 2 and Phase 3 will be no longer screened by the quarry walls (i.e., extracted area associated with Phase 1 lands). As indicated, the relocation of the processing plant will occur during the extraction within Phase 1 therefore, the results of the Phase 1 analysis presented in the 2020 NIA are expected to still be applicable. Please refer to Section 6 of the NIA for details.

The relocated processing plant will be designed so the noise impact at the identified Points of Reception (PORs) comply with the applicable sound level limits. This will be accomplished through; the selection of equipment with lower noise emissions, the strategic orientation / layout of the plant, the use of local shielding (i.e., material stockpiles, berms, or barriers) located in the proximity of the major noise sources associated with the processing plant equipment or a combination thereof. As the specific equipment and layout / orientation of the relocated processing plant is unknown at this time Golder has assessed a representative scenario to demonstrate compliance can be achieved. The modelling assumes equipment associated with the processing plant maintains the same sound power levels as the existing processing plant equipment with the exception of the power-screens that are assumed to be able to be limited to a sound power level of 115 dBA. Local shielding in the form of permanent stockpiles have been included in the modelling, however, acoustically equivalent noise controls may be considered at the time of the detailed design.

The specific noise control requirements for the relocated processing plant will be confirmed once the equipment make and model have been selected during the detailed design stage. The noise control requirements presented in the 2020 NIA relating to drilling operations will also be verified during the detail design of the relocated processing plant as they may also be impacted.

## 2.1 Results - Phase 2 and Phase 3 Operations

Table 2 summarizes the noise levels predicted for the operations associated with Phase 2 and Phase 3 with the relocated processing plant and new Site entrance. The associated operational noise contours are shown in Figure 1 and Figure 2.

**Table 2: Predicted Phase 2 and Phase 3 Operations Noise Levels**

Receptor ID	Phase 2 Predicted Noise Level [dBA]	Phase 3 Predicted Noise Level [dBA]	Overall Maximum Noise Impact [dBA]	Daytime Noise Limit [dBA]	Compliance with Noise Limit [Yes/No]
POR001	34	34	34	50	Yes
POR002	33	32	33	50	Yes
POR003	32	31	32	50	Yes
POR004	36	36	36	45	Yes
POR005	36	36	36	45	Yes
POR006	35	35	35	45	Yes
POR007	37	37	37	45	Yes
POR008	38	38	38	45	Yes
POR009	38	38	38	45	Yes
POR010	38	37	38	45	Yes
POR011	38	37	38	45	Yes
POR012	40	39	40	45	Yes
POR013	39	38	39	45	Yes
POR014	35	34	35	45	Yes
POR015	35	34	35	45	Yes
POR016	40	39	40	45	Yes
POR017	40	38	40	45	Yes
POR018	44	43	44	45	Yes
POR019	40	45	45	45	Yes
POR020	42	42	42	45	Yes
POR021	42	42	42	45	Yes
POR022	43	43	43	45	Yes
POR023	45	45	45	45	Yes
POR024	44	43	44	45	Yes
POR025	44	43	44	45	Yes
POR026	45	45	45	45	Yes
POR027	44	43	44	45	Yes
POR028	45	44	45	45	Yes
POR029	43	43	43	45	Yes

Receptor ID	Phase 2 Predicted Noise Level [dBA]	Phase 3 Predicted Noise Level [dBA]	Overall Maximum Noise Impact [dBA]	Daytime Noise Limit [dBA]	Compliance with Noise Limit [Yes/No]
POR030	40	39	40	45	Yes
POR031	40	40	40	50	Yes
POR032	48	48	48	50	Yes
POR033	46	46	46	50	Yes
POR034	43	43	43	50	Yes
POR035	50	50	50	50	Yes
POR036	45	46	46	50	Yes
POR037	50	50	50	50	Yes
POR038	49	48	49	50	Yes
POR039	48	47	48	50	Yes
POR040	49	48	49	50	Yes
POR041	48	47	48	50	Yes
POR042	43	42	43	50	Yes
POR043	43	42	43	50	Yes
POR044	43	42	43	50	Yes
POR045	41	41	41	50	Yes
POR046	39	39	39	50	Yes
POR047	34	34	34	50	Yes
POR048	36	36	36	50	Yes

The results presented in Table 2 indicate that the noise emissions for Phase 2 and Phase 3 comply with applicable criteria. Therefore, the Site is expected to be able to operate in compliance with applicable noise limits.

### 3.0 TRAFFIC HAUL ROUTE NOISE ASSESSMENT

As discussed above, the Site entrance will be relocated from the current location north west of the existing processing plant to a new location along the south edge of the Pit 3 expansion area and adjacent to the Highway 3. It is expected this will alter truck traffic along Highway 3. Based on available information it is understood the current truck traffic volumes associated with Site operations will remain unchanged.

As the Site activities could alter truck traffic along Highway 3 a haul route analysis was completed to assess traffic noise associated with material shipping offsite. The assessment was completed using the Ministry of the Environment, Conservation and Parks (MECP) Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT), which is the basis of the DOS-based STAMSON modelling software provided by

the MECP. Road traffic was conservatively assessed over a one-hour period, corresponding to the time of the greatest predicted impact due to the Site activities.

In Ontario there are no noise limits for Site traffic while on public roadways. In the absence of quantitative noise limits the MECP developed a qualitative approach for the assessment of traffic noise associated with a given project while traffic is along public roadways.

The MECP's Landfill Guidelines outline the protocol for evaluating off-site vehicle traffic for which there are no specific sound level limits. In accordance with the Landfill Guidelines, the potential noise impact of off-site vehicles on the existing noise environment is described qualitatively based on a quantitative assessment of the potential increase to the one-hour equivalent sound level ( $L_{eq,1hr}$ ), as described in Table 3.

**Table 3: Landfill Guidelines Qualitative Noise Impact Ratings for Off-site Vehicles**

Sound Level Increase (dB)	Qualitative Rating
1 to ≤3	Insignificant
>3 to ≤5	Noticeable
>5 to ≤10 inclusive	Significant
>10	Very significant

Existing and anticipated Site truck volumes were established using the Port Colborne Quarries Pit 3 Expansion Traffic Impact Study prepared by IBI Group (IBI) (IBI 2020). The Traffic Impact Study provided counts of the; existing one-hour peak traffic volume, existing medium and heavy truck percentages, speed limit, and the Site-related peak hour truck volumes (5 trucks inbound and 5 trucks outbound). The medium and heavy truck percentages for Highway 3 were based on the data presented in the IBI study. The hourly traffic breakdown of Highway 3 was estimated using data provided in the US Environmental Protection Agency (EPA) software Motor Vehicle Emissions Simulator (MOVES) to determine the minimum one-hour daytime traffic volume.

In completing a conservative assessment, Golder assessed the conditions where; the Site is in full operations (i.e., 5 trucks inbound and 5 trucks outbound in a given hour) and existing traffic was a minimum (i.e., 07:00 am based on available information on hourly traffic distribution). In keeping with a conservative approach, the existing traffic volumes from the Traffic Impact Study (from 2019) were not corrected using a growth factor which is typically applied in traffic noise assessments for the assessment of future conditions.

The traffic noise analysis was conducted at POR037 as this property is expected to be the most potentially impacted by the proposed project due to its proximity to the road and expected traffic pattern (i.e., trucks moving westbound after leaving the site). This POR is conservatively considered representative of all PORs along the Highway 3 west of the Site entry. It is expected that for the majority of receptors (i.e., not located along Highway 3) the relocation of the site entrance will result in no/negligible increase to traffic noise levels. For receptors located north of the site, in the vicinity of, or along Second Concession Road, it is expected road traffic noise will decrease with the relocation of the Site entrance to the south as the current truck traffic pattern will be changed due to relocation of the Site entry (i.e., new entry along Highway 3). A summary of the road traffic data is provided in Table 4.

**Table 4: Summary of Existing and Future (including vehicles associated with the Site) Road Traffic Data**

Parameter	Highway 3 (Existing)	Highway 3 (Future)
Speed Limit	80 km/h	80 km/h
One-Hour Traffic (Vehicles per Hour)	286 *	296 **
% Car / Medium Truck / Heavy Truck	98% / 2% / 0%	95% / 2% / 3%
# of Car / Medium Truck / Heavy Truck	280/6/0	280/6/10

Notes:

\* : Minimum ambient hourly traffic

\*\* : Minimum ambient hourly traffic plus peak hourly Site traffic

### 3.1 Results - Traffic Noise Assessment

Table 5 summarizes the expected change between existing and future noise levels at POR037.

**Table 5: Predicted One-Hour Change in Noise Levels along the Haul Route**

Receptor ID	Existing Minimum One-Hour Noise Level (dBA)	Future (with the Site) One-Hour Noise Level (dBA)	Change in Noise Level (dB)	Qualitative Rating
POR037	58	61	2.8	insignificant

The results in Table 5 indicate that the change in noise levels at PORs along Highway 3, if the peak Site truck traffic were to occur during the period with minimal ambient traffic is expected to be insignificant at the respective PORs. Changes in noise levels are expected to be lower during periods of either; lower Site truck traffic or higher background traffic.

## 4.0 CLOSING

Do not hesitate to contact the undersigned if you require further information

**Golder Associates Ltd.**



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Acoustics, Noise and Vibrations Specialist



Joe Tomaselli M.Eng., P.Eng.  
Associate, Senior Acoustics, Noise and Vibrations Engineer

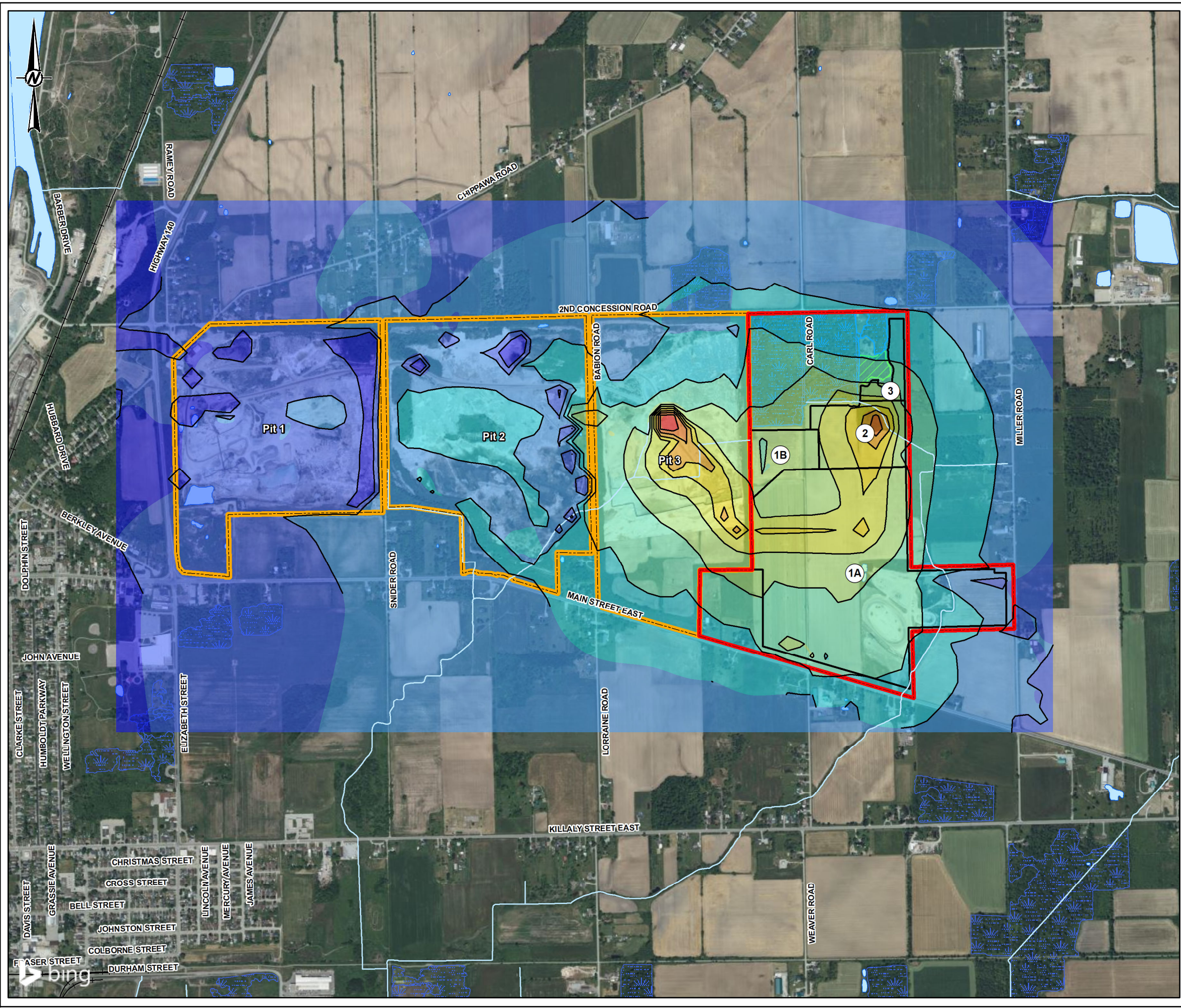
TN/TG/JT/ng/ll

Attachments: Phase 2 and Phase 3 Noise Contours

**FIGURES**

**Phase 2 and Phase 3 Noise  
Contours**



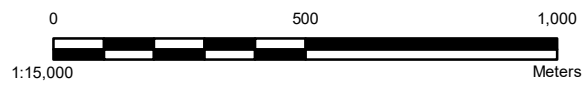


**LEGEND**

- ① Excavation Phase
- +— Railway
- Watercourse
- Waterbody
- Wetland
- Woodland
- Proposed Quarry Extension
- Property Boundary
- Approximate Excavation Phasing Boundary

**Noise Contours (dBA)**

- < 35 dBA
- 35 dBA to 40 dBA
- 40 dBA to 45 dBA
- 45 dBA to 50 dBA
- 50 dBA to 55 dBA
- 55 dBA to 60 dBA
- 60 dBA to 65 dBA
- 65 dBA to 70 dBA
- 70 dBA to 75 dBA
- 75 dBA to 80 dBA
- > 80 dBA



**REFERENCE(S)**

1. BASE DATA: MNRF LIO 2016
2. IMAGERY: © 2021 MICROSOFT CORPORATION © 2021 MAXAR © CNES (2021) DISTRIBUTION AIRBUS DS
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT  
RANKIN CONSTRUCTION INC.

PROJECT  
PORT COLBORNE QUARRY EXTENSION

TITLE  
**EXTRACTION PHASE 2- NOISE CONTOURS**

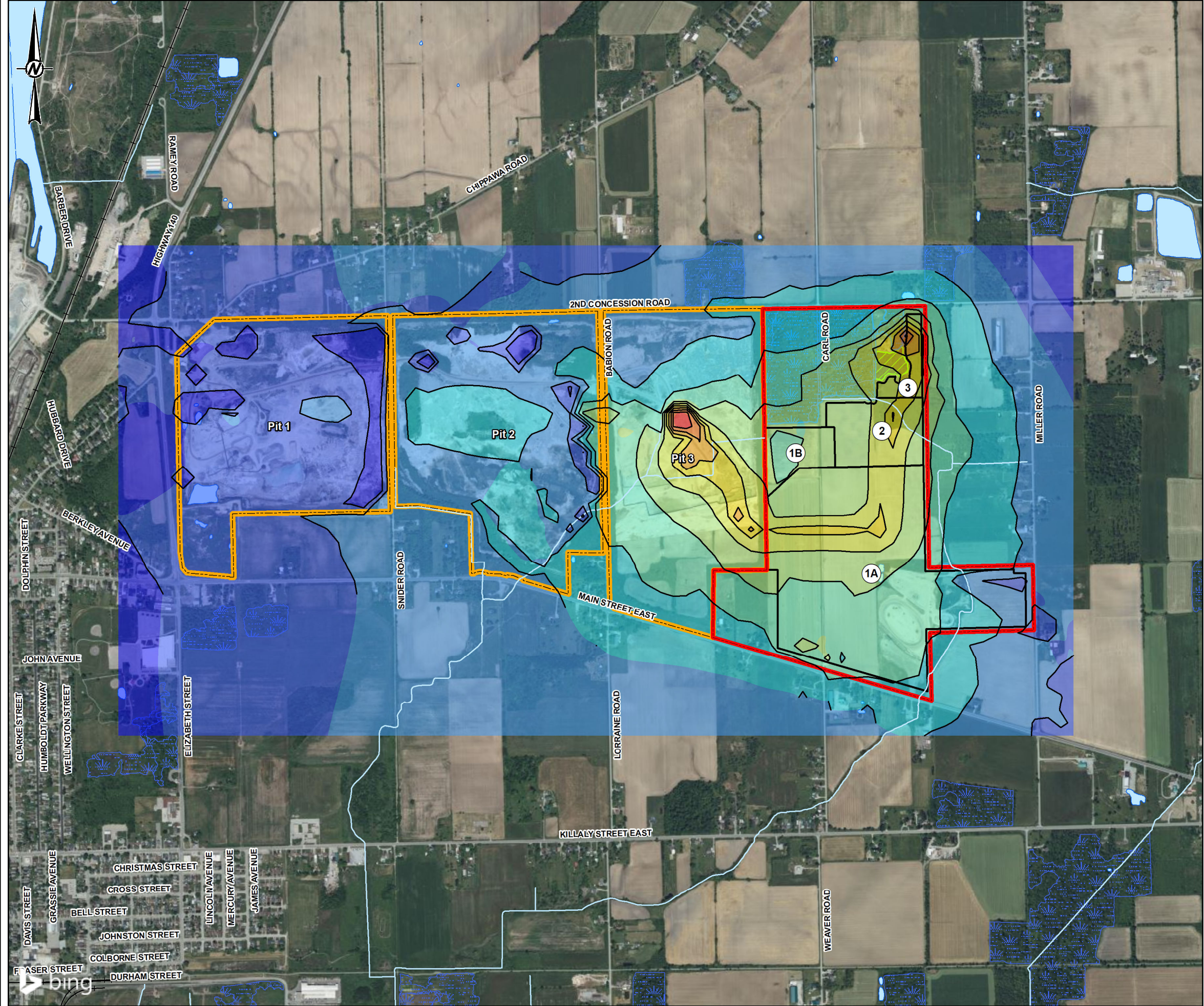
CONSULTANT	YYYY-MM-DD	2022-01-14
DESIGNED	CGE	
PREPARED	CGE	
REVIEWED	TN	
APPROVED	TG	

PROJECT NO. 1894746 CONTROL 0022 REV. FIGURE 1

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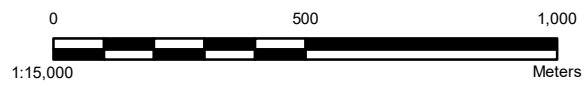


**LEGEND**

- ① Excavation Phase
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**Noise Contours (dBA)**

- < 35 dBA
- 35 dBA to 40 dBA
- 40 dBA to 45 dBA
- 45 dBA to 50 dBA
- 50 dBA to 55 dBA
- 55 dBA to 60 dBA
- 60 dBA to 65 dBA
- 65 dBA to 70 dBA
- 70 dBA to 75 dBA
- 75 dBA to 80 dBA
- > 80 dBA



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3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

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RANKIN CONSTRUCTION INC.

PROJECT  
PORT COLBORNE QUARRY EXTENSION

TITLE  
**EXTRACTION PHASE 3 – NOISE CONTOURS**

CONSULTANT	YYYY-MM-DD	2022-01-14
DESIGNED	CGE	
PREPARED	CGE	
REVIEWED	TN	
APPROVED	TG	

PROJECT NO. 1894746 CONTROL 0022 REV. FIGURE 2

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