

January 23, 2025

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Via Email: Bernie Janssen bernie@harringtonmcavan.com

**RE : Response to Peer Review –
Noise Feasibility Study for a Category 3 – Class “A” Pit Above Water
Harrington Pit
Part Lot 30, Concession 1, Township of Zorra Oxford County, Ontario
HGC Project #: 02200834**

As requested, HGC Noise Vibration Acoustics is providing this letter in response to peer review comments from Thorton Tomasetti (“TT”) dated November 6, 2024 with respect to the our noise study entitled “Noise Feasibility Study for Category 3 – Class “A” Pit Above Water, Harrington Pit, Part Lot 30, Concession 1, Township of Zorra, Oxford County, Ontario” dated July 11, 2024.

TT was contacted to discuss their comments but indicated that they would not be available to meet. Our responses to their comments are therefore provided below without the benefit of discussion or clarification. For convenience, their comments are also provided below in the same order as in their November 6, 2024 peer review letter. Our responses to each comment are provided in italics.

1a) For processing equipment (crushing and screening plants), the sound levels have the potential to vary depending on the material processed. The materials processed at the other Wilhelm Excavating Limited site should be confirmed to be comparable and/or likely to result in conservatively higher equipment sound levels.

We have confirmed that the sound levels used in this assessment are representative of the equipment which will be used in this pit. This was through discussion with the operator who owns other pits and similar equipment and measurements of that equipment. Also, it is our understanding from aggregate professionals that the aggregate in this deposit is similar to those pits being typical glacial deposits. It is correct that equipment used to process hard rock deposits in quarries can be louder, for example, but that is not indicated in this case.

1c) Haul and Highway Truck reference sound power levels were not provided in the body of the report, with only processed line source data included in the Noise Study Appendix B. The reference sound power levels for trucks are likely acceptable, but should be provided in the Noise Study.

Trucks with a sound power level of 101 dBA were used in the analysis.

2a) The Harrington Community Centre (HCC) is located on the opposite side of 31st Line at 936624 Road 96 (Country Road 28). As a Community Centre is defined in NPC-300 as a “noise sensitive institutional purpose building”, the HCC is required to be considered in the assessment of noise mitigation measures.

Yes, Section 3 of our report states that a Community Centre is a noise sensitive point of reception. However, it is understood that the Community Centre is closed and not in use. Nonetheless, during the course of our analysis we determined that the gravel pit sound levels in the vicinity of that building are similar to the sound levels in the vicinity of R3 and R4 and meet the applicable limits.

b) Receptor locations considered 2nd storey windows, where applicable, which is considered appropriate. On review, the R2 second-storey window appears to be located along the east side of the building’s south façade. This is of particular concern, as the 2c) Noise Study Figure B1 and B2 noise contours “wrap around” R2, where the worst-case receptor location should be on the west side of the building’s south façade. Therefore, the recommended noise control measures are potentially insufficient, as the “worst-case” receptor locations may not have been applied in the analysis. A review of receptor locations should be completed to confirm the worst-case conditions are included in the noise mitigation modelling.

The Figure B1 and B2 sound level contours are shown at 4.5 m above grade, representative of second storey windows. The important contour with respect to R2 is the 50 dBA contour which in both Figures does not reach the R2 receptor locations, indicating that the gravel pit sound levels during operations in both Area 1 and Area 2 do not exceed the applicable limit of 50 dBA at R2.

2c) R1 is identified as a 1 ½ storey building in the Noise Study, which typically represents split-level houses. On review of available imagery, the upper floor window is directly above the main floor and considered to be it’s own second floor. Therefore, a 1 ½ storey receptor height (3m) is not considered appropriate, and the R1 receptor is required to be assessed at a second floor height of 4.5 m (or actual height). As noise impacts are predicted to be 50 dBA at R1 in the Noise Study, additional noise mitigation measures are anticipated to be required with the increased receptor height.

The approximate height to the top of the window at the front of the house (facing north) was determined to be 2.1 m, per Google Earth imagery. The window at the side of the house (receptor location) is half a storey above the front window, based on the correlated distances, the height to the middle of the window was found to be

approximately 3.1 m and 3.5 m to the top of the window. As noted in response 3b iv, a natural berm will remain on the west side of the crusher (reaching a height of 350 m ASL). A review of calculations with a higher receptor height at R1 indicate an insignificant change to the resultant sound levels and no change to the recommendations.

3a) The Noise Study identifies the initial Area 1 crushing plant and screening plant locations to be in the “previously excavated area at the final pit floor elevation”, shown in the Operational Plan for Area 1. Based on a review of the topography included in the Site Plan Drawings, Noise Study Figures and Ontario Geohub, the existing ground elevation is approximately 360 m ASL at the initial crushing and screening plant locations and approximately 19 m above the final pit floor of 341 m ASL. On review of publicly available aerial photography, streetview imagery, and images/videos provided by the Client, the initial crushing and screening plant locations ground appears untouched. Clarification is required regarding the intermediary steps and noise impacts leading to the “previously excavated area at the final pit floor elevation” for Area 1.

The operator plans to excavate an area down to the proposed floor of about 342-343 m asl behind the natural height of land before setting up the processing equipment. This initial excavation is part of the construction of the facility and will be a of a limited time duration during daytime hours only. It will be load and haul without on-site processing so that the pit floor can be readied for the processing plants, at which time the typical operation of the pit will commence.

b) The volume of extracted material is expected to be significant to reach the final pit floor of the “previously extracted area” in Area 1. In addition, the extracted material has the potential to be aggregate that can be processed. Therefore, an assessment of the initial excavation stages for the “previously extracted area” is considered necessary. Should the extracted material be processed on-site, an assessment of crushing and screening plants are also necessary.

See the response to Comment 3a above

i. A 7 m tall acoustic barrier is identified as part of the Area 1 noise controls in the report body of the Noise Study and Technical Recommendations in the Site Plan Drawings, and not shown in any figures. As this Area 1 7 m tall barrier is required as part of the noise control measures, the location and extents should be shown in the Noise Study and Site Plan drawings to ensure the 7 m tall acoustic barrier is not omitted or overlooked.

Noted

ii. The Area 1 7 m tall acoustic barrier is required to screen noise for R1 to R6, which is expected to be C-Shaped and potentially extend 2/3 of the circumference (240 degrees) around the Crusher. Details regarding the feasibility/acceptability of a barrier extending 2/3 of the circumference of the crusher should be provided.



See the response to comment iii and iv below.

iii. A 7 m tall acoustic barrier is considered to be exceptionally high. Additional information is considered necessary to support the feasibility of a 7 m tall acoustic barrier, such as a representative supplier/product and/or confirmation the berm footprint/location are reasonable and do not impact the pit operations.

The 7 m tall travelling acoustic barriers will take the form of aggregate stockpiles which can be much higher than 7 m and are common use in many aggregate facilities in which additional shielding to perimeter berms for noise control is necessary.

iv. The Area 1 crusher location is expected to have a similar exposure to R1 regardless of the initial location shown in the Operational Plan for Area 1 or after moving south within Area 1. As a 7 m tall acoustic barrier is required to screen R1 once the crusher is moved south, the 7 m tall barrier is also expected to be required to screen noise for R1 at the initial crusher location. Clarification is required regarding the absence of screening to the west (R1) for the initial crusher location in Area 1.

The natural grade of the lands to the west of the initial crusher location have an elevation up to 350 mASL. These will remain unexcavated and provide sufficient shielding in the direction of R1.

b) A 2:1 slope is identified in the Site Plan Drawings for a typical berm. On review of the noise modelling, it is not clear if the acoustic barrier/berm takes into account the shortened length for the top of the barrier/berm as the ends of the berm are sloped in with a 2:1 ratio. In particular, a 4 m tall barrier would be shortened by 8 m on the ends, reducing the extent of the barrier and its effect. The Noise Study drawings should specify the extent of the acoustic barrier peak to ensure sufficient screening is provided by the acoustic barrier/berm. Alternatively, the acoustic barrier/berm should be extended to ensure sufficient screening will be provided.

The assessment has considered the location of the peak of berms along the perimeter which are required for noise mitigation purposes. The base of the berms will, as you suggest, be more extensive.

c) The truck access from Road 96 between the north and north-east corner barrier is approximately 5 m wide in the Noise Study, and approximately 10 m wide in the Site Plan Drawings. On review, the gap between the barrier peaks may be larger by approximately 21 m (8m+5m+8m) due to the 2:1 berm slope at the ends and the increase of 5 m laneway width. Therefore, screening from the north acoustic barriers may not be sufficient, due to the shortened effective length of the acoustic barrier/berm. The extent of the barrier/berm top should be explicitly stated in the Noise Study and Site Plan Drawings to ensure the final construction will provide sufficient screening.

The lines representing noise barriers are thicker on the Figures and represent the base of the berms. The assessment has considered the location of the peak of berms along the perimeter which are required for noise mitigation purposes. Note that the



location of the northeast noise barrier has been revised to protect a wetland area and will be updated in the revised study.

d) A noise barrier along the north boundary and north-east corner of the site are identified in the Noise Study and the Site Plan Drawings. The north and north-east boundary barriers are identified as 4 m and 5 m in height, which requires clarification and consistency between the Noise Study and Site Plan Drawings.

The required height for the noise barriers at the north boundary and northeast corner is 4 m which will be shown on the Operational Plans. The label on the berm is correct. The extra arrow pointing to the berm will be removed on the plans.

e) Should acoustic barriers be applied in place of berming, the minimum construction requirements (e.g. surface density, etc.) are required to be identified in the Noise Study and included in the Technical Recommendations of the Site Plan Drawings.

The perimeter noise barriers will consist of earthen berms constructed from topsoil or overburden. The 7 m high travelling barriers providing additional shielding for the crusher when moved south from its starting location will consist of aggregate stockpiles.

5. As topography is highly varied within the surrounding area, detailed ground elevations within the surroundings are considered necessary as part of the mitigation modelling. On review of the Noise Study, an indication of the source for the surrounding topography was not included. Should approximate topography be applied in the noise modelling, detailed topography is considered necessary to confirm the acoustic barriers/berms recommendations are providing sufficient screening effects.

Topographical information obtained from the survey as shown on Figure 1 Existing Features Plan and from Government of Canada’s HRDEM were used in the modeling of the site and surrounding areas.

6. Overburden removal is currently included as a construction activity in the Noise Study, which is considered acceptable providing it is a “temporary” activity. Activities, such as land clearing of an entire site prior to construction of a residential development or the construction of a berm, are considered temporary, completed once, and not repeated throughout the life of a project. Should the overburden removal be completed as the extraction area progresses, this activity is considered part of the pit operations and an assessment of noise impacts is necessary. This is of particular concern, as the removal of overburden occurs at-grade and the screening effect from acoustic berm/barriers would be reduced in comparison to equipment operating at depressed elevations (1st bench or floor).

We do not concur with this comparison to a residential development. Many residential developments are developed in Phases similar to aggregate facilities. Stripping of topsoil and building of stockpiles and berms can occur at different times and locations.

In our full experience with the licensing of many aggregate extraction and processing facilities, site preparation and rehabilitation activities in each phase, including removing topsoil, building berms, the initial excavation to locate the processing equipment on the pit floor (see the response to item 3a above), removing berms and spreading topsoil are limited in duration and are considered to be construction activities. The noise emissions from construction activities are assessed using MECP Guideline NPC-115 “Sound Level Limits for Motorized Construction Equipment” which sets limits for the sound emissions from each individual piece of equipment to represent good practice and the use of proper muffling devices.

The assessment of noise emissions from the ongoing activities due to pit operations (crushing, screening, trucking etc.) are assessed using MEC Guideline NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning, August 2013”.

7. Noise modelling was completed as “point sources” for crushing/screening operations with loaders, which is considered appropriate for a Feasibility Study and conceptual noise mitigation recommendations. However, each of the crushing and screening operations includes a loader operating within various areas in the immediate surroundings. Therefore, an area source should be considered as part of any detailed noise control modelling. This is of particular concern, as the current mitigation measures results in sound level contours that “wrap around” R2. Alternatively, the acoustic barriers/berms lengths can be extended to ensure sufficient screening is included to mitigate noise from sources larger than a single point.


Our assessment considers worst case equipment locations for each receptor in each Area which results in higher (more conservative) resultant sound levels than the use of area sources.

8. Elevations associated with the Noise Study natural berms are referenced as 254 m ASL and 257 m ASL, which are below the understood 341 m ASL maximum depth of extraction shown in the Site Plan Drawings. These elevation references are expected to be notation errors and are required to be revised in both the Noise Study and the Technical Recommendations of the Site Plan Drawings.

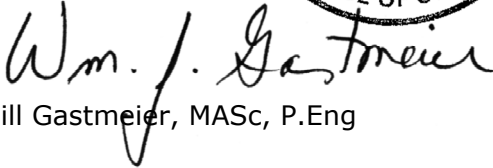
Noted, it was a typographical error and is subject to revision.

January 23, 2025

Best regards,
Howe Gastmeier Chapnik Limited


Mandy Chan, P.Eng




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