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Wilmot Woods Developments Inc. Environmental Noise and Vibration Feasibility Assessment

Proposed Residential Development Wilmot Woods Development, Township of Wilmot

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Environmental Noise and Vibration Feasibility Assessment

Proposed Residential Development
Wilmot Woods Development,
Township of Wilmot

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Record of Revisions

Revision	Date	Description
0	March 2022	Initial Submission to the Township of Wilmot
1	October 2023	Revised Submission to the Township of Wilmot in response to CN peer reviewer comments.
2	November 21, 2023	Final Submission to the Township of Wilmot

R.J. Burnside & Associates Limited

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Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by Wilmot Woods Developments Inc. to prepare an Environmental Noise and Vibration Feasibility Assessment for the Wilmot Woods Development Residential Subdivision Development. The property is located at Part of Lot 20, German Block South of Snyders Road, Township of Wilmot, Ontario.

The only significant road traffic noise source is Waterloo Street. Sound levels from Waterloo Street were modelled based on the future traffic volumes.

The rail traffic noise source of concern is CN Rail's Guelph Subdivision Line. Sound levels from this railway were modeled based on the future traffic volumes.

The respective road and rail traffic sound levels were assessed separately as the areas they impacted were separated by large distances. In order to determine whether any noise control measures are required, resulting sound levels were compared to the applicable Ministry of the Environment, Conservation and Parks (MECP) limits.

The subject development is not located within the NEF/NEP noise contours of any airports. Therefore, aircraft noise is not considered a significant noise source for this development. The closest airport is Region of Waterloo International Airport, 4881 Fountain St N #1, Breslau, ON N0B 1M0 which is 25 km to the east.

The assessment revealed that transportation noise mitigation measures are required. Required measures include:

- Provision for the installation of central air conditioning in the future at the occupant's discretion.
- Warning clause Type A for potential purchaser.
- Warning clause Type C for potential purchaser.

Sound levels at the newly developed lots will meet the MECP noise guideline requirements after all suggested noise mitigation measures listed above are implemented.

The nearby stationary noise sources of concern to the development include several industrial sites which contain rail delivery noise, HVAC, and industrial mechanical sounds. Sound levels from these facilities were determined to be compliant through an examination of their acoustic conditions in each of the most recently approved ECA and EASR documents registered with the Ontario MECP. This information was sufficient to determine Class 2 compliance at the exclusion limits exists. Therefore, no external stationary noise mitigation measures are required.

An impulsive noise assessment was also completed for the nearest two spur lines of CN Rail's Guelph Subdivision Line. No mitigation was needed for this impulsive noise.

There are no proposed stationary noise sources of concern within the proposed development.

Vibration monitoring was undertaken to determine the need for vibration mitigation measures. It was determined that a region in Stage 5 closest to the rail will require vibration mitigation measures. Distances from the railway right of way have been provided to indicate which dwellings will require custom vibration mitigation measures for exceeding the threshold of 0.2 mm/s RMS, as well as which dwellings which require only standard vibration mitigation measures for only exceeding the threshold of 0.14 mm/s RMS. As the exact locations of the future foundations are not yet known, this information is provided only in distances from the right of way and a figure visually showing the areas where each mitigation type is required.

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1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by Wilmot Woods Developments Inc. to prepare an Environmental Noise and Vibration Feasibility Assessment for the new Wilmot Woods Development Residential Subdivision Development. The property is located at Part of Lot 20, German Block South of Snyders Road, Township of Wilmot Ontario.

The purpose of this assessment is to examine potential noise impacts relating to the proposed residences located off of Waterloo Street, Township of Wilmot.

1.1 Objective

This report has been prepared in support of the new Wilmot Woods Development Residential Subdivision Development. This report will be included in a submission for Draft Plan Approval. The potential noise impacts were modelled using the Ministry of the Environment, Conservation and Parks (MECP) traffic and rail noise prediction models ORNAMENT and STEAM, implemented through the STAMSON (version 5.04) computer program. Sound levels were predicted based on ten-year future traffic forecast for Waterloo Street and CN's Guelph Subdivision line (see Table 2 & Table 4). The potential noise impacts were evaluated by comparing predicted sound levels at the representative points of reception with the MECP sound level limits.

1.2 Study Area

The proposed Wilmot Woods Development Residential Subdivision Development is located off of Waterloo Street in the Township of Wilmot Ontario. The site location map is provided in Figure 1.

The Site Plan is shown in Figure 2. The proposed development is in an area currently zoned by Township of Wilmot as Z1 Agricultural. The zoning map is shown in Figure 3. The grading plan for the Site is provided in Figure 10.

1.3 Updates to report for this Revision

Burnside received comments from Jade Acoustics on behalf of CN dated June 26, 2023. The following changes have been made to this revision to respond to the comments:

1. Use of the 2013 "Guidelines for New Development in Proximity to Railway Operations".

2. A discussion on the noise and vibration related recommendations and considerations from the Guidelines for New Development in Proximity to Railway Operations has been added in Section 2.2.3.

3. The inclusion of a building component assessment in Section 4.4.

4. Jade noted that CN's preference is for acoustic barriers to be used instead of warning clause A. Acoustic barriers are now recommended. This recommendation is discussed in Sections 4.3 and 7.2.

5. The list of dwellings requiring brick veneer exterior cladding is now included in Section 7.4.

6. The definition of brick veneer exterior cladding has been revised throughout the report to clarify that only masonry equivalent construction is an acceptable alternative to brick veneer.

7. The rail traffic volumes included in Table 4 has been updated. New rail traffic data was requested due to the passage of time since the original submission. Burnside received confirmation that the traffic data counts used in this submission are accurate as of September 2023. This confirmation is now included in Appendix A.

8. The calculations for plane of windows and outdoor living areas have been updated. This update has resulted in updated results in Table 5 and Table 6.

9. The Table 6 definition of brick veneer exterior cladding has been revised throughout the report to clarify that only masonry equivalent construction is an acceptable alternative to brick veneer.

10. The footnotes of Table 6 have been updated to match the exact wording of the Table itself.

11. Figure 4 has been added to show the extents of the recommended acoustic barriers. All figures after Figure 4 are renumbered.

12. The STAMSON calculations provided in Appendix C have been updated to reflect the updated traffic counts.

13. The file names of the STAMSON calculations in Appendix C have been updated.

14. A plane of window sample calculation (including the assessment of whistle noise) has been provided in Appendix C.

15. An impulse noise assessment for the neighbouring industrial properties with spur lines has been included. The assessment includes OLA calculations.

16. The vibration analysis has been updated to include analysis of the vertical axis exclusively. The analysis of the vertical axis only would have led to no vibration

mitigation recommendations. Therefore, despite CN's request for the vertical axis to be the sole axis of analysis for vibration Burnside has left in assessment of the three axis of vibration together and is relying on the results of this analysis to inform the vibration mitigation requirements. This is discussed in detail in Section 8.0.

2.0 Applicable Noise Criteria

2.1 MECP Noise Policies

Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300) is the MECP Publication which provides advice, sound level limits and guidance that maybe used when land use planning decisions are made under the Planning Act, and the Niagara Escarpment Planning and Development Act. This guidance is for land use planning authorities, developers, and consultants. It is intended to minimize the potential conflict between proposed noise sensitive land uses and sources of noise emissions.

2.1.1 Transportation Noise

2.1.1.1 Outdoor Living Areas

NPC-300 indicates that the sound level should be assessed in an outdoor living area (OLA). Where the noise exceeds the applicable sound level limits, mitigation measures may be required. Noise control measures are not required if the sound level estimated in the OLA is 55 dBA or less during the daytime hours.

NPC-300 indicates that if the 16-hour equivalent sound level in the OLA is between 55 dBA and 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA; otherwise, a warning clause Type A should be issued. If the sound level 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.

2.1.1.2 Plane of a Window

If the sound level in the plane of a bedroom or living/dining room window is between 55 dBA and 65 dBA during daytime or between 50 dBA and 60 dBA during nighttime, the dwelling should be designed with a provision for the installation of central air conditioning in the future. Warning clause Type C is also recommended. If the sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA during daytime or 60 dBA during nighttime, installation of central air conditioning should be implemented with a warning clause Type D.

The location and installation of any required outdoor air conditioning devices must comply with the MECP's publication: Residential Air Conditioning Devices (NPC-216). NPC-216 requires that the sound levels of the condensing units not exceed the

maximum sound level of 55 dBA[1] at the neighbour's closest point of reception. Applicable points of reception are defined as the closest window or ground based outdoor living areas. Air conditioning units with a maximum Air-conditioning Refrigeration Institute (ARI) standard sound rating of greater than 7.6 Bels are also prohibited.

2.1.1.3 Indoor Living Areas

For road noise, the indoor sound level limit is 45 dBA for living/dining areas at any time and during daytime in the sleeping quarters. The sound level in the sleeping quarters should not exceed 40 dBA during nighttime.

For rail noise, the indoor sound level limit is 40 dBA for living/dining areas at any time and during daytime in the sleeping quarters. The sound level in the sleeping quarters should not exceed 35 dBA during nighttime.

2.1.2 Stationary Noise

The applicable stationary noise criteria are dependent on the Class Area as well as the ambient sound levels present at each point of reception. The applicable criteria are the greater of the exclusion limits, provided in the MECP tables in Appendix B, or the lowest hourly ambient sound level predicted for a given point of reception.

The proposed Wilmot Woods Development Residential Subdivision Development is located in a Class 2 Semi Urban Area. This is a Class 2 Semi Urban area as it is located close to a Regional Road, an active rail line, and several industries, but also large areas of agricultural and open land. The environment will have urban and rural characteristics as noise is experienced from each of these sources.

The MECP criteria for the outdoor receptors considered in this report are 50 dBA from 07:00 – 19:00 and 45 dBA from 19:00 – 23:00.

The MECP criteria for the plane of window receptors considered in this report are 50 dBA from 07:00 –23:00 and 45 dBA from 23:00 – 07:00.

The MECP criteria for the outdoor receptors from impulsive sounds considered in this report are 50 dBA from 07:00 – 23:00 for 10 or more impulses an hour.

The MECP criteria for the plane of window receptors from impulsive sounds considered in this report are 50 dBA from 07:00 – 23:00 for 10 or more impulses an hour and 45 dBA from 23:00 – 07:00.

[1] 55 dBA is permissible for new land use developments when air conditioning is a mandatory requirement.

MECP tables showing all criteria for all Classes of Urban Area and all time periods are shown in Appendix B.

2.2 Regional, Municipal Policies & 3rd Party Guidelines

In addition to the preceding MECP noise criteria from NPC-300, the proposed development is also subject to the following regional regulations:

2.2.1 Regional Municipality of Waterloo: Implementation Guideline for Noise Policies

A Consultant Noise Study Declaration and Owner/Authorized Agent Statement is required to be submitted with the Noise Study. These documents are included in Appendix D.

Brick veneer (EW5) or masonry equivalent is required for the exterior wall (facing the rail line) of the first row of dwellings adjacent to the rail line if they are within 100 m of the rail line and the Leq (24hr) sound level at the plane of a bedroom window exceeds 60 dBA.

Include a scale plan identifying all road and rail sources within 200 m and provincial highways within 500 m. Significant stationary noise sources are also required to be identified within 500 m. This information is provided in Figure 5.

A discussion of alternate subdivision layouts, planning options, and or building designs considered for the development. This discussion is provided in Section 10.0.

A concise summary of projected noise levels for outdoor and indoor living areas at appropriate receiver locations (shown on a plan) before and after mitigation measures. This plan is provided in Figure 6 for indoor living areas and Figure 7 for OLAs.

If a barrier is provided for noise attenuation the noise study must include:

- Economic, planning or engineering justification for the use of a wall or berm.
- A typical cross section of the area subject to attenuation measures, showing the locations of cross-sections, at an appropriate vertical and horizontal scale, which clearly shows the barrier, the noise source, the noise receiver, and property limits.
- A grading plan of the area subject to noise attenuation measures, showing locations of cross sections, final grades, and elevations of the edge of the pavement, noise source, noise receiver, and noise attenuation features.
- Drainage details.
- Specification of type, surface density, and location of the proposed barrier.
- Consideration of impact on existing trees of construction of a noise wall or earthen berm (i.e., damage to the root zone, trees destroyed) and reference to the related Tree Saving Plan.

Noise barriers are required to conform to the following standards. The minimum wall height is 1.8 m, barrier heights greater than 2.4 m require consultation with Regional staff for approval.

Prior to the construction of any noise wall, a Noise Wall Design Report is required to be submitted to the Region of Waterloo.

In all other aeras the regional guidelines are substantively identical to the provincial policies.

2.2.2 Township of Wilmot

The Township of Wilmot has no noise development policy.

2.2.3 Guidelines for New Development in Proximity to Railway Operations

The Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC) have together released a document entitled “Guidelines for the New Development in Proximity to Railway Operations”. FCM is a non-profit corporation founded to influence the public discourse and higher levels of governments to enhance the exposure of municipal level concerns. RAC is a private company created to represent the interests of railway companies in Canada. The recommendations set out by FCM and RAC in their 2013 guidelines are not government policies but do present design guidelines which, if followed, increases the favourability of a development in the opinion of any rail company which is a member of the RAC. It is in the interest of the developer of a property in proximity to railways to consider these recommendations as railways can slow the municipal approval processes by raising concerns when these guidelines are ignored.

Municipalities may choose to adopt the “Guidelines for the New Development in Proximity to Railway Operations” as requirements for their jurisdiction. RAC keeps a list of municipalities which have adopted in part or full their guidelines[2]. The Township of Wilmot and the Region of Waterloo both do not appear on this list.

Burnside has reviewed the Official Plan for the Township of Wilmot for policies relating to rail noise and vibration analysis and assessment. In the Official plan, the “Guidelines for the New Development in Proximity to Railway Operations” are not mentioned. Therefore, Township guidelines require conformance to the Regional Official Plan requirements in these areas.

Burnside furthermore reviewed the Official Plan for the Region of Waterloo for policies relating to rail noise and vibration analysis and assessment. In the Regional Official plan, the “Guidelines for the New Development in Proximity to Railway Operations” are

[2] https://www.proximityinitiative.ca/guidelines-adoption/

not mentioned. Therefore, there are no municipal or provincial requirements for enforcing the "Guidelines for the New Development in Proximity to Railway Operations" on the subject development.

Nevertheless, the following noise and vibration specific recommendations are made in the "Guidelines for the New Development in Proximity to Railway Operations":

- Standard mitigation designs including a 3.0 m high acoustical fence located atop a 2.5 m earthen berm. The berm being fully located within the minimum 30 m setback from the right-of-way to the building edge.
- Standard mitigation measures are desired as a minimum requirement[3].
- Other land uses should be considered in cases where standard mitigation measures are not possible.
- Mitigation solutions should not create an onerous highly engineered condition that overwhelms the aesthetic quality of an environment.
- Consultation with all stakeholders, including the railways, at the outset of the planning process.
- The following building setbacks are recommended:
  - Freight Rail Yard: 300 m
  - Principal Main Line: 30 m
  - Secondary Main Line: 30 m
  - Principal Branch Line: 15 m
  - Secondary Branch Line: 15 m
  - Spur Line: 15 m
- Designs with backyards shielded from rail noise by the dwellings themselves or garages are preferable.
- Outdoor and indoor noise predictions should be completed in a Noise Study as part of the initial submission for a development.
- Though determined by an acoustic engineer acoustic barrier heights are typically at least:
  - Principal Main Line: 5.5 m above top of rail
  - Secondary Main Line: 4.5 m above top of rail
  - Principal Branch Line: 4.0 m above top of rail
  - Secondary Branch Line: no minimum
  - Spur Line: no minimum
- Acoustic barriers should mitigate the noise transmission by at least 10 dBA compared to the noise traveling over the barrier. Barriers should have at least 20 kg per square meter of surface area. Concrete or specialized materials are preferred over wood.

[3] Note that as "Guidelines for the New Development in Proximity to Railway Operations" is not government regulation, requirements of the document are better understood as recommendations, as the issuing body does not have the authority to require their implementation.

- Non noise sensitive room uses should be preferred on the sides of the buildings facing the railway, such as kitchens, bathrooms, and laundry rooms.
- Reduced sized windows should be considered facing the railway. Windows should have a high STC rating.
- Exterior Doors should be acoustically designed.
- Site specific vibration mitigation is highly recommended.

The “Guidelines for the New Development in Proximity to Railway Operations” makes other recommendations which fall outside of the scope of noise and vibration.

3.0 Transportation Noise Sources and Receptors

3.1 Road Noise Sources

The road traffic noise source assessed for the potential impact on the new Wilmot Woods Development Residential Subdivision Development is Waterloo Street.

Traffic volume data was downloaded as an Average Annual Daily Traffic (AADT) from the Municipality. The traffic volumes are presented in Table 1 and Table 2. The road traffic data provided to Burnside for this report is included in Appendix A.

It is assumed that medium trucks and heavy trucks each make 5% of the total traffic on Waterloo Street.

The day/night traffic volume was split 90%/10% as per the STAMSON Technical Document recommendation for regional roads.

The current posted speed limit is 50 km/h on Waterloo Street. It was assumed to remain the same within the next ten years.

3.2 Rail Noise Sources

The rail traffic noise source assessed for the potential impact on the new Wilmot Woods Development Residential Subdivision Development is CN's Guelph Subdivision line.

Rail traffic volumes are presented in Table 2 and Table 4. The rail traffic data provided by Rail Company for this report is included in Appendix A.

As the proposed development is located within 300 m of a CN Railway right of way the following warning clause must be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit:

> *"Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way."*

3.3 Aircraft Noise Sources

The subject development is not located within the NEF/NEP noise contours of any airports. Therefore, aircraft noise is not considered a significant noise source for this development.

The closest airport is Region of Waterloo International Airport, 4881 Fountain St N #1, Breslau ON N0B 1M0 which is 25 km to the east.

3.4 Transportation Noise Receptors

Eight residential points of reception have been identified as being the most representative sensitive points of reception. Sound levels at all other receptors will be at or below the sound levels of the representative receptors next to them.

The development will consist of only residential units and park space. In order to be conservative, all the houses were assumed to be two-story for the purpose of this assessment.

Sound levels at the points of reception are dependent on the separation distance from the road. The highest sound levels will be experienced at the closest receptors.

4.0 Transportation Noise Impact Assessment

4.1 Methodology

Sound levels associated with road traffic predicted with MECP traffic noise prediction methodology ORNAMENT, implemented through the STAMSON (version 5.04) computer program. The model calculates expected sound levels based on road traffic, distance to receptor, receptor height, and topographical features. In order to predict sound levels from road traffic, STAMSON requires:

- Source to receiver distance – between 15 m and 500 m.
- Minimum traffic volume – 40 vehicles per hour.
- Minimum vehicle speed – 50 km/h.

The assumptions below were used in the noise model:

- The road gradient was assumed to be 0%.
- Road pavement was assumed as a standard asphalt surface.
- Flat/gentle slope topography was selected.
- Intermediate surface was assumed to be absorptive.

Outdoor Living Area points of assessment were taken 3 m away from the building and 1.5 m above grade. Plane of Windows points of assessment were taken at the building façade and 4.5 m above the grade, representing the 2nd floor.

Sound levels associated with rail traffic predicted with MECP rail traffic noise prediction model STEAM, implemented through the STAMSON (version 5.04) computer program. The model calculates expected sound levels based on rail traffic, distance to receptor, receptor height, and topographical features. To predict sound levels from rail traffic STAMSON requires:

- Source to receiver distance – between 15 m and 500 m.
- Type of Train – Electric or Diesel.
- Cars per Train.
- Locomotives per Train.
- Maximum traffic volume.
- Train speed.
- Welded rail? – Yes/No.
- Whistle? –Yes/No.
- Angle to whistle crossing.

The assumptions below were used in the noise model:

- Flat/gentle slope topography was selected.
- Intermediate surface was assumed to be absorptive.

- A 2.5% growth rate was assumed for the ten-year future traffic prediction.
- A 67% Day / 33% Night traffic split was assumed.

4.2 Predicted Sound Levels – Plane of Window

Following the methodology presented above, Burnside has predicted sound levels at eight representative receptors which provide sufficient information to determine the requirements for the whole development site. These results are summarized in All rail traffic occurs during the daytime hours (0700-2300)

Table 5. A sample modeling printout is included in Appendix C.

For plane of window calculations, considering the existence of any noise barrier or berm which exists for mitigation of the outdoor living areas is not appropriate. No noise mitigation benefit from berms or barriers were considered for these calculations.

Based on the calculations, the following blocks are required to have provision for air conditioning and a warning clause Type C, as the predicted sound levels are in the range of 56 dBA to 65 dBA during the daytime and/or 51 dBA to 60 dBA during the nighttime.

Stage 1:
Blocks: 12 and 13

Stage 4:
Blocks: 6

Stage 5:
Blocks: 1, 2, 3, 4, and 7

Note that at the detailed report stage calculations are likely to show that not all of the above noted blocks will require controls. However, at this time the exact number and location of units within the planned Blocks are unknown.

Based on the calculations, the following blocks are not required to have any mitigation, as the predicted sound levels are at or below 55 dBA during the daytime and 50 dBA during the nighttime.

Stage 1:
Blocks: 1 to 11, 14 to 18

Stage 2:
Blocks: All Blocks

Stage 3:

Blocks: All Blocks

Stage 4:
Blocks: 1 to 5

Stage 5:
Blocks: 5, 6, 8 and 9

4.3 Predicted Sound Levels – Outdoor Living Areas

Following the methodology presented in Section 4.1, Burnside has predicted OLA sound levels at four representative receptors that provide sufficient information to determine the requirements for the whole development site. These results are summarized in Table 5. A sample modeling printout is included in Appendix C.

The OLA mitigation analysis is based on the preliminary proposed topography since the actual future topography is not finalized. The future Detailed Environmental Noise Assessment will be based on the proposed grading plan of the development. Therefore, the OLA mitigation analysis in this feasibility study should not be interpreted as the final build requirements for the development.

Based on the calculations, at the following blocks, the predicted unmitigated sound levels are above 55 dBA during the daytime.

Stage 5:
Blocks: 2, and 7

Under NPC-300 these dwellings may have an acoustic barrier but are not required to. If an acoustic barrier is not provided prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type A. There are technical limitations to the effectiveness of barriers for these lots and natural views of the forest would be restricted in some cases. However, CN has indicated a preference for an acoustic barrier in optional cases. As a goodwill gesture the proponent has elected to propose acoustic barriers in these locations. The locations of these barriers are also shown in Figure 4. With the inclusion of these acoustic barriers the objective level of 55 dBA is met.

Based on the calculations, all other blocks are not recommended or required to have an acoustic barrier, as the predicted unmitigated sound levels are at or under the MECP objective sound level of 55 dBA during the daytime.

4.4 Predicted Sound Levels – Indoor Living Areas

If the daytime sound levels at the plane of window exceed 60 dBA or the nighttime sound levels at the plane of window exceed 55 dBA, a preliminary building component

assessment is required to ensure a building can be designed so that indoor sound levels comply with the applicable indoor noise criteria of 40 dBA for living areas during the day and 35 dBA during the nighttime for bedrooms from impacts including rail traffic.

The predicted maximum Plane of Window sound levels of 63 dBA daytime and 38 dBA nighttime was used alongside conservative design assumptions[4] to determine the required minimum Sound Transmission Class (STC) of the window and wall components. Using these inputs, it was determined that the minimum required window STC is 29 for living areas and 29 for bedrooms. These STC levels are attainable with window designs that are commonly available; therefore, constructing a compliant design should not be an issue. The minimum required exterior door STC is 26 for living areas and 26 for a bedroom balcony. The minimum required wall STC is 35 for living areas and 35 for bedrooms, which will not be a problem with standard construction methods. A sample STC calculation is provided in Appendix C. These minimum STC requirements only apply to blocks which have a requirement for provision for air conditioning, as listed in Section 4.2. For all other blocks standard Sound Transmission Class (STC) window and wall designs will be acceptable.

[4] Calculator based on “Controlling Sound Transmission into Buildings, NRCC 1985”

5.0 Stationary Noise Sources and Receptors

5.1 External Stationary Noise

External stationary noise is defined as the off-site stationary noise with potential to impact the proposed development. The potential impact of external stationary noise is assessed at all worst-case predictable noise sensitive locations within the proposed development itself.

5.1.1 External Stationary Noise Sources

The proposed Wilmot Woods Development Residential Subdivision Development is in proximity to the following potential noise sources:

- Riverside Brass & Aluminum Foundry Ltd.
  - 55 Hamilton Rd, New Hamburg, ON N3A 2H1
  - West of the Site by 180 m
  - Chemical manufacturer
- Nachurs Alpine Solutions
  - 1356 Nafziger Rd, New Hamburg, ON N3A 3G8
  - East of the Site by 430 m
  - Chemical manufacturer (Fertilizer)
- Don J. Pestell Ltd. - Pestell Nutrition
  - 141 Hamilton Rd, New Hamburg, ON N3A 2H1
  - South of the Site by 100 m
  - Pet food Manufacturer

5.1.2 External Stationary Noise Points of Reception

The impact of the facilities described above have been assessed for their impact on the proposed Wilmot Woods Development Residential Subdivision Development. The analysis was done by interpreting the existing ECA and EASR approvals of each of the facilities; therefore, as no model of the proposed site was created, there are no Points of Reception to define.

6.0 Steady State Stationary Noise Impact Assessment

6.1 Riverside Brass & Aluminum Foundry

Riverside Brass & Aluminum Foundry (Riverside) is an aluminum, copper, and zinc-based alloys casting facility. Processes at their facility include sand handling, melting and charging, fluxing, mold and core production, grinding, shot blasting, and core making. Based on the nature of the operation, suspended particulate matter, which

includes various metals and metal compounds, and volatile organic compounds are expected to be emitted from this facility.

Riverside is a holder on an Environmental Compliance Approval (ECA) issued by MECP. As part of this approval, an Acoustic Assessment Report was prepared to show the facility does not exceed NPC-300 limits at any surrounding sensitive receptor. Currently the Wilmot Woods property is vacant land. As per MECP Noise Guideline, vacant lands zoned for sensitive land uses have to be considered as sensitive receptors in the acoustic assessment. According to the Acoustic Assessment report prepared for Riverside as part of their ECA process, sound levels were measured at the POR on the Wilmot Woods property closest to the Riverside property. The receptor is shown as L3/POR3 in Figure 9. The maximum sound level measured at this location, including impulsive sound, is 45 dBA during daytime which is below MECP limit as shown in Table 9. Based on the sound levels measured at L3/POR3, no adverse noise effect is expected on the proposed residential development from operations at Riverside's facility.

6.2 Don J. Pestell Limited

Several operations are located on Don J. Pestell Limited property and were assessed together (Pestell). Pestell Pet Products manufactures small animal bedding and cat litter products. Pestell Minerals & Ingredients is a distributor of minerals, feed ingredients, additives, fertilizers, nutrients and salts for the animal feed and the agricultural industry. There are wood shaving and transport operations happening at this location as well. The wood shavings operation receives wood chips through transport trucks. According to the EASR, the wood shavings are stored in holding bins from which they are transported to the packaging equipment. The transport operation provides trucking transportation within Pestell and for other unrelated customers. It also consists of a maintenance station for trucks and other vehicles.

Pestell has registered their facility under Air Emissions Environmental Activity and Sector Registry (EASR). In order to be eligible for this registration, facility has to show that their noise emissions at surrounding sensitive points of reception are below NPC-300 limits. Based on the Acoustic Summary Table submitted as part of the EASR process, Pestell has also assessed their noise levels north of facility. NR7 was placed on "NSA to the north (Façade)" which is Noise Sensitive Area and based on the surrounding zoning should correspond with the Wilmot Woods property. It is not possible to confirm the exact location of this POR as this information was not provided in the Acoustic Assessment table.

Typically, if the area of vacant lot is greater than 1 ha, the area of the vacant lot for noise assessment should be considered limited to 1 ha. This 1-hectare portion of the vacant lot should be consistent with the existing zoning by-law, the typical building pattern in the area and an appropriate or likely future use of the vacant lot.

Assuming a typical approach where the 1 ha area is limited to the area closest to noise source, this area would be contained within the wood lot on the Wilmot Woods property. The woodlot is proposed to be protected and will not be developed for residential purposes. The woodlot is outside of the limits of the draft plan and may be conveyed to the Township for long-term environmental stewardship. The predicted sound levels at this location are 38 dBA, 37 dBA, and 34 dBA for daytime, evening, and nighttime, respectively. All predicted values are well below the MECP limits for a Class 2 area as shown in Table 9.

Since the exact location of NR7 is not known (although the likely location is shown in Figure 9), it is possible that it might be located further away to the north on the Wilmot Woods property. However, even assuming this receptor is located as an extension of Ingold Avenue, sound levels at the southern dwelling's property would be about 44 dBA, 43 dBA, and 40 dBA for daytime, evening, and nighttime, respectively (halving the distance between the source and the receptor increases sound levels by 6 dB).

Based on Acoustic Summary Table prepared for Pestell, sound levels predicted north of this operation are below the applicable criteria; therefore, no adverse noise effect is expected from operations at Pestell's facility on the proposed development

6.3 Nachurs Alpine Solutions Inc.

Nachurs Alpine Solutions Inc. (Alpine) is a liquid fertilizer manufacturing facility. They received raw material and produce various formulations of liquid fertilizer.

Alpine has an ECA, which obligates them to show that sound levels at the nearest sensitive PORs in all directions are below the limits during any time of the day. As in case with Riverside, Alpine has included a representative POR on a vacant Wilmot Woods property. The representative POR3 is located in the most western corner of the property and is within the shortest separation distance to Alpine (See Figure 9). Based on the Acoustic Assessment Summary Table, the maximum sound level predicted at POR4 is 44 dBA (See Table 9), which is below the applicable criteria; therefore, no adverse noise effect is expected from operations at Alpine's facility on the proposed development.

6.4 Predicted External Steady State Stationary Sound Levels

Therefore, as the applicable sound level criteria can be determined to be met as seen from the existing approved ECAs and EASRs for all external stationary noise sources.

7.0 Impulsive Stationary Noise Impact Assessment

Nearby businesses with spur lines have impulsive noise sources from rail car coupling. The most impulses that can occur during any one hour from one site is two. Therefore,

the criteria is 75 dBA during the daytime at OLAs, and 75 dBA during the daytime and 70 dBA during the night-time at plane of window receptors.

7.1 Don J. Pestell Limited.

Several operations are located on Don J. Pestell Limited property and were assessed together (Pestell). Pestell Pet Products manufactures small animal bedding and cat litter products. Pestell Minerals & Ingredients is a distributor of minerals, feed ingredients, additives, fertilizers, nutrients and salts for the animal feed and the agricultural industry. The spur line is located on the northeast side of the property. One pick up or drop off of rail cars is the maximum logistically possible use of the spur line. In this case two impulses per hour, at any time of day, is the maximum worse case impact. This source is represented by EX001; a point source with an assumed sound power of 118 dBAi. The location of this source is shown in Figure 12.

7.2 Nachurs Alpine Solutions Inc.

Nachurs Alpine Solutions Inc. (Alpine) is a liquid fertilizer manufacturing facility. They received raw material and produce various formulations of liquid fertilizer. The spur line is located on the west side of the property. One pick up or drop off of rail cars is the maximum logistically possible use of the spur line. In this case two impulses per hour, at any time of day, is the maximum worse case impact. This is represented by EX002; a point source with an assumed sound power of 118 dBAi. The location of this source is shown in Figure 12.

7.3 Predicted Impulsive External Stationary Sound Levels

The predicted impulsive external stationary sound levels are shown in Table 10. The impulsive noise contours are shown in Figure 12. The impulsive noise criteria are not exceeded at any receptors therefore no impulsive noise mitigation is required.

Normally, the assessment would be done for each facility; however, since the combined impact of both facilities together shows compliance, the individual contribution of each will also show compliance.

8.0 Noise Mitigation Measures

Based on the predicted sound levels it was determined that noise mitigation measures are required for some blocks within this Residential Subdivision Development. The required measures are summarized in Table 8.

8.1 Ventilation Requirements

The following blocks are required to have provision for air conditioning and warning clause Type C.

Stage 1:
Blocks: 12 and 13

Stage 4:
Blocks: 6

Stage 5:
Blocks: 1, 2, 3, 4, and 7

All other blocks do not have any ventilation requirements. These mitigation requirements are presented in Figure 11.

8.2 Acoustic Barrier Requirements

The following blocks require an acoustic barrier or warning clause Type A. Acoustic barriers are the preferred option. The barrier locations are shown in Figure 4.

Blocks: 2, and 7

8.3 Railway Requirements

As the proposed development is located within 300 m of a CN Railway right of way the following warning clause must be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit:

> *"Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or*

claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way."

8.4 STC Requirements

All blocks in the proposed development will achieve the minimum MECP indoor sound levels by incorporating standard requirements for the exterior walls as per the Ontario Building Code. The windows required to meet the minimum MECP indoor sound level are of a commonly available STC rating. Minimum ratings for windows are discussed in Section 4.4. The following dwellings are required to have windows with a minimum STC of 29 unless further detailed analysis is conducted. The minimum requirement for exterior doors for the same dwellings is STC 26.

Stage 1:
Blocks: 11, 12, 13 and 14

Stage 4:
Blocks: 4, 5, and 6

Stage 5:
Blocks: 1, 2, 3, 4, 7, and 9

The following dwellings require EW5 brick veneer or masonry equivalent exterior cladding.

Stage 1:
Blocks: 12 and 13

Stage 4:
Blocks: 6

Stage 5:
Blocks: 1, 2, 3, and 7

8.5 External Stationary Noise Mitigation Requirements

The assessment of the nearby stationary noise sources to the proposed Wilmot Woods Development determined that the cumulative impact of all stationary sources complied with the applicable MECP noise standards without mitigation.

9.0 Vibration Impacts

The proposed Wilmot Woods Development Residential Subdivision Development is located in close proximity to CN's Guelph Subdivision line. Burnside undertook vibration measurements at six locations. Measurements were taken for a period of roughly two weeks beginning on May 17, 2021. Using a motion triggered camera with a view of the railway five freight passby vibration measurements were confirmed for each of the six measurement locations.

It is worth noting that the document "Guidelines for New Development in Proximity to Railway Operations" acknowledge that "Vibration is more difficult to predict and mitigate than noise and there is no universally accepted method of measurement or applicable guidelines."

The vibration data was collected in Peak Particle Velocity (PPV) and was converted to PPV Root Mean Squared (RMS) in post processing. The observed maximum PPV RMS values are presented in Table 11 for the vertical axis and Table 12 for all axes. Originally, Burnside presented analysis considering all three axes of vibration. However, per comments from CN the analysis has been limited to the vertical axis only. Analysis of the vertical axis only data lead to the data at locations 1, 2, and 3 being determined unreliable. This determination was made because higher vibration levels were measured further from the rail line within this set of three measurements. Measurement locations 4, 5, and 6 had a normal distribution. Therefore, it was determined that relying on these measurement locations was more sensible.

The processed vibration data for the periods that these maximum PPV RMS vibration levels were observed are included in Appendix F. In the interest of transparency, the discarded data from locations 1, 2 and 3 are still shown.

Standard vibration mitigation measures are required if vibration levels above 0.14 mm/s PPV RMS are experienced. Custom vibration mitigation measures are required if vibration levels are above 0.20 mm/s PPV RMS. None of the vertical axis measurements exceeded 0.14 mm/s. Therefore, if CN's request to consider only the vertical axis of vibration is strictly followed no dwellings in the subject development would have any vibration mitigation requirements. Given Burnside is aware of the results from the other two major axis of vibration, specifying no vibration mitigation for this development would be inappropriate and unethical. Burnside therefore requires that the vibration mitigation requirements determined from the original three axis analysis be implemented for the development. This can be interpreted by CN as a voluntary inclusion of additional controls beyond the minimum requirements of CN.

As the exact location of dwelling footprints are not known at this time the mitigation requirements have been determined based on the distance from the rail right of way and the distance from the vibration monitor locations. This data is presented in Table 14 and

shown on the proposed Site Plan in Figure 8. To complete CNs request the data and hypothetical conclusions for a vertical axis only analysis are presented in Table 13.

10.0 Discussion of Draft Plan Alternatives

The Draft Plan was specifically designed with the intent of reducing noise and vibration mitigation measures. A pre-site plan noise analysis letter and a pre-site plan vibration analysis letter were prepared to inform the design process for the draft plan. These analysis letters are provided in Appendix H.

The draft plan underwent various revisions to arrive at the present design. The changes were the result of discussions on how to optimize the site for efficiency of housing units and minimization of the impacts of noise and vibration mitigation measures. Avoiding a berm with a large footprint was a top concern. Preserving the views of the planned trail system and natural forest for the future residents was also a priority.

The Stage 5 area of the development was changed to have the first row of houses front onto a half-loaded street. This arrangement protected the back yards from the railway noise with the dwellings themselves. Furthermore, the presence of the street closest to the rail provided additional distance setback from the railway which also helped to move more future dwellings out of areas which would require custom vibration mitigation design.

For reference, past draft plans (prepared for discussion only) that were considered during the design process can be found in Appendix I. The history of the design iteration can be seen between those concepts and the preferred design prepared for this application in Figure 2.

11.0 Implementation Procedures

The following implementation procedures are recommended to ensure that each requirement of this study is implemented at the correct stage of the development process. The implementation procedures can be included as conditions of Draft Plan Approval:

- Assessment requires proposed building locations and a proposed grading plan to be finalized. The recommendations of this Environmental Noise Feasibility Assessment are preliminary estimates to ensure the viability of the proposed development. A Detailed Environmental Noise Assessment will finalize most of the acoustic requirements for the development.
- Although air conditioning was not required for this development, prior to Issuance of Building Permit, an Acoustical Consultant should be retained to assess or determine the locations and Bel ratings of any developer installed air conditioning units for compliance with NPC-216. Improperly installed air conditioning units can result in being required to install acoustic jackets, relocate or fully replace any noncomplying units.
- Prior to occupancy, the development should be certified by a qualified Acoustics Engineer for compliance with the requirements of the Detailed Environmental Noise Assessment.

12.0 Conclusion

The results of Wilmot Woods Development Residential Subdivision Development Environmental Noise and Vibration Feasibility Assessment demonstrate that if all noise mitigation measures prescribed in Table 8 are implemented, sound levels at all developed lots will meet the Ministry of the Environment, Conservation and Parks noise guideline requirements. The Implementation Procedures as outlined in Section 11.0 should be followed carefully to ensure that no requirements of the noise study are overlooked during the development and construction process.

13.0 References

Computer Program STAMSON Version 5.04. Ministry of the Environment, Conservation and Parks.

Controlling Sound Transmission into Buildings by J.D. Quirt. National Research Council Canada, September 1985.

Environmental Noise Guideline. Stationary and Transportation Sources – Approval and Planning. Publication NPC-300. Ministry of the Environment, Conservation and Parks, August 2013 (released October 21, 2013).

Residential Air Conditioning Devices. Publication NPC-216. Ministry of the Environment Conservation and Parks, 1993.

Ontario Building Code. Ministry of Municipal Affairs and Housing, 2012.

Regional Municipality of Waterloo, Implementation Guideline for Noise Policies, Jul 14,1999. Updated October 22, 2019.

ORNAMENT – Ontario Road Noise Analysis Method for Environment and Transportation. Technical Document. Ministry of the Environment, Conservation and Parks, October 1989.

STEAM – Sound from Trains Environmental Analysis Method. Ministry of the Environment, Conservation and Parks, July 1990.

Principal Main Line Requirements. Canadian National. June 2008

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Tables

Table 1: Road Traffic Data

Road	Waterloo Street
Location	East of Street 2
Current Peak Hourly	-
“Current” Daily Traffic	7,540
“Current” Year	2018
Assumed Growth Rate	2.5%
"Future" Year	2031
10-Year Daily Traffic[1]	15,400
No. of Lanes	2
Posted Speed	50 km/h
% Heavy Trucks	5%
% Medium Trucks	5%
Day/Night Split	90%/10%

[1] Traffic growth Formula:

$$Future\ traffic = Present\ Traffic * (1 + growth\ \%)^{Years}$$

Table 2: Rail Traffic Data

Rail	CN Guelph Subdivision Line
Location	West of Nafziger Road
Current Daily Passenger Traffic	3
“Current” Daily Way Freight Traffic	4
“Current” Year	2021
Assumed Growth Rate	2.5%
"Future" Year	2033
10-Year Daily PassengerTraffic1	4.0
10-Year Daily Way Freight Traffic	5.4
Max Speed	55 mph * 1.60934 km/mile = 89 km/h Way Freight 70 mph * 1.60934 km/mile = 113 km/h Passenger
Locomotives	Max 4 Way Freight / Max 2 Passenger
# of Cars	Max 25 Way Freight / Max 10 Passenger

Table 3: 10-year Predicted Road Traffic Volumes

Road	Maximum AADT Traffic			
	Total	# of Light Vehicles	# of Medium Trucks	# of Heavy Trucks
Waterloo Street	15,400	13,860	770	770

Table 4: 10-year Predicted Rail Traffic Volumes

Rail	Maximum Traffic		
	Total	# of Way Freight	# of Passenger
CN's Guelph Subdivision Line	9.4	5.4	4.0

All rail traffic occurs during the daytime hours (0700-2300)

Table 5: Predicted Sound Levels for the Forecasted 10-Year Traffic Volumes

Stage	Block #	Area	Source	Distance (m)	Predicted Sound Levels (dBA)	
					Daytime	Nighttime
1	18	POW	Road	322	44	38
		OLA	Road	329	43	-
4	3	POW	Rail	198	53	-
4	4	POW	Rail	172	55	-
4	6	POW	Rail	100	56	-
		OLA	Rail	97	55	-
5	1	POW	Rail	164	49	-
		OLA	Rail	161	48	-
5	2	POW	Rail	48	63	-
		OLA	Rail	48	60	-
5	4	POW	Rail	99	55	-
5	5	POW	Rail	152	52	-

Notes:

- Outdoor Living Area (OLA) points of assessment were taken:
  - 3 m from the building façade
  - 1.5 m above grade
  - aligned with the midpoint of the subject façade
- Plane of Window (PofW) points of assessment were taken:
  - at the building façade
  - 4.5 m above grade

Table 6: Predicted Daytime OLA Sound Levels Including Noise Mitigation Measures

Stage	Block	Barrier Heights (m)	Predicted Sound Levels (dBA)
		Limit:	55
5	2	2.4	55

Table 7: Acoustic Barrier Height Alternatives

Receptor		Unmitigated Sound Level (dBA)	Required Barrier Height (m) to Achieve[5]:						Burnside Barrier Height Recommendation (m)
Stage	Block		60 dBA	59 dBA	58 dBA	57 dBA	56 dBA	55 dBA	
5	2	60	-	-	-	-	2.0	2.4	2.4

[5] Barrier heights reviewed in 0.2 m increments starting at 1.0 m for parapets and 2.0 m for ground level acoustic barriers.

Table 8: Minimum Noise Mitigation Measures

Stage	Block	Air Conditioning[1]	Exterior Wall[2]	Window STC Rating[2]	Acoustic Barrier Height (m)[3]	Warning Clause[4]
1	1 to 10	No Requirement	standard	standard	-	-
1	11	Provision for Air Conditioning	standard	standard	-	C
1	12 to 13	Provision for Air Conditioning	EW5 Brick or masonry equivalent	standard	-	A, C
1	14	Provision for Air Conditioning	standard	standard	-	C
1	15 to 18	No Requirement	standard	standard	-	-
2	1 to 5	No Requirement	standard	standard	-	-
3	1 to 5	No Requirement	standard	standard	-	-
4	1 to 3	No Requirement	standard	standard	-	-
4	4 and 5	Provision for Air Conditioning	standard	standard	-	C
4	6	Provision for Air Conditioning	EW5 Brick or masonry equivalent	standard	-	A, C
5	1	Provision for Air Conditioning	EW5 Brick or masonry equivalent	standard	-	A, C
5	2	Provision for Air Conditioning	EW5 Brick or masonry equivalent	standard	2.4	A, C
5	3	Provision for Air Conditioning	EW5 Brick or masonry equivalent	standard	-	A, C
5	4	Provision for Air Conditioning	standard	standard	-	C
5	5 and 6	No Requirement	standard	standard	-	-
5	7	Provision for Air Conditioning	EW5 Brick or masonry equivalent	standard	2.4	A, C
5	8	No Requirement	standard	standard	-	-
5	9	Provision for Air Conditioning	standard	standard	-	C

Notes:

[1] "Provision for Air Conditioning" means that building must be built so that the occupant can install conditioning in the future, at their discretion. Required means that the building must be built with central air conditioning installed.

[4] Notification to potential purchaser of a potential annoyance due to an existing source of environmental noise. Warning clauses should be included in agreements of Offers of Purchase and Sale.

[5] An acoustic barrier is optional and if not installed, prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type

Table 9: Sound Levels from Steady State Stationary Sources

Receptor ID	Location	Sound Levels, dBA		
		Daytime	Evening	Nighttime
	Limit:	50	50	45
L3/POR3[1]	SW	45	-	-
NR7[2]	SE	38	37	34
POR3[3]	SE	44	44	44
1 Acoustic Assessment for Riverside Brass & Aluminum Foundry				
2 Acoustic Assessment for Don J. Pestell Limited				
3 Acoustic Assessment for Nachurs Alpine Solutions Inc.				

Table 10: Sound Levels from Impulsive Stationary Sources

Receptor ID	Location	Sound Levels, dBA		
		Daytime	Evening	Nighttime
	Limit:	75	75	70
POR01	Stage 5 – Block 7	56	56	56
POR02	Stage 4 – Block 6	57	57	57
OPOR1	Stage 5 – Block 7	53	53	-
OPOR2	Stage 4 – Block 6	55	55	-

Table 11: Vibration Measurement Results – Vertical Axis

Location	Distance from R.O.W. (m)	Maximum (mm/s PPV RMS)	Average of Peaks per passby (mm/s PPV RMS)	99th Percentile (mm/s PPV RMS)
1	40	0.084	0.0748	0.792
2	90	0.131	0.0863	0.139
3	140	0.161	0.0974	0.140
4	40	0.128	0.107	0.124
5	90	0.097	0.0882	0.095
6	140	0.054	0.0428	0.0415

Green – Valid Data
Red – Invalid Data

Table 12: Vibration Measurement Results – All Axis

Location	Distance from R.O.W. (m)	Maximum (mm/s PPV RMS)	Average of Peaks per passby (mm/s PPV RMS)	99th Percentile (mm/s PPV RMS)
1	40	0.123	0.108	0.113
2	90	0.170	0.107	0.130
3	140	0.161	0.097	0.124
4	40	0.300	0.198	0.250
5	90	0.131	0.100	0.121
6	140	0.136	0.092	0.105

Table 13: Detailed Vibration Estimates - Vertical Axis

Distance East of Locations 4,5 & 6	0 m
Distance from rail (m)	Estimated Maximum Vibration Impact Level (mm/s PPV RMS) – from 99th percentile data
40	0.124
50	0.118
60	0.112
70	0.107
80	0.101
90	0.095
100	0.0811
110	0.0703
120	0.0617
130	0.0547
140	0.0415

	No Vibration Mitigation
	Standard Vibration Mitigation
	Custom Vibration Mitigation

Note: The mitigation conclusions from Table 12 rare required to be implemented per discussion in Section 8.0. The data is shown here for the vertical axis only to comply with CN's request to see the analysis for the vertical axis only.

Table 14: Detailed Vibration Estimates – All Axis

Distance West of Locations 1,2 & 3	0	10	20	30	40	50	60	70	80	90	100	110	120	130
Distance from rail (m)	Estimated Maximum Vibration Impact Level (mm/s PPV RMS) – from 99th percentile data													
40	0.293	0.289	0.286	0.283	0.279	0.276	0.273	0.270	0.266	0.263	0.260	0.257	0.253	0.250[6]
50	0.234	0.231	0.229	0.226	0.224	0.221	0.218	0.216	0.213	0.210	0.208	0.205	0.203	0.200
60	0.195	0.193	0.191	0.188	0.186	0.184	0.182	0.180	0.178	0.175	0.173	0.171	0.169	0.167
70	0.167	0.165	0.163	0.162	0.160	0.158	0.156	0.154	0.152	0.150	0.148	0.147	0.145	0.143
80	0.146	0.145	0.143	0.141	0.140	0.138	0.136	0.135	0.133	0.132	0.130	0.128	0.127	0.125
90	0.130[1]	0.129	0.129	0.128	0.127	0.127	0.126	0.125	0.124	0.124	0.123	0.122	0.122	0.121[1]
100	0.117	0.116	0.116	0.115	0.115	0.114	0.113	0.113	0.112	0.111	0.111	0.110	0.110	0.109
110	0.106	0.106	0.105	0.105	0.104	0.104	0.103	0.102	0.102	0.101	0.101	0.100	0.100	0.099
120	0.098	0.097	0.096	0.096	0.095	0.095	0.094	0.094	0.093	0.093	0.092	0.092	0.091	0.091
130	0.090	0.090	0.089	0.089	0.088	0.088	0.087	0.087	0.086	0.086	0.085	0.085	0.084	0.084
140	0.124[1]	0.123	0.121	0.120	0.118	0.117	0.115	0.114	0.113	0.111	0.110	0.108	0.107	0.105[1]

	No Vibration Mitigation
	Standard Vibration Mitigation
	Custom Vibration Mitigation

[6] Indicates actual field measurement.

Warning Clauses - Transportation Sources

Type A

"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

Type B

"Purchasers/tenants are advised that despite the inclusion of noise mitigation features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

Type C

"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

Type D

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

Warning Clauses - Stationary Sources

Type E

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

Warning Clauses – Class 4 Area Notification

Type F

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

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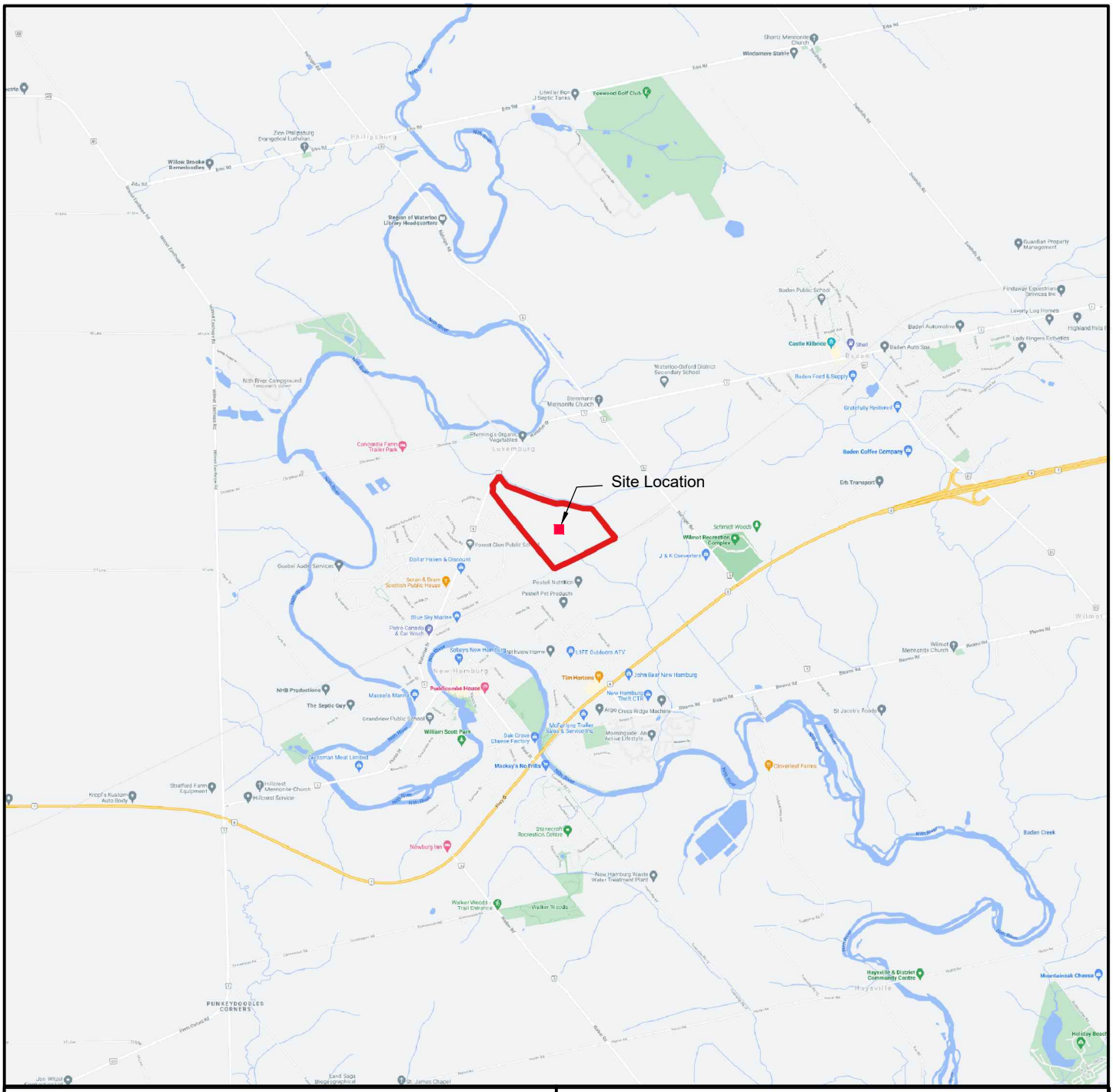
Figures



KEY MAP OF ONTARIO

BURNSIDE

Client

Wilmot Woods Development Inc.

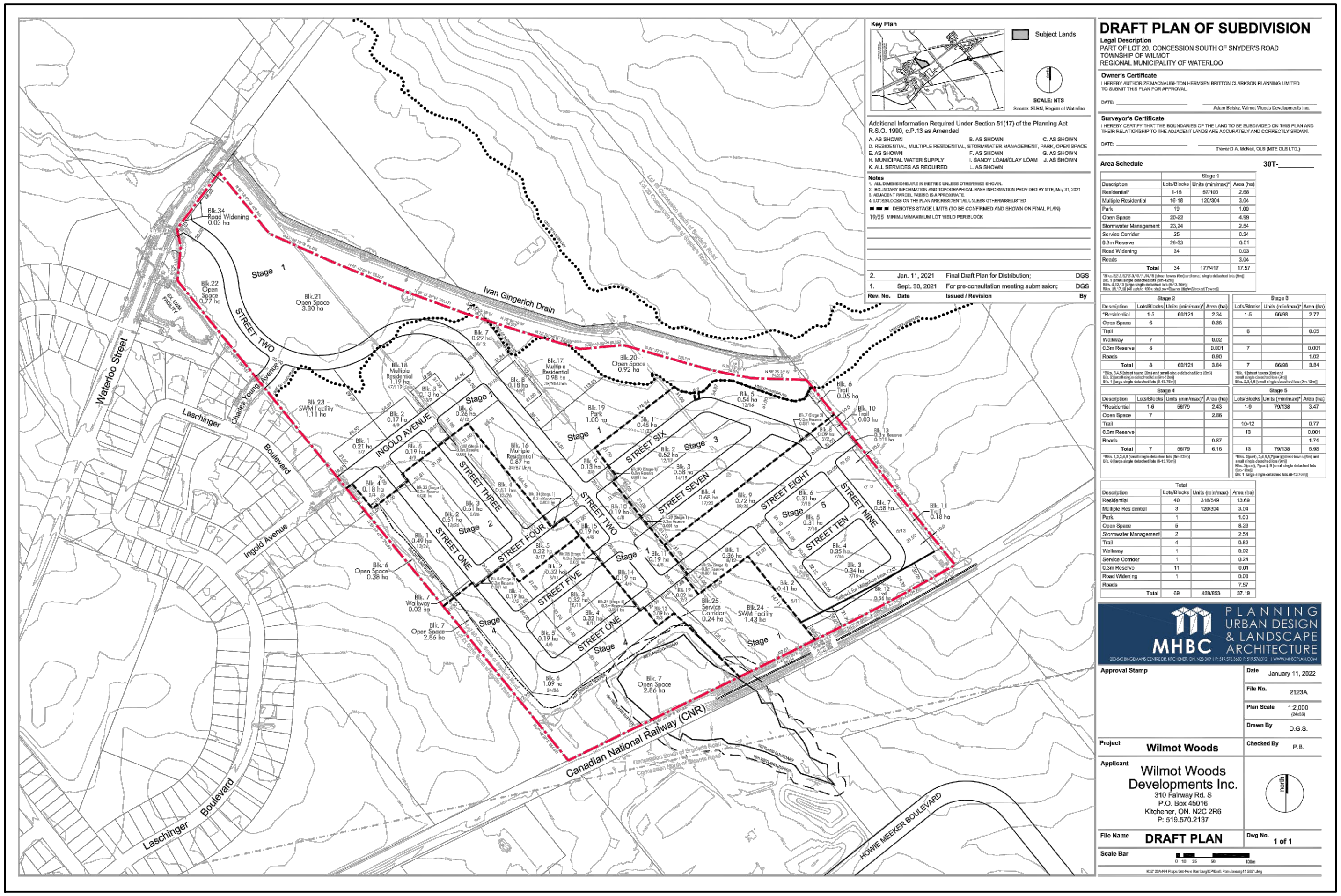
Figure Title

Site Location Map

Environmental Noise Feasibility Assessment

Drawn	Checked	Date	Figure No.
BM	HW	January 2022	1
Scale		Project No.	
1:50,000		300040085.0000	

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: January 14, 2022 - 2:32 PM



Key Plan

Subject Lands

SCALE: NTS

Source: SLRN, Region of Waterloo

Additional Information Required Under Section 51(17) of the Planning Act R.S.O. 1990, c.P.13 as Amended

A. AS SHOWN B. AS SHOWN C. AS SHOWN
D. RESIDENTIAL, MULTIPLE RESIDENTIAL, STORMWATER MANAGEMENT, PARK, OPEN SPACE
E. AS SHOWN F. AS SHOWN G. AS SHOWN
H. MUNICIPAL WATER SUPPLY I. SANDY LOAM/CLAY LOAM J. AS SHOWN
K. ALL SERVICES AS REQUIRED L. AS SHOWN

Notes

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. BOUNDARY INFORMATION AND TOPOGRAPHICAL BASE INFORMATION PROVIDED BY MTE, May 31, 2021
3. ADJACENT PARCEL FABRIC IS APPROXIMATE.
4. LOTS/BLOCKS ON THE PLAN ARE RESIDENTIAL UNLESS OTHERWISE LISTED

DENOTES STAGE LIMITS (TO BE CONFIRMED AND SHOWN ON FINAL PLAN)

19/25 MINIMUM/MAXIMUM LOT YIELD PER BLOCK

Rev. No.	Date	Issued / Revision	By
2.	Jan. 11, 2021	Final Draft Plan for Distribution;	DGS
1.	Sept. 30, 2021	For pre-consultation meeting submission;	DGS

DRAFT PLAN OF SUBDIVISION

Legal Description

PART OF LOT 20, CONCESSION SOUTH OF SNYDER'S ROAD
TOWNSHIP OF WILMOT
REGIONAL MUNICIPALITY OF WATERLOO

Owner's Certificate

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: ____________ Adam Belsky, Wilmot Woods Developments Inc.

Surveyor's Certificate

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: ____________ Trevor D.A. McNeil, OLS (MTE OLS LTD.)

Area Schedule 30T-________

Stage 1

Description	Lots/Blocks	Units (min/max)*	Area (ha)
Residential*	1-15	57/103	2.68
Multiple Residential	16-18	120/304	3.04
Park	19		1.00
Open Space	20-22		4.99
Stormwater Management	23,24		2.54
Service Corridor	25		0.24
0.3m Reserve	26-33		0.01
Road Widening	34		0.03
Roads			3.04
Total	34	177/417	17.57

*Blks. 2,3,5,6,7,8,9,10,11,14,15 [street towns (6m) and small single detached lots (9m)] Blk. 1 [small single detached lots (9m-12m)] Blks. 4,12,13 [large single detached lots (9-13.76m)] Blks. 16,17,18 [40 uph to 100 uph (Low=Towns High=Stacked Towns)]

Stage 2

Description	Lots/Blocks	Units (min/max)*	Area (ha)
*Residential	1-5	60/121	2.34
Open Space	6		0.38
Trail			
Walkway	7		0.02
0.3m Reserve	8		0.001
Roads			0.90
Total	8	60/121	3.64

*Blks. 3,4,5 [street towns (6m) and small single detached lots (9m)] Blk. 2 [small single detached lots (9m-12m)] Blk. 1 [large single detached lots (9-13.76m)]

Stage 3

Lots/Blocks	Units (min/max)*	Area (ha)
1-5	66/98	2.77
6		0.05
7		0.001
		1.02
7	66/98	3.84

*Blk. 1 [street towns (6m) and small single detached lots (9m)] Blks. 2,3,4,5 [small single detached lots (9m-12m)]

Stage 4

Description	Lots/Blocks	Units (min/max)*	Area (ha)
*Residential	1-6	56/79	2.43
Open Space	7		2.86
Trail			
0.3m Reserve			
Roads			0.87
Total	7	56/79	6.16

*Blks. 1,2,3,4,5 [small single detached lots (9m-12m)] Blk. 6 [large single detached lots (9-13.76m)]

Stage 5

Lots/Blocks	Units (min/max)*	Area (ha)
1-9	79/138	3.47
10-12		0.77
13		0.001
		1.74
13	79/138	5.98

*Blks. 2(part), 3,4,5,6,7(part) [street towns (6m) and small single detached lots (9m)] Blks. 2(part), 7(part), 9 [small single detached lots (9m-12m)] Blk. 1 [large single detached lots (9-13.76m)]

Total

Description	Lots/Blocks	Units (min/max)	Area (ha)
Residential	40	318/549	13.69
Multiple Residential	3	120/304	3.04
Park	1		1.00
Open Space	5		8.23
Stormwater Management	2		2.54
Trail	4		0.82
Walkway	1		0.02
Service Corridor	1		0.24
0.3m Reserve	11		0.01
Road Widening	1		0.03
Roads			7.57
Total	69	438/853	37.19

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

200-540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3X9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date: January 11, 2022
File No.: 2123A
Plan Scale: 1:2,000 (24x36)
Drawn By: D.G.S.
Checked By: P.B.

Project: **Wilmot Woods**

Applicant: Wilmot Woods Developments Inc.
310 Fairway Rd. S
P.O. Box 45016
Kitchener, ON. N2C 2R6
P: 519.570.2137

File Name: **DRAFT PLAN**
Dwg No.: 1 of 1

Scale Bar: 0 10 25 50 100m

K:\2123A-NH Properties-New Hamburg\DP\Draft Plan January11 2021.dwg

BURNSIDE

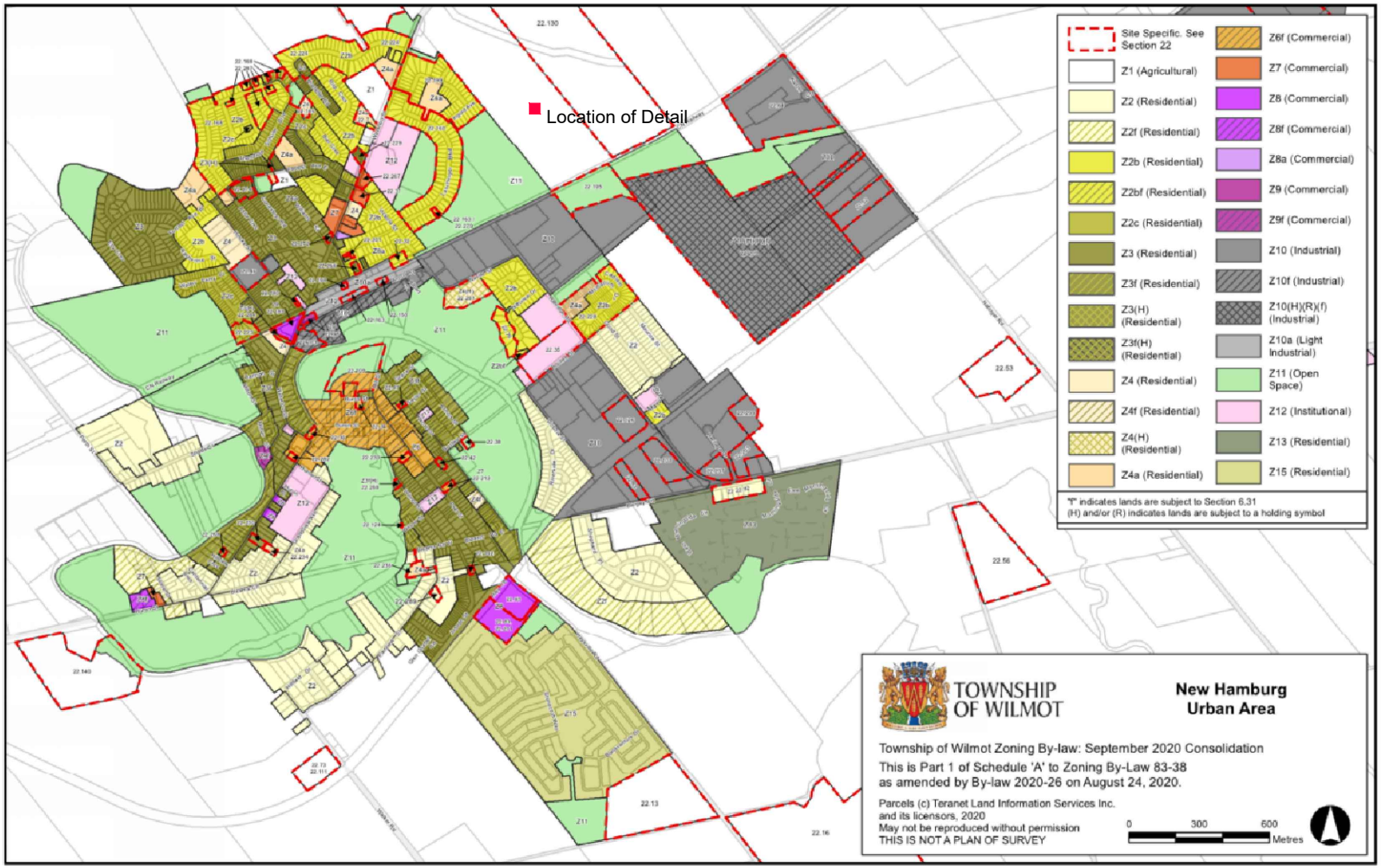
Figure Title

Site Plan

Detailed Environmental Noise Assessment

Client	Drawn	Checked	Date	Figure No.
Wilmot Woods Development Inc.	BM	HW	January 2022	2
	Scale: N/A		Project No.: 300040085.0200	

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: January 14, 2



BURNSIDE

Figure Title

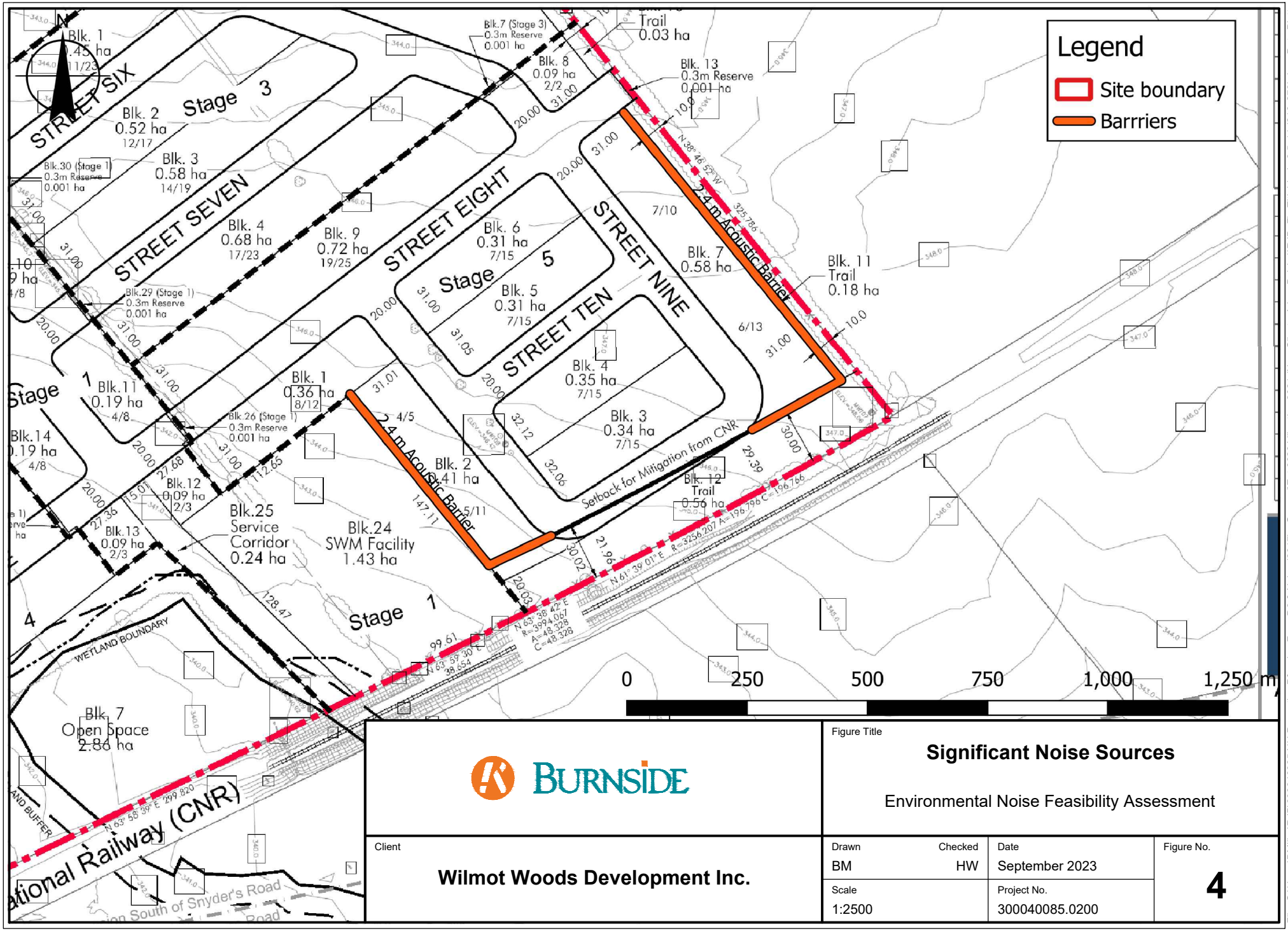
Zoning Map

Environmental Noise Feasibility Assessment

Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	November 2021	**3**
Scale		Project No.	
N/A		300040085.0000	



BURNSIDE

Figure Title

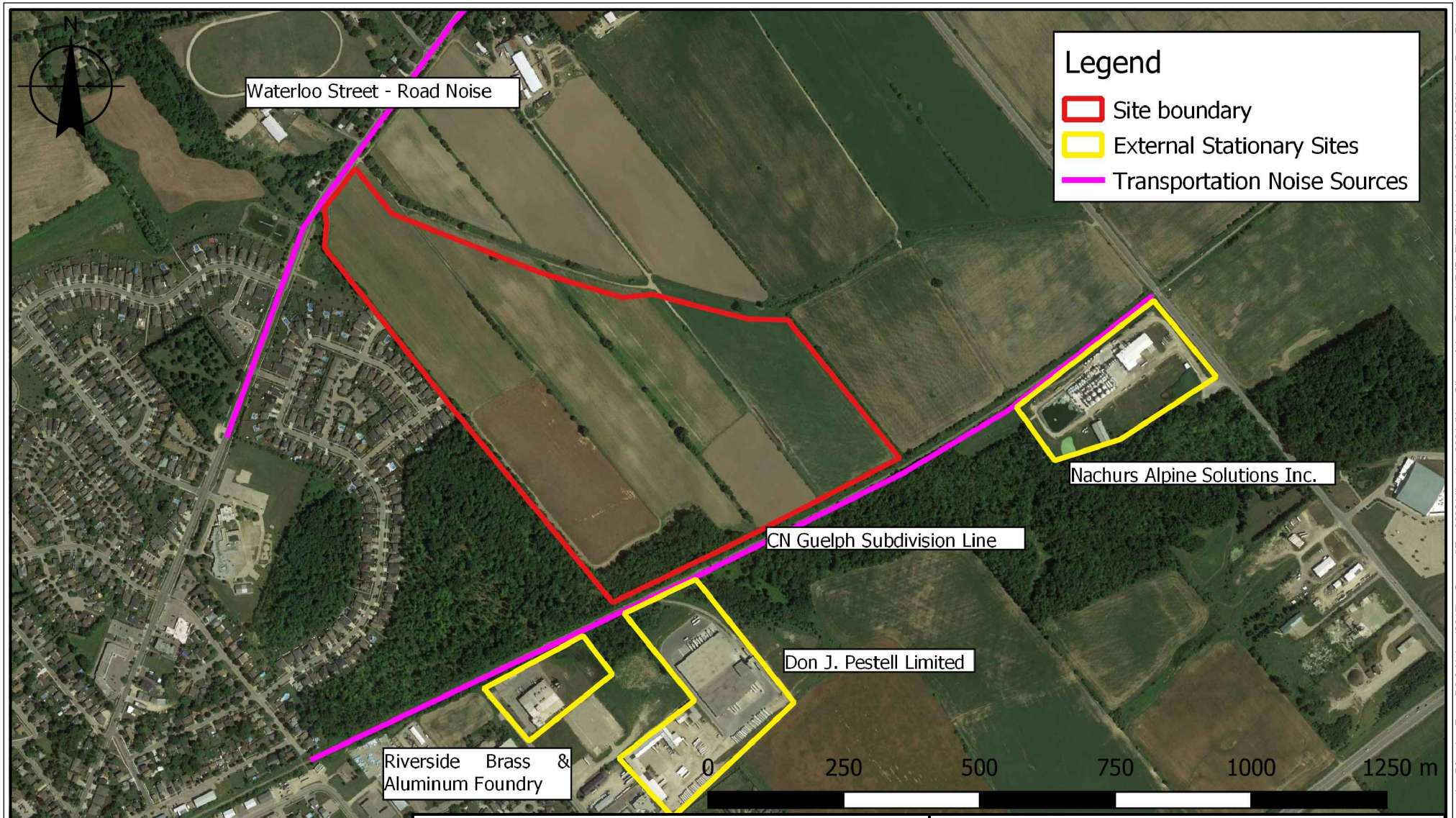
Significant Noise Sources

Environmental Noise Feasibility Assessment

Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	September 2023	**4**
Scale		Project No.	
1:2500		300040085.0200	



BURNSIDE

Figure Title

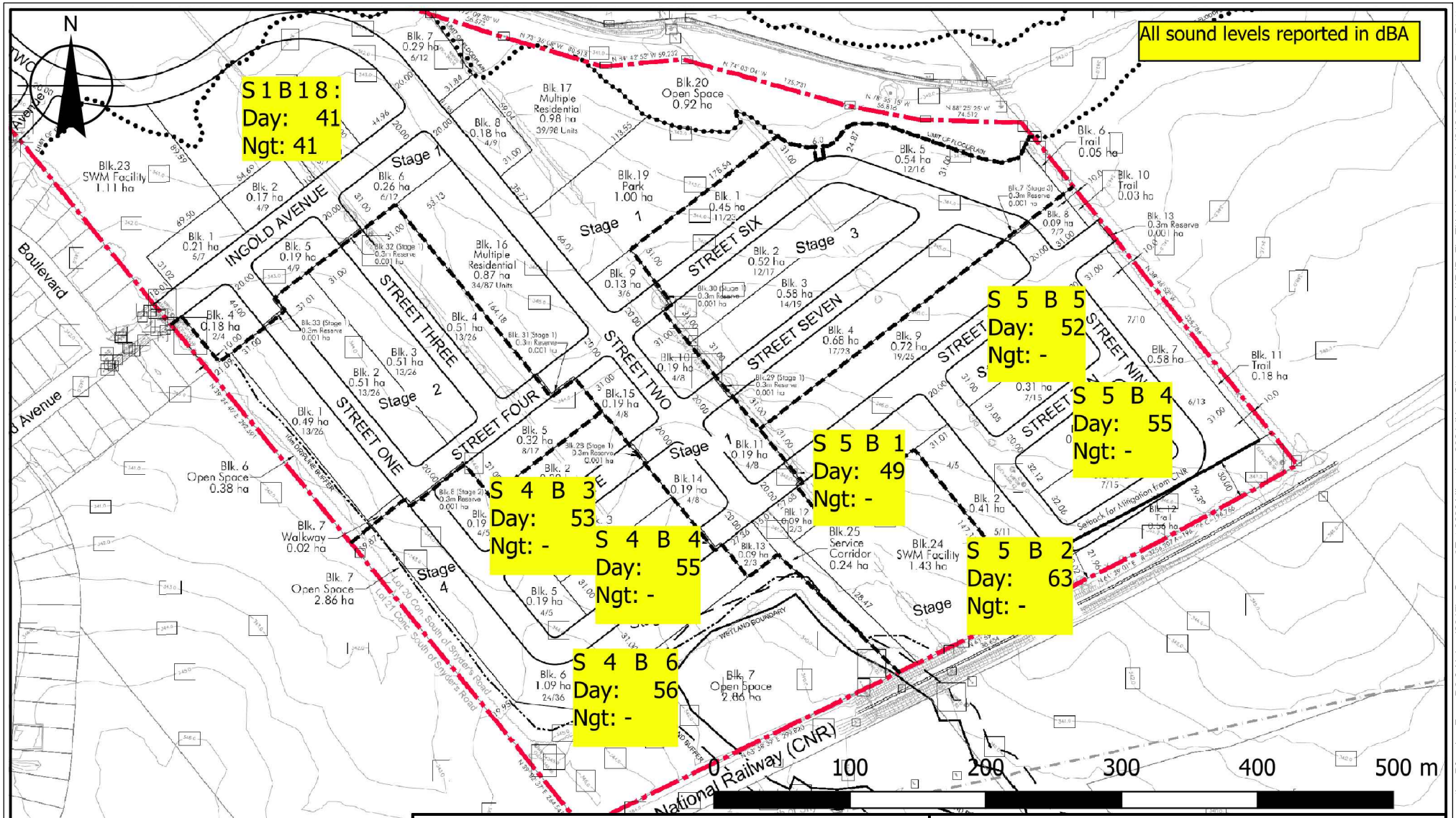
Significant Noise Sources

Environmental Noise Feasibility Assessment

Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	January 2022	**5**
Scale		Project No.	
1:10000		300040085.0200	



BURNSIDE

Figure Title

Plane of Window / Indoor Noise Level Summary

Environmental Noise Feasibility Assessment

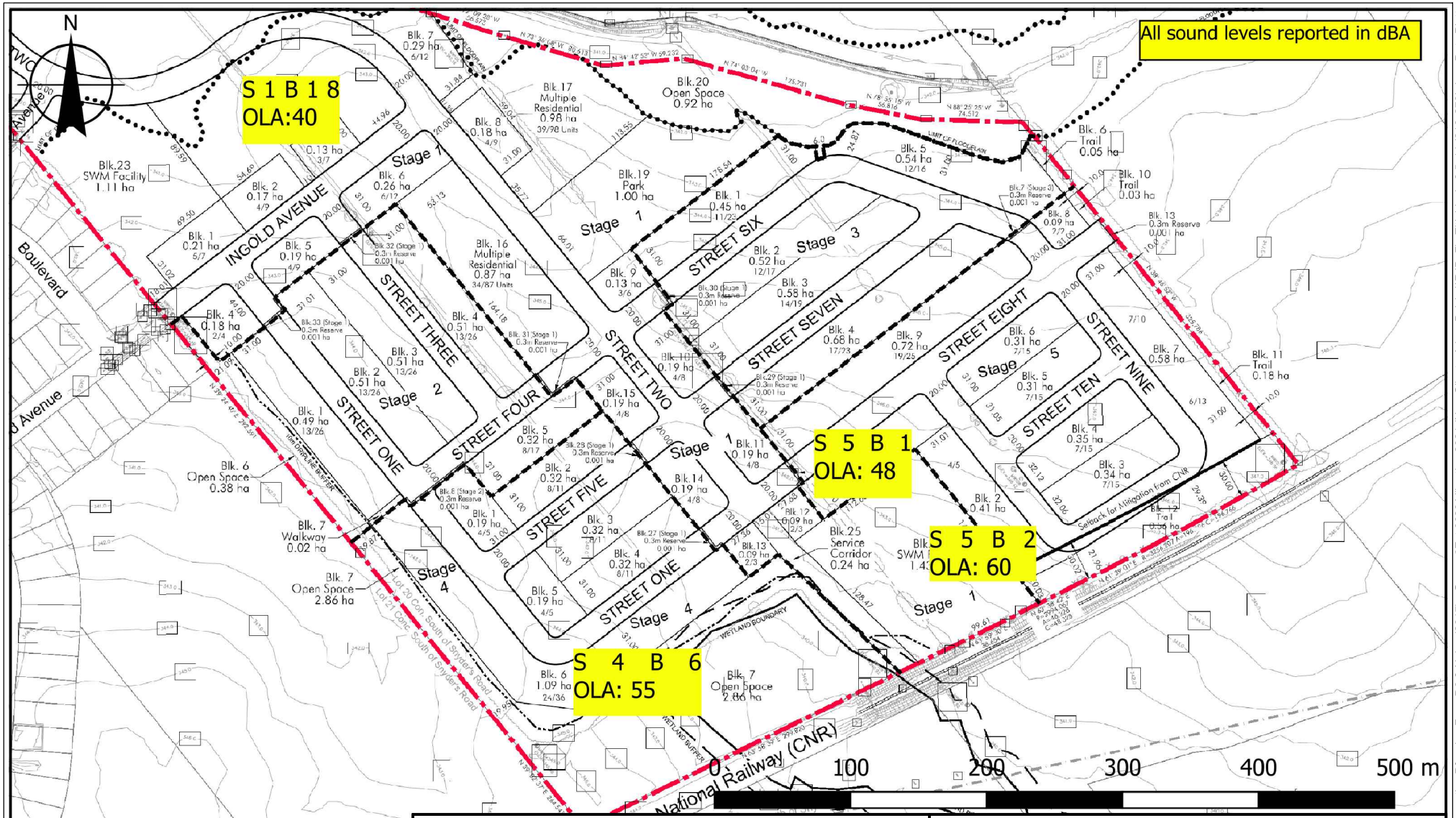
Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	September 2023	6

Scale	Project No.
1:4000	300040085.0200

File: C:\Users\BMillen\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: September 25



BURNSIDE

Figure Title

Outdoor Living Area Noise Level Summary

Environmental Noise Feasibility Assessment

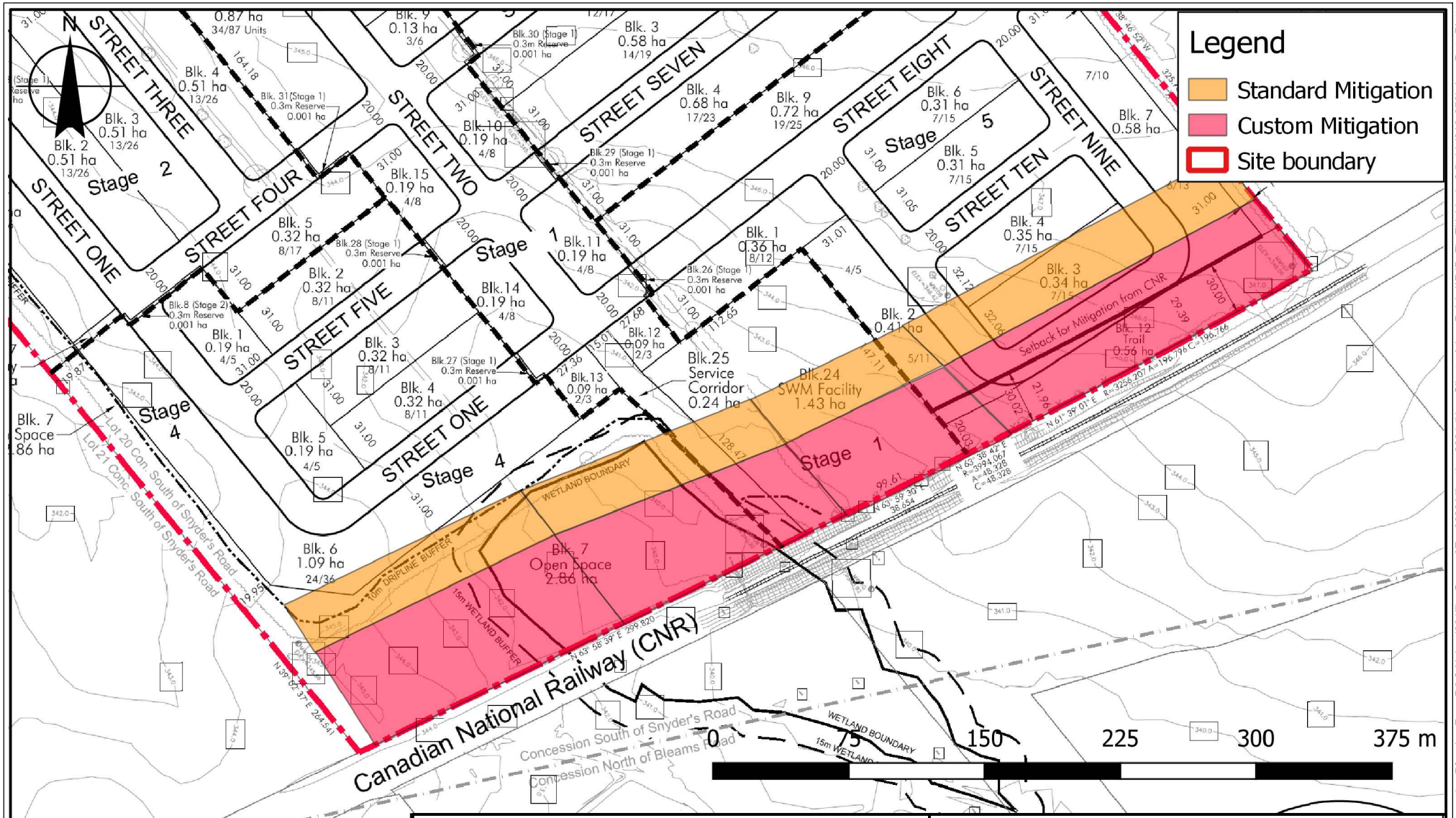
Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	September 2023	7

Scale	Project No.
1:4000	300040085.0200

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: September 25



BURNSIDE

Figure Title

Vibration Mitigation Locations

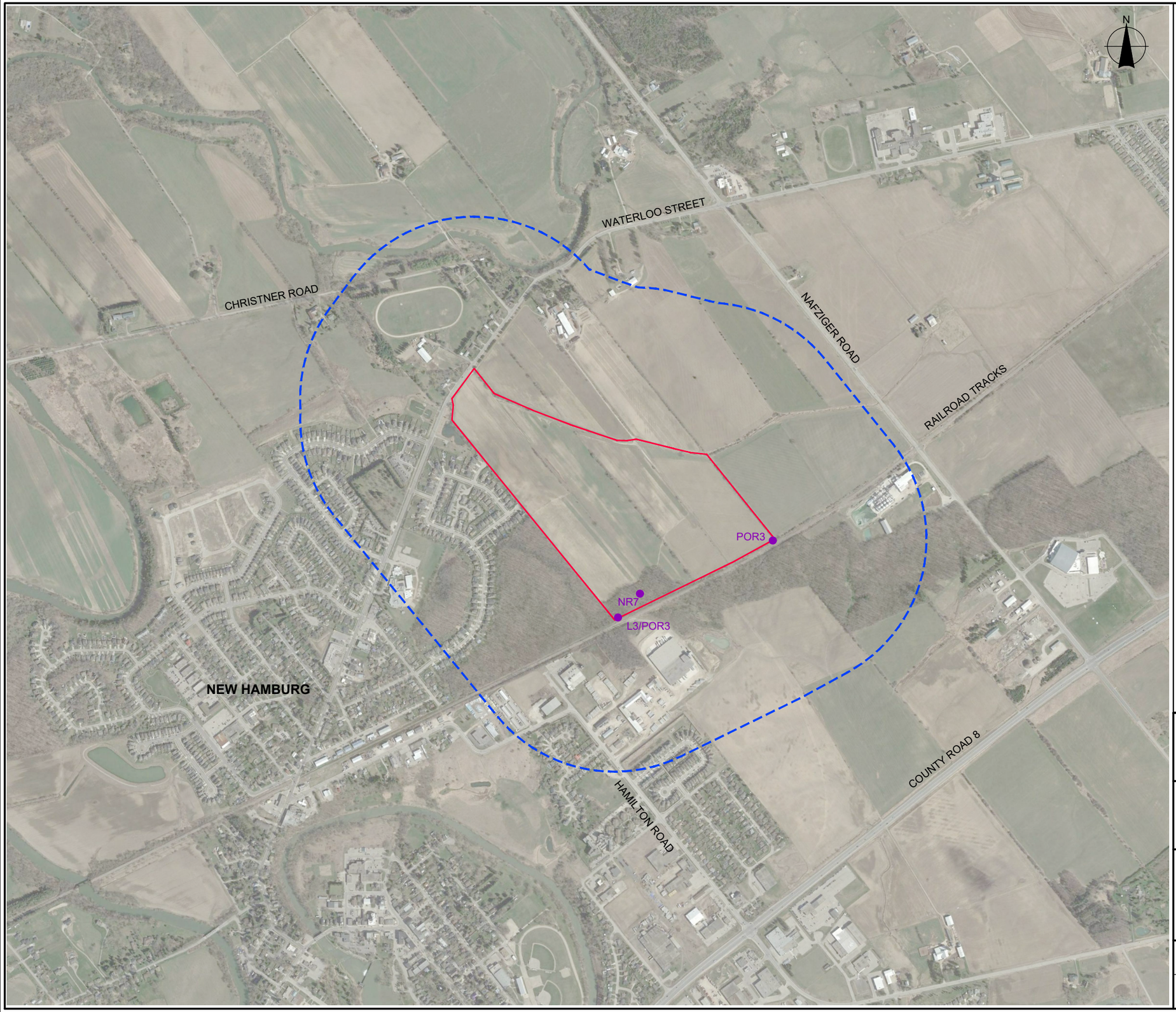
Environmental Noise Feasibility Assessment

Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	January 2022	8
Scale		Project No.	
1:3000		300040085.0200	

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: October 3, 20



LEGEND

- APPROXIMATE SITE BOUNDARY
- 500m SITE BUFFER
- POINTS OF RECEPTION (Stationary Sources)

0 250 500 750 1,000
Metres

Satellite & Air Photo Source:
Background satellite / air photo circa 2016 obtained from Google Earth Professional

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Client

Wilmot Woods Development Inc.

Figure Title

Detailed Environmental Noise Assessment

External Stationary Receptors ECA/EASR

Drawn	Checked	Date	Figure No.
B.M.	H.W.	January 2022	9
Scale		Project No.	
1:12,500		300040085	

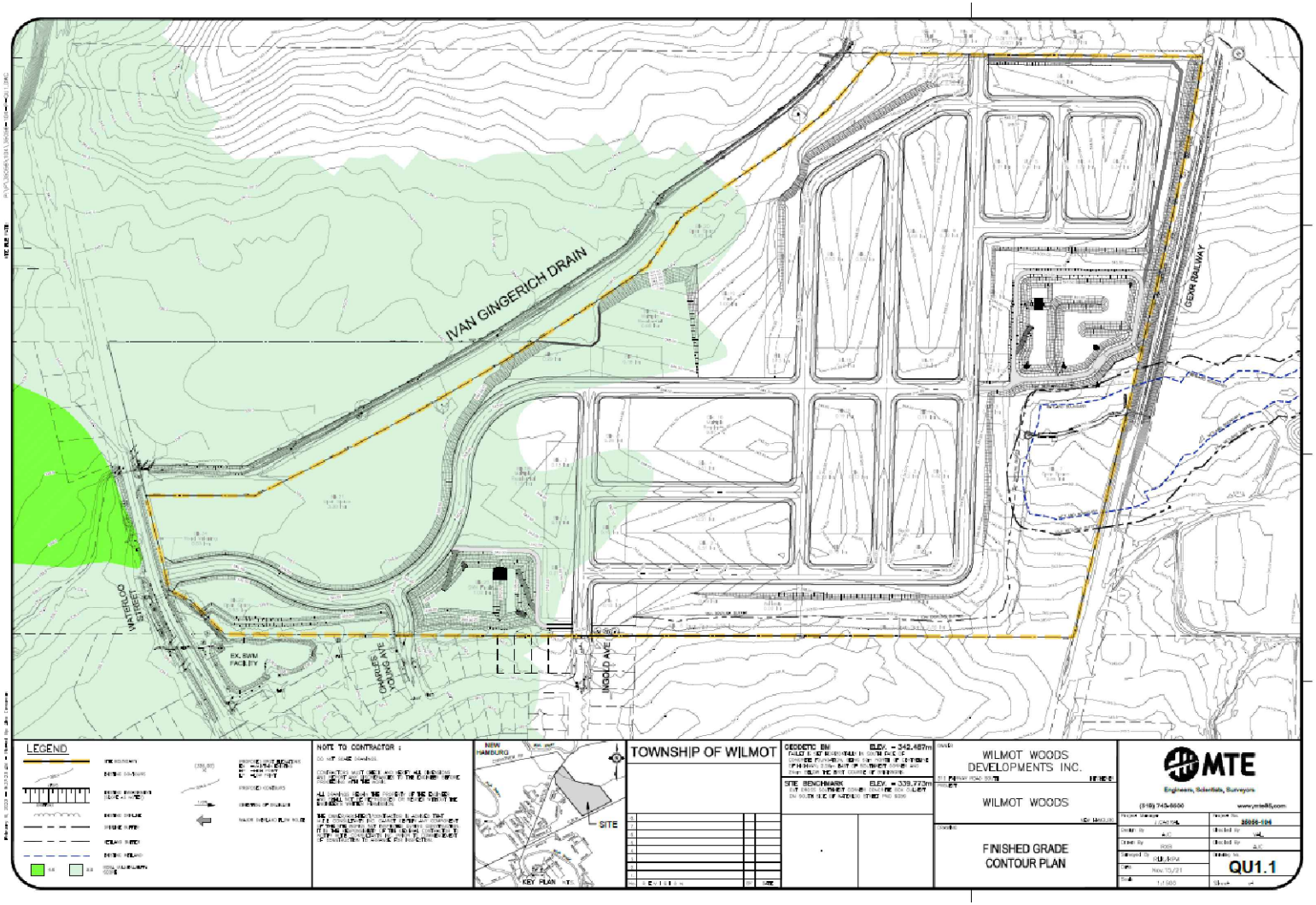

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Figure Title

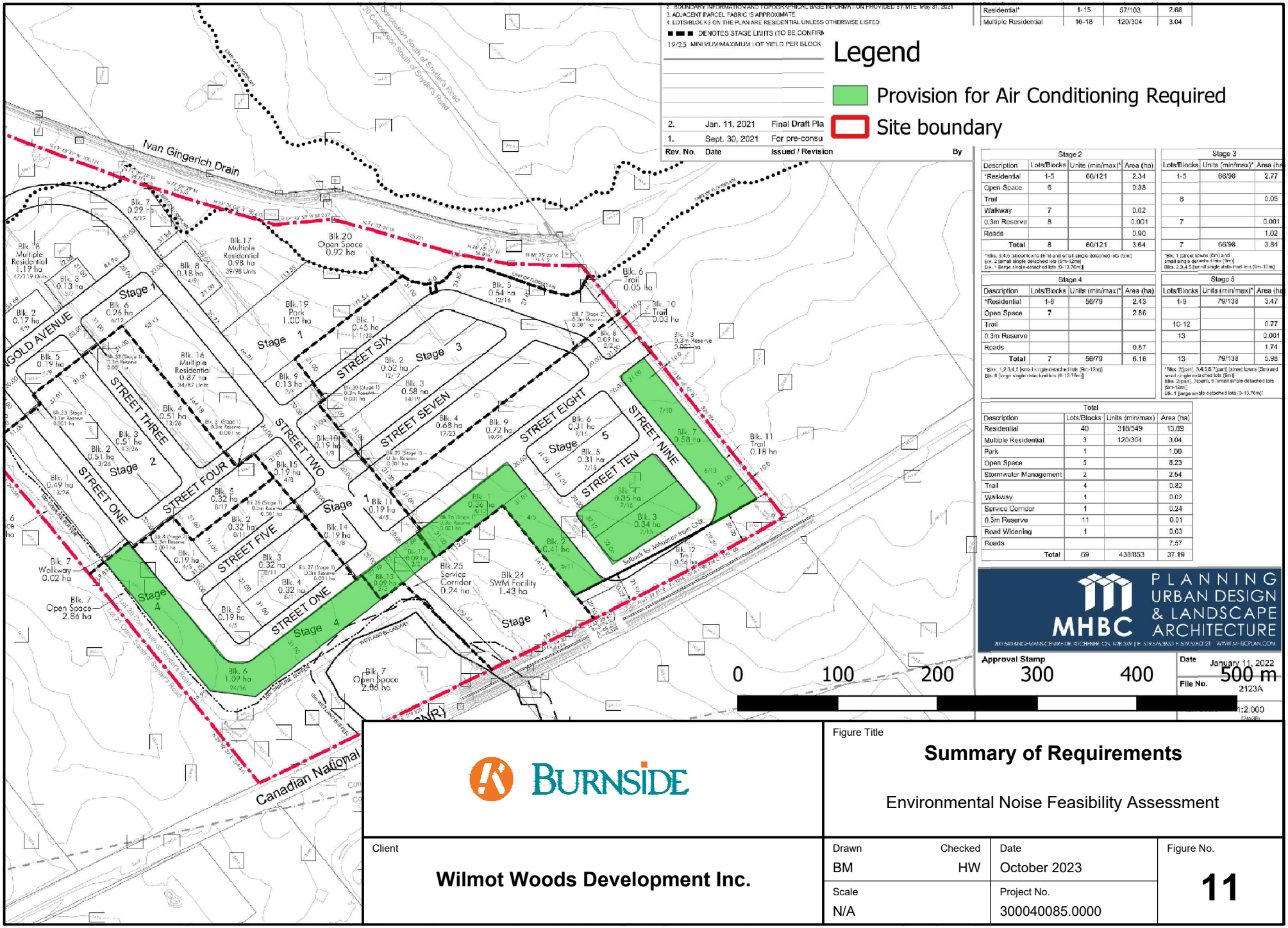
Grading Plan

Environmental Noise Feasibility Assessment

Client

Wilmot Woods Development Inc.

Drawn	Checked	Date	Figure No.
BM	HW	February 2022	**10**
Scale		Project No.	
N/A		300040085.0200	



Rev. No.	Date	Issued / Revision	By
2.	Jan. 11, 2021	Final Draft Pla	
1.	Sept. 30, 2021	For pre-consu	

2. BOUNDARY INFORMATION AND TOPOGRAPHICAL BASE INFORMATION PROVIDED BY MTE, May 31, 2021
3. ADJACENT PARCEL FABRIC IS APPROXIMATE.
4. LOTS/BLOCKS ON THE PLAN ARE RESIDENTIAL UNLESS OTHERWISE LISTED
■ ■ ■ DENOTES STAGE LIMITS (TO BE CONFIRM
19/25 MINIMUM/MAXIMUM LOT YIELD PER BLOCK

Residential*	1-15	57/103	2.68
Multiple Residential	16-18	120/304	3.04

Stage 2			
Description	Lots/Blocks	Units (min/max)*	Area (ha)
*Residential	1-5	60/121	2.34
Open Space	6		0.38
Trail			
Walkway	7		0.02
0.3m Reserve	8		0.001
Roads			0.90
Total	8	60/121	3.64

*Blks. 3,4,5 (street towns (6m) and small single detached lots (9m))
Blk. 2 (small single detached lots (9m-12m))
Blk. 1 (large single detached lots (0-13.76m))

Stage 3		
Lots/Blocks	Units (min/max)*	Area (ha)
1-5	66/98	2.77
6		0.05
7		0.001
		1.02
7	66/98	3.84

*Blk. 1 (street towns (6m) and small single detached lots (9m))
Blks. 2,3,4,5 (small single detached lots (9m-12m))

Stage 4			
Description	Lots/Blocks	Units (min/max)*	Area (ha)
*Residential	1-6	58/79	2.43
Open Space	7		2.86
Trail			
0.3m Reserve			
Roads			0.87
Total	7	58/79	6.16

*Blks. 1,2,3,4,5 (small single detached lots (9m-12m))
Blk. 6 (large single detached lots (0-13.76m))

Stage 5		
Lots/Blocks	Units (min/max)*	Area (ha)
1-9	79/138	3.47
10-12		0.77
13		0.001
		1.74
13	79/138	5.98

*Blks. 7(part), 8,4,5,6,7(part) (street towns (6m) and small single detached lots (9m))
Blks. 2(part), 1(part), 9 (small single detached lots (9m-12m))
Blk. 1 (large single detached lots (0-13.76m))

Total			
Description	Lots/Blocks	Units (min/max)	Area (ha)
Residential	40	318/549	13.89
Multiple Residential	3	120/304	3.04
Park	1		1.00
Open Space	5		8.23
Stormwater Management	2		2.54
Trail	4		0.82
Walkway	1		0.02
Service Corridor	1		0.24
0.3m Reserve	11		0.01
Road Widening	1		0.03
Roads			7.57
Total	69	438/853	37.19

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200 SAINT GEORGE AVENUE, UNIT 201, KITCHENER, ON, N2M 3X9 | P. 519.576.3650 | F. 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date January 11, 2022
File No. 2123A

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Figure Title

Summary of Requirements

Environmental Noise Feasibility Assessment

Client

Wilmot Woods Development Inc.

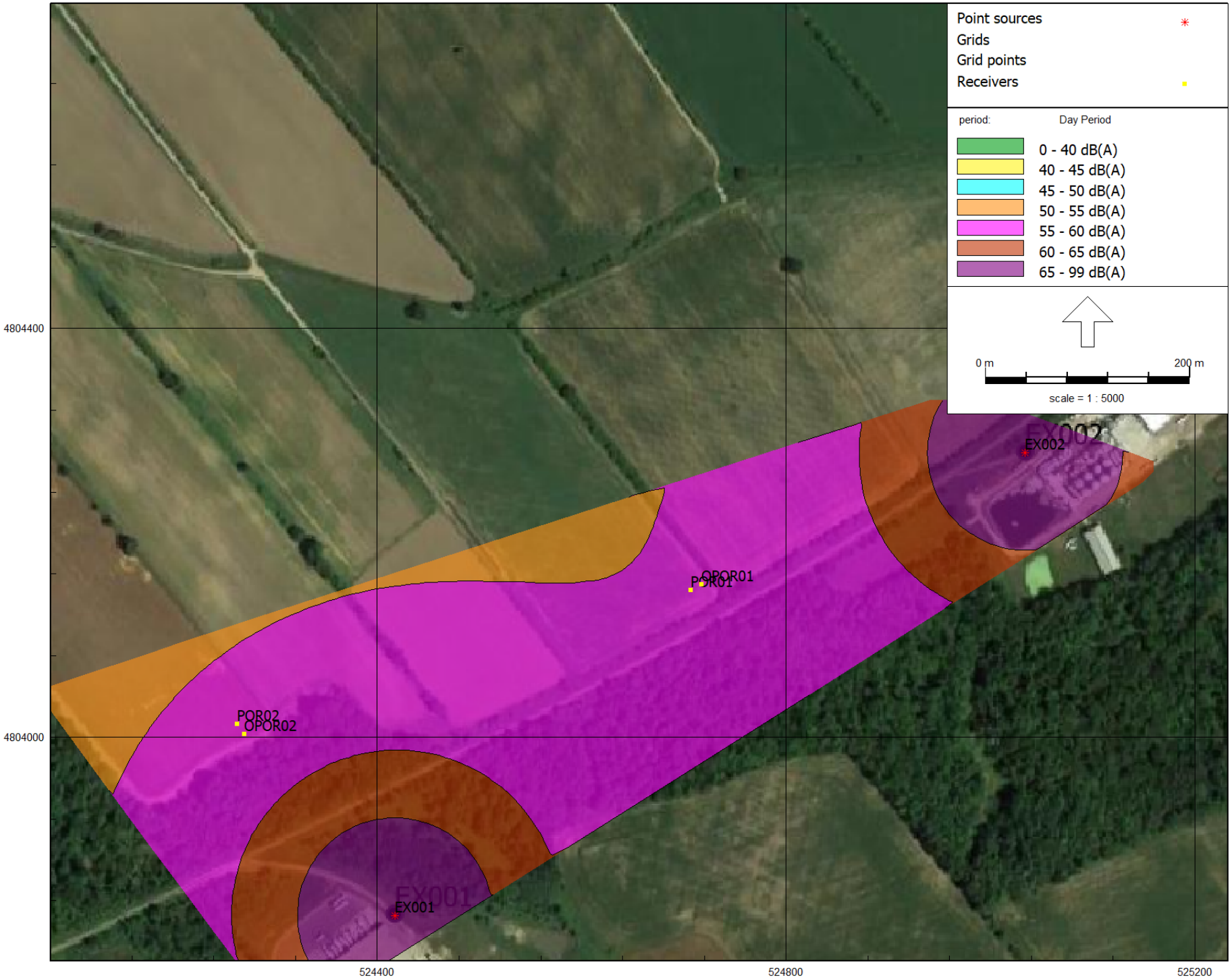
Drawn	Checked	Date	Figure No.
BM	HW	October 2023	**11**
Scale		Project No.	
N/A		300040085.0000	

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\Final Report\Wilmot Woods CAD Figures.dwg Date Plotted: October 3,

Figure 12: Impulsive Noise Contours

18XXXX 1/1 Octave Model

3 Oct 2023, 10:35



ISO 9613, [Normal Operations - 18XXXX 1/1 Octave Model] , Predictor V2023 Licensed to RJ Burnside

RJ Burnside

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Appendix A

Traffic Data

Brent Miller

From: Brent Miller
Sent: Monday, September 18, 2023 9:24 AM
To: GLD-Permits
Subject: RE: Confirmation of Traffic Data: Nafgizer Road and Waterloo Street New Hamburg, ON

Thank you Jessica.

Regards,

Brent

From: Jessica Schmid <Jessica.Schmid@cn.ca> **On Behalf Of** GLD-Permits
Sent: Friday, September 08, 2023 4:39 PM
To: Brent Miller <Brent.Miller@rjburnside.com>
Subject: RE: Confirmation of Traffic Data: Nafgizer Road and Waterloo Street New Hamburg, ON

Hi Brent,

Yes, that data is still valid.

Thank you,
GLD-Permits

From: Brent Miller <Brent.Miller@rjburnside.com>
Sent: Monday, July 10, 2023 10:39 AM
To: GLD-Permits <permits.gld@cn.ca>
Subject: Confirmation of Traffic Data: Nafgizer Road and Waterloo Street New Hamburg, ON

Hi there,

Please confirm whether the attached traffic data count from 2021 remains up to date. If an update of the traffic counts is required, please provide.

Regards,

Brent

BURNSIDE

Brent Miller, P.Eng.
Air & Noise Engineer
R.J. Burnside & Associates Limited
1465 Pickering Parkway, Suite 200, Pickering, Ontario L1V 7G7

Office: 800-265-9662 Direct Line: +1 289-315-3431
http://secure-web.cisco.com/15TAGEiZnhsFswAiynfDXNSuhMT9k-fUuh-f7fuwg2C5k7_aUwoRZCY4XBXtojMkdkJ4cLj-Dx1kzwas0dgs1IWdqi4lzbOsCy01dYDAUEw-8IXP9fWLaCXG2itAlcsXQa3UxmX_QVozfRyYob7RW38Kfd1CcpkdA07GxjG9FQcjvFaq4nu2F9zwGKD4xqmgV9urOYdStZptVE43WFyO-UOHI3dvcvWJJFlUp7LMo-4RIOKFoOYfgtDqZht93SgDrdjFg6PNXepnRcr_NHXEqjqQjtFzV0Br-Y3PzJAwZGDny1-6LjWWXuH6dfH6HB2JU/http%3A%2F%2Fwww.rjburnside.com

Brent Miller

From: Rajan Philips <rphilips@ptsl.com>
Sent: Tuesday, February 22, 2022 9:01 AM
To: Brent Miller; 'Paul Britton'
Cc: Adam Morrison
Subject: RE: Traffic for Wilmot Woods

Hi Brent,

Pl see below: AADT on Waterloo Street

Traffic Conditions	AADT east of Hostelter Rd	AADT east of Street Two
Base Year (2018) – Pre Development	7540	7540
Future – 2026 (Development completion)	10,500	14,500
Future – 2031 (Five Years after)	11,450	15,400

Regards

Rajan Philips, M.Sc. (Pl), P.Eng.
Senior Transportation Consultant

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 519.896.3163 x207
e: rphilips@ptsl.com
w: www.ptsl.com

From: Brent Miller <Brent.Miller@rjburnside.com>
Sent: February 22, 2022 8:42 AM
To: Rajan Philips <rphilips@ptsl.com>; 'Paul Britton' <pbritton@mhbcplan.com>
Cc: Adam Morrison <amorrison@ptsl.com>
Subject: RE: Traffic for Wilmot Woods

Hi Rajan,

Following up on this request for the waterloo street traffic data.

Regards,

Brent

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	R.J. Burnside & Associates Limited 1465 Pickering Parkway, Suite 200 Pickering ON, L1V 7G7	*Project :*	GPH-73.67-75.12- Nafziger Road and Waterloo Street New Hamburg ON
Att'n:	Brent Miller	*Routing:*	Brent.Miller@rjburnside.com
From: *Expéditeur :*	Michael Vallins	*Date:*	2021/06/14
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ■ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Guelph Subdivision- Between Nafziger Road and Waterloo Street in New Hamburg ON

Please find attached the requested Train Traffic Data. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca.

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager Public Works- Eastern Canada
permits.gld@cn.ca

Date: 2021/06/14 Project Number: GPH-73.67-75.12- Nafgizer Road and Waterloo Street New Hamburg ON

Dear Brent:

Re: Train Traffic Data – CN Guelph Subdivision- Between Nafziger Road and Waterloo Street in New Hamburg ON

The following is provided in response to Brent's 2021/04/27 request for information regarding rail traffic in the vicinity of Nafziger Road and Waterloo Street in New Hamburg ON at approximately between Mile 73.67 and 75.12 on CN's Guelph Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	55	4
Way Freight	4	25	55	4
Passenger	3	10	70	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	55	4
Way Freight	0	25	55	4
Passenger	0	10	70	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Guelph Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are eight (8) at-grade crossings in the immediate vicinity of the study area at Mile 71.53 Sandhill Rd., Mile 71.63 Farm Xing, Mile 72.03 Snyder's Rd. E, Mile 72.39 Snyders Rd. W, Mile 72.50 Mill Street, Mile 73.18 Farm Xing, Mile 73.67 Nafziger Rd. and Mile 75.12 Waterloo Street. Anti-whistling bylaws are not in effect at these crossings. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 263,000 lbs. The presence of 5 switches located at Mile 72.55, Mile 72.82, Mile 72.80, Mile 74.36 and Mile 75.08 may exacerbate the noise and vibration caused by train movements.

The single mainline track is considered to be continuously welded rail throughout the study area.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Michael Vallins P.Eng
Manager Public Works – Eastern Canada
permits.gld@cn.ca

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Appendix B

MECP Sound Level Limits

Table B-1: Sound Level Limit for Outdoor Living Areas – Road and Rail

Time Period	L_{eq}(16)(dBA)
16-hour, 07:00 – 23:00	55

Table B-2: Indoor Sound Level Limits – Road and Rail

Type of Space	Time Period	L_{eq} (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
Sleeping quarters	23:00 – 07:00	40	35

Table B-3: Road Noise Control Measures – Outdoor Living Areas

Sound Levels	Measures
≤ 55 dBA	Noise control measures may not be required.
> 55 dBA and ≤ 60 dBA	Noise control measures may be applied, otherwise warning clause Type A.
> 60 dBA	Noise control measures should be implemented to reduce the levels to 55 dBA, otherwise warning clause Type B.

Table B-4: Plane of a Window – Ventilation Requirements

Daytime Period, 07:00 – 23:00 Hours

Sound Levels	Measures
≤ 55 dBA	Noise control measures may not be required.
> 55 dBA and ≤ 65 dBA	The dwelling should be designed with a provision of for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.
> 65 dBA	Installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table B-2.

Table B-5: Plane of a Window – Ventilation Requirements

Nighttime Period, 23:00 – 07.00 Hours

Sound Levels	Measures
≤ 50 dBA	Noise control measures may not be required.
> 50 dBA and ≤ 60 dBA	The dwelling should be designed with a provision of for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.
> 60 dBA	Installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table B-2.

Table B-6: Indoor Living Areas – Building Components

Sound Levels	Measures
> 60 dBA nighttime > 65 dBA daytime	Building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table B-2. The acoustical performance of the building components (windows, doors and walls) should be specified.

Table B-7: MECP Table C-5 of NPC-300: Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50 dBA	50 dBA	45 dBA	55 dBA
19:00 – 23:00	50 dBA	45 dBA	40 dBA	55 dBA

Table B-8: MECP Table C-6 of NPC-300: Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50 dBA	50 dBA	45 dBA	60 dBA
19:00 – 23:00	50 dBA	50 dBA	40 dBA	60 dBA
23:00 – 07:00	45 dBA	45 dBA	40 dBA	55 dBA

Table B-9: MECP Table C-7 of NPC-300: Exclusion Limit Values of Impulsive Sound Level (LLM, dBAI) Outdoor Points of Reception

Time of Day	Actual number of impulses in Period of one hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 23:00	9 or more	50	50	45	55
07:00 – 23:00	7 to 8	55	55	50	60
07:00 – 23:00	5 to 6	60	60	55	65
07:00 – 23:00	4	65	65	60	70
07:00 – 23:00	3	70	70	65	75
07:00 – 23:00	2	75	75	70	80
07:00 – 23:00	1	80	80	75	85

Table B-10: MECP Table C-8 of NPC-300: Exclusion Limit Values of Impulsive Sound Level (LLM, dBAI) Plane of Window – Noise Sensitive Spaces (Day/Night)

Actual number of impulses in Period of one hour	Class 1 Area (7:00-23:00) / (23:00-7:00)	Class 2 Area (7:00-23:00) / (23:00-7:00)	Class 3 Area (7:00-19:00) / (19:00-7:00)	Class 4 Area (7:00-23:00) / (23:00-7:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Sample Transportation Noise Modeling Printouts

STAMSON 5.0 NORMAL REPORT Date: 22-09-2023 59:53:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p1b18ola.te Time Period: Day/Night 16/8 hours
Description: Stage 1 - Block 18 - OLA

Road data, segment # 1: Waterloo St. (day/night)

Car traffic volume : 12474/1386 veh/TimePeriod *
Medium truck volume : 693/77 veh/TimePeriod *
Heavy truck volume : 693/77 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15400
Percentage of Annual Growth : 2.50
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Waterloo St. (day/night)

Angle1 Angle2 : -90.00 deg 10.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 329.00 / 329.00 m
Receiver height : 1.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 10.00 deg
Barrier height : 0.00 m
Elevation : 0.00 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 340.00 m
Receiver elevation : 342.50 m
Barrier elevation : 342.50 m
Reference angle : 0.00

Results segment # 1: Waterloo St. (day)

Source height = 1.50 m

Barrier height for grazing incidence

```
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.42 !       343.92

ROAD (0.00 + 42.81 + 0.00) = 42.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.66  68.92   0.00 -22.26  -3.84   0.00   0.00  -0.81  42.00*
   -90     10   0.66  68.92   0.00 -22.26  -3.84   0.00   0.00   0.00  42.81
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 42.81 dBA

Total Leq All Segments: 42.81 dBA

↟
Results segment # 1: Waterloo St. (night)
-----------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        4.33 !       346.83

ROAD (0.00 + 37.62 + 0.00) = 37.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.57  62.38   0.00 -21.06  -3.71   0.00   0.00  -0.08  37.54*
   -90     10   0.57  62.38   0.00 -21.06  -3.71   0.00   0.00   0.00  37.62
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 37.62 dBA

Total Leq All Segments: 37.62 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 42.81
```

(NIGHT): 37.62

STAMSON 5.0 NORMAL REPORT Date: 22-09-2023 59:56:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p1b18pow.te Time Period: Day/Night 16/8 hours
Description: Stage 1 - Block 18 - Plane of Window Calculation

Road data, segment # 1: Waterloo St. (day/night)

Car traffic volume : 12474/1386 veh/TimePeriod *
Medium truck volume : 693/77 veh/TimePeriod *
Heavy truck volume : 693/77 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15400
Percentage of Annual Growth : 2.50
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 5.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Waterloo St. (day/night)

Angle1 Angle2 : -90.00 deg 10.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 322.00 / 322.00 m
Receiver height : 4.50 / 4.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 10.00 deg
Barrier height : 0.00 m
Elevation : 0.00 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 340.00 m
Receiver elevation : 342.50 m
Barrier elevation : 342.50 m
Reference angle : 0.00

Results segment # 1: Waterloo St. (day)

Source height = 1.50 m

Barrier height for grazing incidence

```
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        4.33 !       346.83

ROAD (0.00 + 44.30 + 0.00) = 44.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.57  68.92   0.00 -20.91  -3.71   0.00   0.00  -0.08  44.22*
   -90     10   0.57  68.92   0.00 -20.91  -3.71   0.00   0.00   0.00  44.30
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 44.30 dBA

Total Leq All Segments: 44.30 dBA

↟
Results segment # 1: Waterloo St. (night)
-----------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        4.33 !       346.83

ROAD (0.00 + 37.77 + 0.00) = 37.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.57  62.38   0.00 -20.91  -3.71   0.00   0.00  -0.08  37.69*
   -90     10   0.57  62.38   0.00 -20.91  -3.71   0.00   0.00   0.00  37.77
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 37.77 dBA

Total Leq All Segments: 37.77 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 44.30
```

(NIGHT): 37.77

STAMSON 5.0 NORMAL REPORT Date: 22-09-2023 59:57:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p5b2ola.te Time Period: Day/Night 16/8 hours
Description: Stage 5 - Block 2 - OLA Calculation

Rail data, segment # 1: CN Rail (day/night)

Train Type	Trains (Left)	Trains (Right)	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Freight	2.7/0.6	2.7/0.6	89.0	4.0	25.0	Diesel	Yes
2. Passenger	2.0/0.6	2.0/0.6	113.0	2.0	10.0	Diesel	Yes

Data for Segment # 1: CN Rail (day/night)

Angle1 Angle2	-90.00 deg	10.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	48.00 / 48.00	m
Receiver height	1.50 / 1.50	m
Topography	4	(Elevated; with barrier)
Whistle Angle	80 deg	Track 1
Barrier angle1	-90.00 deg	Angle2 : 10.00 deg
Barrier height	0.00 m	
Elevation	1.00 m	
Barrier receiver distance	20.00 / 20.00	m
Source elevation	345.50 m	
Receiver elevation	344.50 m	
Barrier elevation	343.50 m	
Reference angle	0.00	

Results segment # 1: CN Rail (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	1.50	3.96	347.46
0.50	1.50	2.50	346.00

LOCOMOTIVE (0.00 + 56.75 + 0.00) = 56.75 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	10	0.56	68.29	-7.86	-3.68	0.00	0.00	-0.11	56.64*

```
   -90     10   0.56  68.29  -7.86  -3.68   0.00   0.00   0.00  56.75
-------------------------------------------------------------------------

 * Bright Zone !

WHEEL (0.00 + 46.79 + 0.00) = 46.79 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     10   0.66  59.02  -8.39  -3.84   0.00   0.00  -0.28  46.50*
   -90     10   0.66  59.02  -8.39  -3.84   0.00   0.00   0.00  46.79
-------------------------------------------------------------------------

 * Bright Zone !

LEFT WHISTLE (0.00 + 56.49 + 0.00) = 56.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -69     10   0.00  68.48   0.00  -4.13   0.00   0.00   0.00  56.49*
   -69     10   0.00  68.48   0.00  -4.13   0.00   0.00   0.00  56.49
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 59.85 dBA

Total Leq All Segments: 59.85 dBA

♠
Results segment # 1: CN Rail (night)
-----------------------------------

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       4.00 !        1.50 !        3.96 !       347.46
       0.50 !        1.50 !        2.50 !       346.00

LOCOMOTIVE (0.00 + 54.05 + 0.00) = 54.05 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     10   0.56  65.59  -7.86  -3.68   0.00   0.00  -0.11  53.94*
   -90     10   0.56  65.59  -7.86  -3.68   0.00   0.00   0.00  54.05
-------------------------------------------------------------------------

 * Bright Zone !

WHEEL (0.00 + 44.06 + 0.00) = 44.06 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     10   0.66  56.29  -8.39  -3.84   0.00   0.00  -0.28  43.77*
   -90     10   0.66  56.29  -8.39  -3.84   0.00   0.00   0.00  44.06
-------------------------------------------------------------------------

 * Bright Zone !

LEFT WHISTLE (0.00 + 53.85 + 0.00) = 53.85 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -69     10   0.00  65.83   0.00  -4.13   0.00   0.00   0.00  53.85*
   -69     10   0.00  65.83   0.00  -4.13   0.00   0.00   0.00  53.85
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 57.18 dBA

Total Leq All Segments: 57.18 dBA

♠



TOTAL Leq FROM ALL SOURCES (DAY): 59.85
                           (NIGHT): 57.18
♠
♠
```

STAMSON 5.0 NORMAL REPORT Date: 22-09-2023 59:57:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p5b2olab.te Time Period: Day/Night 16/8 hours
Description: Stage 5 - Block 2 - OLA Barrier Calculation

Rail data, segment # 1: CN Rail (day/night)

Train Type	Trains (Left)	Trains (Right)	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Freight	2.7/0.6	2.7/0.6	89.0	4.0	25.0	Diesel	Yes
2. Passenger	2.0/0.6	2.0/0.6	113.0	2.0	10.0	Diesel	Yes

Data for Segment # 1: CN Rail (day/night)

Angle1 Angle2	: -90.00 deg	10.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 48.00 / 48.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 4	(Elevated; with barrier)
Whistle Angle	: 80 deg	Track 1
Barrier angle1	: -90.00 deg	Angle2 : 10.00 deg
Barrier height	: 2.00 m	
Elevation	: 1.50 m	
Barrier receiver distance	: 6.00 / 6.00	m
Source elevation	: 345.00 m	
Receiver elevation	: 343.50 m	
Barrier elevation	: 343.50 m	
Reference angle	: 0.00	

Results segment # 1: CN Rail (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	1.50	2.00	345.50
0.50	1.50	1.56	345.06

LOCOMOTIVE (0.00 + 52.66 + 0.00) = 52.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	10	0.42	68.29	-7.17	-3.46	0.00	0.00	-5.00	52.66

```
-------------------------------------------------------------------

WHEEL (0.00 + 42.07 + 0.00) = 42.07 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     10   0.52  59.02  -7.70  -3.64   0.00   0.00  -5.60  42.07
-------------------------------------------------------------------

LEFT WHISTLE (0.00 + 52.31 + 0.00) = 52.31 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -69     10   0.00  68.48   0.00  -4.00   0.00   0.00  -5.00  52.31
-------------------------------------------------------------------

Segment Leq : 55.69 dBA

Total Leq All Segments: 55.69 dBA

↟
Results segment # 1: CN Rail (night)
-----------------------------------

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+---------------
       4.00 !        1.50 !        2.00 !       345.50
       0.50 !        1.50 !        1.56 !       345.06

LOCOMOTIVE (0.00 + 49.95 + 0.00) = 49.95 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     10   0.42  65.59  -7.17  -3.46   0.00   0.00  -5.00  49.95
-------------------------------------------------------------------

WHEEL (0.00 + 39.34 + 0.00) = 39.34 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     10   0.52  56.29  -7.70  -3.64   0.00   0.00  -5.60  39.34
-------------------------------------------------------------------

LEFT WHISTLE (0.00 + 49.66 + 0.00) = 49.66 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -69     10   0.00  65.83   0.00  -4.00   0.00   0.00  -5.00  49.66
-------------------------------------------------------------------

Segment Leq : 53.01 dBA
```

Total Leq All Segments: 53.01 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 55.69
(NIGHT): 53.01

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 22-09-2023 59:59:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p5b2pow.te Time Period: Day/Night 16/8 hours
Description: Stage 5 - Block 2 - Plane of Window Calculation

Rail data, segment # 1: CN Rail (day/night)

Train Type	Trains (Left)	Trains (Right)	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Freight	2.7/0.6	2.7/0.6	89.0	4.0	45.0	Diesel	Yes
2. Passenger	2.0/0.6	2.0/0.6	113.0	2.0	10.0	Diesel	Yes

Data for Segment # 1: CN Rail (day/night)

Angle1 Angle2	: -90.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 48.00 / 48.00	m
Receiver height	: 4.50 / 4.50	m
Topography	: 4	(Elevated; with barrier)
Whistle Angle	: 80 deg	Track 1
Barrier angle1	: -90.00 deg	Angle2 : 90.00 deg
Barrier height	: 0.00 m	
Elevation	: 1.00 m	
Barrier receiver distance	: 20.00 / 20.00	m
Source elevation	: 345.50 m	
Receiver elevation	: 344.50 m	
Barrier elevation	: 343.50 m	
Reference angle	: 0.00	

Results segment # 1: CN Rail (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	4.50	5.71	349.21
0.50	4.50	4.25	347.75

LOCOMOTIVE (0.00 + 60.30 + 0.00) = 60.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.47	68.81	-7.40	-1.11	0.00	0.00	-0.06	60.24*

```
   -90     90   0.47  68.81  -7.40  -1.11   0.00   0.00   0.00  60.30
-------------------------------------------------------------------------

 * Bright Zone !

WHEEL (0.00 + 51.48 + 0.00) = 51.48 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.57  60.71  -7.93  -1.30   0.00   0.00  -0.11  51.37*
   -90     90   0.57  60.71  -7.93  -1.30   0.00   0.00   0.00  51.48
-------------------------------------------------------------------------

 * Bright Zone !

LEFT WHISTLE (0.00 + 59.58 + 0.00) = 59.58 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -69     80   0.47  68.48  -7.40  -1.49   0.00   0.00   0.00  59.58*
   -69     80   0.47  68.48  -7.40  -1.49   0.00   0.00   0.00  59.58
-------------------------------------------------------------------------

 * Bright Zone !

RIGHT WHISTLE (0.00 + 41.97 + 0.00) = 41.97 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    80     86   0.47  68.48  -7.40 -19.10   0.00   0.00   0.00  41.97*
    80     86   0.47  68.48  -7.40 -19.10   0.00   0.00   0.00  41.97
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 63.30 dBA

Total Leq All Segments: 63.30 dBA

↟
Results segment # 1: CN Rail (night)
-----------------------------------

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       4.00 !        4.50 !        5.71 !       349.21
       0.50 !        4.50 !        4.25 !       347.75

LOCOMOTIVE (0.00 + 57.55 + 0.00) = 57.55 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------
   -90     90   0.47  66.06  -7.40  -1.11   0.00   0.00  -0.06  57.49*
   -90     90   0.47  66.06  -7.40  -1.11   0.00   0.00   0.00  57.55
-------------------------------------------------------------------------

 * Bright Zone !

WHEEL (0.00 + 48.61 + 0.00) = 48.61 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.57  57.84  -7.93  -1.30   0.00   0.00  -0.11  48.50*
   -90     90   0.57  57.84  -7.93  -1.30   0.00   0.00   0.00  48.61
-------------------------------------------------------------------------

 * Bright Zone !

LEFT WHISTLE (0.00 + 56.94 + 0.00) = 56.94 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -69     80   0.47  65.83  -7.40  -1.49   0.00   0.00   0.00  56.94*
   -69     80   0.47  65.83  -7.40  -1.49   0.00   0.00   0.00  56.94
-------------------------------------------------------------------------

 * Bright Zone !

RIGHT WHISTLE (0.00 + 39.32 + 0.00) = 39.32 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    80     86   0.47  65.83  -7.40 -19.10   0.00   0.00   0.00  39.32*
    80     86   0.47  65.83  -7.40 -19.10   0.00   0.00   0.00  39.32
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 60.59 dBA

Total Leq All Segments: 60.59 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 63.30
                           (NIGHT): 60.59
↟
↟
```

Required Sound Transmission Class (STC) Calculation - Daytime

Predicted Outdoor sound level (dBA)	63
Required indoor sound level (dBA)	40
Room Absorption	Intermediate
Noise spectrum type	F - Diesel Railway Locor
Sound comes from	0 to 90
Room floor area (m2)	30
Total area of wall that is receiving sound (m2)	22
Area of that wall that is window (in wall above) (m2)	6
Area of 2nd wall that is a door (m2)	2
Wall component category	d. Sealed thick windov
Window component category	b. Double exterior doc
Door component category	a. Single exterior door
Reflection from the building (adjustment to predicted noise) (dB)	3

1	Outdoor sound level (dBA)		66	
	Indoor sound level (dBA)		40	
2	Sound comes from (deg angle)		0 to 90	
		Correction from Table 2 (dB)	0	
	Required noise reduction (dB)			**26**

Wall component:

3	% of Surface area impacted by noise source (%)		72.7	
		Correction from Table 3 (dB)		1
4	Wall Component area (m2)		16	
	Room floor area (m2)		30	
	Wall Component area (% floor area)		53.33	
	Room absorption category		Intermediate	
		Correction from Table 4 (dB)		-2
5	Noise spectrum type (see Figure 1)		F	
	Wall Component category (Table 5)		d	
		Correction from Table 5 (dB)		10
			Wall Required STC	**35**

Window component:

3	% of Surface area impacted by noise source (%)		27.3	
		Correction from Table 3 (dB)		6
4	Window Component area (m2)		6	
	Room floor area (m2)		30	
	Window Component area (% floor area)		20	
	Room absorption category		Intermediate	
		Correction from Table 4 (dB)		-6
5	Noise spectrum type (see Figure 1)		F	
	Window Component category (Table 5)		b	
		Correction from Table 5 (dB)		3
			Window Required STC	**29**

Door component:

3	% of Surface area impacted by noise source (%)		9.1	
		Correction from Table 3 (dB)		10
4	Door Component area (m2)		2	
	Room floor area (m2)		30	
	Door Component area (% floor area)		6.67	
	Room absorption category		Intermediate	
		Correction from Table 4 (dB)		-11
5	Noise spectrum type (see Figure 1)		F	
	Door Component category (Table 5)		a	
		Correction from Table 5 (dB)		1
			Door Required STC	**26**

Source:
Controlling Sound Transmission into Buildings, NRCC 1985
L:\Reference Docs\Noise\Controlling Sound Transmission into Building - NRCC - 1985.pdf

BURNSIDE

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Appendix D

Consultant Noise Study Declaration and Owner Authorized/Agent Statement

Region of Waterloo Development Owner/ Author

I am the owner of the property, or the owner's agent, and that I understand and agree with the noise attenuation measures proposed in study entitled Wilmot Woods Developments Inc. Detailed Environmental Noise Assessment dated January 2022.

The application has been designed to avoid the use of berms or walls as noise attenuation features where feasible. Where berms or walls are recommended, the Noise Study provides economic, planning and engineering justification; and

If the application is changed in a way that may affect the noise level calculations, I will have a revised noise study submitted to the Region.

Signed

Name: ADAM BEZSKY

Signature:

CANADA

PROVINCE OF ONTARIO

In the Matter of the Environmental Protection Act and the Planning Act

And in the Matter of Part of Lot 20, German Block South of Snyders Road

In the Township of Wilmot
In the Regional Municipality of Waterloo

I, Brent Miller, of the Town of Ajax, in the Regional Municipality of Durham,

SOLEMNLY DECLARE THAT:

1. I am a Professional Engineer employed by R.J. Burnside & Associates Limited which holds a Certificate of Authorization and have personal knowledge of the matters set out below.

2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as Part of Lot 20, German Block South of Snyders Road in the municipality of Wilmot.

3. I had the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.

4. The information used in the study entitled Wilmot Woods Developments Inc. Detailed Environmental Noise Assessment dated January 2022 is the best available information as of the date of the study.

5. The noise level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with Ministry of Environment, Conservation and Parks Guidelines, Region of Waterloo policies, and any applicable policy or guidelines of the Area Municipality, and any other applicable policy or guideline.

6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.

7. I acknowledge that this study may be subject to a peer review conducted at my cost.

8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement. AND I make this solemn Declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

Name: Brent Miller, P.Eng.

Signature: Brent Miller

DECLARED before me at the City of Wilmot, in the Regional Municipality of Waterloo

April this 26 day of 2022.

CANADA

PROVINCE OF ONTARIO

In the Matter of the Environmental Protection Act and the Planning Act

And in the Matter of Part of Lot 20, German Block South of Snyders Road

In the Township of Wilmot
In the Regional Municipality of Waterloo

I, Brent Miller, of the Town of Ajax, in the Regional Municipality of Durham,

SOLEMNLY DECLARE THAT:

1. I am a Professional Engineer employed by R.J. Burnside & Associates Limited which holds a Certificate of Authorization and have personal knowledge of the matters set out below.

2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as Part of Lot 20, German Block South of Snyders Road in the municipality of Wilmot.

3. I had the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.

4. The information used in the study entitled Wilmot Woods Developments Inc. Detailed Environmental Noise Assessment dated January 2022 is the best available information as of the date of the study.

5. The noise level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with Ministry of Environment, Conservation and Parks Guidelines, Region of Waterloo policies, and any applicable policy or guidelines of the Area Municipality, and any other applicable policy or guideline.

6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.

7. I acknowledge that this study may be subject to a peer review conducted at my cost.

8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement. AND I make this solemn Declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

Name: _____

Signature: _____

DECLARED before me at the City of _____ , in the Regional Municipality of Waterloo

_____ this ___ day of _____.

Region of Waterloo Development Owner/ Author

I am the owner of the property, or the owner's agent, and that I understand and agree with the noise attenuation measures proposed in study entitled Wilmot Woods Developments Inc. Detailed Environmental Noise Assessment dated January 2022.

The application has been designed to avoid the use of berms or walls as noise attenuation features where feasible. Where berms or walls are recommended, the Noise Study provides economic, planning and engineering justification; and

If the application is changed in a way that may affect the noise level calculations, I will have a revised noise study submitted to the Region.

Signed

Name: _____

Signature: _____

BURNSIDE

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Appendix E

External Stationary Details

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 5063-8MMKNH
Issue Date: January 23, 2012

Riverside Brass & Aluminum Foundry Limited
55 Hamilton Rd
New Hamburg, Ontario
N3A 2H1

Site Location: 55 Hamilton Road
55 Hamilton Rd New Hamburg
Wilmot Township, Regional Municipality of Waterloo
N3A 2H1

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

Description Section

An aluminum, copper, and zinc-based alloys casting facility, consisting of the following processes and support units:

- sand handling;
- melting and charging;
- fluxing;
- mold and core production;
- grinding;
- shot blasting; and
- core making;

including the *Equipment* and any other ancillary and support processes and activities, operating at a *Facility Production Limit* of up to **16,982,784 Kilograms of aluminum, copper and zinc-based alloys per year**exhausting to the atmosphere as described in the *ESDM Report.*

For the purpose of this environmental compliance approval, the following definitions apply:

1. "*Acceptable Maximum Ground Level Concentration"* means a concentration accepted by the *Ministry,* as described in the *Guide to Applying for Approval (Air & Noise),* for a *Compound of Concern* listed in the *Original ESDM Report* that has no *Ministry Point of Impingement* Limit and no *Jurisdictional Screening Level,* or the concentration at a *Point of Impingement* exceeds the *Jurisdictional Screening Level.*

2. *"Acoustic Assessment Report"* means the report, prepared in accordance with *Publication NPC-233* and Appendix A of the *Basic Comprehensive User Guide,* by Stephen Kuchma, Church & Trought Inc. and dated December 19, 2011 submitted in support of the application, that documents all sources of noise emissions and *Noise Control Measures* present at the *Facility* and includes all up-dated *Acoustic Assessment Reports* as required by the Documentation Requirements conditions of this *Certificate* to demonstrate continued compliance with the *Performance Limits* following the implementation of any *Modification*

3. *"Acoustic Assessment Summary Table"* means a table prepared in accordance with the *Basic Comprehensive User Guide* summarising the results of the *Acoustic Assessment Report,* up-dated as required by the Documentation Requirements conditions of this *Approval.*

4. *"Acoustic Audit"* means an investigative procedure consisting of measurements and/or acoustic modelling of all sources of noise emissions due to the operation of the *Facility*, assessed to determine compliance with the Performance Limits for

the *Facility* regarding noise emissions, completed in accordance with the procedures set in *Publication NPC-103* and reported in accordance with *Publication NPC-233*.

5. *"Acoustic Audit Report"* means a report presenting the results of an *Acoustic Audit*, prepared in accordance with *Publication NPC-233*.

6. *"Acoustical Consultant*" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with *Ministry* noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a *Facility*.

7. "*Air Standards Manager"* means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this Approval.

8. *"Approval"* means this entire *Approval*document and any Schedules to it, including the application and *Supporting Documentation.*

9. "*Basic Comprehensive User Guide"* means the *Ministry* document titled "Basic Comprehensive Certificates of Approval (Air) User Guide" dated March 2011, as amended.

10. *"Company"* means Riverside Brass & Aluminum Foundry Limited operating as Riverside Brass & Aluminum Foundry Limited that is responsible for the construction or operation of the *Facility* and includes any successors and assigns in accordance with section 19 of the *EPA*.

11. *"Compound of Concern"* means a contaminant that, based on generally available information, may be emitted to the atmosphere in a quantity from the *Facility* that is non-negligible in accordance with section 8 of *O. Reg. 419/05* either in comparison to the relevant *Ministry Point of Impingement Limit* or if a *Ministry Point of Impingement Limit* is not available for the compound then, based on generally available toxicological information, the compound may cause an adverse effect as defined by the *EPA* at a *Point of Impingement.*

12. *"Description Section"* means the section on page one of this *Approval* describing the *Company's* operations and the *Equipment* located at the *Facility* and specifying the *Facility Production Limit* for the *Facility.*

13. *"Director"* means a person appointed by the Minister pursuant to section 5 of the *EPA*.

14. *"District Manager"* means the District Manager of the appropriate local district office of the *Ministry,* where the *Facility* is geographically located.

15. *"Emission Summary Table"* means the most updated table contained in the *ESDM Report,*which is prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* listing the appropriate *Point of Impingement* concentration for each *Compound of Concern* from the *Facility* and providing comparison to the corresponding *Ministry Point of Impingement Limit* or *Maximum Concentration Level Assessment,* or *Jurisdictional Screening Level.*

16. *"Environmental Assessment Act"* means the Environmental Assessment Act, R.S.O. 1990, c.E.18, as amended.

17. *"EPA"* means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended.

18. *"Equipment"* means equipment or processes described in the *ESDM Report,* the *Acoustic Assessment Report,* this *Approval* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

19. *"Equipment with Specific Operational Limits"* means any *Equipment* related to the thermal oxidation of waste or waste derived fuels, fume incinerators or any other *Equipment* that is specifically referenced in any published *Ministry* document that outlines specific operational guidance that must be considered by the *Director* in issuing an *Approval.*

20. *"ESDM Report"* means the most current Emission Summary and Dispersion Modelling Report that describes the *Facility.* The *ESDM Report* is based on the *Original ESDM Report,* is prepared after the issuance of this *Approval* in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by the *Company* or its consultant, and is periodically updated to incorporate all *Modifications* to and changes on discharge from the *Facility,* as required by the Documentation Requirements conditions of this *Approval.*

21. *"Facility"* means the entire operation located on the property where the *Equipment* is located.

22. *"Facility Production Limit"* means the production limit placed on the main product(s) or raw materials used by the *Facility* that represents the design capacity of the *Facility* and assists in the definition of the operations approved by the *Director*.

23. *"Independent Acoustical Consultant"* means an *Acoustical Consultant* not representing the *Company*, and not involved in the noise impact assessment or the design/implementation of *Noise Control Measures* for the *Facility/Equipment*. The *Independent Acoustical Consultant* shall not be retained by the consultant involved in the noise/vibration impact assessment or the design/implementation of noise/vibration control measures for the *Facility/Equipment.*

24. *"Jurisdictional Screening Level"* means a screening level for a *Compound of Concern* that is listed in the Ministry publication titled "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality", dated February 2008, as amended.

25. *"Log"* means the up-to-date log that is used to track all *Modifications* to the *Facility* since the date of this *Approval* as required by the Documentation Requirements conditions of this *Approval.*

26. *"Maximum Concentration Level Assessment"* means the Maximum Concentration Level Assessment for the purposes of an *Appoval,* described in the *Basic Comprehensive User Guide,* prepared by a *Toxicologist* using currently available toxicological information, that demonstrates that the concentration at any *Point of Impingement* for a *Compound of Concern* that does not have a *Ministry Point of Impingement Limit* is not likely to cause an adverse effect as defined by the *EPA*. The concentration at *Point of Impingement* for a *Compound of Concern* must be calculated in accordance with *O. Reg. 419/05.*

27. *"Ministry"* means the ministry of the government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf.

28. *"Ministry Point of Impingement Limit"* means the applicable Standard listed in Schedule 2 or 3 of *O.Reg. 419/05* or a limit listed in the *Ministry* publication titled "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution - Local Air Quality (including Schedule 6 of O. Reg. 419 on Upper Risk Thresholds)", dated February 2008, as amended.

29. *"Modification"* means any construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing, or alteration of a process or rate of production at the *Facility* that may discharge or alter the rate or manner of discharge of a *Compound of Concern* to the atmosphere or discharge or alter noise or vibration emissions from the *Facility.*

30. *"Noise Control Measures*" means measures to reduce the noise emissions from the *Facility* and/or *Equipment* including, but not limited to, silencers, acoustic louvers, enclosures, absorptive treatment, plenums and barriers, described in the *Company's* application, this *Approval* and in the supporting documentation referred to herein, to the extent approved by this *Approval.*

31. *"O. Reg. 419/05"* means the Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended.

32. *"Original ESDM Report"* means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by Church & Trought inc. and dated August 24, 2011 submitted in support of the application, and includes any changes to the report made up to the date of issuance of this *Approval.*

33. *"Performance Limits"* means the performance limits specified in Condition 3.2 of this *Approval* titled Performance Limits.

34. *"Point of Impingement"* has the same meaning as in section 2 of *O. Reg. 419/05.*

35. *"Point of Reception"* means Point of Reception as defined by *Publications NPC-205* and NPC 232, as applicable.

36. *"Procedure Document"* means *Ministry* guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2009, as amended.

37. *"Processes with Significant Environmental Aspects"* means the *Equipment* which, during regular operation, would discharge a contaminant or contaminants into the atmosphere at an amount which is not considered as negligible in accordance with section 8 of *O. Reg. 419/05* and the *Procedure Document.*

38. *"Publication NPC-103"* means *Ministry* Publication NPC-103, Procedures, August 1978.

39. *"Publication NPC-205"* means the *Ministry* Publication NPC-205, “Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)”, October, 1995 as amended.

40. *"Publication NPC-207"* means the *Ministry* draft technical publication “Impulse Vibration in Residential Buildings”, November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, August 1978, published by the *Ministry.*

41. *"Publication NPC-232"* means the *Ministry* Publication NPC-232, “Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)”, October, 1995 as amended.

42. *"Publication NPC-233"* means the *Ministry* Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995 as amended.

43. *"Schedules"* means the following schedules attached to this *Approval* and forming part of this *Approval* namely:

Schedule A - *Supporting Documentation.*

44. *"Supporting Documentation"* means the documents listed in Schedule A of this *Approval* which forms part of this *Approval.*

45. *"Toxicologist"* means a qualified professional currently active in the field of risk assessment and toxicology that has a combination of formal university education, training and experience necessary to assess the *Compound of Concern* in question.

46. *"Written Summary Form"* means the electronic questionnaire form, available on the *Ministry* website, and supporting documentation, that documents the activities undertaken at the *Facility* in the previous calendar year that must be submitted annually to the *Ministry* as required by the section of this *Approval* titled Reporting Requirements.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

1.1 Except as otherwise provided by this *Approval,* the *Facility* shall be designed, developed, built, operated and maintained in accordance with the terms and conditions of this *Approval* and in accordance with the following *Schedules* attached hereto:

Schedule A - *Supporting Documentation*

2. LIMITED OPERATIONAL FLEXIBILITY

2.1 Pursuant to section 20.6(1) of the *EPA* and subject to Conditions 2.2 and 2.3 of this *Approval,* future alterations, extensions or replacements are approved in this *Approval* if the future alterations, extensions or replacements are *Modifications* to the *Facility* that:

(a) are within the scope of the intended operations of the *Facility* as described in the *Description Section* of this *Approval;*

(b) do not result in an increase of the *Facility Production Limit* above the level specified in the *Description Section* of this *Approval;* and

(c) result in compliance with the *Performance Limits.*

2.2 Condition 2.1 does not apply to:

(a) the addition of any new *Equipment with Specific Operational Limits* or to the *Modification* of any existing *Equipment with Specific Operational Limits* at the *Facility.* The *Company* shall operate any *Equipment with Specific Operational Limits* approved by this *Approval* in accordance with the *Original ESDM Report* and Conditions in this *Approval;* or

(b) *Modifications* to the *Facility* that would be subject to the *Environmental Assessment Act.*

2.3 Condition 2.1 of this *Approval* shall expire February 1, 2013*,* unless this *Approval* is revoked prior to the expiry date. The *Company* may apply for renewal of Condition 2.1 of this *Approval* by including an *ESDM Report* that incorporate all *Modifications* made to the *Facility* as of the date of the renewal application and an Acoustic Assessment Report, if required, in the application as supporting information.

3. REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

3.1 **REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT***

3.1.1 If the *Company* proposes to make a *Modification* to the *Facility,* the *Company* shall determine if the proposed *Modification* will result in:

(a) a discharge of a *Compound of Concern* that was not previously discharged; or

(b) an increase in the concentration at a *Point of Impingement* of a *Compound of Concern.*

3.1.2 If a proposed *Modification* mentioned in Condition 3.1.1 will result in the discharge of a *Compound of Concern* that was not previously discharged, the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

(c) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern* and the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(d) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern.* Additionally, the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.3 If a proposed *Modification* mentioned in Condition 3.1.1 will result in an increase in the concentration at a *Point of Impingement* of a *Compound of Concern,* the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the *Acceptable Maximum Ground Level Concentration.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(c) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the *Acceptable Maximum Ground Level Concentration.*

(d) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the most recently accepted *Maximum Concentration Level*

Assessment submitted under Condition 3.1.2 or this Condition.

(e) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit, Acceptable Maximum Ground Level Concentration* or a *Maximum Concentration Level Assessment* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.4 Subject to the Operational Flexibility set out in Condition 2 of this *Approval,* the *Company* may make the *Modification* if the submission of a *Maximum Concentration Level Assessment* under Condition 3.1.2 or 3.1.3 is not required.

3.1.5 A *Company* that is required to submit an assessment under Condition 3.1.2 or 3.1.3 shall submit the assessment at least thirty (30) days before the proposed *Modification* occurs.

3.1.6 The *Ministry* shall provide to the *Company* written confirmation of the receipt of the assessment under Condition 3.1.2 or 3.1.3.

3.1.7 If the *Ministry* notifies the *Company* that it does not accept the assessment submitted under Condition 3.1.2 or 3.1.3, the *Company* shall:

(a) revise and resubmit the assessment; or

(b) notify the *Ministry* that the *Company* will not be modifying the *Facility.*

3.1.8 The re-submission under Condition 3.1.7(a) is considered by the *Ministry* as a new submission.

3.1.9 If an assessment is submitted under Condition 3.1.2, the *Company* shall not modify the *Facility* unless the *Ministry* accepts the assessment.

3.1.10 If an assessment is submitted under Condition 3.1.3, the *Company* shall not modify the *Facility* unless the *Ministry:*

(a) accepts the assessment; or

(b) does not respond to the *Company* with respect to the assessment within thirty (30) days from the date of the written confirmation mentioned in Condition 3.1.6.

3.2. ***PERFORMANCE LIMITS***

3.2.1 Subject to Condition 3.2.2, the *Company* shall, at all times, ensure that all *Equipment* that is a source of a *Compound of Concern* is operated to comply with the following *Performance Limits:*

(a) for a *Compound of Concern* that has a *Ministry Point of Impingement Limit,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Ministry Point of Impingement Limit;*

(b) for a *Compound of Concern* that has an *Acceptable Maximum Ground Level Concentration* and no *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Acceptable Maximum Ground Level Concentration;*

(c) for a *Compound of Concern* that has a *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the most recently accepted corresponding *Maximum Concentration Level Assessment.*

3.2.2 If the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, the *Company* shall, at all times, ensure that all *Equipment* that is a source of the *Compound of Concern* is operated such that the maximum concentration of the *Compound of Concern* shall not exceed the concentration listed for the *Compound of Concern* in the most recent version of the *ESDM Report. ESDM Reports* are required to be updated to reflect all *Modifications* under Condition 4.1(a).

3.2.3 The *Company* shall:

(a) implement by July 1, 2013 the *Noise Control Measures* as outlined in the *Acoustic Assessment Report,* dated December 19, 2011 and the letter (e-mail) dated January 10, 2012, both signed by Steve Kuchma, Church & Trought Inc.;

(b) ensure, subsequent to the implementation of proposed *Noise Control Measures* that the noise emissions from the *Facility* comply with the limits set in *Ministry Publications NPC-205; and*

(c) ensure that the *Noise Control Measures* are properly maintained and continue to provide the acoustical performance outlined in the *Acoustic Assessment Report*.

3.2.4 The *Company* shall, at all times, ensure that the vibration emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-207.*

4. DOCUMENTATION REQUIREMENTS

4.1 The *Company* shall, at all times, maintain documentation that describes the current operations of the *Facility,* including but not limited to:

(a) a current *ESDM Report* that demonstrates compliance with the *Performance Limits* for the *Facility* regarding all *Compounds of Concern* and reflects all *Modifications* made at the *Facility;*

(b) an up-to-date *Log* that describes each *Modification* to the *Facility;* and

(c) a record of the changes to the *ESDM Report* that documents how each *Modification* is in compliance with the *Performance Limits.*

4.2 The *Company* shall, during regular business hours, make the current *Emission Summary Table* available for inspection at the *Facility* by any interested member of the public.

4.3 Subject to Condition 4.5, the *Company* shall prepare and complete no later than April 15 of each year documentation that describes the activities undertaken at the *Facility* in the previous calendar year, including but not limited to:

(a) a list of all *Compounds of Concern* for which a *Maximum Concentration Level Assessment* was submitted to the *Director* for review by the *Air Standards Manager* pursuant to Condition 3.1.2 or 3.1.3 of this *Approval;*

(b) if the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, a list and concentration level of all such *Compounds of Concern:*

(c) a review of any changes to *Ministry Point of Impingement Limits* that affect any *Compounds of Concern* emitted from the *Facility;*and

(d) a table of the changes in the emission rate of any *Compound of Concern* and the resultant increase or decrease in the *Point of Impingement* concentration reported in the *ESDM Report.*

4.4 Subject to Condition 4.5, the *Company* shall, at all times, maintain the documentation described in Condition 4.3.

4.5 Conditions 4.3 and 4.4 do not apply if Condition 2.1 has expired.

4.6 The *Company* shall, within three (3) months after the expiry of Condition 2.1 of this *Approval,* update the *ESDM Report* such that it describes the *Facility* as it was at the time that Condition 2.1 of this *Approval* expired.

5. REPORTING REQUIREMENTS

5.1 Subject to Condition 5.2, the *Company* shall provide the *Ministry* and the *Director* no later than April 15 of each year, a *Written Summary Form* that shall include the following:

(a) a declaration that the *Facility* was in compliance with section 9 of the *EPA, O.Reg. 419/05* and the conditions of this *Approval;*

(b) a summary of each *Modification* that took place in the previous calendar year that resulted in a change in the

previously calculated concentration at the *Point of Impingement* for any *Compound of Concern.*

5.2 Condition 5.1 does not apply if Condition 2.1 has expired.

6. OPERATION AND MAINTENANCE

6.1 The *Company* shall prepare and implement, not later than three (3) months from the date of this *Approval,* operating procedures and maintenance programs for all *Processes with Significant Environmental Aspects,* which shall specify as a minimum:

(a) frequency of inspections and scheduled preventative maintenance;

(b) procedures to prevent upset conditions;

(c) procedures to minimize all fugitive emissions;

(d) procedures to prevent and/or minimize odorous emissions;

(e) procedures to prevent and/or minimize noise emission; and

(f) procedures for record keeping activities relating to the operation and maintenance programs.

6.2 The *Company* shall ensure that all *Processes with Significant Environmental Aspects* are operated and maintained at all times in accordance with this *Approval,* the operating procedures and maintenance programs.

7. COMPLAINTS RECORDING PROCEDURE

7.1 If at any time, the *Company* receives any environmental complaints from the public regarding the operation of the *Equipment* approved by this *Approval,* the *Company* shall respond to these complaints according to the following procedure:

(a) the *Company* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the time and date of the complaint and incident to which the complaint relates, the nature of the complaint, wind direction at the time and date of the incident to which the complaint relates and, if known, the address of the complainant;

(b) the *Company,* upon notification of a complaint, shall initiate appropriate steps to determine all possible causes of the complaint, and shall proceed to take the necessary actions to appropriately deal with the cause of the subject matter of the complaint; and

(c) the *Company* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to appropriately deal with the cause of the subject matter of the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents**.**

8. RECORD KEEPING REQUIREMENTS

8.1 Any information requested by any employee in or agent of the *Ministry* concerning the *Facility* and its operation under this *Approval,* including, but not limited to, any records required to be kept by this *Approval,* shall be provided to the employee in or agent of the *Ministry,* upon request**,** in a timely manner.

8.2 The *Company* shall retain, for a minimum of seven (7) years from the date of their creation, except as noted below, all reports, records and information described in this *Approval* and shall include but not be limited to:

(a) If the *Company* has updated the *ESDM Report* in order to comply with Condition 4.1(a) of this *Approval,* a copy of each new version of the *ESDM Report;*

(b) supporting information used in the emission rate calculations performed in the *ESDM Reports* to document compliance with the *Performance Limits* (superseded information must be retained for a period of three (3) years after *Modification);*

(c) the *Log* that describes each *Modification* to the *Facility;*

(d) all documentation prepared in accordance with Condition 4.3 of this *Approval;*

(e) copies of any *Written Summary Forms* provided to the *Ministry* under Condition 5.1 of this *Approval;*

(f) the operating procedures and maintenance programs, including records on the maintenance, repair and inspection of the *Equipment* related to all *Processes with Significant Environmental Aspects;* and

(g) the complaints recording procedure, including records related to all environmental complaints made by the public as required by Condition 7.1 of this *Approval.*

9. REVOCATION OF PREVIOUS APPROVALS

9.1 This *Approval* replaces and revokes all Certificates of Approval (Air) issued under section 9 EPA.

10. ACOUSTIC AUDIT

10.1 The *Company* shall carry out *Acoustic Audit* measurements on the actual noise emissions due to the operation of the *Facility,* following the implementation of the *Noise Control Measures.* The *Company:*

(a) shall carry out *Acoustic Audit* measurements in accordance with the procedures in *Publication*

NPC-103; and

(b) shall submit an *Acoustic Audit Report* on the results of the *Acoustic Audit*, prepared by an *Independent Acoustical Consultant*, in accordance with the requirements of *Publication NPC-233*, to the *District Manager* and the *Director,*not later than three (3) months after the completion of the *Noise Control Measures* implementation.

10.2. The *Director:*

(a) may not accept the results of the *Acoustic Audit* if the requirements of *Publication NPC-233* were not followed; and

(b) may require the *Company* to repeat the *Acoustic Audit* if the results of the *Acoustic Audit* are found unacceptable to the *Director.*

SCHEDULE A

Supporting Documentation

(a) Application for Approval (Air & Noise), dated August 24, 2011, signed by David Seyler and submitted by the C*ompany;*

(b) Emission Summary and Dispersion Modelling Report, prepared by Church & Trought inc. and dated August 24, 2011.

(c) Acoustic Assessment Report dated August 24, 2011 and signed by Steve Kuchma, Church & Trought Inc.

(d) Revised Acoustic Assessment Report dated December 19, 2011 and signed by Steve Kuchma, Church & Trought Inc.

(e) Letter (e-mail) dated January 11, 2012 and provided by Steve Kuchma, Church & Trought Inc.(CTI).

(f) Letter (e-mail) dated January 12, 2012 and signed by Ulla Jokinen of Church & Trought Inc.(CTI).

The reasons for the imposition of these terms and conditions are as follows:

1. GENERAL

Condition No. 1 is included to require the *Approval* holder to build, operate and maintain the *Facility* in accordance with

the *Supporting Documentation* considered by the *Director* in issuing this *Approval.*

2. LIMITED OPERATIONAL FLEXIBILITY, REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

Conditions No. 2 and 3 are included to limit and define the *Modifications* permitted by this *Approval,* and to set out the circumstances in which the *Company* shall submit a *Maximum Concentration Level Assessment* prior to making *Modifications.* The holder of the *Approval* is approved for operational flexibility for the *Facility* that is consistent with the description of the operations included with the application up to the *Facility Production Limit.* In return for the operational flexibility the *Approval* places performance based limits that cannot be exceeded under the terms of this *Approval. Approval* holders will still have to obtain other relevant approvals required to operate the *Facility,* including requirements under other environmental legislation such as the *Environmental Assessment Act.*

3. DOCUMENTATION REQUIREMENTS

Condition No. 4 is included to require the *Company* to maintain ongoing documentation that demonstrates compliance with the *Performance Limits* of this *Approval* and allows the *Ministry* to monitor on-going compliance with these *Performance Limits.* The *Company* is required to have an up to date *ESDM Report* that describes the *Facility* at all times and make the *Emission Summary Table* from that report available to the public on an ongoing basis in order to maintain public communication with regard to the emissions from the *Facility.*

4. REPORTING REQUIREMENTS

Condition No. 5 is included to require the *Company* to provide a yearly *Written Summary Form* to the *Ministry* to assist the *Ministry.* with the review of the site's compliance with the *EPA,* the regulations and this *Approval.*

5. OPERATION AND MAINTENANCE

Condition No. 6 is included to require the *Company* to properly operate and maintain the *Processes with Significant Environmental Aspects* to minimize the impact to the environment from these processes.

6. COMPLAINTS RECORDING PROCEDURE

Condition No. 7 is included to require the *Company* to respond to any environmental complaints regarding the operation of the *Equipment,* according to a procedure that includes methods for preventing recurrence of similar incidents and a requirement to prepare and retain a written report.

7. RECORD KEEPING REQUIREMENTS

Condition No. 8 is included to require the *Company* to retain all documentation related to this *Approval* and provide access to employees in or agents of the *Ministry*, upon request, so that the *Ministry* can determine if a more detailed review of compliance with the *Performance Limits* is necessary.

8. REVOCATION OF PREVIOUS APPROVALS

Condition No. 9 is included to identify that this *Approval* replaces all Section 9 Certificate(s) of Approval.

9. ACOUSTIC AUDIT

Condition No. 10 is included to require the *Company* to gather accurate information and submit an *Acoustic Audit Report* in accordance with procedures set in the *Ministry's* noise guidelines, so that the environmental impact and subsequent compliance with the *EPA*, the regulation and this *Approval* can be verified.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 2029-7FFKBX issued on September 2, 2008

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the

Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 23rd day of January, 2012

Ian Parrott, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

FC/
c: District Manager, MOE Guelph
Ulla Jokinen, B.Sc., C.E.T., Church & Trought Inc. (CTI)

Ministry of the Environment and Climate Change
Operations Division

Confirmation of Registration

Registration Number: R-010-8110298402
Version Number: 001
Date Registration Filed: Dec 05, 2017 09:41:30 AM

Dear Sir/Madam,

DON J PESTELL LIMITED

141 HAMILTON RD
NEW HAMBURG ON N3A 2H1

You have registered, in accordance with Section 20.21(1) (a) of the *Environmental Protection Act*, the use, operation, construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing that is located at the facility noted below, or the alteration of a process or rate of production at the facility, including the activities set out in schedule 'A'.

141 HAMILTON Road NEW HAMBURG ON N3A 2H1

Please note that the facility noted above is subject to the applicable provisions of O. Reg. 245/11, and O. Reg.1/17.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on Dec 05, 2017

Director
Environmental Approvals Access and Service Integration Branch
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment and Climate Change

Customer Service Representative

Environmental Approvals Access and Service Integration Branch

Phone:(416) 314-8001

Toll free: 1-800-461-6290

Schedule 'A'

Part 3 - Activity Information

3.1 Industry Eligibility Check

a. Please select the facility's primary North American Industry Classification System (NAICS) code.	418390	
b. Does the facility have any other applicable NAICS codes?	☑ Yes	☐ No
b. i. If yes, please select the facility's secondary NAICS code(s), and confirm any other applicable NAICS code(s).	418910,325999	
c. Are you engaged in an activity at the facility that may discharge or from which may be discharged a contaminant into any part of the natural environment other than water?	☑ Yes	☐ No
d. Is the activity exempt from requiring an Environmental Compliance Approval (ECA) under section 9 (1) of the Environmental Protection Act (EPA) other than an activity that has been prescribed by an EASR regulation under Part II.2 of the Act?	☐ Yes	☑ No
e. Are the only activities engaged in at the facility, other than activities described in question 3.1d above, prescribed under a single other EASR regulation?	☐ Yes	☑ No
f. Is an alternative low-carbon fuel site within the meaning of Ontario Regulation (O. Reg.) 79/15 (Alternative Low-Carbon Fuels) operated at the facility?	☐ Yes	☑ No
g. Is the activity a renewable energy project as defined in the EPA?	☐ Yes	☑ No
h. Is an end-of-life vehicle waste disposal site within the meaning of O. Reg. 85/16 operated at the facility?	☐ Yes	☑ No

3.2 Facility Related Information

a. Has a site-specific air standard ever been set for a contaminant discharged from the facility? (section 35 of O. Reg. 419/05 (Air Pollution -- Local Air Quality))	☐ Yes	☑ No
b. Has a person ever been registered in the Ministry's Technical Standards Registry – Air Pollution under section 39 of O. Reg. 419/05 (Air Pollution – Local Air Quality) in respect of the facility?	☐ Yes	☑ No
c. Do all of the activities to be registered occur exclusively at the site? *Please Note: Discrete activities that involve the use of equipment that is intended to be moved from one site to another to perform the same function (such as the use of mobile rock crushing equipment or mobile PCB destruction equipment) are not prescribed for the purpose of the Environmental Activity and Sector Registry, and an Environmental Compliance Approval may be required.*	☑ Yes	☐ No
d. Is the facility located on a property that has been deemed a single property under subsection 4 (2) of O. Reg. 419/05?	☐ Yes	☑ No
e. Is the facility located in an area of development control within the Niagara Escarpment Planning Area?	☐ Yes	☑ No
e. i. If yes, has a development permit required under section 24 of the Niagara Escarpment Planning and Development Act (NEPDA) in respect of the facility been issued?	☐ Yes	☐ No
f. Is there a landfilling site that is no longer permitted to accept waste for disposal located on the site on which the facility is located?	☐ Yes	☑ No
g. Is the activity part of an undertaking to which the Environmental Assessment Act applies?	☐ Yes	☑ No
g. i. If yes, is one or more of the following conditions met: - All class EA requirements have been completed, including decisions on any Part II order requests; OR - The facility has received approval to proceed with the undertaking.	☐ Yes	☐ No

h. Please provide a description of the facility. The description should include a summary of operations and activities at the facility that discharge contaminants, as well as what is produced, if applicable.

The facility is a multibuilding site in which four different operations are based. The operations are minerals and feed ingredients, pet products, wood shavings and transport. The minerals and feed ingredients operation purchases packaged products from north American and international sources, which are then distributed to customers. The pet products operation receives bentonite in bulk through rail cars. The bentonite is then combined with scents and other additives to manufacture pet products. The wood shavings operation receives wood chips through transport trucks. The wood shavings are stored in holding bins from which they are transported to the packaging equipment.

Finally, the transport operation provides trucking transportation within Pestell and for other unrelated customers. It also consists of a

maintenance station for trucks and other vehicles.

i. Please enter the date on which the facility commenced or will commence operations.	2006-09-01	
j. Is the facility located in a multi-tenant building?	☐ Yes	☑ No

3.3 Activity Related Information

a. Does the land disposal of waste as defined in Regulation 347 General – Waste Management occur at the facility?	☐ Yes	☑ No
b. Does the facility process or dispose of waste by way of thermal treatment, other than the thermal treatment of wood fuel that meets the specifications in Chapter 5 of the EASR publication in a wood-fired combustor?	☐ Yes	☑ No
c. Does the facility use a wood-fired combustor?	☐ Yes	☑ No
c. i. If yes, does the wood-fired combustor have a nominal load heat input capacity of less than 3 megawatts?	☐ Yes	☐ No
c. ii. If yes, was the wood-fired combustor installed at the facility on or after January 31, 2017?	☐ Yes	☐ No
c. iii. If yes, does the wood-fired combustor exclusively use one or more of the following as fuel: - Wood chips that meet the specifications set out in Chapter 5 of the EASR publication. - Wood briquettes that meet the specifications set out in Chapter 5 of the EASR publication. - Wood pellets that meet the specifications set out in Chapter 5 of the EASR publication.	☐ Yes	☐ No
d. Does the facility have any plating processes that use cadmium, cyanide, chromium or nickel, including chrome plating, electroplating or electroless plating?	☐ Yes	☑ No
e. Is an electrolytic stripping process that removes cadmium, chromium or nickel from an object used at the facility?	☐ Yes	☑ No
f. Are metals processed outdoors at the facility, including torching, shearing, shredding or plasma cutting, other than for the purpose of routine maintenance carried out at the facility on any plant, structure, equipment, apparatus or thing?	☐ Yes	☑ No
g. Is a fossil-fuel electric power generation facility with a maximum electrical power output capacity equal to or greater than 25 megawatts operated at the facility?	☐ Yes	☑ No
h. Is a combustion source that uses biogas, biomass, coal, petroleum coke or waste as a fuel, or that uses a fuel derived from biogas, biomass, coal, petroleum coke or waste other than a small wood-fired combustor operated at the facility?	☐ Yes	☑ No
i. Is a combustion turbine used at the facility?	☐ Yes	☑ No

Part 4 - Operational Information

4.1 Air

a. Does the EASR Emission Summary and Dispersion Modelling (ESDM) Report provide for modifications that have not yet been implemented at the facility? ☐ Yes ☑ No

a. i. If yes, please provide the date on which the modifications will be completed.

b. Has an instrument under O. Reg. 419/05 been issued in respect of the facility? ☐ Yes ☑ No

b. i. If yes, what type(s) of instruments (including any notices, orders or approvals) has (have) been issued? (select all that apply)

ss. 7(1) Specified Dispersion Models	☐
ss. 8(2) Negligible Sources	☐
ss. 10(2) Operating Conditions	☐
ss. 11(2) Refined Emission Rates	☐
ss. 13.1 Value of Dispersion Modelling Parameters	☐
ss. 13(1) Meteorological Data	☐
ss. 14(6) Area of Modelling Coverage	☐
ss. 20(5) Speed-up Order	☐
Other	☐

List all that have been issued

c. To what standard did the licensed engineering practitioner assess compliance of the facility's emissions (please select the applicable box(es)):

Section 19 of O. Reg. 419/05 (Schedule 2)	☑
Section 20 of O. Reg. 419/05 (Schedule 3)	☑
N/A – The amount of any contaminant discharged from the site is negligible	☐
N/A – Source(s) discharge only sound as a contaminant	☐
N/A – Source(s) discharge sound as a contaminant and the amount of any other contaminant discharged is negligible	☐

d. Please select all applicable boxes that apply to a discharge of a contaminant(s) to air from the facility:

Contaminant(s) belonging to Benchmark 1 category of ACB list is at or below the concentration for each specified averaging period set out for the contaminant	☑
Contaminant(s) belonging to Benchmark 2 category of ACB list is at or below the concentration for each specified averaging period set out for the contaminant	☑
Contaminant(s) belonging to Benchmark 2 category of ACB list is above the concentration for a specified averaging period set out for the contaminant	☐
The concentration of the contaminant(s) does not have a Ministry standard, guideline, or screening level set out for the contaminant	☑

N/A – The amount of any contaminant discharged from the site is negligible	☐
N/A – Source(s) discharge only sound as a contaminant	☐
N/A – Source(s) discharge sound as a contaminant and the amount of any other contaminant discharged is negligible	☐

e. Does the facility operate a generator for non-emergency purposes?	☐ Yes	☑ No
f. Does the facility use or operate a large boiler or heater greater than 10.5 gigajoules per hour?	☐ Yes	☑ No
g. Will an Emissions Summary Table be uploaded? *Please Note: An Emissions Summary Table is required to be uploaded at the time of registration. An Emissions Summary Table is also required to be uploaded if any modifications to the facility require an update to the EASR ESDM. Additionally, as part of the 10 year review required by O. Reg. 1/17, an updated Emissions Summary Table is required to be uploaded.*	☑ Yes	☐ No

h. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the EASR ESDM Report and made statements in the EASR ESDM Report Supplement and the date signed.

First Name	Last Name	Licence Number(s)	Date Signed
Brian	Sulley	100080398	2017-09-20

4.2 Fugitive Dust Control

a. Does the EASR ESDM Report prepared for the facility identify a source of fugitive dust?	☐ Yes	☑ No
a. i. If yes, has a licensed engineering practitioner signed and sealed a Best Management Practice Plan (BMPP) for fugitive dust control?	☐ Yes	☐ No
b. Has a BMPP for fugitive dust control been prepared as a result of a written notice from the Director issued under O. Reg. 1/17?	☐ Yes	☑ No

c. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the BMPP for fugitive dust control and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

4.3 Noise

a. Please select the noise assessment method that was completed for the facility:

The facility meets the 1000m setback distance	☐
Primary Noise Screening Method	☐
Secondary Noise Screening Method	☐
Acoustic Assessment Report	☑

a. i. If the Primary Noise Screening Method was used, is the actual separation distance from the facility to the closest Point of Noise Reception equal to or greater than the minimum separation distance as determined by the Primary Noise Screening Method?	☐ Yes	☐ No
a. ii. If the Secondary Noise Screening Method was used, is the combined sound level from the facility at each affected Point of Noise Reception as determined by the Secondary Noise Screening Method less than or equal to the applicable sound level limit set out in Chapter 3 of the EASR publication?	☐ Yes	☐ No
a. iii. If an acoustic assessment was completed, did the acoustic assessment determine that the combined sound level from the facility at each affected Point of Noise Reception less than or equal to of the applicable sound level limit set out in Chapter 3 of the EASR publication?	☐ Yes	☑ No

a. iii. a) If no, has a Noise Abatement Action Plan been developed for the facility? ☑ Yes ☐ No

a. iii. b) If yes, please provide the title of the Noise Abatement Action Plan and the date it was prepared.

Name of NAAP	Date Prepared
EASR Acoustic Assessment	2017-09-21

b. Has an Acoustic Audit Report been prepared as a result of a written notice from the Director? ☐ Yes ☑ No

b. i. If yes, please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the acoustic audit report, and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

c. Will an Acoustic Assessment Summary Table be uploaded? ☑ Yes ☐ No
Please Note: An Acoustic Assessment Summary Table is required to be uploaded at the time of registration if an Acoustic Assessment was completed for the facility. An Acoustic Assessment Summary Table is also required to be uploaded if any modifications to the facility require an update to the facility's noise report. Additionally, as part of the 10 year review required by O. Reg. 1/17, an updated Acoustic Assessment Summary Table is required to be uploaded.

d. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the noise report, and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed
Kyle	Hellewell	100089707	2017-09-21

4.4 Odour

a. Did the Odour Screening Report indicate that a circumstance which requires a BMPP for odour to be prepared exists at the facility? ☑ Yes ☐ No

b. Did the Odour Screening Report indicate that a circumstance which requires an Odour Control Report (OCR) to be prepared exists at the facility? ☐ Yes ☑ No

b. i. If yes, please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the Odour Control Report and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

c. Has a BMPP for odour been prepared as a result of a written notice from the Director issued under O. Reg. 1/17? ☐ Yes ☑ No

d. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the BMPP for odour and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed
Brian	Sulley	100080398	2017-09-22

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 4817-9KHKEX
Issue Date: July 7, 2014

Nachurs Alpine Solutions Inc.
30 Nevilles Street
New Hamburg, Ontario
N3A 4G7

Site Location: 1356 Nafziger Road
Wilmot Township, Regional Municipality of Waterloo

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

Description Section

A liquid fertilizer manufacturing facility, consisting of the following processes and support units:

- raw materials receiving and handling;

- mixers/batch reactors;

- storage and shipping operations;

including the *Equipment* and any other ancillary and support processes and activities, operating at a *Facility Production Limit* of up to **218 tonnes of fertilizer per day,** discharging to the air as described in the *Original ESDM Report.*

For the purpose of this environmental compliance approval, the following definitions apply:

1. "*Acceptable Maximum Ground Level Concentration"* means a concentration accepted by the *Ministry,* as described in the Guide to Applying for Approval (Air & Noise), for a *Compound of Concern* listed in the *Original ESDM Report* that:

(a) has no *Ministry Point of Impingement Limit* and no *Jurisdictional Screening Level,* or

(b) has a concentration at a *Point of Impingement* that exceeds the *Jurisdictional Screening Level.*

2. "*Acoustic Assessment Report"* means the report, prepared in accordance with *Publication NPC-233* and Appendix A of the *Basic Comprehensive User Guide,* by Colin Novak, P.Eng. / Akoustik Engineering Limited, and dated June 24, 2014, submitted in support of the application, that documents all sources of noise emissions and *Noise Control Measures* present at the *Facility* and includes all up-dated *Acoustic Assessment Reports* as required by the Documentation Requirements conditions of this *Approval* to demonstrate continued compliance with the *Performance Limits* following the implementation of any *Modification.*

3. "*Acoustic Assessment Summary Table"* means a table prepared in accordance with the *Basic Comprehensive User Guide* summarising the results of the *Acoustic Assessment Report,* up-dated as required by the Documentation Requirements conditions of this *Approval.*

4. "*Air Standards Manager"* means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this *Approval.*

5. "*Approval"* means this entire Environmental Compliance Approval and any *Schedules* to it.

6. "*Basic Comprehensive User Guide"* means the *Ministry* document titled "Basic Comprehensive Certificates of Approval (Air) User Guide" dated March 2011, as amended.

7. "*Company"* means Nachurs Alpine Solutions Inc. operating as Nachurs Alpine Solutions Inc. that is responsible for the construction or operation of the *Facility* and includes any successors and assigns in accordance with section 19 of the *EPA*.

8. "*Compound of Concern"* means a contaminant that, based on generally available information, may be discharged to the air in a quantity from the *Facility* that:

(a) is non-negligible in accordance with section 26(1)4 of *O. Reg. 419/05* in comparison to the relevant *Ministry Point of Impingement Limit;* or

(b) if a *Ministry Point of Impingement Limit* is not available for the compound, may cause an adverse effect at a *Point of Impingement* based on generally available toxicological information.

9. "*Description Section"* means the section on page one of this *Approval* describing the *Company's* operations and the *Equipment* located at the *Facility* and specifying the *Facility Production Limit* for the *Facility.*

10. "*Director"* means a person appointed by the Minister pursuant to section 5 of the *EPA*.

11. "*District Manager"* means the District Manager of the appropriate local district office of the *Ministry,* where the *Facility* is geographically located.

12. "*Emission Summary Table"* means the most updated table contained in the *ESDM Report,* which is prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* listing the appropriate *Point of Impingement* concentration for each *Compound of Concern* from the *Facility* and providing comparison to the corresponding *Ministry Point of Impingement Limit* or *Maximum Concentration Level Assessment,* or *Jurisdictional Screening Level.*

13. "*Environmental Assessment Act"* means the Environmental Assessment Act, R.S.O. 1990, c.E.18, as amended.

14. "*EPA"* means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended.

15. "*Equipment"* means equipment or processes described in the *ESDM Report,* this *Approval* and in the *Schedules* referred to herein and any other equipment or processes.

16. "*Equipment with Specific Operational Limits"* means any *Equipment* related to the thermal oxidation of waste or waste derived fuels, fume incinerators or any other *Equipment* that is specifically referenced in any published *Ministry* document that outlines specific operational guidance that must be considered by the *Director* in issuing an *Approval.*

17. "*ESDM Report"* means the most current Emission Summary and Dispersion Modelling Report that describes the *Facility.* The *ESDM Report* is based on the *Original ESDM Report,* is prepared after the issuance of this *Approval* in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by the *Company* or its consultant.

18. "*Facility"* means the entire operation located on the property where the *Equipment* is located.

19. "*Facility Production Limit"* means the production limit placed by the *Director* on the main product(s) or raw materials used by the *Facility.*

20. "*Jurisdictional Screening Level"* means a screening level for a *Compound of Concern* that is listed in the *Ministry* publication titled "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality", dated February 2008, as amended.

21. "*Log"* means the up-to-date log that is used to track all *Modifications* to the *Facility* since the date of this *Approval* as required by the Documentation Requirements conditions of this *Approval.*

22. "*Maximum Concentration Level Assessment"* means the Maximum Concentration Level Assessment for the purposes of an *Approval,* described in the *Basic Comprehensive User Guide,* prepared by a *Toxicologist* using currently available toxicological information, that demonstrates that the concentration at any *Point of Impingement* for a *Compound of*

Concern that does not have a *Ministry Point of Impingement Limit* is not likely to cause an adverse effect as defined by the *EPA*.

23. "*Ministry"* means the ministry of the government of Ontario responsible for the *EPA* and its regulations and includes all officials, employees or other persons acting on its behalf.

24. "*Ministry Point of Impingement Limit"* means the applicable Standard set out in Schedule 2 or 3 of *O.Reg. 419/05* or a limit set out in the *Ministry* publication titled "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution - Local Air Quality (including Schedule 6 of O. Reg. 419 on Upper Risk Thresholds)", dated April 2012, as amended.

25. "*Modification"* means any construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing, or alteration of a process or rate of production at the *Facility* that may discharge or alter the rate or manner of discharge of a *Compound of Concern* to the air or discharge or alter noise or vibration emissions from the *Facility.*

26. "*Noise Control Measures"* means measures to reduce the noise emissions from the *Facility* and/or *Equipment* including, but not limited to, silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers.

27. "*O. Reg. 419/05"* means the Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended.

28. "*Original ESDM Report"* means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by Harvey Watson (R.J. Burnside & Associates Limited) and dated February 15, 2013 submitted in support of the application, and includes any changes to the report made up to the date of issuance of this *Approval.*

29. "*Performance Limits"* means the performance limits specified in Condition 3.2 of this *Approval* titled Performance Limits.

30. "*Point of Impingement"* has the same meaning as in section 2 of *O. Reg. 419/05.*

31. "*Point of Reception"* means Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232,* as applicable.

32. "*Procedure Document"* means *Ministry* guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2009, as amended.

33. "*Processes with Significant Environmental Aspects"* means the *Equipment* which, during regular operation, would discharge a contaminant or contaminants into the air at an amount which is not considered as negligible in accordance with section 26(1)4 of *O. Reg. 419/05* and the *Procedure Document.*

34. "*Publication NPC-205"* means the *Ministry* Publication NPC-205, "Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", October, 1995, as amended.

35. "*Publication NPC-207"* means the *Ministry* draft technical publication "Impulse Vibration in Residential Buildings", November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, published by the *Ministry,* August 1978, as amended.

36. "*Publication NPC-232"* means the *Ministry* Publication NPC-232, "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", October, 1995, as amended.

37. "*Publication NPC-233"* means the *Ministry* Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995, as amended.

38. "*Schedules"* means the following schedules attached to this *Approval* and forming part of this *Approval* namely:

Schedule A - Supporting Documentation

39. "*Toxicologist"* means a qualified professional currently active in the field of risk assessment and toxicology that has a

combination of formal university education, training and experience necessary to assess contaminants.

40. "*Written Summary Form"* means the electronic questionnaire form, available on the *Ministry* website, and supporting documentation, that documents the activities undertaken at the *Facility* in the previous calendar year that must be submitted annually to the *Ministry* as required by the section of this *Approval* titled Reporting Requirements.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

1.1 Except as otherwise provided by this *Approval,* the *Facility* shall be designed, developed, built, operated and maintained in accordance with the terms and conditions of this *Approval* and in accordance with the following *Schedules* attached hereto:

Schedule A - Supporting Documentation

2. LIMITED OPERATIONAL FLEXIBILITY

2.1 Pursuant to section 20.6(1) of the *EPA* and subject to Conditions 2.2 and 2.3 of this *Approval,* future construction, alterations, extensions or replacements are approved in this *Approval* if the future construction, alterations, extensions or replacements are *Modifications* to the *Facility* that:

(a) are within the scope of the operations of the *Facility* as described in the *Description Section* of this *Approval;*

(b) do not result in an increase of the *Facility Production Limit* above the level specified in the *Description Section* of this *Approval;* and

(c) result in compliance with the *Performance Limits.*

2.2 Condition 2.1 does not apply to:

(a) the addition of any new *Equipment with Specific Operational Limits* or to the *Modification* of any existing *Equipment with Specific Operational Limits* at the *Facility;* or

(b) *Modifications* to the *Facility* that would be subject to the *Environmental Assessment Act.*

2.3 Condition 2.1 of this *Approval* shall expire ten (10) years from the date of this *Approval,* unless this *Approval* is revoked prior to the expiry date. The *Company* may apply for renewal of Condition 2.1 of this *Approval* by including an *ESDM Report* and an *Acoustic Assessment Report* that describes the *Facility* as of the date of the renewal application.

3. REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

3.1 **REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT***

3.1.1 If the *Company* proposes to make a *Modification* to the *Facility,* the *Company* shall determine if the proposed *Modification* will result in:

(a) a discharge of a *Compound of Concern* that was not previously discharged; or

(b) an increase in the concentration at a *Point of Impingement* of a *Compound of Concern.*

3.1.2 If a proposed *Modification* mentioned in Condition 3.1.1 will result in the discharge of a *Compound of Concern* that was not previously discharged, the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

(c) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern* and the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(d) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern.* Additionally, the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.3 If a proposed *Modification* mentioned in Condition 3.1.1 will result in an increase in the concentration at a *Point of Impingement* of a *Compound of Concern,* the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the *Acceptable Maximum Ground Level Concentration.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(c) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the *Acceptable Maximum Ground Level Concentration.*

(d) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(e) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit, Acceptable Maximum Ground Level Concentration* or a *Maximum Concentration Level Assessment* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.4 Subject to the Operational Flexibility set out in Condition 2 of this *Approval,* the *Company* may make the *Modification* if the submission of a *Maximum Concentration Level Assessment* under Condition 3.1.2 or 3.1.3 is not required.

3.1.5 A *Company* that is required to submit an assessment under Condition 3.1.2 or 3.1.3 shall submit the assessment at least thirty (30) days before the proposed *Modification* occurs.

3.1.6 The *Ministry* shall provide to the *Company* written confirmation of the receipt of the assessment under Condition 3.1.2 or 3.1.3.

3.1.7 If an assessment is submitted under Condition 3.1.2 or 3.1.3, the *Company* shall not modify the *Facility* unless the *Ministry* accepts the assessment.

3.1.8 If the *Ministry* notifies the *Company* that it does not accept the assessment submitted under Condition 3.1.2 or 3.1.3, the *Company* shall:

(a) revise and resubmit the assessment; or

(b) notify the *Ministry* that the *Company* will not be modifying the *Facility.*

3.1.9 The re-submission under Condition 3.1.8 (a) is considered by the *Ministry* as a new submission.

3.2. ***PERFORMANCE LIMITS***

3.2.1 Subject to Condition 3.2.2, the *Company* shall, at all times, ensure that all *Equipment* that is a source of a *Compound*

of Concern is operated to comply with the following *Performance Limits:*

(a) for a *Compound of Concern* that has a *Ministry Point of Impingement Limit,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Ministry Point of Impingement Limit;*

(b) for a *Compound of Concern* that has an *Acceptable Maximum Ground Level Concentration* and no *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Acceptable Maximum Ground Level Concentration;* and

(c) for a *Compound of Concern* that has a *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the most recently accepted corresponding *Maximum Concentration Level Assessment.*

3.2.2 If the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, the *Company* shall, at all times, ensure that all *Equipment* that is a source of the *Compound of Concern* is operated such that the maximum concentration of the *Compound of Concern* shall not exceed the concentration listed for the *Compound of Concern* in the most recent version of the *ESDM Report.*

3.2.3 The *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-205* or *Publication NPC-232.*

3.2.4 The *Company* shall, at all times, ensure that the vibration emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-207.*

3.2.5 The *Company* shall, at all times, operate any *Equipment with Specific Operational Limits* approved by this *Approval* in accordance with the *Original ESDM Report* and Conditions in this *Approval.*

4. DOCUMENTATION REQUIREMENTS

4.1 The *Company* shall, at all times, maintain documentation that describes the current operations of the *Facility,* including but not limited to:

(a) an *ESDM Report* that demonstrates compliance with the *Performance Limits* for the *Facility;*

(b) an *Acoustic Assessment Report* that demonstrates compliance with the *Performance Limits* for the *Facility;*

(c) an up-to-date *Log* that describes each *Modification* to the *Facility;* and

(d) a record of the changes to the *ESDM Report* and the *Acoustic Assessment Report* that documents how each *Modification* is in compliance with the *Performance Limits.*

4.2 The *Company* shall, during regular business hours, make the current *Emission Summary Table* and *Acoustic Assessment Summary Table* available for inspection at the *Facility* by any interested member of the public.

4.3 Subject to Condition 4.5, the *Company* shall prepare and complete no later than May 15 of each year documentation that describes the activities undertaken at the *Facility* in the previous calendar year, including but not limited to:

(a) a list of all *Compounds of Concern* for which a *Maximum Concentration Level Assessment* was submitted to the *Director* for review by the *Air Standards Manager* pursuant to Condition 3.1.2 or 3.1.3 of this *Approval;*

(b) if the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, a list and concentration level of all such *Compounds of Concern;*

(c) a review of any changes to *Ministry Point of Impingement Limits* that affect any *Compounds of Concern* emitted from the *Facility;* and

(d) a table of the changes in the emission rate of any *Compound of Concern* and the resultant increase or decrease in the

Point of Impingement concentration reported in the *ESDM Report.*

4.4 Subject to Condition 4.5, the *Company* shall, at all times, maintain the documentation described in Condition 4.3.

4.5 Conditions 4.3 and 4.4 do not apply if Condition 2.1 has expired.

4.6 The *Company* shall, within three (3) months after the expiry of Condition 2.1 of this *Approval,* update the *ESDM Report* and the *Acoustic Assessment Report* such that they describe the *Facility* as it was at the time that Condition 2.1 of this *Approval* expired.

5. REPORTING REQUIREMENTS

5.1 Subject to Condition 5.2, the *Company* shall provide the *Ministry* and the *Director* no later than May 15 of each year, a *Written Summary Form* that shall include the following:

(a) a declaration of whether the *Facility* was in compliance with section 9 of the *EPA, O.Reg. 419/05* and the conditions of this *Approval;*

(b) a summary of each *Modification* that took place in the previous calendar year that resulted in a change in the previously calculated concentration at the *Point of Impingement* for any *Compound of Concern* or resulted in a change in the sound levels reported in the *Acoustic Assessment Summary Table* at any *Point of Reception.*

5.2 Condition 5.1 does not apply if Condition 2.1 has expired.

6. OPERATION AND MAINTENANCE

6.1 The *Company* shall prepare and implement, not later than three (3) months from the date of this *Approval,* operating procedures and maintenance programs for all *Processes with Significant Environmental Aspects,* which shall specify as a minimum:

(a) frequency of inspections and scheduled preventative maintenance;

(b) procedures to prevent upset conditions;

(c) procedures to minimize all fugitive emissions;

(d) procedures to prevent and/or minimize odorous emissions;

(e) procedures to prevent and/or minimize noise emissions; and

(f) procedures for record keeping activities relating to the operation and maintenance programs.

6.2 The *Company* shall ensure that all *Processes with Significant Environmental Aspects* are operated and maintained at all times in accordance with this *Approval,* the operating procedures and maintenance programs.

7. COMPLAINTS RECORDING PROCEDURE

7.1 If at any time, the *Company* receives any environmental complaints from the public regarding the operation of the *Equipment* approved by this *Approval,* the *Company* shall respond to these complaints according to the following procedure:

(a) the *Company* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the time and date of the complaint and incident to which the complaint relates, the nature of the complaint, wind direction at the time and date of the incident to which the complaint relates and, if known, the address of the complainant;

(b) the *Company,* upon notification of a complaint, shall initiate appropriate steps to determine all possible causes of the complaint, and shall proceed to take the necessary actions to appropriately deal with the cause of the subject matter of the complaint; and

(c) the *Company* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to appropriately deal with the cause of the subject matter of the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents**.**

8. RECORD KEEPING REQUIREMENTS

8.1 Any information requested by any employee in or agent of the *Ministry* concerning the *Facility* and its operation under this *Approval,* including, but not limited to, any records required to be kept by this *Approval,* shall be provided to the employee in or agent of the *Ministry,* upon request**,** in a timely manner.

8.2 The *Company* shall retain, for a minimum of five (5) years from the date of their creation, except as noted below, all reports, records and information described in this *Approval* and shall include but not be limited to:

(a) If the *Company* has updated the *ESDM Report* in order to comply with Condition 4.1(a) of this *Approval,* a copy of each new version of the *ESDM Report;*

(b) If the *Company* has updated the *Acoustic Assessment Report,* in order to comply with Condition 4.1(b) of this *Approval,* a copy of each new version of the *Acoustic Assessment Report;*

(c) supporting information used in the emission rate calculations performed in the *ESDM Reports* and *Acoustic Assessment Reports* to document compliance with the *Performance Limits*(superseded information must be retained for a period of three (3) years after *Modification);*

(d) the *Log* that describes each *Modification* to the *Facility;*

(e) all documentation prepared in accordance with Condition 4.3 of this *Approval;*

(f) copies of any *Written Summary Forms* provided to the *Ministry* under Condition 5.1 of this *Approval;*

(g) the operating procedures and maintenance programs, including records on the maintenance, repair and inspection of the *Equipment* related to all *Processes with Significant Environmental Aspects;* and

(h) the complaints recording procedure, including records related to all environmental complaints made by the public as required by Condition 7.1 of this *Approval.*

9. REVOCATION OF PREVIOUS APPROVALS

9.1 This *Approval* replaces and revokes all Certificates of Approval (Air) issued under section 9 *EPA* and Environmental Compliance Approvals issued under Part II.1 *EPA* to the *Facility* in regards to the activities mentioned in subsection 9(1) of the *EPA* and dated prior to the date of this *Approval.*

SCHEDULE A

Supporting Documentation

(a) Application for Approval (Air & Noise), dated February 27, 2013, signed by Neil Dolson, President & CEO, and submitted by the C*ompany;*

(b) Emission Summary and Dispersion Modelling Report, prepared by Harvey Watson (R.J. Burnside & Associates Limited) and dated February 15, 2013;

(c) The letter from Dietmar Walch, P.Eng. Director of Engineering (Nachurs Alpine Solutions Inc.) dated May 22, 2014;

(d) The letter from R.J. Burnside & Associates Limited dated May 23, 2014 and signed by Kathleen Alexander, B.Sc. Environmental Scientist and Harvey Watson, P.Eng. Group Leader, Air and Noise;

(e) Two letters (emails including updated ESDM Report and updated modelling files) from Kathleen Alexander, B.Sc. Environmental Scientist (R.J. Burnside & Associates Limited) dated May 26, 2014; and

(f) Acoustic Assessment Report prepared by Akoustik Engineering Limited, dated June 24, 2014 and signed by Colin Novak, P.Eng.

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

1. Condition No. 1 is included to require the *Approval* holder to build, operate and maintain the *Facility* in accordance with the Supporting Documentation in Schedule A considered by the *Director* in issuing this *Approval.*

LIMITED OPERATIONAL FLEXIBILITY, REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

2. Conditions No. 2 and 3 are included to limit and define the *Modifications* permitted by this *Approval,* and to set out the circumstances in which the *Company* shall submit a *Maximum Concentration Level Assessment* prior to making *Modifications.* The holder of the *Approval* is approved for operational flexibility for the *Facility* that is consistent with the description of the operations included with the application up to the *Facility Production Limit.* In return for the operational flexibility, the *Approval* places performance based limits that cannot be exceeded under the terms of this *Approval. Approval* holders will still have to obtain other relevant approvals required to operate the *Facility,* including requirements under other environmental legislation such as the *Environmental Assessment Act.*

DOCUMENTATION REQUIREMENTS

3. Condition No. 4 is included to require the *Company* to maintain ongoing documentation that demonstrates compliance with the *Performance Limits* of this *Approval* and allows the *Ministry* to monitor on-going compliance with these *Performance Limits.* The *Company* is required to have an up to date *ESDM Report* and *Acoustic Assessment Report* that describe the *Facility* at all times and make the *Emission Summary Table* and *Acoustic Assessment Summary Table* from these reports available to the public on an ongoing basis in order to maintain public communication with regard to the emissions from the *Facility.*

REPORTING REQUIREMENTS

4. Condition No. 5 is included to require the *Company* to provide a yearly *Written Summary Form* to the *Ministry,* to assist the *Ministry* with the review of the site's compliance with the *EPA,* the regulations and this *Approval.*

OPERATION AND MAINTENANCE

5. Condition No. 6 is included to require the *Company* to properly operate and maintain the *Processes with Significant Environmental Aspects* to minimize the impact to the environment from these processes.

COMPLAINTS RECORDING PROCEDURE

6. Condition No. 7 is included to require the *Company* to respond to any environmental complaints regarding the operation of the *Equipment,* according to a procedure that includes methods for preventing recurrence of similar incidents and a requirement to prepare and retain a written report.

RECORD KEEPING REQUIREMENTS

7. Condition No. 8 is included to require the *Company* to retain all documentation related to this *Approval* and provide access to employees in or agents of the *Ministry,* upon request, so that the *Ministry* can determine if a more detailed review of compliance with the *Performance Limits* is necessary.

REVOCATION OF PREVIOUS APPROVALS

8. Condition No. 9 is included to identify that this *Approval* replaces all Section 9 Certificate(s) of Approval and Part II.1 Approvals in regards to the activities mentioned in subsection 9(1) of the *EPA* and dated prior to the date of this *Approval.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 3153-5NFNKZ issued on June 14, 2003.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 7th day of July, 2014

Rudolf Wan, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

JK/
c: District Manager, MOE Guelph
Harvey Watson, R.J. Burnside & Associates Limited

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

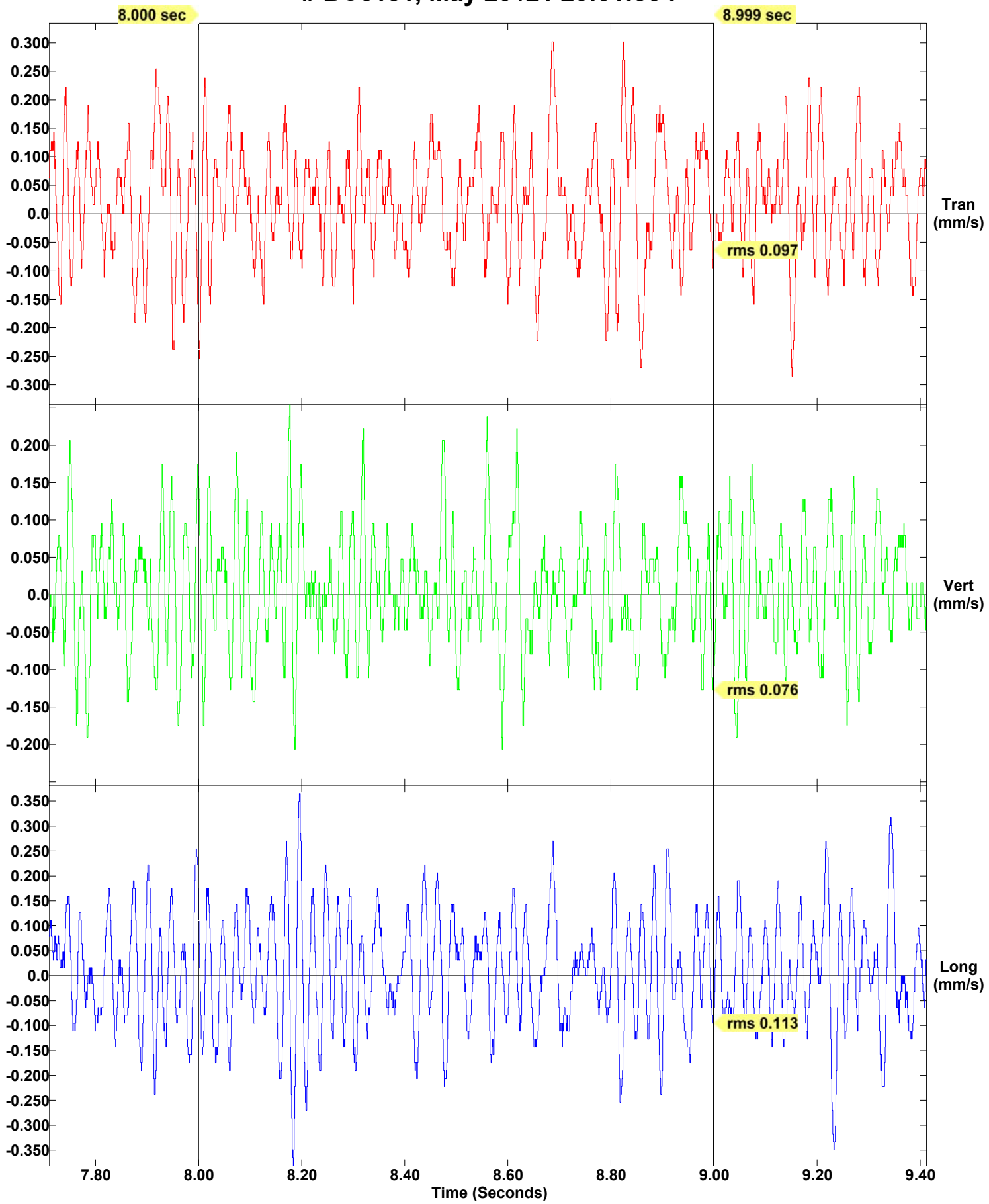
Appendix F

Vibration Data

Instantel

Event Report Location 1

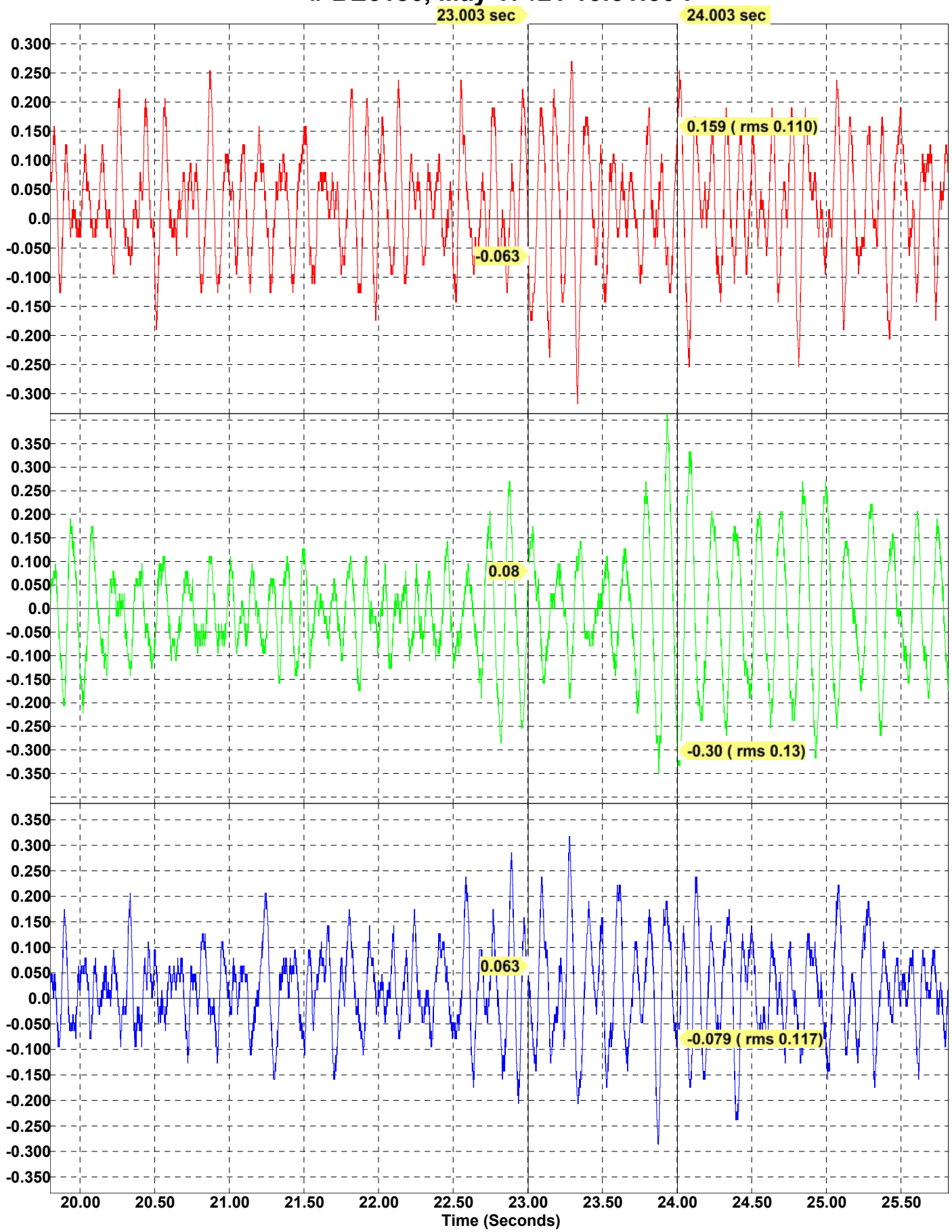
BC6131, May 20 /21 20:01:36 :



Instantel

Event Report Location 2

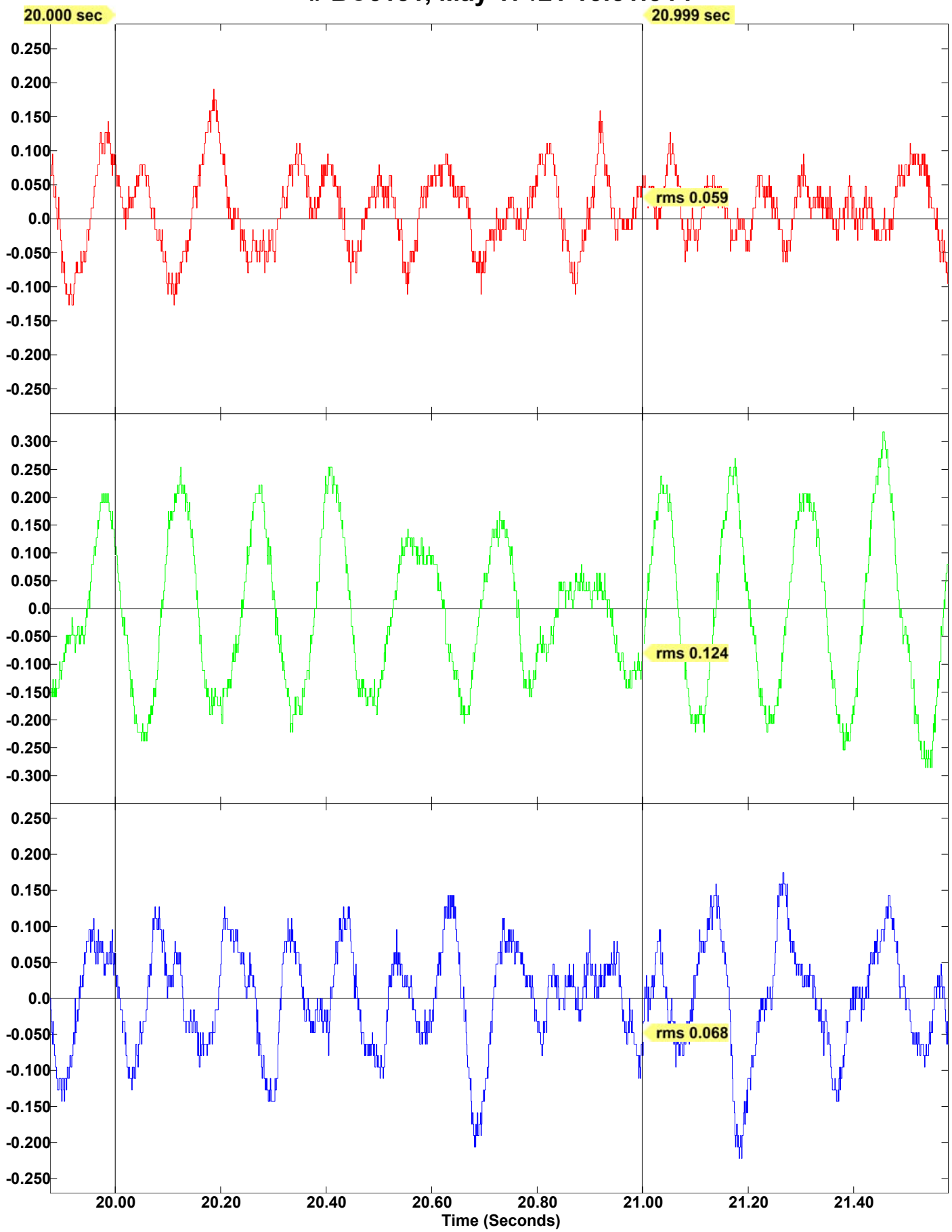
BE6186, May 17 /21 16:31:30 :



Instantel

Event Report Location 3

BC6131, May 17 /21 16:31:34 :



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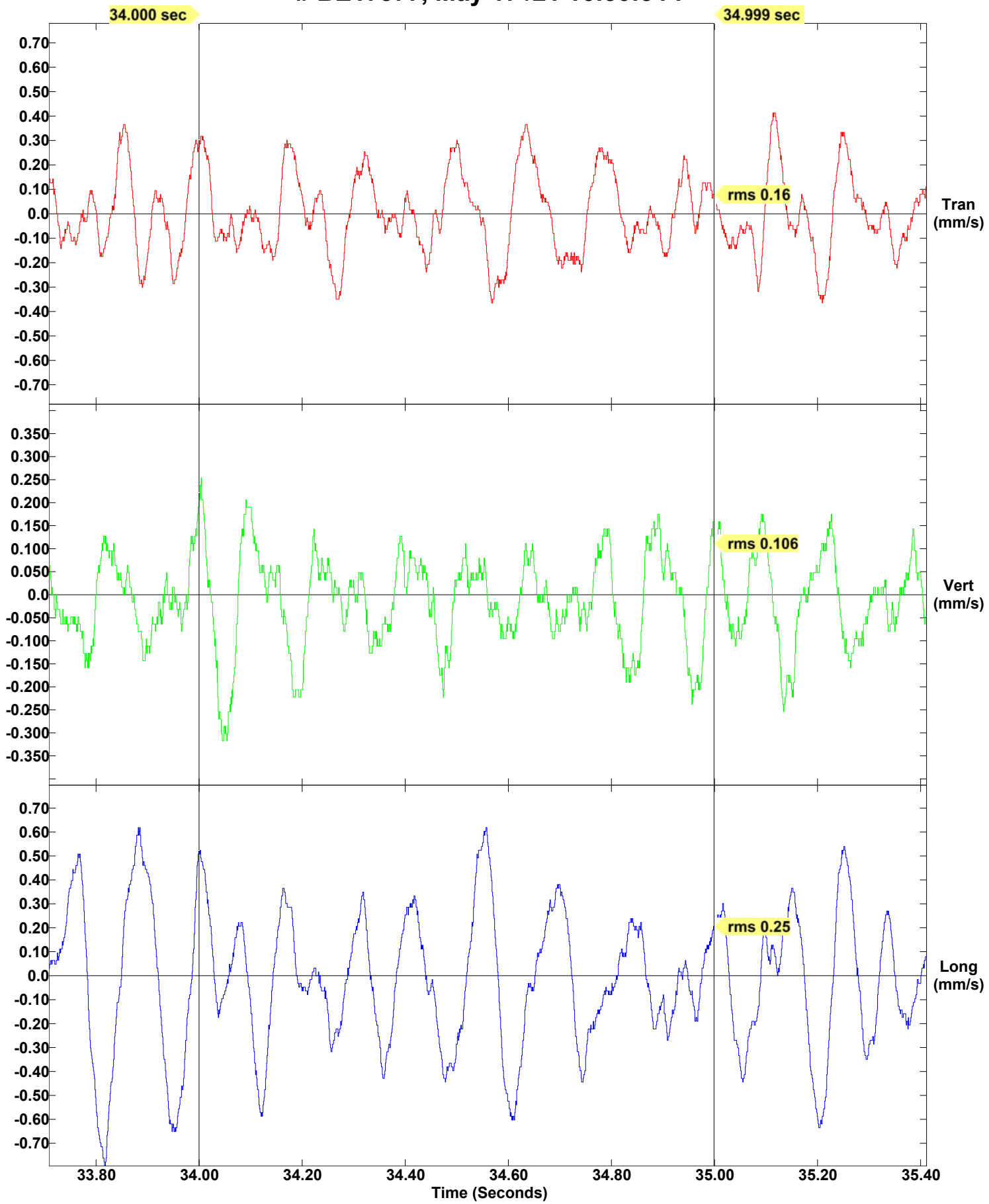
Event Report Location 4

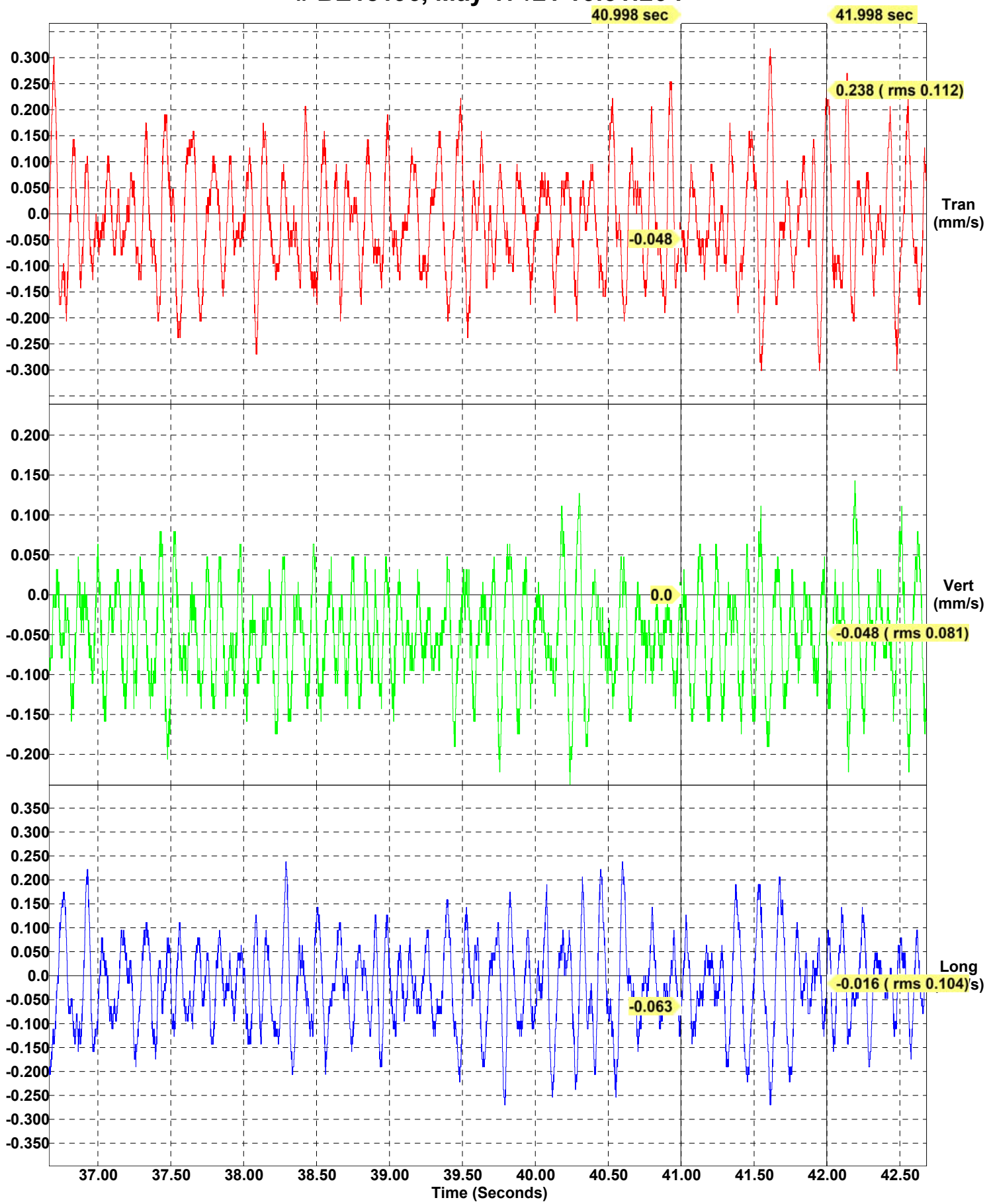
BE17377, May 17 /21 16:30:54 :



Instantel

Event Report Location 5

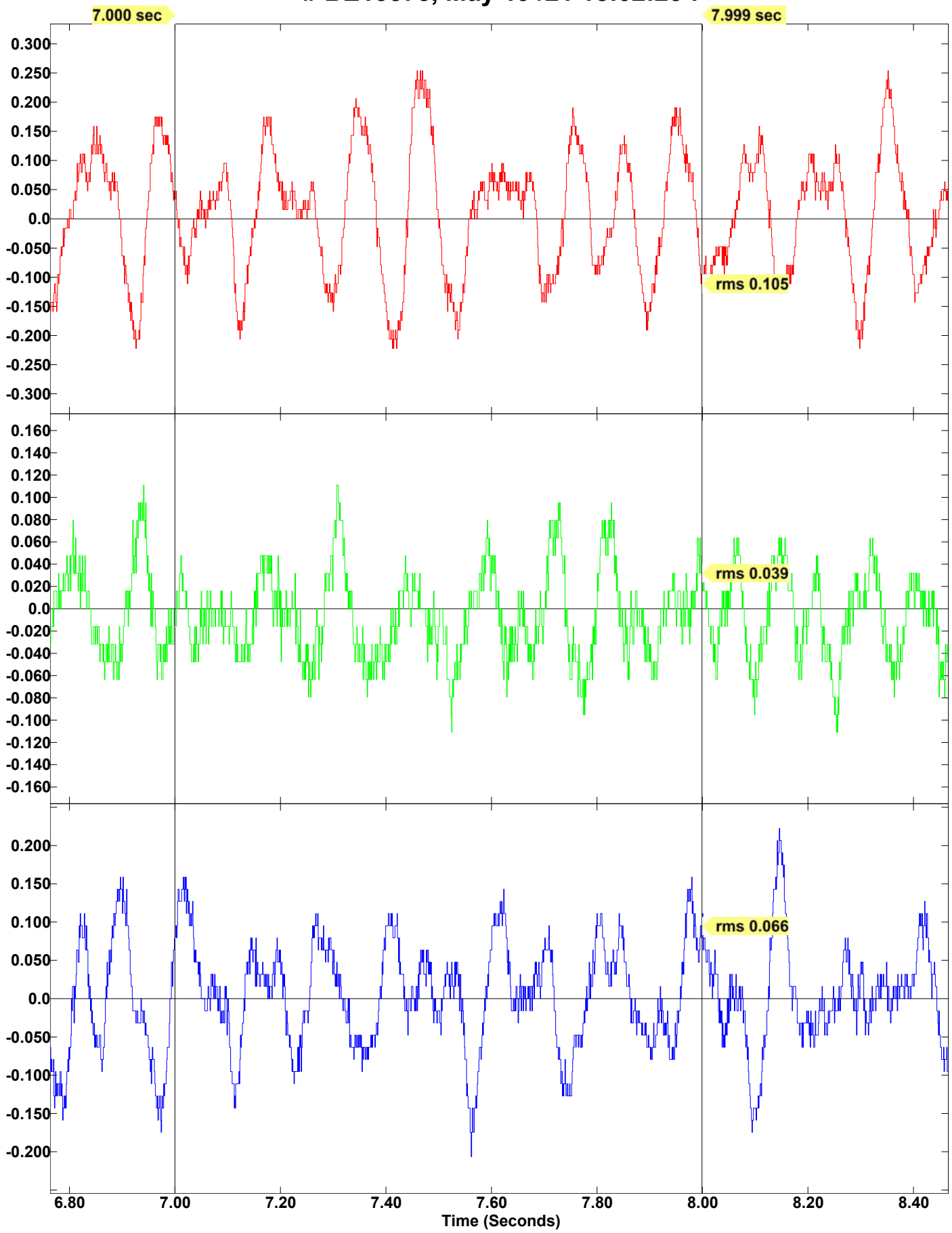
BE18196, May 17 /21 16:31:26 :



Instantel

Event Report Location 6

BE13575, May 19 /21 18:02:23 :



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Appendix G

Standard Vibration Mitigation Design

CN

PRINCIPAL MAIN LINE

A. Noise berm, or combination berm and acoustic fence, adjoining and parallel to the railway right-of-way and having returns at the ends:

   (i) Minimum total height 5.5 metres above top-of-rail.

   (ii) Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre (4 lb./sq. ft.) of surface area.

   Note: The Railway may consider other measures recommended by an approved Noise Consultant satisfactory to the Railway.

B. Safety setback of dwellings from the railway right-of-way to be a minimum of 30 metres in conjunction with the safety berm noted below. In the absence of a safety berm, we require a dwelling setback of 120 metres.

C. Ground-borne vibration transmission to be estimated through site testing and evaluation to determine if dwellings within 75 metres of the Railway right-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec. RMS between 4 Hz. and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, $\pm$3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec. RMS on and above the first floor of the dwelling.

D. Safety berm adjoining and parallel to the railway right-of-way with returns at the ends, 2.5 metres above grade is required despite none being required to address the Railway's noise concerns.

E. The following clause should be inserted in all offers to purchase, agreements of sale and purchase or lease and in the title deed or lease of each dwelling; "Warning: Canadian National Railway Company or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."

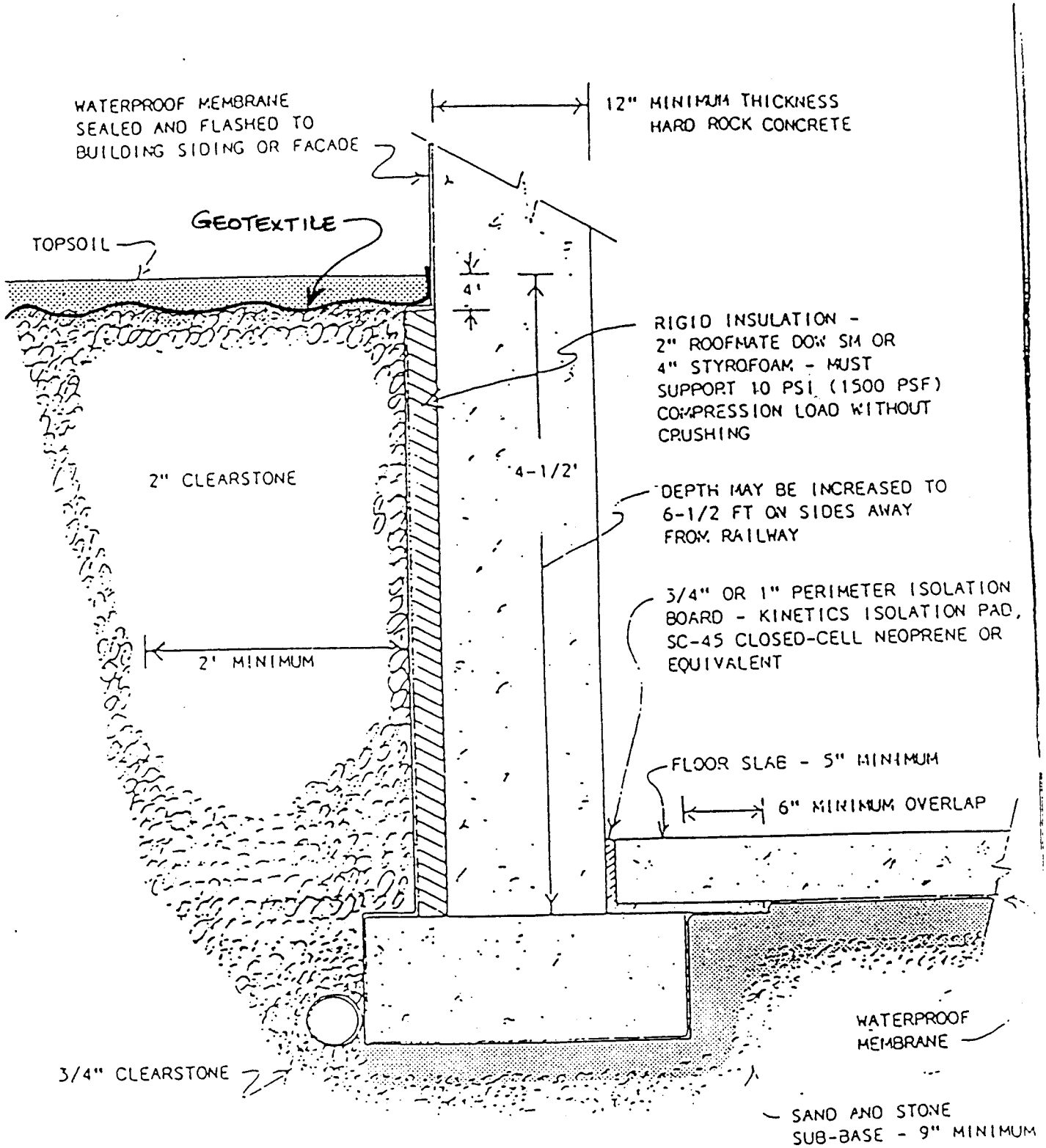
F. Any proposed alterations to the existing drainage pattern affecting Railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

G. The Developer shall install and maintain at his own expense, a chain link fence of minimum 1.83 metre (6 feet) height along the mutual property line, which shall be maintained by the Owner.

H. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have the sole responsibility for and shall maintain these measures to the satisfaction of CN Rail.

I. Pursuant to the Planning Act, the Municipality shall provide this office of the Railway with written notice of the public meeting, by-law and passing of the by-law appropriately zoning the lands hereby proposed for subdivision.

J. The Owner enter into an Agreement stipulating how CN Rail's concerns will be resolved and will pay CN Rail's reasonable costs in preparing and negotiating the agreement.



CROSS-SECTION OF RECOMMENDED FOOTING, BASEMENT FLOOR AND BASEMENT WALL CONSTRUCTION FOR MINIMIZING VIBRATION

WILSON, IHRIG & ASSOC., INC.
ACOUSTICAL CONSULTANTS

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Appendix H

Pre-Site Plan Noise and Vibration Analysis Letters

R.J. Burnside & Associates Limited 1465 Pickering Parkway Suite 200 Pickering ON L1V 7G7 CANADA
telephone (905) 420-5777 **fax** (905) 420-5247 **web** www.rjburnside.com

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April 22, 2021

Via: Email

Adam Belsky
NH Properties Inc.
310 Fairway Rd. South,
P.O. Box 45016
Kitchener ON N2C 2R6

Dear Adam:

Re: Pre-Site Plan Noise Analysis
Project No.: 300040085.0020

R.J. Burnside & Associates Limited has completed the pre-site plan noise analysis of the NH Properties site, located in New Hamburg, Ontario. Our results from the noise analysis and recommendations for proceeding with pre-site vibration monitoring and analysis are included herein.

Burnside sought to update the rail traffic data for these noise calculations. On April 13, 2021, Burnside was informed by CN that they are currently not providing rail traffic data while their procedure is under review (email communication is attached). CN informed Burnside that we would be informed when they restarted their rail data service and at the time of the writing of this letter the service has not yet been reinstated. Burnside has therefore relied on 2017 rail data from Goderich Exeter, who were responsible for the same section of track at the time. To be conservative, Burnside has applied 2.5% growth rates to the raw 2017 traffic counts projecting 10 years into the future from today into the year 2031. It is possible that the true rail traffic data which CN has declined to provide at this time may differ, and the differences may have affected the conclusions of this letter. However, Burnside believes the 2.5% growth factor will produce conservative results based on our experiences with rail traffic patterns in Ontario for other projects.

The following rail traffic data was used:

Table 1: Rail Traffic Data

Train Type	2017 Count (Day/Night)	Growth Rate	Estimated 2031 Count (Day/Night)	Speed (km/h)	Size (#locomotives / #cars)
Freight	4 / 0	2.5%	5.7 / 0	88	3 / 120
Passenger	4 / 0	2.5%	5.7 / 0	113	1 / 6

Burnside was provided the attached proposed cross sections from MTE Consultants Inc. The noise calculations are based on these proposed grades. As the calculations presented herein demonstrate setback distances required to achieve certain sound levels, it was assumed that the receiver (Outdoor Living Area (OLA) and Plane of Window (POW)) grades will remain the same or acoustically equivalent when different setback distances from the current designs are simulated. The following are the results of the OLA calculations:

Table 2: OLA Noise Calculation Results

Section	Current proposed distance setback to OLA	Sound Level of Current proposed setback (& barrier)	Setback to achieve objective 55 dBA with…			Setback to achieve maximum 60 dBA with…		
			Berm only	2.0 m barrier + berm	3.0 m barrier + berm	Berm only	2.0 m barrier + berm	3.0 m barrier + berm
A-A	40 m	56 dBA (2 m atop 2.5 m berm)	135 m	N/A[1]	40 m[1]	40 m	N/A[2]	N/A[2]
B-B	40 m	58 dBA (2 m atop 2.5 m berm)	130 m	N/A[3]	N/A[3]	65 m	40 m[4]	40 m[4]
C-C	122.5 m	56 dBA (no barrier or berm)[5]	135 m	N/A[6]	N/A[6]	65 m	N/A[6]	N/A[6]
D-D	122.5 m	56 dBA (no barrier or berm)[5]	135 m	N/A[6]	N/A[6]	65 m	N/A[6]	N/A[6]

The following are the results of the POW calculations:

Table 3: POW Noise Calculation Results

Section:	Distance Setback[7]	Daytime Sound Level at 1.5 m	Nighttime Sound Level at 4.5 m[8]	Noise Control Recommendation
A-A	43 m	64 dBA		Provision: Forced Air
A-A	138 m	56 dBA		Provision: Forced Air
B-B	43 m	63 dBA		Provision: Forced Air
B-B	68 m	60 dBA		Provision: Forced Air

[1] Barrier becomes less effective with further distance setback. Increasing barrier height to 2.3 m at 40 m distance achieves 55 dBA. Full 3 m barrier not required for 55 dBA.
[2] 60 dBA achieved without a barrier at 40 m.
[3] Barrier becomes less effective with further distance setback. Increasing barrier height to 3.5 m achieves 55 dBA.
[4] Actual distance lower but it is assumed houses cannot be closer to rail than current proposal.
[5] Proposed berm does not interrupt line of site – not included in calculations.
[6] Barrier ineffective at this height when located at limit of subdivision. More effective to locate a barrier at rear property line. 2.0 m rear property line barrier would achieve 55 dBA for currently proposed setback.
[7] Distances provided are 3 m larger than key OLA distances as OLA is defined as 3 m from rear façade.
[8] Nighttime sound levels are not calculated because the latest train traffic data does not indicate nighttime trains.

Section:	Distance Setback[7]	Daytime Sound Level at 1.5 m	Nighttime Sound Level at 4.5 m[8]	Noise Control Recommendation
B-B	133 m	56 dBA		Provision: Forced Air
C-C	68 m	60 dBA		Provision: Forced Air
C-C	125.5 m	56 dBA		Provision: Forced Air
C-C	138 m	55 dBA		No Requirement
D-D	68 m	60 dBA		Provision: Forced Air
D-D	125.5 m	56 dBA		Provision: Forced Air
D-D	138 m	55 dBA		No Requirement

Therefore, it can be expected that the first row of dwellings in Sections C-C and D-D will require provision for forced air. Furthermore, the first row of dwellings in Section A-A and B-B are likely to require forced air. However, levels in Section A-A and B-B are close to the 65+ dBA threshold for requirement for air conditioning and final adjustments to grades, rail traffic data or distance setback could require these first row of units to require air conditioning.

Preliminary Window STC calculations using the maximum predicted sound level of 64 dBA during the daytime resulted the requirement that windows meet an STC of 29. This indicates that highly performing acoustic windows are unlikely to be required given the current rail traffic numbers. Typical double-glazed windows can have an STC of up to 32. For STC 33 and above lamination is typically required to provide a boost the acoustic performance which increases costs.

In consideration of the above noise results Burnside proposes the following plan for testing for vibration:

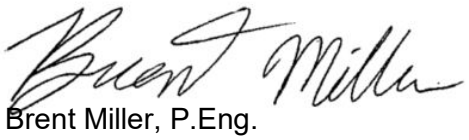
- Two groups of 3 vibration meters.
- Each group of 3 meters arranged in a row perpendicular to the track at the following distances:
  - 40 m
  - 90 m
  - 140 m
- Group 1 to be located between Section A-A and Section B-B
- Group 2 to be located between Section C-C and Section D-D

This proposed measurement setup should provide sufficient data to interpolate vibration requirements for all dwellings in the proposed development up to the threshold below which mitigation is not required.

We are prepared to go over these details during our next conference call or in a separate conference call specially for this topic. We will await the project team’s input and approval on the vibration monitoring plan. Afterwards, the next step would be to arrange a mutually acceptable date for Burnside to take the measurements at your site.

Yours truly,

R.J. Burnside & Associates Limited



Brent Miller, P.Eng.
Air & Noise Scientist
BM:lam

Enclosure(s) CN email.pdf
35056-104-Pfenning Noise Berm and Wall Cross-sections.pdf
35056-104-Pfenning Block 22 Noise Cross-sections.pdf

cc: Jason Cabral, MTE Consultants Inc. (enc.) (Via: Email)
Jeff Martens, MTE Consultants Inc. (enc.) (Via: Email)
Garett Korber, MTE Consultants Inc. (enc.) (Via: Email)
Paul Britton, MHBC (enc.) (Via: Email)
Joanne McDaniel, MTE Consultants Inc. (enc.) (Via: Email)

Brent Miller

From: Umair Naveed <Umair.Naveed@cn.ca> on behalf of GLD-Permits <permits.gld@cn.ca>
Sent: Tuesday, April 13, 2021 11:42 AM
To: Brent Miller
Subject: RE: Rail Traffic Data Request: Guelph Subdivision MP73.67 to MP 75.12

Hello Brent,

At this time, we have been advised not to issue out Train traffic data as the procedure is under review in order to capture the needs of each request(on a case-by-case basis).

Unfortunately, we will not be able to process this request.

A notification will be subsequently provided to you once the service has been reinstated,

Thank you

GLD-Team

From: Brent Miller <Brent.Miller@rjburnside.com>
Sent: Friday, April 09, 2021 3:25 PM
To: GLD-Permits <permits.gld@cn.ca>
Subject: Rail Traffic Data Request: Guelph Subdivision MP73.67 to MP 75.12
Importance: High

Hi There,

In 2017 Burnside requested and received rail traffic for the Guelph Subdivision MP73.67 to MP 75.12 in New Hamburg from GEXR. We are refreshing our noise and vibration study in the area and would like to have either confirmation that the attached 2017 data is still valid or an updated 2021 data set for the area. Please send details on the options for payment if required.

Best Regards,

Brent

BURNSIDE
Brent Miller, P.Eng.
Air & Noise Scientist

R.J. Burnside & Associates Limited
1465 Pickering Parkway, Suite 200, Pickering, Ontario L1V 7G7
Office: +1 800-265-9662 Direct Line: +1 289-315-3431
www.rjburnside.com

COVID 19: We remain open for business

The health and safety of our employees and clients is of paramount importance. Most of our staff are working remotely and continue to serve clients using our well established collaborative technology platforms. For our full COVID 19 response please click here.

35056-104

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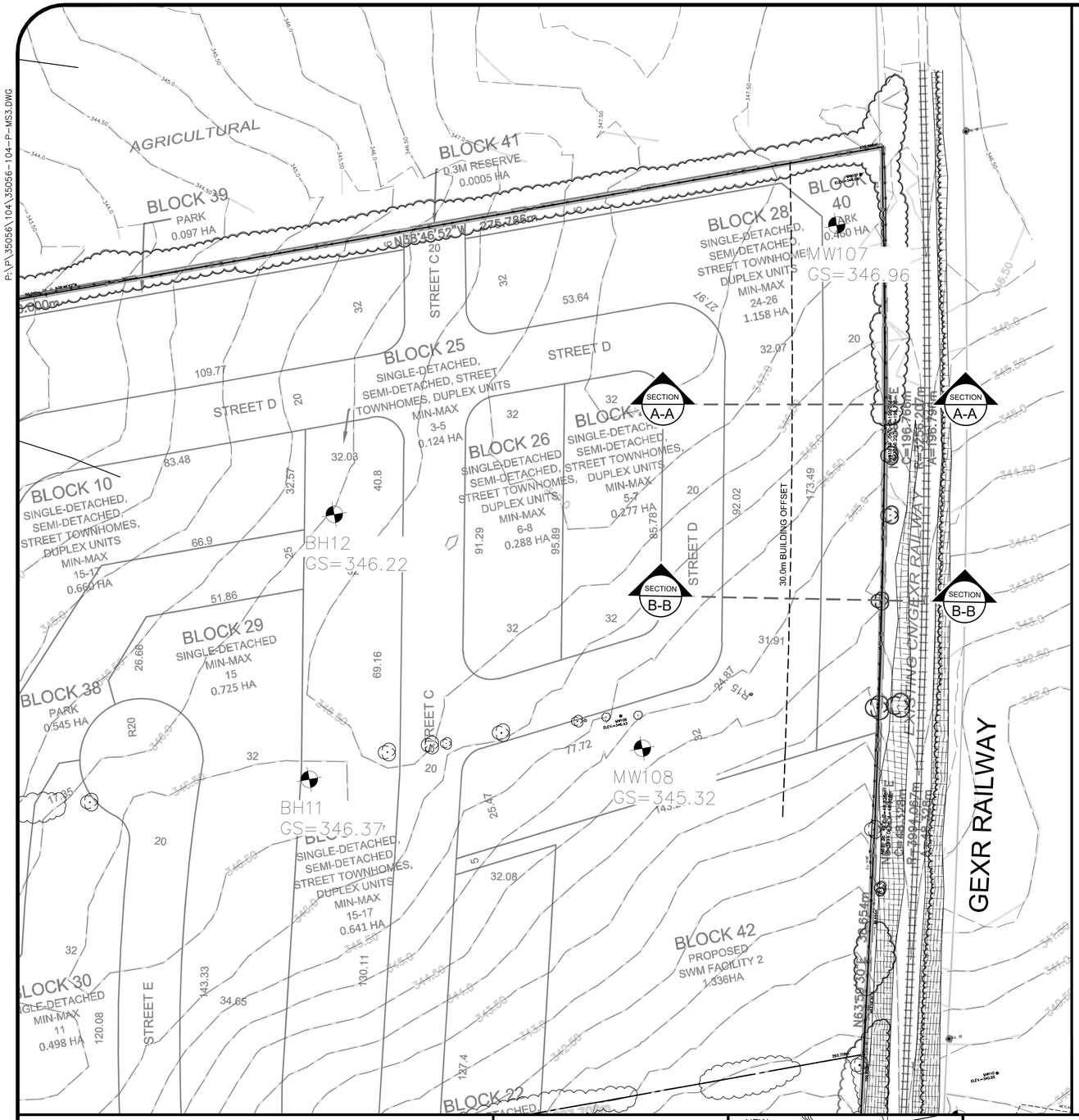
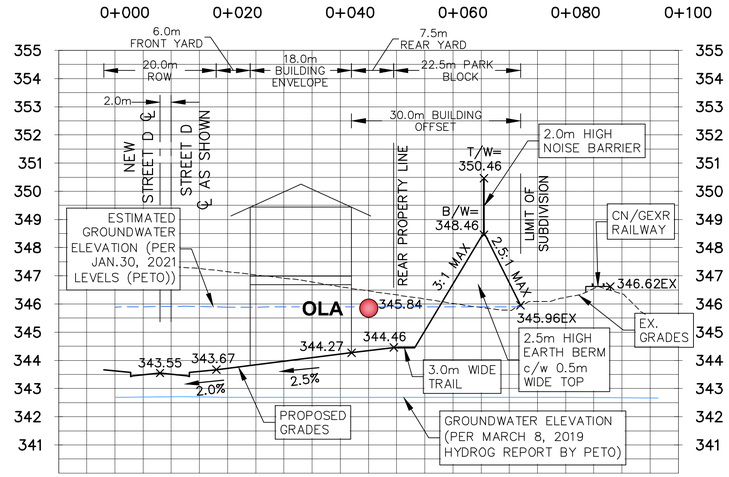
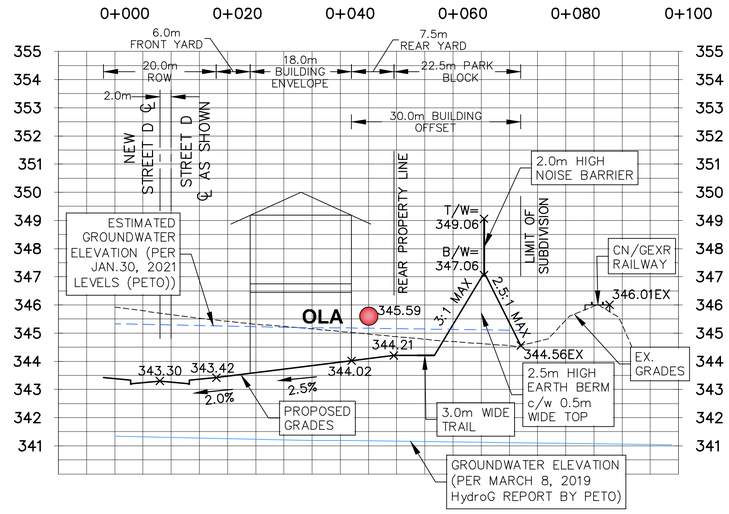




SECTION A-A

H 1:500 V 1:100



SECTION B-B

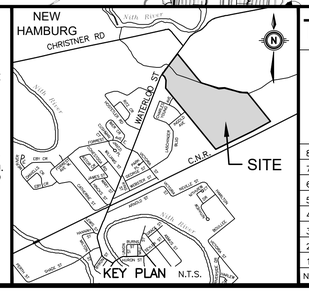
H 1:500 V 1:100

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.



TOWNSHIP OF WILMOT

No.	REVISION	BY	DATE
8.			
7.			
6.			
5.			
4.			
3.			
2.			
1.	FOR REVIEW / DISCUSSION PURPOSES	JJC	MAR.19/20

GEODETIC BM ELEV. = 342.487m
TABLET IS SET HORIZONTALLY IN SOUTH FACE OF CONCRETE FOUNDATION, BEING 62m NORTH OF CENTRELINE OF HIGHWAY; 2.26m EAST OF SOUTHWEST CORNER AND 24cm BELOW THE FIRST COURSE OF BRICKWORK.

SITE BENCHMARK ELEV. = 339.773m
CUT CROSS SOUTHWEST CORNER CONCRETE BOX CULVERT ON SOUTH SIDE OF WATERLOO STREET PNO 9059

OWNER
NH PROPERTIES INC.
12 AMBERDALE WAY NEW HAMBURG

PROJECT
NH PROPERTIES INC.
1209 WATERLOO STREET NEW HAMBURG

DRAWING
NOISE BERM CROSS-SECTIONS

MTE
Engineers | Scientists | Surveyors
(519) 743-6500 www.mte85.com

Project Manager J.CABRAL	Project No. 35056-104
Design By	Checked By
Drawn By AXH	Checked By CJC
Surveyed By RLK/KPW	Drawing No. MS3.1
Date Feb.17/21	
Scale 1:750	Sheet of

35056-104

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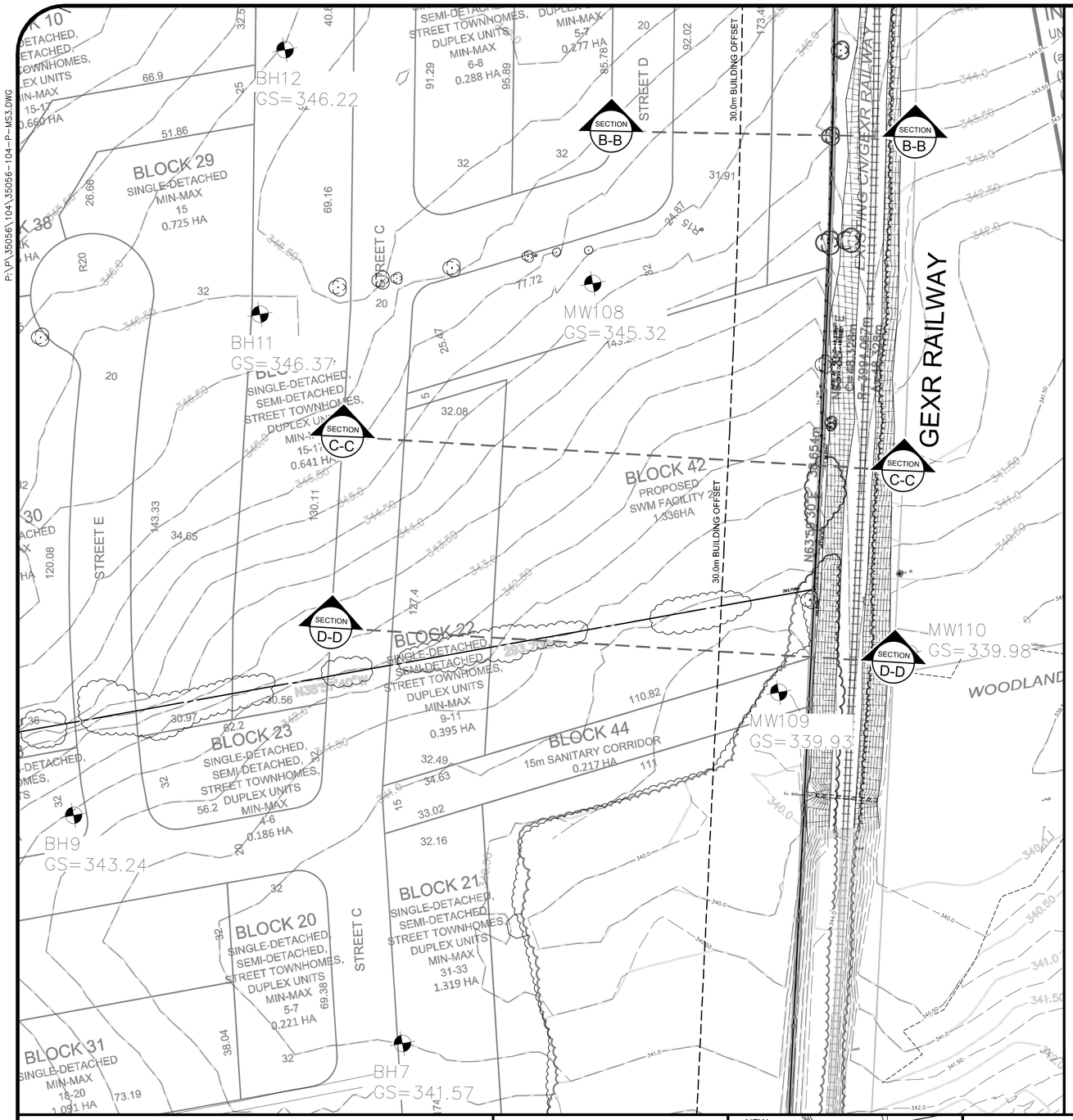

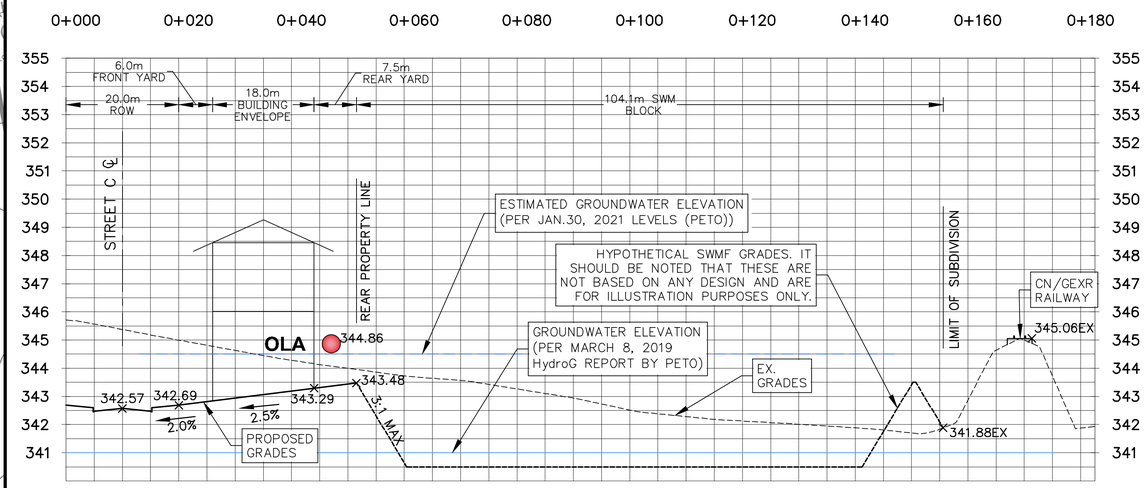

SECTION C-C

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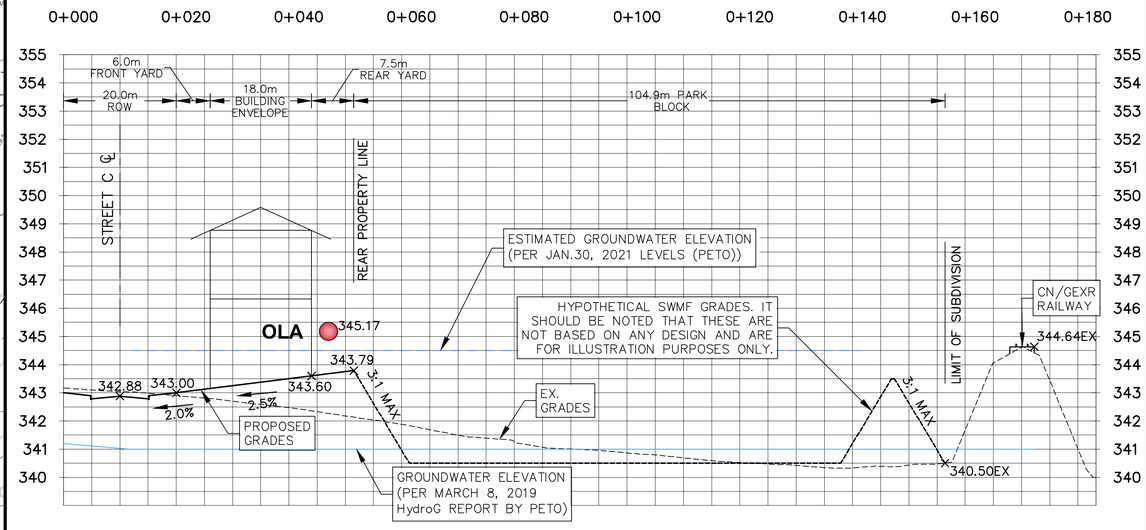

SECTION D-D

H 1:500 V 1:100

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

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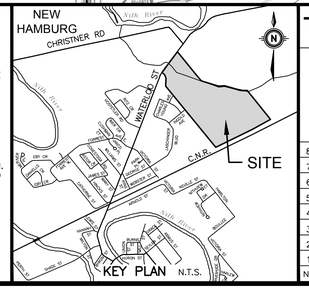

TOWNSHIP OF WILMOT

No.	REVISION	BY	DATE
8.			
7.			
6.			
5.			
4.			
3.			
2.			
1.	FOR REVIEW / DISCUSSION PURPOSES	JJC	APR.19/21

GEODETIC BM ELEV. = 342.487m
TABLET IS SET HORIZONTALLY IN SOUTH FACE OF CONCRETE FOUNDATION, BEING 62m NORTH OF CENTRELINE OF HIGHWAY; 2.26m EAST OF SOUTHWEST CORNER AND 24cm BELOW THE FIRST COURSE OF BRICKWORK.

SITE BENCHMARK ELEV. = 339.773m
CUT CROSS SOUTHWEST CORNER CONCRETE BOX CULVERT ON SOUTH SIDE OF WATERLOO STREET PNO 9059

OWNER
NH PROPERTIES INC.
12 AMBERDALE WAY NEW HAMBURG

PROJECT
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1209 WATERLOO STREET NEW HAMBURG

DRAWING
BLOCK 22
NOISE BERM
CROSS-SECTIONS

MTE
Engineers | Scientists | Surveyors
(519) 743-6500 www.mte85.com

Project Manager J.CABRAL	Project No. 35056-104
Design By	Checked By
Drawn By AXH	Checked By CJC
Surveyed By RLK/KPW	Drawing No. MS3.2
Date Feb.17/21	
Scale 1:750	Sheet of

R.J. Burnside & Associates Limited 1465 Pickering Parkway Suite 200 Pickering ON L1V 7G7 CANADA
telephone (905) 420-5777 **fax** (905) 420-5247 **web** www.rjburnside.com

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June 23, 2021

Via: Email

Adam Belsky
NH Properties Inc.
310 Fairway Rd. South,
P.O. Box 45016
Kitchener ON N2C 2R6

Dear Adam:

Re: Pre-Site Plan Vibration Analysis
Project No.: 300040085.0020

R.J. Burnside & Associates Limited (Burnside) has completed the pre-site plan vibration analysis of the NH Properties site, located in New Hamburg, Ontario. Our results from the vibration monitoring and requirements for vibration mitigation recommendations are included herein.

Burnside attended the site on May 17, 2021 and installed 6 vibration monitors. The vibration meters were installed in 2 sets of 3 meters each. Each set formed a perpendicular line relative to the railway corridor. Each column contained vibrations meter located at 40 m, 90 m, and 140 m from the edge of the railway track ballast (gravel). The 2 sets were located approximately 130 m apart. The forest is located in the southwest corner of the property. The first set of meters provided results for the area north of the forest. The second set provided results for the south eastern area of the site. The southeastern section of the property is planned to include dwellings much closer to the railway. Interpolation was used to estimate the results of locations between the 2 sets.

Table 1: Vibration Monitor Locations

	Vibration Monitor Number	
Distance from Rail R.O.W.	Western Set	Eastern Set
40 m	1	4
90 m	2	5
140 m	3	6

The vibration meters collected data for all 3 major axes (longitudinal, transverse, and vertical). All vibration meters were oriented facing north to ensure that the longitudinal and transverse results represent the same direction for all monitors.

When the vibration meters were collected on May 20, 2021 it was determined that the meter at Location 1 experienced a memory overflow failure which resulted in no rail traffic data being collected. To remedy this failure, a working meter was installed at the same location on the May 20, 2021 and retrieved the next week. This difference in timing means that the data at Location 1 was not obtained from the same train passbys as all other locations.

In processing the results, 5 or 6 confirmed freight passbys were selected for each vibration monitor to be processed into peak particle velocity (PPV) root mean squared (RMS) results. Results were provided on a per second basis for the full period of the freight train pass by for which the threshold of 0.13 mm/s PPV (non-RMS) was exceeded. The date and time of the freight trains passby were confirmed by recording train passbys with a motion sensor camera and matching the date and time of the photographs with the date and time of vibration measurements.

The maximum PPV RMS result for each was determined, but a 99% filter was applied to exclude the top 1% of results as anomalies. Taking the average of the peak results of each passby is also an acceptable method of data processing. Taking the 99th percentile of the result of all the data resulted in more conservative results, so this approach was used. The results are shown in the table below.

Table 2: Vibration Measurement Results

Location	Distance from R.O.W. (m)	Maximum (mm/s PPV RMS)	Average of Peaks per passby (mm/s PPV RMS)	99th Percentile (mm/s PPV RMS)
1	40	0.123	0.108	0.113
2	90	0.170	0.107	0.130
3	140	0.161	0.097	0.124
4	40	0.300	0.198	0.250
5	90	0.131	0.100	0.121
6	140	0.136	0.092	0.105

Our preliminary assessment of the results determined that the passbys experienced by Location 1, which occurred on different days than the rest of the monitors, were less impactful than other passbys. This may be due to reduced freight shipping on the long weekend over which the Location 1 measurements partially occurred over. As higher vibration levels were observed at Location 2 located 50 m further from the rail during the earlier monitoring period it was determined that the results at Location 1 should be set aside as not representing the worst-case scenario. Instead, values at Location 1 were predicted by extrapolating measurements from Location 2 using formulas for vibration dissipation through ground.

The vibration dissipation observed between Locations 4 and 5 were used to determine that the soil properties of the area have a geometric attenuation of approximately 1, which is appropriate for firm soil. Using this information and the 99% data for Locations 2 through 6, the equations for vibration dissipation through ground were used to estimate the vibration impacts in 10 m intervals. Linear interpolation was used to determine the transition of the impacts between Locations 1, 2 and 3 and Locations 4, 5 and 6. The following are the results.

Table 3: Detailed Vibration Estimates

Distance West of Locations 1,2 & 3	0	10	20	30	40	50	60	70	80	90	100	110	120	130
Distance from rail (m)	Estimated Maximum Vibration Impact Level (mm/s PPV RMS) – from 99th percentile data													
40	0.293	0.289	0.286	0.283	0.279	0.276	0.273	0.270	0.266	0.263	0.260	0.257	0.253	0.250[1]
50	0.234	0.231	0.229	0.226	0.224	0.221	0.218	0.216	0.213	0.210	0.208	0.205	0.203	0.200
60	0.195	0.193	0.191	0.188	0.186	0.184	0.182	0.180	0.178	0.175	0.173	0.171	0.169	0.167
70	0.167	0.165	0.163	0.162	0.160	0.158	0.156	0.154	0.152	0.150	0.148	0.147	0.145	0.143
80	0.146	0.145	0.143	0.141	0.140	0.138	0.136	0.135	0.133	0.132	0.130	0.128	0.127	0.125
90	0.130[1]	0.129	0.129	0.128	0.127	0.127	0.126	0.125	0.124	0.124	0.123	0.122	0.122	0.121[1]
100	0.117	0.116	0.116	0.115	0.115	0.114	0.113	0.113	0.112	0.111	0.111	0.110	0.110	0.109
110	0.106	0.106	0.105	0.105	0.104	0.104	0.103	0.102	0.102	0.101	0.101	0.100	0.100	0.099
120	0.098	0.097	0.096	0.096	0.095	0.095	0.094	0.094	0.093	0.093	0.092	0.092	0.091	0.091
130	0.090	0.090	0.089	0.089	0.088	0.088	0.087	0.087	0.086	0.086	0.085	0.085	0.084	0.084
140	0.124[1]	0.123	0.121	0.120	0.118	0.117	0.115	0.114	0.113	0.111	0.110	0.108	0.107	0.105[1]

	No Vibration Mitigation
	Standard Vibration Mitigation
	Custom Vibration Mitigation

[1] Indicates actual field measurement.

Results high enough to trigger the requirement for custom vibration mitigation (i.e., 0.20 mm/s PPV RMS or greater) have been highlighted in red. Results high enough to trigger the requirement for vibration mitigation for which standard vibration mitigation will suffice are highlighted in orange (i.e., between 0.14 and 0.20 mm/s PPV RMS). All other results are highlighted green to indicate that no vibration mitigation measures are required at these locations. Figure 1 attached shows the contours for the most significant impact levels of (0.14, 0.20, and 0.25 mm/s PPV RMS respectively) against the most current version of the Site Plan available to Burnside. Figure 2 shows regions for custom mitigation and regions for standard mitigation also on the Site Plan. These distances were determined from the edge of the railway right of way (R.O.W.) as shown on the Site Plan. This is conservative compared to the field distance measurement method of measuring up to the railway ballast (gravel).

With respect to the existing site plan the findings are that some dwellings in Blocks 16 and 17 will require vibration mitigation. Dwellings within 50 m or less to the railway corridor of Block 16 will require custom vibration mitigation. The mitigation will need to be designed for impacts of up to 0.25 mm/s PPV RMS but is dependent on the exact distance setback. Dwellings located in either Block 16 or 17 which have foundations located greater than 50 m from the railway corridor, but less than 70 m will require standard vibration mitigation measures.

Standard vibration mitigation measures are common controls based on a design from CN. For your convenience, the specification for standard vibration mitigation is included herein. The design of custom vibration mitigation is not a service provided by Burnside. To assist the development team Burnside has researched the following companies which provide this design service in southern Ontario. Burnside does not have a history of working with either company:

- IsoTech Industries
  - https://isotechindustries.com/
- HTS Toronto
  - https://www.hts.com/
  - Akshay Khuggar (Akshay.Khuggar@hts.com)

We are prepared to go over these details during our next conference call or in a separate conference call specially for this topic. Burnside will now await a reply for whether the results presented in this letter will result in Site Plan changes. Confirmation will be needed before Burnside can proceed to complete the Noise Report for the Site Plan Approval Submission.

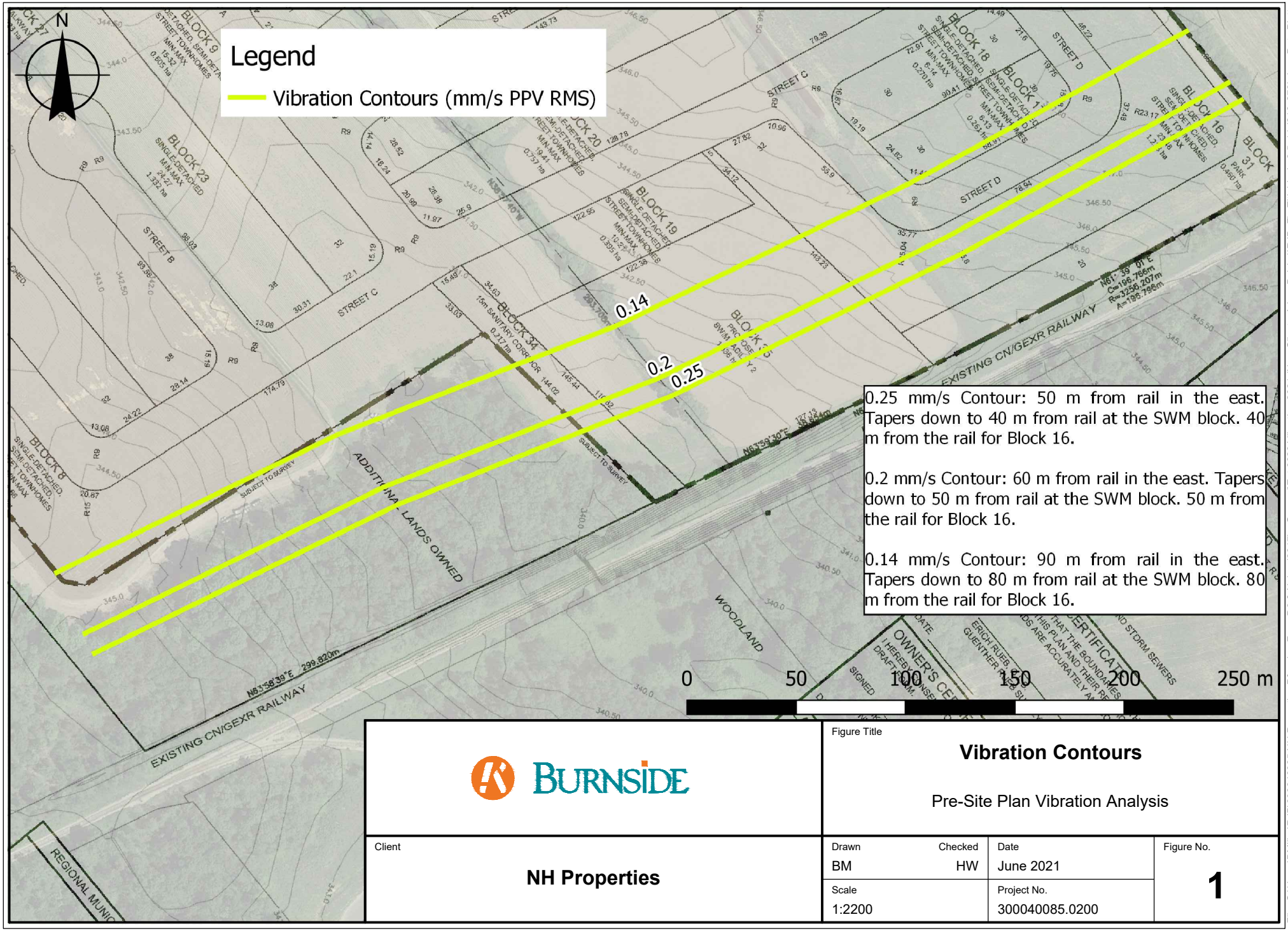
Yours truly,

R.J. Burnside & Associates Limited

Brent Miller, P.Eng.
Air & Noise Scientist
BM:lam

Enclosure(s) Figure 1 -Vibration Contours.pdf
Figure 2 - Areas of Vibration Mitigation.pdf
CN mitigation design for houses – CN railinfo2page.pdf

cc: Jason Cabral, MTE Consultants Inc. (enc.) (Via: Email)
Jeff Martens, MTE Consultants Inc. (enc.) (Via: Email)
Garett Korber, MTE Consultants Inc. (enc.) (Via: Email)
Paul Britton, MHBC (enc.) (Via: Email)
Joanne McDaniel, MTE Consultants Inc. (enc.) (Via: Email)



BURNSIDE

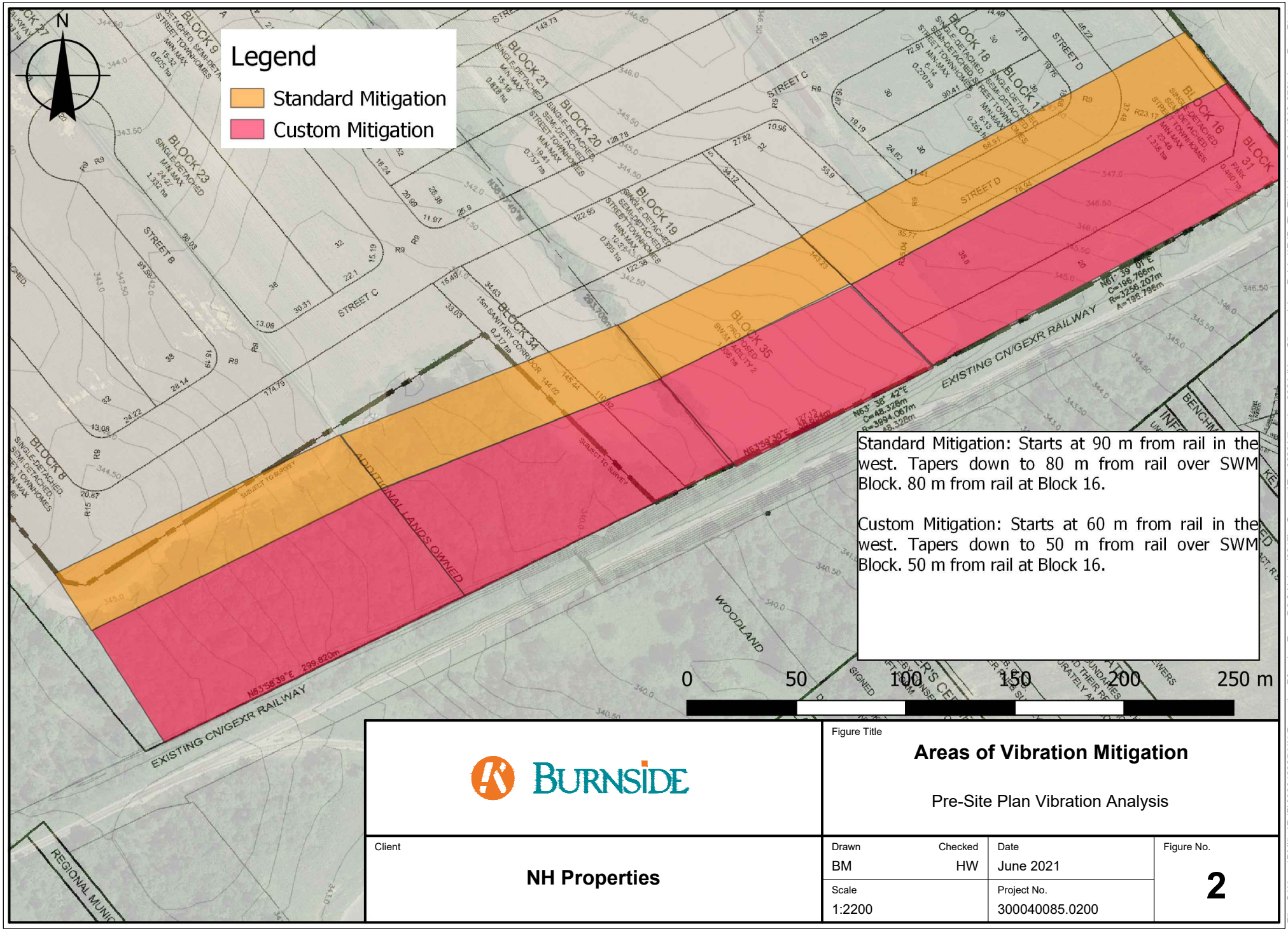
Figure Title

Vibration Contours

Pre-Site Plan Vibration Analysis

Client	Drawn	Checked	Date	Figure No.
NH Properties	BM	HW	June 2021	**1**
	Scale		Project No.	
	1:2200		300040085.0200	

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: June 21, 2021



BURNSIDE

Figure Title

Areas of Vibration Mitigation

Pre-Site Plan Vibration Analysis

Client	Drawn	Checked	Date	Figure No.
NH Properties	BM	HW	June 2021	**2**
	Scale		Project No.	
	1:2200		300040085.0200	

File: C:\Users\BMiller\RJB\300040085 NH Properties Pfenning Farm D6 & Noise (2017) - General\Ext 0020 Vibration 2021 (New Client - Adam Belsky)\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: June 21, 2021

CN

PRINCIPAL MAIN LINE

A. Noise berm, or combination berm and acoustic fence, adjoining and parallel to the railway right-of-way and having returns at the ends:

   (i) Minimum total height 5.5 metres above top-of-rail.

   (ii) Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre (4 lb./sq. ft.) of surface area.

   Note: The Railway may consider other measures recommended by an approved Noise Consultant satisfactory to the Railway.

B. Safety setback of dwellings from the railway right-of-way to be a minimum of 30 metres in conjunction with the safety berm noted below. In the absence of a safety berm, we require a dwelling setback of 120 metres.

C. Ground-borne vibration transmission to be estimated through site testing and evaluation to determine if dwellings within 75 metres of the Railway right-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec. RMS between 4 Hz. and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, $\pm$3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec. RMS on and above the first floor of the dwelling.

D. Safety berm adjoining and parallel to the railway right-of-way with returns at the ends, 2.5 metres above grade is required despite none being required to address the Railway's noise concerns.

E. The following clause should be inserted in all offers to purchase, agreements of sale and purchase or lease and in the title deed or lease of each dwelling; "Warning: Canadian National Railway Company or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."

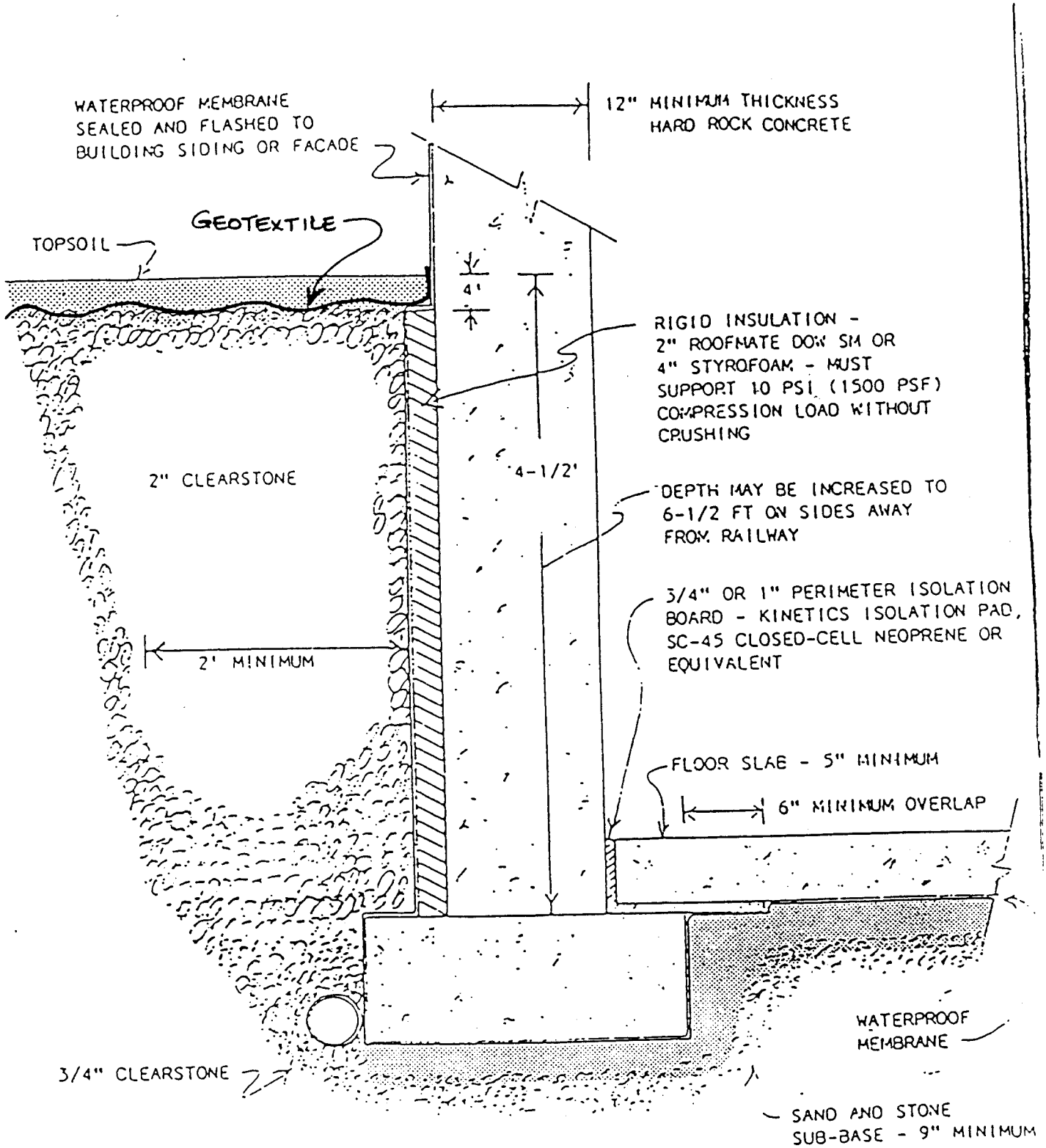
F. Any proposed alterations to the existing drainage pattern affecting Railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

G. The Developer shall install and maintain at his own expense, a chain link fence of minimum 1.83 metre (6 feet) height along the mutual property line, which shall be maintained by the Owner.

H. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have the sole responsibility for and shall maintain these measures to the satisfaction of CN Rail.

I. Pursuant to the Planning Act, the Municipality shall provide this office of the Railway with written notice of the public meeting, by-law and passing of the by-law appropriately zoning the lands hereby proposed for subdivision.

J. The Owner enter into an Agreement stipulating how CN Rail's concerns will be resolved and will pay CN Rail's reasonable costs in preparing and negotiating the agreement.



CROSS-SECTION OF RECOMMENDED FOOTING, BASEMENT FLOOR AND BASEMENT WALL CONSTRUCTION FOR MINIMIZING VIBRATION

WILSON, IHRIG & ASSOC., INC.
ACOUSTICAL CONSULTANTS

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix I

Previous Preliminary Draft Plan Iterations

DRAFT PLAN OF SUBDIVISION

WILMOT WOODS

1209 WATERLOO STREET
TOWNSHIP OF WILMOT ,
REGIONAL MUNICIPALITY OF WATERLOO

BENCHMARK

INFORMATION REQUIRED

UNDER SECTION 51 (17) OF THE PLANNING ACT, R.S.O. 1990, c.P.13 AS AMENDED

(a) - AS SHOWN
(b) - AS SHOWN
(c) - AS SHOWN
(d) - AS LISTED BELOW
(e) - AS SHOWN
(f) - AS SHOWN
(g) - AS SHOWN
(h) - MUNICIPAL WATER
(i) - SANDY LOAM
(j) - AS SHOWN
(k) - MUNICIPAL SANITARY AND STORM SEWERS
(l) - NONE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

SIGNED _____
ERICH RUEB, O.L.S.
GUENTHER RUEB SURVEYING

DATE _____

OWNER'S CERTIFICATE

I HEREBY CONSENT TO THE FILING OF THIS PLAN BY IBI GROUP, IN DRAFT FORM.

SIGNED _____
MIKE SCHOUT
NH PROPERTIES INC.

DATE _____

LAND USE SCHEDULE

BLOCKS	LAND USE	AREA	POTENTIAL # OF UNITS	
RESIDENTIAL		(ha)	MIN	MAX
1-20	SINGLE-DETACHED, SEMI-DETACHED, STREET TOWNHOMES,	11.252	255	549
21-23	SINGLE-DETACHED	2.790	49	58
24	TOWNHOUSE	0.823	22	30
25	APARTMENT	3.121	137	155
26-29	WALKWAY	0.538		
30-32	PARK	1.002		
33	0.3 METRE RESERVE	0.0005		
34	15m SANITARY CORRIDOR	0.217		
35, 36	PROPOSED SWIM FACILITY	2.480		
37	ROAD ALLOWANCE	0.009		
	ROAD	6.441		
* TOTAL		28.674	463	792

* NOT INCLUDING 10% FOR PRE-BUILT SECONDARY UNITS IN SINGLE-DETACHED RESIDENTIAL UNITS = 30 UNITS

#	DATE	BY	DESCRIPTION
			REVISIONS

APPROVALS

APPROVED: DATE:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR AND THAT THE SURVEY REPRESENTED HEREON IS CORRECT AND COMPLIES WITH THE LATEST REGULATIONS MADE UNDER THE SURVEYS ACT.

REGIONAL MUNICIPALITY OF WATERLOO APPROVAL BLOCK

DESIGNED BY:	JS	DATE:	2019-06-25
DRAWN BY:	JS	FILE NUMBER:	105413
CHECKED BY:	DWS	SHEET NUMBER:	1

IBI GROUP
101 - 410 Albert Street
Waterloo ON N2L 3V3 Canada
tel 519 585 2255
ibigroup.com

DRAFT PLAN OF SUBDIVISION

Legal Description

PART OF LOT 20, GERMAN BLOCK SOUTH OF SNYDERS ROAD
TOWNSHIP OF WILMOT
REGIONAL MUNICIPALITY OF WATERLOO

Owner's Certificate

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: _____ _____
Adam Belsky, Wilmot Woods Developments Inc.

Surveyor's Certificate

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____ _____
Trevor D.A. McNeil, OLS (MTE OLS LTD.)

Key Plan

Subject Lands

north

SCALE: NTS

Source: SLRN, Region of Waterloo

Additional Information Required Under Section 51(17) of the Planning Act R.S.O. 1990, c.P.13 as Amended

A. AS SHOWN | B. AS SHOWN | C. AS SHOWN
D. RESIDENTIAL, MULTIPLE RESIDENTIAL, STORMWATER MANAGEMENT, PARK, OPEN SPACE
E. AS SHOWN | F. AS SHOWN | G. AS SHOWN
H. MUNICIPAL WATER SUPPLY | I. SANDY LOAM/CLAY LOAM | J. AS SHOWN
K. ALL SERVICES AS REQUIRED | L. AS SHOWN

Area Schedule **30T-_____**

Description	Lots/Blocks	Units (min/max)	Area (ha)
Residential	34	346 / 383	13.78
Multiple Residential	3	172 / 300	3.00
Park	1		1.00
Open Space	4		8.43
Stormwater Management	1		2.55
Trail	2		0.71
Walkway	1		0.02
Service Corridor	1		0.24
0.3m Reserve	1		0.001
Road Widening	1		0.01
Roads			7.45
Total	49	518 / 683	37.19

Unit Calculations:
Minimum Unit Yield: 12.192m (40 ft) lots for Single Detached
6m (20 ft) lots for Street Towns
Concept Plan used for minimum number of units in multiple blocks

Maximum Unit Yield: 10.973m (36 ft) lots for Single Detached
6m (20 ft) lots for Street Towns
100 units/ha used for maximum number of units in multiple blocks

Notes

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. BOUNDARY INFORMATION AND TOPOGRAPHICAL BASE INFORMATION PROVIDED BY MTE, May 31, 2021
3. ADJACENT PARCEL FABRIC IS APPROXIMATE.

■ ■ ■ DENOTES STAGE LIMITS (TO BE CONFIRMED AND SHOWN ON FINAL PLAN)

Rev. No.	Date	Issued / Revision	By
1.	Sept. 21, 2021	For pre-consultation meeting submission;	DGS

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3X9 | P. 519.576.3650 F. 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date September 21, 2021

File No. 2123A

Plan Scale 1:2,000 (24x36)

Drawn By D.G.S.

Checked By P.B.

Project **Pfenning Farm Property**

Applicant
Wilmot Woods Developments Inc.
310 Fairway Rd. S
P.O. Box 45016
Kitchener, ON. N2C 2R6
P: 519.570.2137

north

File Name **DRAFT PLAN**

Dwg No. **1 of 1**

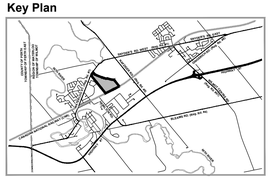
Scale Bar 0 5 10 25 50 100m

K:\2123A-NH Properties-New Hamburg\Concept Plan\Concept Plan September21 2021.dwg

DRAFT PLAN OF SUBDIVISION

Legal Description
PART OF LOT 20, CONCESSION SOUTH OF SNYDER'S ROAD
TOWNSHIP OF WILMOT
REGIONAL MUNICIPALITY OF WATERLOO

Key Plan



Subject Lands

north

SCALE: NTS
Source: SLRN, Region of Waterloo

Additional Information Required Under Section 51(17) of the Planning Act
R.S.O. 1990, c.P.13 as Amended

A. AS SHOWN	B. AS SHOWN	C. AS SHOWN
D. RESIDENTIAL, MULTIPLE RESIDENTIAL, STORMWATER MANAGEMENT, PARK, OPEN SPACE		
E. AS SHOWN	F. AS SHOWN	G. AS SHOWN
H. MUNICIPAL WATER SUPPLY	I. SANDY LOAM/CLAY LOAM	J. AS SHOWN
K. ALL SERVICES AS REQUIRED	L. AS SHOWN	

Notes
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. BOUNDARY INFORMATION AND TOPOGRAPHICAL BASE INFORMATION PROVIDED BY MTE, May 31, 2021
3. ADJACENT PARCEL FABRIC IS APPROXIMATE.
4. LOTS/BLOCKS ON THE PLAN ARE RESIDENTIAL UNLESS OTHERWISE LISTED

■ ■ ■ DENOTES STAGE LIMITS (TO BE CONFIRMED AND SHOWN ON FINAL PLAN)

19/25 MINIMUM/MAXIMUM LOT YIELD PER BLOCK

Rev. No.	Date	Issued / Revision	By
2.	Dec. 23, 2021	Final Draft Plan for Distribution;	DGS
1.	Sept. 30, 2021	For pre-consultation meeting submission;	DGS

Owner's Certificate
I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: _____ _____
Adam Belsky, Wilmot Woods Developments Inc.

Surveyor's Certificate
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____ _____
Trevor D.A. McNeil, OLS (MTE OLS LTD.)

Area Schedule **30T-_____**

	Stage 1		
Description	Lots/Blocks	Units (min/max)*	Area (ha)
Residential*	1-15	57/103	2.68
Multiple Residential	16-18	120/304	3.04
Park	19		1.00
Open Space	20-22		5.15
Stormwater Management	23,24		2.45
Service Corridor	25		0.24
0.3m Reserve	26-33		0.01
Road Widening	34		0.03
Roads			2.97
Total	34	177/417	17.57

*Blks. 2,3,5,6,7,8,9,10,11,14,15 [street towns (6m) and small single detached lots (9m)]
Blk. 1 [small single detached lots (9m-12m)]
Blks. 4,12,13 [large single detached lots (9-13.76m)]
Blks. 16,17,18 [40 uph to 100 uph (Low=Towns High=Stacked Towns)]

	Stage 2		
Description	Lots/Blocks	Units (min/max)*	Area (ha)
*Residential	1-5	60/121	2.34
Open Space	6		0.38
Trail			
Walkway	7		0.02
0.3m Reserve	8		0.001
Roads			0.90
Total	8	60/121	3.64

*Blks. 3,4,5 [street towns (6m) and small single detached lots (9m)]
Blk. 2 [small single detached lots (9m-12m)]
Blk. 1 [large single detached lots (9-13.76m)]

	Stage 3		
Lots/Blocks	Units (min/max)*	Area (ha)	
1-5	66/98	2.77	
6		0.05	
7		0.001	
		1.02	
7	66/98	3.84	

*Blk. 1 [street towns (6m) and small single detached lots (9m)]
Blks. 2,3,4,5 [small single detached lots (9m-12m)]

	Stage 4		
Description	Lots/Blocks	Units (min/max)*	Area (ha)
*Residential	1-6	56/79	2.43
Open Space	7		2.86
Trail			
0.3m Reserve			
Roads			0.87
Total	7	56/79	6.16

*Blks. 1,2,3,4,5 [small single detached lots (9m-12m)]
Blk. 6 [large single detached lots (9-13.76m)]

	Stage 5		
Lots/Blocks	Units (min/max)*	Area (ha)	
1-9	79/138	3.47	
10-12		0.77	
13		0.001	
		1.74	
13	79/138	5.98	

*Blks. 2(part), 3,4,5,6,7(part) [street towns (6m) and small single detached lots (9m)]
Blks. 2(part), 7(part), 9 [small single detached lots (9m-12m)]
Blk. 1 [large single detached lots (9-13.76m)]

	Total		
Description	Lots/Blocks	Units (min/max)	Area (ha)
Residential	40	318/549	13.69
Multiple Residential	3	120/304	3.04
Park	1		1.00
Open Space	5		8.39
Stormwater Management	2		2.45
Trail	4		0.82
Walkway	1		0.02
Service Corridor	1		0.24
0.3m Reserve	11		0.01
Road Widening	1		0.03
Roads			7.50
Total	69	438/853	37.19

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3X9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date December 23, 2021
File No. 2123A
Plan Scale 1:2,000 (24x36)
Drawn By D.G.S.
Checked By P.B.

Project **Wilmot Woods**

Applicant
Wilmot Woods Developments Inc.
310 Fairway Rd. S
P.O. Box 45016
Kitchener, ON. N2C 2R6
P: 519.570.2137

north

File Name **DRAFT PLAN**
Dwg No. **1 of 1**

Scale Bar 0 10 25 50 100m

K:\2123A-NH Properties-New Hamburg\DP\Draft Plan December23 2021.dwg

R.J. Burnside & Associates Limited