ENVIRONMENTAL NOISE IMPACT STUDY

"WASAGA BEACH AFFORDABLE HOUSING"

4 STOREY AFFORDABLE HOUSING APARTMENT BUILDING
LOCATED AT
175 ZOO PARK ROAD
WASAGA BEACH, ONTARIO
COUNTY OF SIMCOE

Prepared for:

Simcoe County Housing Corporation
C/o MHBC
Planning, Urban Design &
Landscaping Architecture
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Since 1986 Professional Acoustical Consultant

Final September 2017
Original Report July 2017
Our File: 2017-1198

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1.0 INTRODUCTION

dBA Acoustical Consultants Inc. has provided a noise impact study, on behalf of the County of Simcoe Housing Corporation, for the proposed, 4 storey residential affordable housing apartment building located at “175 Zoo Park Rd, Wasaga Beach” in Simcoe County. The purpose of the noise study is to determine the Town of Wasaga Beach Works Yard located on Zoo Park Road, noise impact from the works site stationary noise sources that may be deemed to have an impact on the proposed housing development. This study will detail noise impacts, from the Town of Wasaga Beach Works Yard, at the proposed development and recommend noise control measures necessary (if applicable) to meet MOE Publication 300 “Stationary & Transportation Sources noise guidelines while satisfying the planning requirements of the Town of Wasaga Beach.

2.0 SITE DESCRIPTION

Proposed is a 4 storey affordable housing residential apartment building totaling (99) ninety-nine apartment style units. The site property is located on the north side of Wally Drive, east of Zoo Park Road and adjacent to the site area of the Town of Wasaga Beach Works Yard to the north and east. To the west of the proposed development are one & two storey single family homes. Zoo Park Road is immediately west. The Town of Wasaga Beach staff confirmed that traffic noise from Wally Road & Zoo Park Road are not a noise concern due to low traffic volumes and posted speed limits and are therefore not addressed in this report. Site Location is attached as Figure 1. The site is situated near an established residential area and adjacent to the Town of Wasaga Works Yard.

3.0 STATIONARY NOISE

3.1 REGULATORY CONTEXT

The MOE Publication NPC 300 - Stationary and Transportation Source Guidelines defines a point of reception/recepter as “any point on the premises of a person where the sound or vibration originating from other than those premises is received.”

The point of reception may be located on any of the following, or zoned for future use, premises including but not limited to the following: residential homes, hospitals, nursing/retirement homes, etc.

The areas surrounding the “175 Zoo Park Road” is indicative of a “Class 2 Area” (Urban) as defined in MOE Publication 300, Stationary & Transportation Sources-Approval & Planning.

The applicable sound limits are the higher of:

- The existing ambient sound level;
- The minimum values of Table 3A & 3B.

No restrictions apply to stationary sources if the one-hour equivalent sound exposure (Leq) is lower than the levels in the following Table 3A and Table 3B.

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Class 1 Area</th>
<th>Class 2 Area</th>
<th>Class 3 Area</th>
<th>Class 4 Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-19:00</td>
<td>50</td>
<td>50</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>19:00-23:00</td>
<td>50</td>
<td>45</td>
<td>40</td>
<td>55</td>
</tr>
</tbody>
</table>

dBa Acoustical Consultants Inc.
Table 3B
Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Plane of Window of Noise Sensitive Spaces

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Class 1 Area</th>
<th>Class 2 Area</th>
<th>Class 3 Area</th>
<th>Class 4 Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-19:00</td>
<td>50</td>
<td>50</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>19:00-23:00</td>
<td>50</td>
<td>50</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>23:00-07:00</td>
<td>45</td>
<td>45</td>
<td>40</td>
<td>55</td>
</tr>
</tbody>
</table>

4.0 TOWN OF WASAGA BEACH WORKS YARD

The Town of Wasaga Beach Works Yard located on Zoo Park Road is utilized as a storage yard for yearly operations. The works yard operates daily Monday-Friday 7:00am-3:30pm. The works yard is not utilized during nighttime hours or weekends. During operational hours, several dump trucks bring loads into the yard and dump the material. Discussions previously, the Town of Wasaga Beach, Supervisor, Mr. Dave Wagner, addressed the daily activities and operations of the equipment utilized on the premises. The works yard stock piles sand for the winter roads, snow, damaged trees and Christmas trees. The damaged trees and Christmas trees are chipped and all chips are recycled. This process occurs only about once or twice a year as stated by Town staff.

4.1 ON-SITE EQUIPMENT

1. Chipper

The works yard has a mobile Carlton 2012 Wood Chipper that is approximately seven years old and equipped with a noise sensitive muffling apparatus. The chipper is mobile and typically utilized for a week in the spring to dispose of used Christmas trees and damaged trees. As the chipper is mobile, the location for chipping can at a distance from the proposed development so that noise would not impact the development. The noise from the chipper is directional. As the trees are chipped an earth berm barrier may be created that would further reduce the noise impact on the proposed development.

The chipper is estimated to be approximately 25m from the amenity space.

2. Street Sweeper

The street sweeper is relatively very quiet. The vehicle drives into the yard and proceeds to the dumping area located in the north end of the yard to dump the debris. The dumping is gravity dumped and there is no tailgate as is the case with a standard dump truck. The duration of dumping takes less than 20 seconds in duration.

3. Font End Loader Case 621E & Case 621D

The Case 612E and 625D Front End Loaders are on-site as required to load dump trucks and/or remove material in the yard from place to place. The front-end loaders are equipped with backup warning devises and are exempt from any noise control regulations as it is a safety regulation of the Ministry of Labor. The front-end loaders are utilized periodically. Noise levels included back up alarms and will be eliminated for noise calculation purposes later in this report.

4. Dump Trucks

The works yard has a maximum of 2-3 dump trucks periodically at a time and are loaded/unloaded and then leave the yard. The loading takes approximately 5 minutes and the dump truck remains idling during the loading process. The dump trucks during unloading must lift the truck box and the noise levels increase slightly.
In some cases, the dump truck tailgate may bang and create unnecessary noise. Banging of the tailgate is considered a truck drivers operational matter and can be controlled during the lowering of the box. While on-site recently we observed a couple of dump trucks lower the box after dumping their material without banging the box. They appeared to be sensitive to the area residents on Wally Drive.

Included in the noise monitoring simulation banging of the box was included and represents the worst-case scenario.

**5.0 NOISE MONITORING PROCEDURE**

Previously noise monitoring was conducted on site for the site development for Wally Drive development. Noise levels would not have changed from each works yard equipment only the distance noise calculations. The same noise levels were utilized to calculate the Wally Drive noise barrier requirements in 2017. On-site noise monitoring was conducted previously on March 21, 2012 of all on-site works yard equipment. Noise monitoring was conducted in an unobstructed area while each equipment was operating at full operational mode.

Sound level measurements were carried outside using Larson Davis Model 820 sound level meter. Calibration was verified before and after use with a Larson Davis model CA250 acoustic calibrator, serial number 0495. The sound monitor was equipped with a tripod and wind screen. Meteorological conditions were ideal for sound level monitoring. All monitoring was conducted in accordance with MOE Publication 300 “Stationary & Transportation Sources noise guidelines. Noise levels were measured to be representative of worst-case scenario. Noise readings were measured from which the logarithmic sound level (L_{eq}) is representative of the one-hour average sound level. Results are presented in Section 6 of this report.

**6.0 NOISE MONITORING RESULTS**

The following Table indicates the noise results of each operating equipment utilized on the works yard property monitored at specific distances. It was confirmed that the only noise sources that work in combination are the front end-loaders and dump trucks.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Noise Level dBA</th>
<th>Distance</th>
<th>Mitigation Required (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipper</td>
<td>63.3</td>
<td>7m</td>
<td>Yes</td>
</tr>
<tr>
<td>Sweeper</td>
<td>52</td>
<td>7m</td>
<td>No</td>
</tr>
<tr>
<td>Front-End Loader 621E</td>
<td>66.7</td>
<td>5m</td>
<td>Yes</td>
</tr>
<tr>
<td>Front-End Loader 621D</td>
<td>64.4</td>
<td>5m</td>
<td>No</td>
</tr>
<tr>
<td>Dump Truck</td>
<td>64.3</td>
<td>5m</td>
<td>No</td>
</tr>
</tbody>
</table>

The proposed development has standard balconies that are less than 4m in depth and are not considered an outdoor amenity space as defined by the MOE definitions. The following Table indicates the noise at a small outdoor amenity space located in the north-east portion of proposed site. This amenity space will require a noise fence along a portion of it and is noted in Appendix “B” Noise Barrier Height and Location.

Please note that the Town of Wasaga Beach may consider moving each equipment location further from the distances north-east that will further reduce the noise levels, however; we would still recommend a 2.0m height wooden noise barrier as noted in Figure 3.

The calculation for establishing the overall noise level of each works yard equipment is as follows:
Distance of noise monitored (7m) and the site location distance is approximately (25m) to the Amenity Space. Example Chipper: 15m(25m= (Logx20) = (-5db). Total overall level is 63.3-5db=58dba.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Overall Noise Level dBA</th>
<th>Distance</th>
<th>Calculated Noise Level at Amenity Space (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipper</td>
<td>63.3-5</td>
<td>15m</td>
<td>58</td>
</tr>
<tr>
<td>Sweeper</td>
<td>52 - 14</td>
<td>5m</td>
<td>38</td>
</tr>
<tr>
<td>Front-End Loader 621E</td>
<td>66.7- 14</td>
<td>5m</td>
<td>52</td>
</tr>
<tr>
<td>Front-End Loader 621D</td>
<td>64.4- 14</td>
<td>5m</td>
<td>50</td>
</tr>
<tr>
<td>Dump Truck</td>
<td>64.3- 14=-</td>
<td>5m</td>
<td>50</td>
</tr>
</tbody>
</table>

In addition to the noise barrier a Type “E” Warning Clause is recommended. The following Warning Clause is to be added into all leases, sales, and Registered on Title.

**TYPE “E”**

“Purchasers or Renters are advised that due to the proximity of the adjacent Town of Wasaga Works Yard, sound levels from the yard may at times be audible.”

**7.0 SUMMARY OF RECOMMENDATIONS - NOISE CONTROL**

**7.1 OUTDOOR LIVING AREAS**

Calculated noise levels exceed the 50 dBA criteria outlined in Table 3A for outdoor amenity space. The plan for the proposed development includes an outdoor amenity space. Mitigation to reduce outdoor noise levels requires 2.0m noise barrier. Standard balconies are considered for the apartment type dwellings however; a balcony is not considered an outdoor amenity space unless it exceeds 4 metres in depth. Standard OBC windows for all units are required. The toboggan run is not considered as an outdoor amenity space and does not require noise mitigation measures.

In compliance with MOE guidelines, the wooden noise barrier has a minimum surface density of 20 kg/m² and constructed without cracks or gaps. Any gaps under the wooden noise barrier are necessary for drainage purposes and minimized and do not deteriorate acoustical performance. The noise barrier will reduce the overall noise level by a minimum of 12 dBA. In addition to any recommended physical controls, specifically worded Type “E” warning clause is recommended.

**8.0 CONCLUSIONS**

dBA Acoustical Consultants Inc. has provided a noise impact study on behalf of the County of Simcoe Housing Corporation, for the proposed 4 storey residential affordable housing apartment building located at “175 Zoo Park Rd, Wasaga Beach” in Simcoe County. The noise study determined the Town of Wasaga Beach Works Yard located on Zoo Park Road, noise impact from the works site stationary noise sources. This study detailed noise impacts, from the Town of Wasaga Beach Works Yard, at the proposed development and recommend noise control measures necessary to meet MOE Publication 300 “Stationary & Transportation Sources noise guidelines while satisfying the planning requirements of the Town of Wasaga Beach.
FIGURE 1
SITE LOCATION
FIGURE 2
SITE PLAN
FIGURE 3

NOISE BARRIER LOCATION

2.0m Wooden Noise Wall