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NOV 23 2017

PLANNING SERVICES

MEMORANDUM

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DATE: 2017-11-23 **RWDI REFERENCE #:** 1801684

TO: Glen Ferguson **EMAIL:** glen.ferguson@greatersudbury.ca

FROM: Greg Conley **EMAIL:** greg.conley@rwdi.com
Peter VanDelden **EMAIL:** peter.vandelden@rwdi.com

RE: **Noise Study Peer Review**
Friends Fur-Ever Noise Assessment Peer Review
Sudbury, Ontario

Dear Mr. Ferguson,

The City of Greater Sudbury has retained RWDI to complete a peer review of a report prepared by ProSonics Ltd. titled Friends Fur-Ever Pet Resort Noise Assessment, dated September 21, 2017. The noise assessment was presented to the City of Greater Sudbury in respect of a proposed expansion of the facility. The city has requested an opinion of whether or not the methodology and conclusions are sound, specifically addressing

- adequacy of the documentation to demonstrate that the study findings are appropriate for demonstrating that the proposed land use will not adversely impact the nearby uses, including sensitive land uses;
- whether mitigation options for noise should be implemented and in doing so what best practice standards exist within the kennel industry - commenting on the practicality of the application from an operational prospective of the intended land use;
- adequacy of the proposed mitigation measures to limit any future adverse impacts on surrounding properties;
- enforceability, from the City perspective, of the proposed mitigation options during ongoing operation of the proposed kennel use; and,
- any errors, gaps or shortcomings.

These are addressed under the subsequent headings titled documentation and mitigation.



Documentation

Guideline Selection

Assessment of separation distance to minimize adverse interaction between facility emissions and sensitive spaces is provided in the Ministry of Environment and Climate Change (MOECC) D-series guidelines. Resulting setback distances can be refined through assessment of the specific emissions. For noise emissions, the MOECC Model Municipal Noise Control By-law is generally the most appropriate guidance. Specific numerical limits and assessment approach can be taken from the part of the Model Municipal Noise Control By-law most recently updated as Environmental Noise Guideline NPC-300. Additional details are found in other sections of the Model Municipal Noise Control By-law.

The ProSonics assessment references the Model Municipal Noise Control By-law and proceeds directly to the use of NPC-300. In cases where noise is known to be the only emission of interest a D-series guideline assessment would not be necessary. We concur with the use of the Model Municipal Noise Control By-law, including NPC-300 as the best-available guidance.

Site, Surroundings and Points of Reception

The report provides a brief description of the site. Barking from up to 30 domestic dogs housed at the Friends Fur-Ever Pet Resort is the noise source of interest for this assessment. Characterization of the topography between the site and surroundings is missing.

The ProSonics report mentions points of reception north and west of the site. These and others are confirmed by aerial photography. City staff indicated to RWDI that there is a residence approximately 47 m to the south of the kennel fencing. The report does not appear to address this location. This location would be closer to the facility than others and should therefore be the key receptor. This location is also within the 300 m setback from any residential building as required by the City of Greater Sudbury Zoning By-law 2010-100Z.

The area is characterized as a rural area in the report. Highway 17 is the nearest major roadway, at over 1 km to the north. Industrial, commercial and more densely populated areas are located beyond this distance. We concur with the ProSonics assessment of this area as a rural environment.



Assessment

The ProSonics report references the Model Municipal Noise Control Bylaw and NPC-300 guideline to address commercial use of the property, potential exemption and the area classification. While there is some ambiguity concerning the applicability of NPC-300 to this type of source, we concur with its use as the best available guidance and limits. The ProSonics area classification as a Class 3 (i.e., rural) area can be supported by the description and aerial photography.

The ProSonics report shows measurements at the perimeter of the site and refers to calculations from measurements in close proximity to the source. It is unclear how these are developed into specific sound levels that can be assessed at the exiting points of reception and any vacant lots. The methodology to determine facility compliance is therefore unclear.

A mixture of average equivalent sound level (L_{EQ}), minimum level and maximum peak level are used to describe the measured sound levels in the report. No reference is made to whether the barking is assessed as a steady, quasi-steady or impulsive type of source. The description as steady, quasi-steady or impulsive is necessary to defining the assessment and measurement procedure. The use of a mixture of level descriptors and the absence of other elements of the methods in the report make the characterization uncertain.

The assessment appears to be based on measurements at the perimeter of the site and in close proximity to the source. The high degree of variation in sound level measured at the site perimeter is somewhat unusual. It is unclear if an environmental windscreen was used with the measurement equipment.

Analysis

The ProSonics analysis of the data begins by discounting use of the NPC-300 guideline limit on the basis of measured background sound levels. The Model Municipal Noise Control Bylaw sets out procedures to establish background sound levels that are higher than the default limits. For example, Section B5 of NPC-300 requires a minimum of 48 hrs of monitoring to be conducted during times when the background sound level is at its lowest. The report does not provide indication that the procedures under NPC-300 were followed. In the absence of a suitable demonstration of elevated background, the default limits are applicable under NPC-300. The report proceeds to develop an alternative assessment criterion. It should be clear that this alternative criterion is not derived from NPC-300.

In the second place the analysis section compares the dog noise with sounds of nature occurring at the time of the observations. This can be used to illustrate audibility at that moment and at the specific observation location. The sounds of nature vary by time of day,



by location and seasonally. A short-term description of audibility therefore does not necessarily address predictable worst-case impact, as required in NPC-300. The NPC-300 assessment approach is on the basis of a predictable worst-case one-hour period. The predictable worst-case approach looks at the highest predictable sound level from the source against the lowest limit that would apply.

The third section of the ProSonics analysis is based on sound propagation calculations. The calculations reference measurement of barking taken at 1 m from the corner of the kennel structure. It seems unreasonable that with 27 dogs present, they could all be located at 1 m from the measurement location. Use of an incorrect distance as input to the calculations will produce incorrect results. The actual distance from each of the barking locations to the measurement location is a key piece of information not provided in the report.

The report makes reference to mathematical prediction of sound pressure level to the measurement locations. No statement is provided about assumptions made for atmospheric conditions, intervening ground cover and topography that influence how well travels. We have not been able to duplicate the results presented. Sample calculations would be necessary to support the results provided.

Conclusions

The ProSonics report draws three conclusions. The first conclusion is that the noise was within the NPC-300 guideline. Based on the review comments provided above it is clear that this has not been sufficiently demonstrated. The second conclusion that the noise was essentially inaudible is an observation of what occurred at that specific time and place. The continuity of this observation is not assured in seasons when leaves and crickets are not present or under other atmospheric conditions. In the third place the ProSonics report concluded that there is no adverse noise impact. This appears to be an unlimited blanket statement. Such a statement might be supported in the absence of complaints from the facility.

Mitigation

The ProSonics report does not make any recommendations for mitigation measures. A mention is made of "quieting methods normally employed", however no further description is provided. In the absence of this description, no comment can be provided about the adequacy or practical enforceability of the measure.

In addition to methods that reduce the amount of barking, sound can be controlled by administrative means and noise control equipment. An administrative control would be keeping the dogs indoors during the quieter evening and nighttime (7 pm – 7 am) periods. This would require a building that suitably encloses the sound from the dogs. A noise



barrier is another noise control measure that could be applied in a limited number of situations. Selection of the appropriate combination of measures should be made once sound levels are better understood.

Summary

The ProSonics report provides measurements and analysis of sound levels relating to the Friends Fur-Ever Pet Resort. Our review of the report and analysis indicates that several significant items need to be clarified, corrected, or supplemented as detailed above. No mitigation measures are explicitly stated in the ProSonics report. Additional information will allow comment on the applicability, adequacy, practicality and enforceability of any mitigation measures that may be needed. The resulting assessment update should be reviewed to ensure that the items have been appropriately addressed.

Should you have any questions, please contact the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to read 'P. VanDelden', written over a horizontal line.

Peter VanDelden, P. Phys., INCE
Technical Director / Associate

A handwritten signature in black ink, appearing to read 'G. Conley', written over a horizontal line.

Greg Conley, M.Eng., P.Eng.
Senior Project Manager/Principal

GC/PV/klm