



Trenton - Baseline Noise
Technical Support Document
For
Trenton Lock 1 Hydro Project

Project Report

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**Hydromega
Trenton 1 Lock**

Distribution
K. Vukovics
M. Choy
S. Chen

**Community Noise Environment
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1. Existing Sound Levels

1.1 Existing Noise Environment

The project area around the proposed hydroelectric generating station location is situated at the Trenton Lock 1 Dam site on the Trent-Severn Waterway surrounded by the urban part of Quinte West. The project site is located in an industrial-commercial area with low to medium residential areas further beyond the area [1]. Surrounding facilities include a metal distribution facility, a waste transfer station, manufacturing facilities, and towing services. The site itself is bounded by the Trent-Severn Waterway to the west and a Canadian National Railway rail line to the north. Two major roadways Highway 33 (Regional Road 33) and Sidney Street (Regional Road 4) run along the west and east sides, respectively, of the site. In addition, Highway 401 is located approximately 900 m north of the site. Thus, traffic noise the main source of ambient sound in the project area. Other sources of sound include the sound of rushing water through the Trenton Lock 1 Dam and operations at the nearby industrial and commercial facilities. A map of the area surrounding the project is shown in Figure 1.

The existing acoustical environment is indicative of a Class 1 area, where the background sound level is dominated by activities of people and traffic, often referred to as “urban hum” [2]

1.2 Baseline Noise Measurements

In order to characterize baseline sound levels in the project area, sound level monitoring was conducted by Hatch from November 29 to December 2, 2016. The results are summarized and discussed in this section.

Two baseline sound monitoring stations were established in the residential areas closest to the project site. These two Points of Reception (POR) included one on Delany Street (POR #2) and the other near the intersection of Creelman Ave. and Ramsay Ave. (POR #1). Figure 1 shows the locations of the POR monitoring locations relative to the project site.



Figure 1. Map of POR/Monitoring Locations Relative to the Project Site

A sound monitoring instrument was installed at each site and set to record the five-minute equivalent sound level (L_{eq}) and maximum and minimum sound levels (L_{max} and L_{min}). One-hour equivalent sound levels were calculated by averaging the 5-minute equivalent levels within the hour.

1.2.1 **Point of Reception #1: Creelman Ave.**

A monitor was set up on a utility pole near a low-rise residence around the intersection of Creelman Ave. and Ramsay Ave, representing POR #1. This POR location is located approximately 280 m east of the project site. Figure 2 shows the setup of the noise monitor and Figure 3 displays the location of the monitor. Figure 4 plots the one-hour L_{eq} and wind speed over the measurement time period.



Figure 2. Noise Monitor Setup at Creelman Ave. (POR #1)



Figure 3. Noise Monitor Location Map at Creelman Ave. (POR #1)

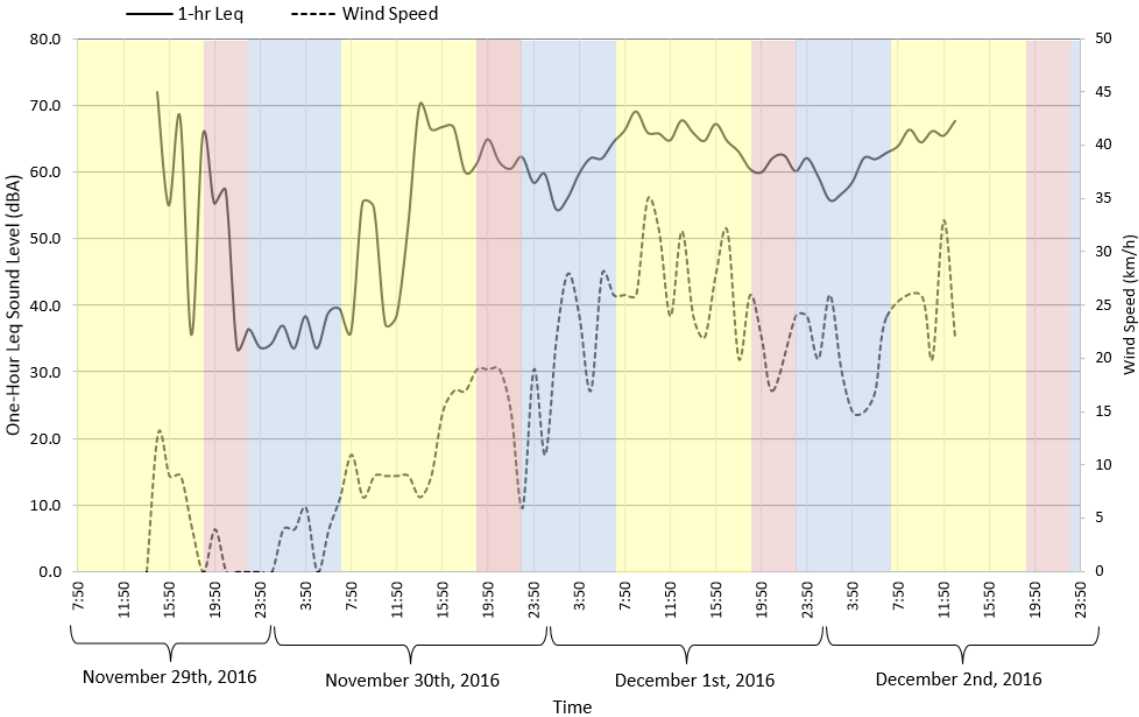


Figure 4. One-hour L_{eq} Noise Levels and Wind Speed over the Measurement Period (POR#1 – Creelman Ave.)

1.2.2 Point of Reception #2: 64 Delany Ave

Another monitor was set up on a utility pole near 64 Delany Ave, which is representative of POR #2. This POR is located 750 m southwest of the project site and is within 90 m of Regional Road 33 (Highway 33). A motel is located 150 m to the southwest of the POR location. Figure 5 shows the setup of the noise monitor and Figure 6 displays the location of the monitor. Figure 7 plots the one-hour L_{eq} and wind speed over the measurement time period.



Figure 5. Noise Monitor Set-up at 64 Delany Ave. (POR #2)



Figure 6. Noise Monitor Location Map at 64 Delany Ave. (POR #2)

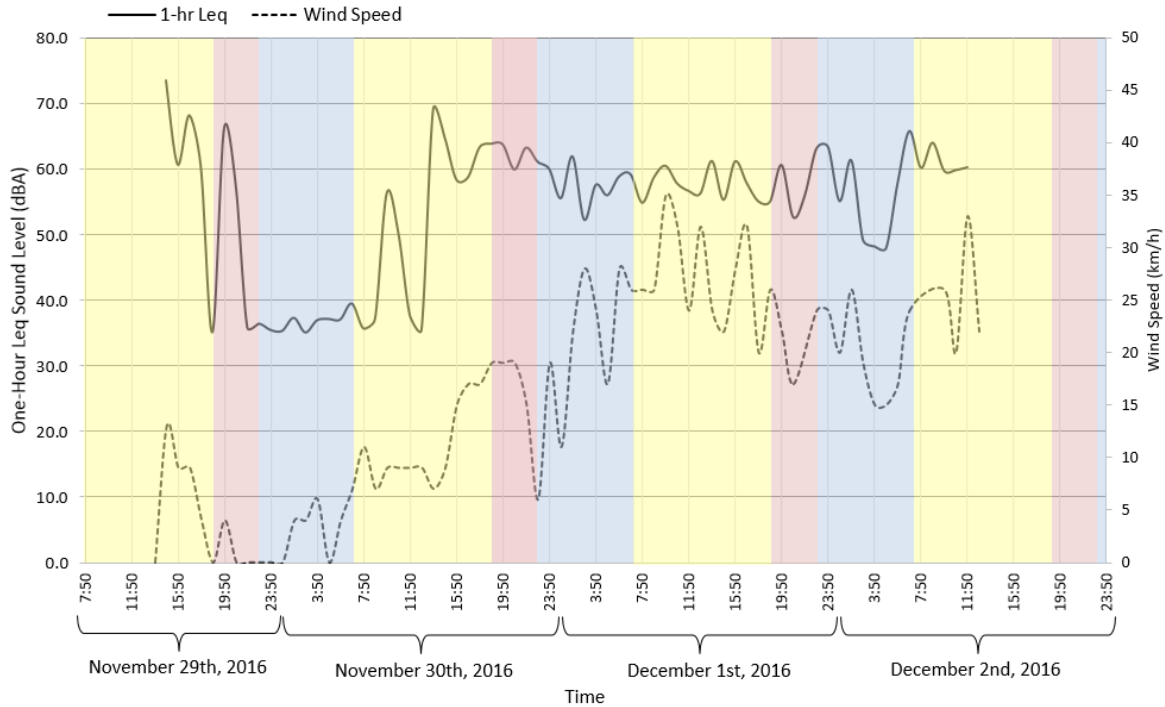


Figure 7. One-Hour L_{eq} Noise Levels and Wind Speed Over the Measurement Period (POR #2 – 64 Delany Ave.)

1.3 Noise Criteria

Table 1 summarizes the baseline sound level monitoring results and compares it to the Ministry of Environment and Climate Change (MOECC) performance limits [2].

Table 1. Summary of Baseline Sound Level Monitoring Results

POR ID	Monitoring Location	Minimum One-hour L_{eq} (dBA)			Verified by Acoustic Audit (Yes/No)	Exclusion Limit (one-hour L_{eq} , dBA)			Final Performance Limit (one-hour L_{eq} , dBA)		
		Morn.	Even.	Night		Morn.	Even.	Night	Morn.	Even.	Night
POR #1	Creelman Ave.	35	34	33	Yes	50	50	45	50	50	45
POR #2	64 Delany Ave.	35	36	35	Yes	50	50	45	50	50	45

Note: Morning: 7 a.m. – 7 p.m., Evening: 7 a.m. – 11 p.m., Night: 11 p.m. – 7 a.m. the next day

Over the measurement period, the minimum baseline one-hour L_{eq} for day, evening, and night at both PORs were measured to be all less than the MOECC Class 1 Performance Exclusion Limit. Therefore, according to MOECC guidelines [2], the exclusion limits becomes the final performance limits for the Trenton Lock 1 Hydro Project.

2. Environmental Noise Submission Requirements

Hydromega has two (2) avenues to ensure community noise compliance in accordance with Ontario Regulations (O.Reg). These approaches follow either one of the following O.Reg.s:

- O.Reg 1-17: Registrations Under Part II.2 of the Environmental Protection Act – Activities Requiring Assessment of Air Emissions
- O.Reg 359-09: Renewable Energy Approvals Under Part V.0.1 of the Environmental Protection Act

Under O.Reg 1-17, the Project is eligible to be registered under the Environmental Activity and Sector Registry (EASR) program. Based on a preliminary investigation, it is anticipated that the project will meet the Secondary Noise Screening Method, and therefore, only the Secondary Screening form and limited supporting documentation need only be completed and retained by the project to ensure compliance under O.Reg 1-17.

3. References

1. City of Quinte West, "Official Plan - City of Quinte West," Quinte West, 2013.
2. Ontario Ministry of Environment and Climate Change, "Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300)," Toronto, 2013.

S. Chen
SC:sc