

## **Elk/Beaver Lake Remediation**

### **Elk Lake Oxygenation System Building Location Options Analysis**

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#### Background

In the preliminary design of the Elk/Beaver Lake remediation project, three oxygenation building site options were identified and analysed. The information was documented in the Siting Memo dated October 4, 2021. The boat launch area at the north end of Elk Lake was recommended. However, after further investigation of the site, the soil conditions and other operational constraints made this site unfavourable.

The project team revisited various possible site options and conducted the following analysis.

#### Site Options Analysis

##### 1. Boat Launch Area (North of Elk Lake)

The proposed building in this location will not impact any current recreational events. There are no residents in the close vicinity. The access to this site is easy for service vehicles and sufficient parking spaces when needed. However, the soil condition on this site is relatively soft and costly for foundation work. In order to allow sufficient space for the building, many trees will need to be removed.

##### 2. Hamsterly Beach Site (near the new washroom)

This proposed building location is currently being used for many events, such as the Ironman Canada. The installation of the Oxygen diffusion line from the building to the lake would impact activities in the beach area. The closest resident is approximately 60 meters from the proposed site. The existing path from Hamsterly Road will require upgrading to a service road for access by service vehicles and some parking spaces will need to be created beside the proposed building. A number of trees will need to be removed to accommodate this project.

##### 3. Hamsterly Road Site (at the end of Hamsterly Road)

The area needed for this building will not impact any current recreational events. There are no residents within the vicinity. A commercial building (Elk Lake Centre) is approximately 40 meters from the proposed building. This location is close to Hamsterly Road which is easily accessible for services. There will be no tree removal required.

##### 4. Rowing Club Site

The building will not impact any current recreational activities and there are no residents in the vicinity. Large service vehicles can access the site and parking is available. A short service road is needed from the boat launch area. Some tree removal is required. However, the shoreline at this location is a protected turtle habitat area. The construction and operation of the oxygen diffusion line would have significant impact on the turtle habitat.

The location maps are attached in this report and the location analysis is summarized in the table below.

Criteria	Weighting	Boat Launch		Hamsterly (1)		Hamsterly (2)		Rowing Club	
		Score	Total	Score	Total	Score	Total	Score	Total
Social	5	4	20	3	15	4	20	3	15
Economic	5	2	10	4	20	4	20	2	10
Environmental	5	2	10	2	10	3	15	2	10
Operational	5	5	25	3	15	5	25	5	25
			65		65		80		60

### Conclusion

From the social, economic and environmental perspective, the Hamsterly Road location is best suited to house the oxygenation equipment.

The proposed building is approximately 40 meters away from the Elk Lake Centre. The design team has considered the potential impacts to the operation and to the Centre's tenants and developed mitigation strategies to address potential issues.

Apparently the potential sound emitting from the oxygenation building might be a concern. In addressing the potential concern, the design team has selected the equipment with the lowest sound level. The oxygenation system has a 71 dB sound rating which is equivalent to the sound generated from a dishwasher. Considering that the oxygenation system is housed inside a building, it is anticipated the sound emitted from this building would be minimal.









