

Appendix B – Select Contextual Correspondence and Reference Material

Important Notice on the Use of Contextual Material

The materials included in this appendix are provided for contextual and background purposes only. They are not submitted as expert evidence, technical analysis, or formal studies, and are not relied upon as technical support for the findings, conclusions, or recommendations in the main submission.

Certain documents were shared informally during information exchange. Their inclusion does not constitute endorsement of the content, assumptions, estimates, or opinions expressed, nor does it imply that the material meets evidentiary standards applicable to expert testimony or formal impact assessment documentation.

Where applicable, identifying information has been omitted in accordance with the conditions under which the material was provided. The Save Georgian Bay Association relies exclusively on the statements and requests set out in the body of this submission.

Appendix B-1: Technical Correspondence on Subsurface Conditions

Document Included:

Correspondence from Andy Metelka, Sound and Vibration Solutions Canada Inc.

Contextual Summary:

This correspondence discusses geophysical methods relevant to characterizing complex subsurface conditions at the Meaford site, including the identification of clay layers, shale, bedrock, and potential contaminant pathways using methods such as GPR, ERT, seismic refraction, and targeted borehole sampling.

This material is provided for contextual reference only and does not constitute a site-specific analysis, modelling, or technical assessment.

Key phases and points for GBA, SGB, TCE IAAC April 6 submission deadline

March 18th

The objections to the TCE project are partially due to data omissions, with all documents submitted YTD, including this project proposal. Having over 10 years to prepare for this project, we have to question why this has become an experiment with mitigation, as we go with no clear plan. We question whether this is due to TCE having no experience

building a pumped storage facility and insufficient data to support this project, or whether there is another valid explanation. The Ontario government has supplied 285 million dollars to an Alberta firm for the study, which has not yet produced the required assurance that a project of such magnitude and complexity would require. There is nothing in this project proposal that gives us confidence that the project should proceed. Some of the concerns we currently have are outlined further in this summary, but we have to question why these basic pretesting and analysis have not been properly completed YTD, given that there have been 10 years to do so. We have also reviewed thousands of pages of DND documents from other consulting firms that clearly lack detail on environmental toxins that may stay sequestered deep beyond the well water level. Geological, heavy-metal, engineering, and construction studies are lacking in determining the weakest links affecting the health and safety of both the environment and mankind. If we have properly studied and submitted these, it will reassure us that there will be no risk to the environment or human health. Since there are no Standards specific to pumped storage facilities and only general standards for construction projects, this may create a loophole with project acceptance and construction. Even the standards used for hydro dam construction cannot guarantee that this massive structure in this area will prevent many of the problems threatening GB.

We understand that some of these concerns may be addressed through mitigation measures, as stated throughout the project proposal, during construction, and post-construction. However, the uncertainty this presents poses risk beyond any form of mitigation. Therefore, this project proceeds experimentally; however, if even one of the concerns we raise in our opposition to this project causes harm, the damage could be irreversible to the pristine nature of GB, human health, and the environment. One cannot reverse an accident. One can only evaluate risk and avoidance with a project that makes sense for everyone. With this in mind, we urged the IAAC to proceed with the IA and not bypass basic engineering principles for the most complex project Canadian taxpayers face.

The proponent's submission to the IAAC contains no numerical data; only one diagram, not to scale, and without dimensions for intake nozzles, flow rates, etc. This project cannot be approved on vague promises and a single poor drawing, nor can it be properly evaluated by anyone given 30 days, without other documents not included in the proponents' submission but in their possession. It will hold Canadian taxpayers liable for damages and costs arising from the potential cancellation of the contract should these concerns surface during construction. We therefore insist that the IAAC exercise due diligence regarding health and safety and move forward with the IA process.

We forward this reference table in light of some of the proponent's omissions, since engineering design and science are not part of the proponent's proposal.

Concerns addressing the IAAC submission by the TCE project proposal:

<p>TCE claims 600,000 tons of carbon will be saved</p>	<p>The project itself creates more carbon, and only if Gas plants are curtailed would such a claim be remotely valid. The pumped storage facility claims to use nuclear power exclusively, although no guarantees are stated. We understand that gas plants have evolved rapidly, originally to balance the grid during renewable energy outages; however, gas plants now account for nearly as much production as hydroelectric power in Ontario. Nowhere in the submission does it mention reducing CO2 by closing Natural Gas plants. During the construction, the estimated carbon usage is as follows: Concrete: 595,000 tonnes Steel: 347,000 tonnes Mining/transport and construction: 282,000 tonnes</p> <p>Totals estimate 1,224 Tonnes produced during construction Realistic full-project range: Reasonable Range: ~0.8 – 1.5 million tonnes CO₂ produced during construction.</p> <p>Therefore, the TCE statement of reduction is not valid if one considers CO2 during the construction and no curtailment of Natural Gas. Would the proponent consider closing all its natural gas plants, as Ontario has done with coal plants? We seriously don't request this at this point, but it conforms to the basic CO2 equation: Produced CO2 – CO2 created from Gas = Net CO2 Natural Gas Plant Capacity now exceeds Hydroelectric Capacity in Ontario, and can be used to balance the long-term load variations</p>
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	<p>the grid experiences. One would question why we are even considering losing 30% of our electricity by manually pumping water uphill if all that's required is to lower and raise hydro dams.</p>
<p>Fish entrapment</p>	<p>The only diagram in the 250-page proposal is of an intake system, not drawn to scale and dimensionless. Flow rates through small ports would have to be so high as to create numerous entrapment problems. Ontario Power Generation has a long history spanning over 50 years resulting in a failure to prevent fish kills at the Bruce Nuclear Plant. In 2025, there was one incident that killed over 3.5 million fish at the nuclear generating station. This proves that mitigation failed over 50 years. We seek a detailed design response that guarantees this won't be repeated, from a company that has not even produced a prototype of the most complex construction project Ontario has ever encountered.</p>
<p>Fish contamination</p>	<p>Ontario already has fish consumption guidelines for human consumption due to heavy metals such as methyl mercury. If we go over these limits for human fish consumption, we may reach a point where no fish can be eaten safely in GB. Additional loading may further affect tourism. Combined economic impact: Roughly \$100 million to several hundred million annually tied to Georgian Bay fisheries. No one wants to eat contaminated fish.</p>
<p>Fish reproduction</p>	<p>Turbidity, extreme turbulent flow-induced underwater noise, etc. This affects fish habitat, reproduction, and a 4 billion Great Lakes fisheries industry.</p>
<p>Fisheries industries affected</p>	<p>Over 60 commercial fisheries in GB alone are valued at 60 million dollars. Ontario's recreational fishing industry is valued 1.75 million dollars.</p>
<p>Adam Beck Generating</p>	<p>Adam Beck's capacity is 175 MW compared to 1000 MW. The Adan Beck construction</p>

<p>Station is referred to as a pumped storage facility, but it is primarily a generation facility that had extreme problems during construction</p>	<p>project also failed to conduct a proper geological review, resulting in numerous delays and expenses. Basically, the drill got stuck and couldn't be removed primarily because they didn't know what material they were drilling through, and used incorrect drilling methods. Project deadlines shifted from 2009 to 2013 and costs escalated from ~\$985 M to ~\$1.6 B. • Even extensive pre-project drilling and soil studies did not fully capture the variability of rock underground — especially around areas where loose or fractured rock slowed TBM advance. Some delays were directly tied to problems with temporary tunnel liners collapsing or requiring extra reinforcement due to unstable rock. The Meaford site requires 2 tunnels, and combined, they can exceed Niagara's tunnel excavation. The process of drilling, creating massive amounts of water flow over a 2-4 year span, could release contaminants that have accumulated in the clay and sediments into GB. There are no details on the type of drill that can be used for multi-layered material or the unknown layers they wish to drill through.</p>
<p>Water Quality</p>	<p>Not all water sampling reports are from deep cores on land, where they will be excavating through clay layers where toxins and heavy metals normally reside for long periods. Well water samples do not reflect these areas, as heavy metals remain in sediments and clay rather than being suspended in water. If they are encountered during excavation, they would pose severe problems: either the need to remove millions of tonnes of clay, rock, and soil, or nowhere to put them, and they would be virtually impossible to mitigate at these large volumes, as further described in this document. Previous sampling methods in wells have determined exceedances; however, deep core sampling in layers such as clay throughout the region has not been reported, raising concerns for all substances</p>

	<p>of concern. For example, all forms of mercury, including dissolved, organic, and methylmercury, would be released during excavation. Deep core sampling needs to be performed before this project begins to measure these substances that have leached deep beyond the soil and well water levels previously sampled. If these layers become exposed and erode into GB the amounts may exceed levels for fish and human consumption. It may be best to remain locked in these areas forever. Further testing is required in order to determine this.</p>
TCE and DND liability	<p>TCE assumes no liability for damages, and it falls under DND's responsibility. This means Canadian taxpayers are responsible for the cleanup costs. This poses no risk to TCE, and the taxpayer is responsible for any harm and cleanup expenses.</p>
Construction regulations do not exist for pumped storage projects such as this	<p>High-hazard dams require probabilistic failure analysis and emergency planning. This project has an entire perimeter wall retaining 22 million cubic meters of water. It stands to reason that construction guidelines and standards for this project exceed those of any DAM regulations, especially with a project with extreme weight in unstable geological locations.</p>
Construction Mass with Geological Fracture uncertainty Implications during removal	<p>Given the mass removed from 22 -27 million cubic meters may cause uplift in the far field surrounding area during construction. So, the excavation of rock would be about 8–9 times the volume of the Great Pyramids of Giza. Adding the massive weight of all materials estimated to be additional concrete, steel, and water, plus the weight of the water being added, can cause fractures in many layers below and in the surrounding areas. Should this occur, it would be impossible to rectify</p>

	<p>with a timely, cost-efficient process. This may cause seepage of toxic materials from surrounding areas, perhaps as far as the mountain lake, where sediment has yet to be sampled for heavy metals, and a long list of toxins typically found on military bases. Water could slowly migrate through fractured rock toward Georgian Bay and aquifers. If 90-tonne trucks were used to remove the rock, it would take 837,000 truckloads of Rock, soil, limestone, fractured shale, Clay, and bedrock, which will be mixed with heavy metals and toxins. The project proposal does not clearly state the method of contamination removal it will use or where the massive amount will be transported.</p>
<p>Construction Mass with Geological Fracture Implications after construction</p>	<p><i>Once the weight is removed and the project is fully constructed, the static mass and pressure on the surrounding area are extreme. We now have a weight of water (22 million tonnes) and concrete (130,000 tonnes). Given that the CN Tower weighs about 130,000 tonnes, the weight of the water would be the equivalent weight of 170 CN Towers. The long term risk with earthquakes(major) and ground vibration from turbines can produce major failures that cannot be predicted accurately. The weights are extreme, the fracture can be extreme, extending further from the perimeter of the lake boundary, perhaps as far as Mountain Lake. The geology and toxins in the mountain lake's sediment need to be identified. Due to the lake's depth and height above GB, the downward pressure is so extreme that it would rapidly accelerate the flow rate.</i></p>
<p>Potential damage due to blasting during construction</p>	<p>The explosive mass required for this amount of rock excavation is estimated at 23,000-24,000 tonnes. Given the number of blast waves this will produce, only predictions of fatigue and crack propagation are possible. Blasting would occur over 3–5 years of excavation. The noise from these blasts propagates over great distances across</p>

	<p>Georgian Bay, especially under certain atmospheric conditions. The nearfield exposure to residents may also result in exceedances. Building vibration standards are mentioned, conforming to ISO. The estimated CO2 would be 6700 tonnes from the blasting alone. This will undoubtedly impact tourism in Georgian Bay for 5 years or more.</p>
<p>Potential damage due to extended vibration from drilling</p>	<p>Long-term vibration causes fine layers of sand, silt, and clay to sink, changing the geology that will support this massive mass over time. It will also create ground waves propagating in all directions, depending on the type of material it travels through. Since the material is inaccurately determined by a detailed geological study, it is hard to predict and model the amount of vibration that will be transferred to the Farfield. Eventually, structures collapse, houses resonate, or, most likely, cracks in walls and foundations appear over time. The ISO standard mentioned in the proposal is adequate for most projects in Canada, but we recommend using all 3 DIN-4150 standards for projects of this scale. The DIN-4150 has 3 parts; the parts for building damage and human perception are much higher than the basic 10-12 PPV levels referenced by the ISO standard.</p>

<p>Feasibility studies need to be conducted. Electricity source from nuclear vs. other sources</p>	<p>There are no transmission lines that go directly to Meaford's site from Bruce Nuclear. The turbines operate directly off the main Grid, which draws power from many sources. This could mean that power from the gas plants, which now have surplus capacity exceeding even hydroelectric generation, could be used. What guarantees are in place that this will never occur? Given the track record, natural gas production has rapidly increased over the last few years. Natural Gas was widely adopted as a clean alternative for grid balancing during the expansion of renewable energy, with the claim that it was for backup at that time. It was to be used when there was no wind or low output, but it now operates simultaneously. Gas is now at 25% capacity compared to 21% for Hydroelectric in Ontario. Now we have a natural gas producer that consistently emits CO2 (Methane), not necessarily to balance, but for continuous power. Suddenly, Gas is no longer considered clean, and the gas producer claims to cut CO2 somehow. Not by closing Gas plants by creating more CO2(methane).</p>
<p>Transmission Line Expansion Loss of trees</p>	<p>Nowhere in the proposal are there exact plans for transmission line expansion, so we are estimating a corridor 100km in length and 50 meters wide, which is 1,236 acres. Cutting and removing 100 mature trees per acre and approximately 2,000 young growth trees requires removing 123,600 mature trees and 2,472,000 young growth trees. These trees would sequester approximately 3000-3,750 tonnes of CO2 each year.</p>
<p>Transmission Line Expansion Defoliants</p>	<p>Ontario Hydro uses many defoliants and herbicides other than glyphosate (Roundup), such as Triclopyr and Imazapyr, which require restrictions emphasizing the prevention of contamination, especially to groundwater. Both chemicals require safe distances from surface water to prevent aquatic contamination. Restrictions exist for</p>

	wetlands, riparian zones, and protected habitats
Hydro surcharge increase	Currently, the average Total Ontario Hydro Bill is twice as much as the usage and residential consumption. If we are creating a project that consumes 30% more energy than it generates, it only stands to reason that there will be a substantial increase in the transmission line surcharge as well as and every day usage loss. Can the IESO estimate this cost? In addition to the transmission Line surcharge, there would be a loss of consumption each time the lake is filled. Is the proponent willing to cover that cost, or will Ontario Hydro absorb it through surcharges on consumers?
Quarries required Aggregate	Where will the quarries be located that will produce 20-30 million cubic meters of aggregate for this project? Approximately 1.1 to 1,7 million 15 cubic meter truckloads of aggregate is required. An estimated 1,127 to 1,769 trucks/day average.