



September 22, 2020

The Village of Sundridge
Sundridge, ON

Re: NTB-00005257-00

**Response to Peer Review of Site Hydrology Assessment
Proposed Property Development
Northern Ontario Affordable Housing
Sundridge, ON**

EXP Services Inc. (EXP) completed a peer review of a hydrogeological report (titled *Site Hydrogeology Assessment* and prepared by Urso & Miller Surveying Inc. on May 22, 2020) for a proposed development at a property north of Highway 124 in Sundridge, Ontario. The peer review was summarized in an EXP letter report dated August 14, 2020. Urso & Miller Surveying Inc. responded to EXP's peer review letter report on September 4, 2020. Specifically, Urso & Miller Surveying Inc. responded to the four concerns expressed in the EXP peer review. These are summarized below:

Application of Procedure D-5-5

EXP Peer Review: Procedure D-5-5 is generally meant to be applied to lots with single-family residences. It states that it may also be applied to a plan of condominium and to industrial, commercial or institutional developments, but that consultation with MECP is recommended to discuss applicability of the guidelines. The subject site is more of a communal supply scenario which will require, if implemented, a small drinking water system. Generally, these systems will require a more rigorous assessment than Procedure D-5-5.

Urso & Miller Response: "Although we did refer to Procedure D-5-5 for general guidance, the assessment as completed was more rigorous than what would have completed for a single family dwelling (D5-5) as we conducted two pumping tests, both a stepped test and a longer term peak extraction test. EXP did not provide any specific comments regarding how our assessment should be improved, nor do they propose any other regulatory or applicable procedures, so we are unclear on what specifically should have been done to alleviate this concern."

EXP Reply: EXP is not aware of specific provincial guidelines or procedures for hydrogeological assessment of small drinking water systems. As stated in EXP's peer review report, Procedure D-5-5 may also be applied to a plan of condominium and to industrial, commercial or institutional developments, but that consultation with MECP is recommended to discuss applicability of the guidelines.

However, the MECP does have the *Technical Guidance Document For Hydrogeological Studies In Support of Category 3 Applications for Permit to Take Water*. This document includes guidance for hydrogeological characterization, impact assessment, pumping test methodology and water quality testing. Among other specifications, the guidance document (Appendix A) states that a pumping test should normally be at least 24 hours duration.



The Ministry of Health and Long-Term Care oversees the Small Drinking Water Systems in Ontario. It has a guidance document titled *Small Drinking Water Systems Risk Assessment Guideline, 2018*. The document is designed for Public Health Inspectors for guidance in inspecting small drinking water systems. However, it does describe a risk-based approach in assessing the systems which includes risk ratings of the source of water. Among other specifications, the document states, "For any water supply where a chemical or radiological agent is suspected, further assessment of the potential sources of the contaminant and additional testing for the suspected chemical or radiological agent is required." However, details on assessing the risks of groundwater sources are not provided.

It is recommended that the proponent contact both the MOEC and the Ministry of Health and Long-Term Care to discuss these requirements.

Water Quality Testing

EXP Peer Review: Only a single water quality test was completed. This is generally insufficient to assess the potability of raw water source. The water quality test result showed the presence of total coliforms and bacteria. This is a major concern and, as the report stated, further assessment is required to assess the source.

Urso & Miller Response: "As per our report, we have advised that additional well development, disinfection, and sampling should be done prior to commissioning the well. In addition, due to the size of the water supply system, it will be regulated under Ontario Regulation 179/03 which will require a professional engineering report be done for final design of any required water treatment system and ongoing water quality monitoring."

EXP Reply: Generally, EXP is satisfied with this response. However, as previously stated, the *Small Drinking Water Systems Risk Assessment Guideline, 2018* states, "For any water supply where a chemical or radiological agent is suspected, further assessment of the potential sources of the contaminant and additional testing for the suspected chemical or radiological agent is required."

It is recommended that the proponent contact the Ministry of Health and Long-Term Care to discuss this prior to final design.

Wellhead Protection

EXP Peer Review: This is a communal water supply pumping significant volume of water in an area of mixed residential/commercial. The DW Guideline states that a wellhead protection plan should be developed for a water system with a groundwater source. This would identify potential contaminant sources within the "capture zone" of the well and plans to protect the well from these contaminant sources.

Urso & Miller Response: "Completion of a Wellhead Protection Plan for this study was not completed as it was not required for the intended purpose of the report. Should the project be approved and actually be completed, then we agree that a Wellhead Protection Plan should be completed in conjunction with the other water system operating procedures required under Ontario Regulation 179/03".

EXP Reply: EXP is satisfied with this response.

Groundwater under the Direct Influence of Surface Water

EXP Peer Review: The well on the subject site is within 500 m of Lake Bernard. There was no assessment of groundwater under the direct influence of surface water (GUDI). The capture zone of the



Project Name: Response to Peer Review
Hydrogeological Assessment Report
Proposed Property Development, Sundridge, ON
Project Number: NTB-00005257-00
Date: September 22, 2020

well is not established and water quality test result showed the presence of total coliforms and bacteria, which is sometimes indicative of a GUDI well.

Urso & Miller Response: "We did not consider completion of a GUDI assessment for our initial study due to the fact that there are numerous wells situated between the site and the Lake judged to be drawing from the same aquifer that would also have the same potential issue and we are not aware of any water quality issues with these wells. In addition, a review of the relative elevations indicates that flow from Lake Bernard is not possible. The test well collar elevation is at least 10 m above Lake Bernard and the maximum drawdown during the pump test was 1.8 m so the lowest water table at the test well was still at least 8 m higher than Lake Bernard. It is our judgement that the total coliforms and general bacteria present in the sample are due to insufficient well disinfection."

EXP Reply: It is acknowledged that other existing wells are proximal to the site with no known water quality issues. However, it is assumed that these are private wells that are not subjected to the requirements of a small drinking water system. Documentation of potential GUDI issues would probably not be required for these wells.

The Urso & Miller response states that maximum drawdown in the site well during the pump test still had the groundwater level at a higher elevation than Lake Bernard. However, the hydrogeological report had no information on relative ground, groundwater and surface water elevations, so EXP cannot confirm this observation. Note, as well, that a GUDI assessment generally requires more than a relative comparison of groundwater and surface water elevations.

It is recommended that the proponent contact both the MOEC and the Ministry of Health and Long-Term Care to discuss the requirements, if necessary, for a GUDI assessment.

Should you have any questions, please do not hesitate to contact this office.

Yours truly,

EXP Services Inc.

A handwritten signature in black ink, appearing to read "Perry Sarvas", written in a cursive style.

Perry Sarvas, P. Geo.
Senior Hydrogeologist, Earth & Environmental
Northeastern Ontario