



Subject: *Uniacke Secondary Planning Strategy - Groundwater*
To: CAO for Planning Advisory Committee, February 18, 2025
Date Prepared: February 12, 2025
Related Motions: PAC23(59) and C23(383)
Prepared by: Debbie Uloth, Community Planner II
Approved by: John Woodford, Director of Planning and Development

Summary

As part of the Uniacke Secondary Planning Strategy, Planning staff have engaged Earth-Water Concepts Inc. to complete a groundwater study of the Uniacke SPS area. This report includes the results of the groundwater study and makes recommendations for Planning Advisory Committee's consideration.

Financial Impact Statement

Planning staff has budgeted for the Uniacke Secondary Planning Strategy as part of the 2024/2025 Budget Cycle.

Recommendation

Include the recommendation outlined in the Uniacke SPS Groundwater Report in the draft Uniacke Secondary Planning Strategy Report.

Recommended Motion

Planning Advisory Committee recommends that Council:

- *authorize staff to include the recommendation outlined in the Uniacke SPS Groundwater Report in the draft Uniacke Secondary Planning Strategy Report.*

Background

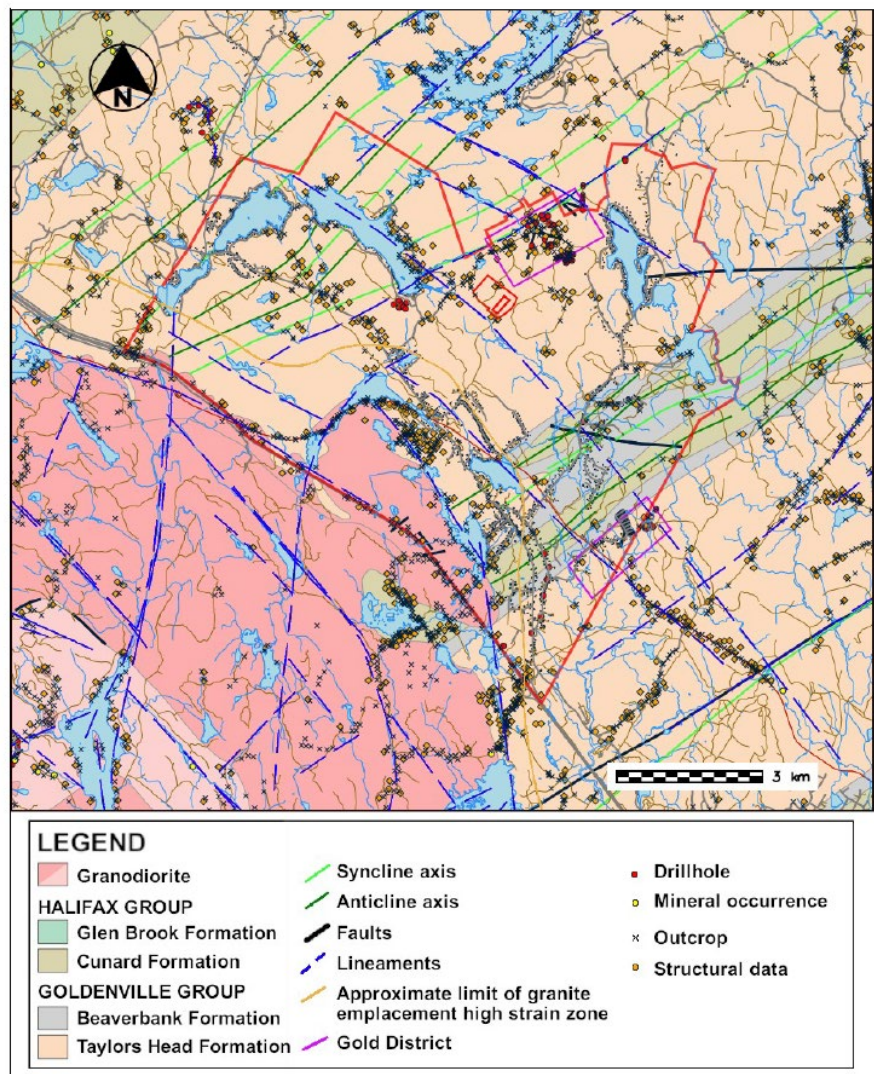
As part of the Uniacke Secondary Planning Strategy, Council authorized staff to engage a consultant to complete a groundwater study of the Uniacke Secondary Planning Strategy area. Earth-Water Consultants Inc. was selected to undertake the study. Results of the study have been completed and the study has been attached as Appendix A. Planning staff have used the results of the groundwater study to suggest amendments to the existing community plan.

GROUNDWATER STUDY RESULTS

The groundwater study for the Uniacke Secondary Planning Strategy is very technical and quite detailed. The consultant has provided a study summary at the beginning of the report, which is less technical and easier for the general public to interpret.

Below are some key points from the study that staff have used to help form proposed amendments for PACs consideration:

- The Cunard Formation, Beaverbank Formation, and the Taylors Head Formation are the most appropriate rock formations for well water. The majority of the study area is comprised of the Taylors Head Formation.
- Well depths reported in the Uniacke SPS study area range from 13.7 m to 191.5 m with an average of 78.2 m.
- Over 40% of the study area can use dug wells where the overburden conditions are adequate. No data is available on dug well water quality for the Uniacke SPS study area. However, dug wells should be expected to produce generally good quality water, although that water may be more corrosive to plumbing systems than water from produced from drilled wells, and dug wells are more prone to experiencing



surface water contamination, or to having groundwater levels in them drop to below pump intakes, or below the bottoms of wells, than are drilled wells.

- Calculations suggest there is sufficient groundwater recharge within the Uniacke SPS study area to meet the needs of over 22,800 homes (assuming a need of 1,350 L/day/home), and sufficient aquifer water storage in the bedrock and Quaternary Hus to meet drought conditions for that number of homes for between over 9 to 37 years.
- As the community densifies well interference could be an issue. As new wells are constructed, they may interfere with existing wells. Additionally, blasting for new developments and other human interference could impact groundwater resources.
- Calculations done for other developments with similar bedrock geology suggest that new lots within the Uniacke SPS study area may need to be as large as 1.3 to 1.7 hectares to help avoid well interference in denser developments.
- All three bedrock Hus identified above were found to produce generally good quality, alkaline, moderately hard to hard, calcium-bicarbonate type waters with near to slightly above neutral pH. Some wells may have elevated levels of iron, manganese and arsenic, which can be treated. The consultant has provided a table of water treatment options in the groundwater study.
- Arsenic, iron, manganese, and perhaps mercury may arise as human-caused well water quality issues of concern at or near the former South Uniacke and Mount Uniacke Gold Districts.
- Care must be exercised to mitigate against possible growing urban-type sources of groundwater contamination. These may include road salt, petroleum product spills, fertilizers and pesticides, and leaking septic treatment systems.
- Before permitting larger and/or denser developments an additional understanding of well interference should be studied by the developer.

Recommendations:

Based on the results of the Uniacke Secondary Planning Strategy Groundwater Study, staff have developed one recommendation to be included in the draft Uniacke Secondary Planning Strategy:

1. Require that a Level II Groundwater Assessment be completed for proposed rezonings and development agreements where the total number of proposed dwelling units exceeds 25 dwelling units. Requirements in the Provincial Guide to Groundwater Assessments for Subdivisions Serviced by Private Wells, indicates that a Level 2 Groundwater Assessment shall be completed for proposed subdivisions with greater than 25 lots - a Level 2 Groundwater Assessment includes test wells being drilled.

Attachments

Appendix A - Uniacke Secondary Planning Strategy Groundwater Study