Township of North Kawartha
280 Burleigh Street, PO Box 550, Apsley, ON K0L 1A0
Tel: 705-656-4445 | 1-800-755-6931 | Fax: 705-656-4446
www.northkawartha.ca

Report to Council

To: Mayor and Council Members

From: Edward Hilton, Economic Development Officer

Date: August 25, 2025

Subject: Updated Hydrogeologic Investigation - Balmer Road

Recommendation:

That Council approve staff to obtain quote(s) from qualified hydrogeologic consultants for an Updated Hydrogeologic Investigation Report for the Township-owned Balmer Road property (Roll #153602020131820, Anstruther Con 2 Pt Lot 36) to assess water supply feasibility for residential and/or mixed-use development, or alternative uses, and return to Council with quote results, recommended scope, budget, and funding options for approval prior to proceeding with the study.

Background:

In 2010, Geo-Logic conducted a preliminary hydrogeologic investigation for the Balmer Road property, related to public meetings and plans envisioning single-family homes with individual wells and septic systems. The report recommended further testing, including well pumping tests, groundwater sampling, nitrate impact assessment, and septic design, before development. The current scope of review has shifted to the potential various residential housing options and/or a mixed-use development, with servicing options including individual wells/septic, communal wells, or decentralized modular wastewater systems.

The property currently has four drilled wells (480-600 ft deep, yields 0.45-9 GPM, spaced in two groups approximately 100 feet apart), indicating inconclusive aquifer productivity.

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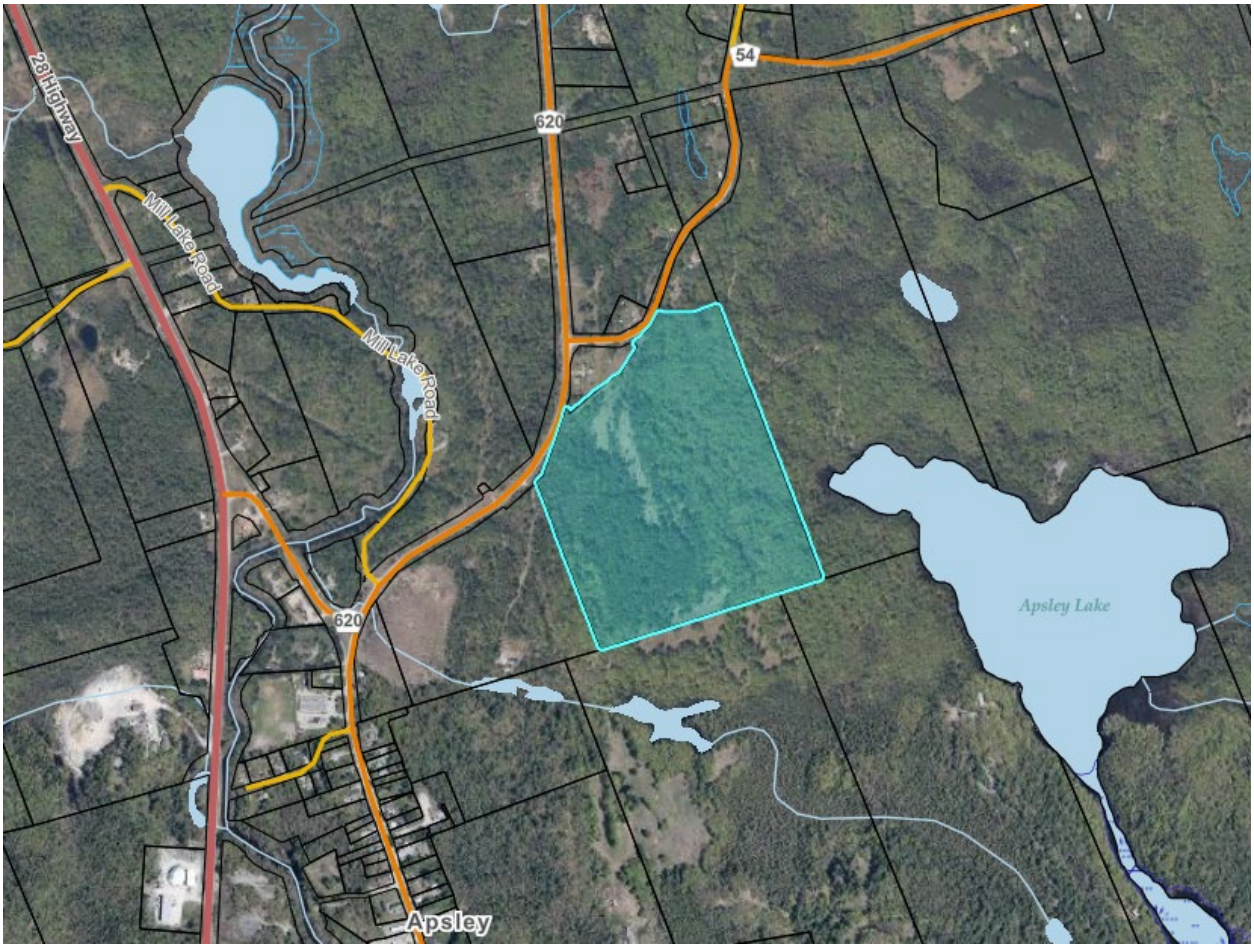

Subject Property Map, Roll #153602020131820, Anstruther Con 2 Pt Lot 36

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Source: The Ontario Ministry of Agriculture, Food and Agribusiness AgMaps, https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA

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Summary Chart of Wells

Well ID	Total Depth (ft)	Production Rate (GPM)	Testing Depth (ft)	Comments from Records	Implications for Development
A112471	600	3.78	300	"Well is fractured and was dug down to 600 feet"	Moderate yield; fracturing noted, but unclear if sustainable. Pumping tests needed to confirm yield at depth and assess interference with nearby wells (100-200 ft apart). May contribute to residential demand (6-12 GPM peak) but limited alone.
A112472	480	9	300	"Provides 9 GPM at 300 but more at 480"	Highest yield but ambiguous note suggests untested potential at full depth. Critical to verify sustainable yield for residential or commercial uses. Interference risk due to proximity to other wells.
A112473	580	8	215	"Will produce much more at bottom"	Promising yield at shallow depth, but vague comment requires testing at 580 ft to confirm higher output. Potential to support development if yield increases, but interference must be assessed.
A112482	600	0.45	300	"Needs a fracture"	Very low yield; likely limited by lack of productive fractures. May require deepening or new drilling to be viable. Minimal contribution to development without enhancement.

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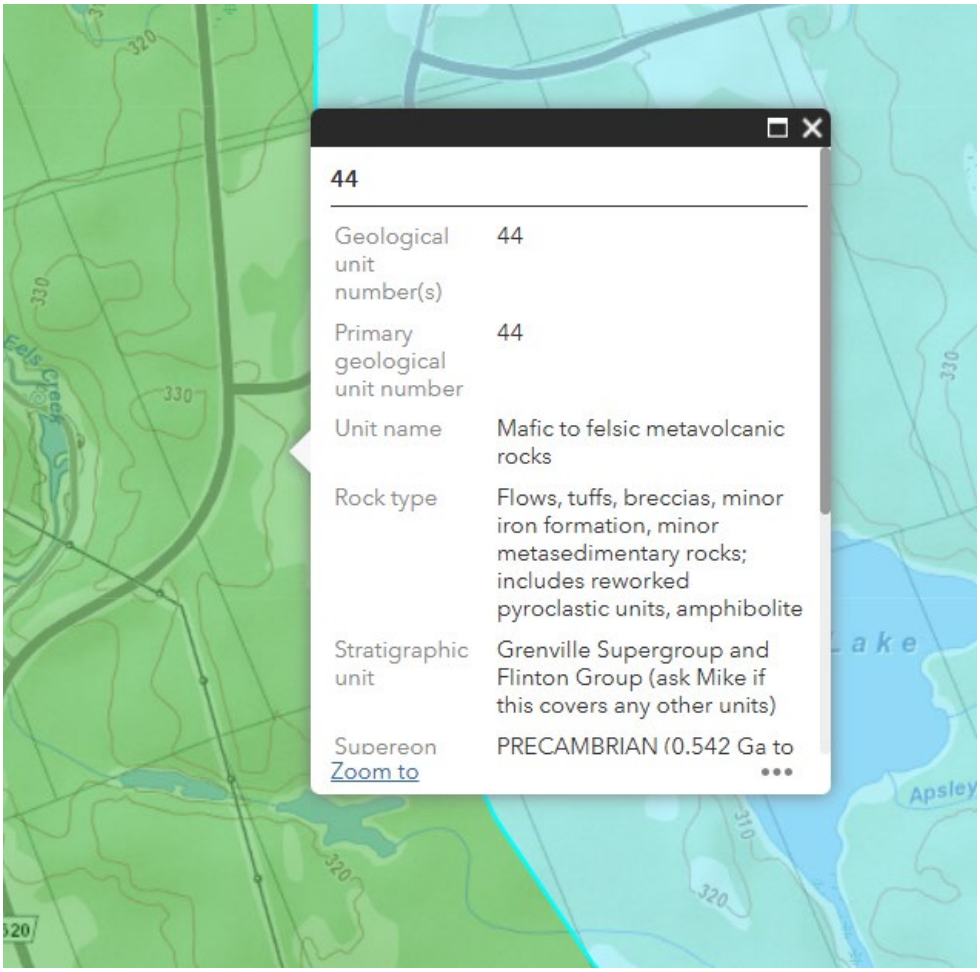
Recent staff research reveals the bedrock as carbonate metasedimentary rocks (marble, calc-silicate rocks, skarn, tectonic breccias) within the Grenville Supergroup, near a boundary with mafic to felsic metavolcanic rocks (flows, tuffs, breccias, amphibolite), which may explain the low yields due to sparse fractures or karst features compared to higher-yield fracture networks in nearby metavolcanic rocks. The 2010 report did not address this geological context in specific detail, necessitating updated data to evaluate feasibility.



Source: GeologyOntario Spatial Search, https://mndm.maps.arcgis.com/apps/webappviewer/index.html?id=66ee0efe4d3c4816963737dbdb890708.

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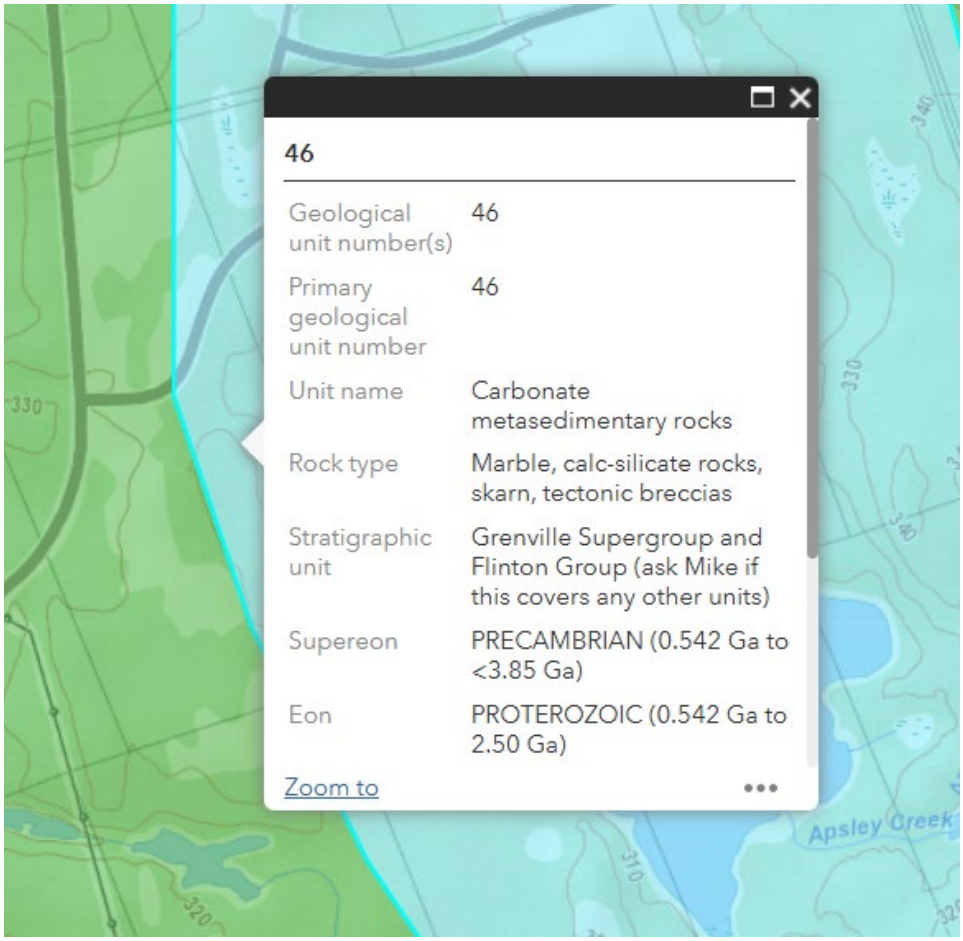

Source: GeologyOntario Spatial Search, https://mndm.maps.arcgis.com/apps/webappviewer/index.html?id=66ee0efe4d3c4816963737dbdb890708.

The property is also within the Otonabee-Peterborough Source Protection Area, designated a Significant Groundwater Recharge Area (SGRA, score 6) and Highly Vulnerable Aquifer (HVA), score 6, requiring compliance with the *Clean Water Act,* 2006.

Analysis:

The shift to other residential options and/or mixed-use development and recent bedrock data highlight the need for updated hydrogeologic information to address:

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- Low/Variable Well Yields: The wells' yields (0.45-9 GPM) and close spacing (100-200 ft) suggest potential interference risks in fractured carbonate bedrock, potentially limiting sustainable output (<15 GPM total), which may marginally meet development demand (6-12 GPM peak), but requires verification by a Professional Engineer or Professional Geoscientist.
- Geological Context: The carbonate-metavolcanic boundary area may explain the low yields, as marble relies on sparse fractures or unpredictable karst, unlike denser fracture networks in nearby metavolcanic rocks, necessitating targeted testing.
- Highly Vulnerable Aquifer Constraints: Development must comply with Source Protection Plan policies, including setbacks (e.g., 15 m from wells to buildings per OBC) and potential monitoring to prevent contamination.
- Alternative Uses: Yield data will inform feasibility for mixed-use or other uses on the property.

Proposed Scope of Work:

- Conduct simultaneous 24-48 hour pumping tests on at least two of the four wells (target 6-12 GPM total) to assess interference, sustainable yield (target 4-8 GPM for 30,000-50,000 L/day or lower for alternative uses), and transmissivity.
- Analyze existing well data (e.g., fracture notes at 300-580 ft) and recent bedrock information to explain yield variability in the carbonate-metavolcanic transition zone.
- Evaluate Permit to Take Water (PTTW) feasibility (>50,000 L/day threshold, unlikely at this scale) and compliance with Otonabee-Peterborough Source Protection Plan for HVA areas.
- Assess water supply for residential and/or mixed-use scenarios, considering low recharge (50-150 mm/year).
- Recommend next steps (e.g., water quality testing, wastewater design, or drilling if yields are insufficient) for future budget requests.

No specific development type or option is being recommended by staff at this time. The purpose of these studies is solely to inform Council about the development potential and possible options and servicing constraints for the property.

Financial Implications:

There is currently no budget allocation for this initiative. Staff will obtain quotes from prospective vendors to determine estimated costs and will report back with funding options for Council's consideration.

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Strategic and/or Other Plans:

Township of North Kawartha 2023 – 2026 Strategic Plan

- Infrastructure
- Economy
- Environment

Township of North Kawartha 2023 – 2026 Strategic Economic Development Plan

- Development
- Infrastructure
- Economic Diversification

In Consultation With:

Connie Parent, Clerk

Alana Solman, CAO

Appendix:

None