

The results are summarized in the following table:

Table 1 – Nitrate as Nitrogen Concentration (mg/L)

Well ID	Date Sampled			Average
	10-Feb-2022	7-Mar-2022	29-Mar-2022	
BH1/MW	0.29	<0.10	<0.10	0.10
BH2/MW	0.25	<0.10	<0.10	0.08
Overall Average				0.09

Technical Comments

For a development of 5 or less lots, the Ministry of Environment, Conservation and Parks (MECP) Policy Guideline D-5-4 is typically not applicable. As an added measure, EXP has installed monitoring wells into the primary source of drinking water in the area. Based on the results of the groundwater testing program, as outlined above, the overall average Nitrate as Nitrogen concentration reading was 0.09 mg/L.

From a technical analysis standpoint, EXP has conducted a mass balance exercise to demonstrate the feasibility of the proposed development with a septic system.

Environment Canada provides a mean annual precipitation for this area of 1010 mm/year based on the London Airport weather station. Evapotranspiration is estimated at 570 mm/year based on regional stormwater balance calculations for the London area. A surplus water quantity of 440 mm/year can be deduced for the purposes of this analysis. The dilution water was discounted using an infiltration factor of 0.95. The dilution water (DW) equals:

$$(Precipitation - Evaporation) \times \text{Site Size} \times \text{Infiltration Potential} + \text{QE}$$

An average background nitrate level is 0.09 mg/L based on our sampling and testing program.

The nitrate concentration at the property boundary can be computed by the following equation:

$$C_o = [QE (NE) + DW (NB)]/[DW + QE]$$

- Where:
- Co = Nitrate Concentration at the property boundary (mg/L);
 - NE = Nitrate Concentration of the sewage effluent (mg/L), assume 40 mg/L;
 - QE = Yearly volume of effluent produced (L/year) for assessment
 365,000 L/yr x 1 new lot = 365,000 L/year;
 - DW = Dilution Water available (L/year) assume 1,184,280 L/yr for the total site;
 - NB = Background Nitrate Concentration in diluting precipitation, assume 0.09 mg/L.

demonstrate how this was calculated

Based on the above values, the computed boundary condition will be at 9.5 mg/L.

Identify the area of the "total site". I assume this references the vacant parcel plus the portion to be transferred to it.
 Identify the area of the remnant parcel and what the calculation would be for it. If you are removing dilution water from the existing this should be provided to confirm if enhanced infiltration is required on the existing site to compensate.
 How much area will be needed for infiltration galleries to achieve the 95% infiltration rate used in the dilution calculation.