

4713 Gelert Road - Town of Minden Hills

Lochlin Community Centre

Septic Permit Application Review

The attached permit application presents a septic system design for the [Lochlin Community Centre \(4713 Gelert Rd\)](#), which appears to be designed in compliance with the Ontario Building Code (OBC) Part 8 requirements. A breakdown for the proposed sewage system design is outlined below, along with its justification for demonstration of compliance with Part 8 of the OBC.

Design Parameters & Code Compliance

Aspect	Design Value	OBC Requirement (Part 8)	Compliance	Citation(s)
Daily Sewage Flow (Q)	2700 L/day (p. 11)	Regulates systems < 10,000 L/day	Yes	(p. 11)
Septic Tank Size	9500 L proposed (8100 L min. required) (pp. 11, 13)	Min. 3600 L, at least three times the daily flow for non-residential	Yes	
Percolation Rate (T-time)	5-10 min/cm (native soil) (p. 7)	Must be $T \leq 50$ min/cm for conventional systems	Yes	(p. 7)

System Type	Fully inground filter bed system (p. 13)	Appropriate for the given T-time	Yes	(p. 13)
Clearance Distances (General)	Detailed distances listed (p. 13)	Specific minimums for structures, wells, property lines, watercourses	Design includes specific setbacks	(p. 13)
Designer/Installer Qualifications	Claudia Krause BCIN: 27033 (pp. 4-5)	Must be qualified and registered under the OBC	Yes	(pp. 4-5)

The documents demonstrate a complete application, including required forms, a site plan, detailed calculations, and material specifications, all of which are requirements for a complete application under the *Building Code Act* (pp. 1, 3).

Based on the provided documents and the OBC, here are the specific clearance distances and the subsequent inspection process required for the proposed septic system at 4713 Gelert Rd:

1. Specific Clearance Distances

The design for the **Lochlin Community Centre** must adhere to the following minimum horizontal setbacks to ensure environmental and structural safety (pp. 10, 13):

Feature	Septic Tank (Min. Distance)	Leaching/Filter Bed (Min. Distance)
Drilled Well (with 6m+ watertight casing)	15 metres	15 metres

Dug Well (or other water source)	15 metres	30 metres
Lake / River / Pond	15 metres	15 metres
Property Line	3 metres	3 metres
Structures (Buildings/Foundations)	1.5 metres	5 metres

2. The Inspection Process

- **Base Cut Site Visit:** An Inspector visits the property to verify and ensure site conditions match the submitted design (pp. 1, 7).
- **Prior-to-Backfill Inspection:** Before the system is covered (backfilled), an Inspector must examine the installation to ensure it matches the approved plans, including the tank size, pipe layout, and filter sand depth (p. 1).
- **Final Inspection and As-Built Drawings:** Upon completion, "as-built" drawings must be submitted to the Building/Planning/Bylaw Dept to document the final location and specifications of the system (pp. 1, 8).

3. Key Design Specifications for 4713 Gelert Rd.

- **Filter Bed:** 45m² (5.3mx8.5m) using 6 runs of **ARC18 chambers** (7.5m each) (pp. 11, 13).
- **System Depth:** Fully inground, gravity flow system with **0.75m of filter sand** (p. 13).
- **Capacity:** A **9500L septic tank** is proposed, exceeding the minimum 8100L requirement for the 75-seat assembly hall (pp. 7, 11, 13).

Daily Sewage Flow Calculation

For the proposed **Lochlin Community Centre** (75-seat assembly hall), the daily sewage flow (Q) is calculated based on the occupancy type and the number of seats as prescribed by the **OBC**.

Calculation Steps

Step 1: Determine the Flow per Seat

According to **OBC Table 8.2.1.3.A.** (referenced on page 10 of the documents), an **Assembly Hall** with a proposed occupancy of **75 seats** has a design flow of:

36 Litres / Seat / Day

Step 2: Calculate Total Daily Sewage Flow (Q)

Multiply the number of seats by the flow rate per seat:

75 Seats x 36L/Seat = 2700L/Day

Answer:

The Total Daily Sewage Flow (Q) for this project is **2700 L/day**. (p. 11)

Impact on System Design

This flow rate directly determines the minimum size requirements for the system components:

- **Septic Tank:** Must be at least 3 times the daily flow (Q), requiring a minimum of **8100 L**. The design proposes a larger **9500 L** tank for added capacity. (pp. 7, 13)

- **Filter Bed Area:** Calculated as $Q \div 75$ ($2700 \div 75$), requiring a minimum of **36m²**. The design proposes a larger **45m²** bed. (pp. 7, 11)

Estimated Percolation Rate (T-time) of 5–10 min/cm

The soil percolation rate, or **T-time**, measures how quickly water moves through the soil. For the 4713 Gelert Rd. site, the design is based on the following specific soil conditions and requirements:

1. Site-Specific Soil Data

- **Observed Soil Type:** The native soil consists of **sand with a trace of silt** (p. 7).
- **Estimated T-time:** Based on the soil type, the designer has estimated a T-time of **5–10 min/cm** (p. 7).
- **Water Table/Bedrock:** The high water table was found at **2.0+ metres** below grade.

2. Impact on System Design

The T-time is a critical factor in determining the size and type of the leaching bed. According to the **OBC**:

- **Loading Rate Factor:** For a receiving soil with a T-time between 1 and 20 min/cm, the **Loading Rate Factor is 10** (p. 9).
- **Loading Rate Area (LRA):** The required LRA is calculated by dividing the Daily Sewage Flow (2700 L) by the Loading Rate Factor (10). This results in a required area of **270m²** (p. 9).
- **Filter Bed Sizing:** Because the T-time is relatively fast (5–10 min/cm), the filter bed area is calculated as $Q \div 75$. For this project, $2700 \div 75 = 36\text{m}^2$ minimum (p. 11). The designer has proposed a larger **45m²** bed to ensure performance (pp. 7, 11).

3. Vertical Separation Requirements

The system must maintain a minimum vertical separation to protect groundwater:

- The OBC requires at least **0.9 metres** of filtering material (sand) above a high water table or bedrock (p. 9).
- The design specifies **0.75 metres of filter sand** plus the stone/chamber layer to meet these separation standards (p. 13).

Recommendations for Permit Issuance

1. Consideration for a Soil Report

- The current design relies on an estimated T-time of 5–10 min/cm based on visual observation (sand with trace silt). (p. 7) A formal report uses in-situ testing (percolation tests) or sieve analysis to provide an exact rate, which prevents under-sizing the leaching bed.
- Regulatory Assurance: Township of Minden Hills procedures state that inspectors verify soil conditions during a site visit and may require additional information, such as a soil percolation test or soil classification analysis, if they find discrepancies.
- Mitigating Risk: Since the daily sewage flow is relatively high (2,700 L/day), an accurate T-time is critical for calculating the Loading Rate Area (LRA), ensuring the ground can actually absorb that volume without failure.

Recommendation: Obtain a sieve analysis or a three-location percolation test (as per OBC 8.2.1.2.(3)) to provide definitive data for the permit application. Requesting a soil report from a professional engineer or a specialized soil technician is highly recommended for a non-residential project like the Lochlin Community Centre.

2. Review the 15m Mantle (Loading Area)

For a system with a daily flow of **2,700 L/day**, the **Loading Rate Area (LRA)** is a critical component for effluent dispersal into the native soil.

- **Action:** Ensure the **15 m mantle** is clearly identified on the site plan to confirm there is adequate native soil down-gradient of the filter bed to handle the daily volume.

3. Final Documentation

"As-Built" drawings must be submitted upon project completion. These drawings must confirm the final horizontal setbacks (e.g., **15 m from a drilled well** or **30 m from a dug well**) and the final elevations relative to the high water table.