STONECAIRN CONSULTING
85 Midpark Road – Unit 3, London, Ontario N6N 1B2

January 15, 2025
File: SC-02075

Saker Realty
10894 Longwoods Road,
Delaware, Ontario, N0L 1E0

Attn: Steve Saker E: Steve@sakerrealty.com

Reference: Private Servicing Assessment
8530 Longwoods Road, London

As requested, Stonecairn Consulting Inc. [Stonecairn] has been retained to provide this report to address the private servicing conditions which have been established for the prosed lot severance at 8530 Longwoods Road, west of London. The site is located on the north side of Longwoods road, east of Homewood Lane. Drawing 1 (appended) shows a recent aerial view of the subject lands.

It is understood that plans include severing a lot with an area of approximately 5945 m^2 and a lot frontage of 65 m for the purpose of future residential development and to retain a lot which will have a lot area of approximately 5016 m^2 and a lot frontage of 61 m for the continued residential use. Drawing 2 shows the proposed lot severance details.

It is understood that the City of London requires a septic feasibility assessment, including a nitrate impact assessment, and confirmation that there is a suitable potable water source available to service the site. In this regard, recommendations have been provided regarding the installation of a potable water supply well, for the proposed severed lands.

BACKGROUND INFORMATION

Stonecairn staff have experience with the soil conditions and with design septic systems for other project sites in this general area. Soils in this area are typically described as silt with some sand, and silt till. Shallow groundwater conditions are generally not encountered, and in areas where it is present, it is typically the result of existing drainage features and swales which intercept stormwater runoff.

A review of the Ministry of Environment, Conservation and Parks (MECP) online database of well records for the area, the existing water supply well which services the existing residence (Well ID 4103849) was installed in 1956, and is set into a deep overburden aquifer, some 68 m below existing ground surface. Soil conditions described in the well records are identified as clay and silt till soils, with intermittent water-bearing sand and gravel seams. The static water level is reported at 26.5 m depth, with a reported pump rate recorded at 4 gallons per minute during a 24-hour pump test carried at installation.

The following table summarizes the findings of our review of the MECP well records, for the property and adjacent parcels within 150 m of the subject, Drawing 3 (appended), shows the well locations.

WELL ID	DATE COMPLETED	DEPTH (m bgs)	WATER FOUND (m bgs)	STATIC (m bgs)	PUMP RATE (LPM)	NORTHING	EASTING	DISTANCE FROM SITE (m)
Water Supply Wells								
4103849	1956-01-12	68.3	68.3	26.5	NR	4751343	472353	On Site
4103851	1965-01-11	43.3	42.4	19.5	7.6	4751248	472253	80.0
4103852	1957-07-30	66.43	12.2	18.3	NR	4751133	472373	144.1
4103965	1955-10-05	47.83	47.8	29.6	NR	4751313	472543	90.4
4106834	1974-07-05	16.8	9.8	6.1	37.8	4751404	472277	84.6
4107344	1975-09-12	10.7	NR	3.4	18.9	4751323	472293	9.9
4111990	1989-11-07	43.3	43.3	24.4	26.5	4751506	472508	82.1
4115522	2003-10-10	48.5	40.2	22.5	56.8	4751365	472242	76.0
4116558	2005-01-20	51.8	47.5	6.7	60.0	4751389	472348	30.7
7040283	2006-09-07	46.0	38.4	23.2	75.7	4751453	472398	52.6
7121470	2008-09-16	45.1	42.1	22.9	37.8	4751230	472329	47.0
Abandoned-Supply								
4103850	1964-11-17	12.83	NR	NR	NR	4751263	472223	91.3

SEPTIC FEASIBILITY

The actual septic design will depend on the specific design of the house, and the soil conditions within the septic bed area. The subgrade soils throughout the site are generally expected to be comprised of silt with some sand, as noted previously. In our experience, these soils have a design infiltration rate in the range of about 35 to 45 min/cm.

For the purposes of confirming that the severed and retained lots can each accommodate a private septic system, a theoretical sizing exercise has been carried out based on a typical 4-bedroom house, with a design flow of 2400 L/day, and an estimated soil T-time of 35 min/cm.

For the purposes of this report, an Enviro-Septic septic system has been considered, which provides Level 4 treatment of the septic effluent, and allows for optimization of the sizing of the septic distribution system. However, it is noted that other Level 4 systems may be considered for the site, depending on the actual design requirements which are established for the proposed residence on the severed lands. Minimum design requirements for the Enviro-Septic pipes and dispersal surface, including the design dimensions are summarized in the following table.

Parameter	Minimum Requirement	Proposed Septic Design
Number of Enviro-Septic Pipes	No. of pipes = Q / 126 L per pipe No. of pipes = 19.04* (20) Minimum row length = 6.1 m Maximum row length = 30 m *Notes:* **Number of pipes must be rounded up to provide uniform distribution over the dispersal surface.*	Total no. of pipes = 20 Configuration: 4 rows of 5 pipes (each row is 15.25 m in length) Total length of Enviro-Septic Pipe = 61.0 m (each pipe is 3.05 m in length)
Dispersal Surface (Absorption Bed Size)	Infiltration Surface Required: Area = QT/400 Area = 210 m^2 Min. spacing between rows 0.45 m Min. lateral spacing past ext. rows = 0.45 m Min. extension at the end of row = 0.3 m Min. System Sand layer under Pipe = 300 mm Min. System Sand layer above Pipe = 100 mm Min. Topsoil over system sand = 200 mm	Area = 215 m^2 Total Length of Dispersal Surface = 17.95 m Total Width of Dispersal Surface = 9.00 m Spacing between rows = 3.0 m Lateral spacing past external rows = 1.5 m Extension at the end of each row = 1.35 m System Sand layer under Pipe = 300 mm System Sand layer above Pipe = 100 mm Topsoil over system sand = 200 - 500 mm *Pipes are placed level, lengthwise.* Material over pipe (system sand + topsoil) not to exceed 600 mm.
Vertical Separation	For 6 min/cm < T < 50 min/cm, Min. vertical separation = 450 mm	Min. vertical separation expected to be available, and can be increased through adjustments to design grades, if required.

The septic distribution system must have a minimum clearance of 5 m from the existing residence and the proposed new barn structure. A 15 m clearance applies to the water supply well which services the residence. A 3 m clearance is required from the property lines. Other minimum clearances are outlined in OBC Table 8.2.1.6. (B) for the septic distribution bed. In addition, the Septic Tank must be located at least 1.5 m from any structures. A 15 m clearance is required from the water supply well. Other minimum clearances are outlined in OBC Table 8.2.1.6. (A) for the septic tank.

The Enviro-Septic System was selected for the example, since it provides an appropriate nitrate reduction and is considered a passive wastewater treatment system. Under normal use, regular maintenance is not anticipated for the septic distribution system; however, regular inspections of the septic tank (every 3 to 5 years is typical), and annual inspections of the venting system is recommended. A maintenance contract is required with a qualified installer.

General Septic Notes

All septic systems, are biological systems which require periodic maintenance to ensure they function in their intended manner. Typical maintenance activities include removal of solids from the septic tank, cleaning of effluent filters, inspection of any electrical components, and inspection of the bed for uneven wet spots or grass discoloration that could be caused by uneven distribution of effluent within the bed. Proper maintenance of filter bed systems improves system performance, reduces health and safety risks, and increases system longevity.

To optimize the lifespan of the septic system, it is important that the following be considered:

- Ensure regular inspection and maintenance is carried out, as noted above.
- Do not drive or park vehicles over the septic bed area.
- Do not plant trees or shrubs in the septic bed area.
- Do not allow grading around the septic bed which allows stormwater run-off to collect or pond on the surface of the septic bed area.
- Do not install irrigation or sprinklers, or excessively water the area of the septic bed.
- Do not construct any hard surfaces or structures (i.e.: decks, patios, sheds) over the septic bed area.

Given that the site is expected to accommodate landscaping to enhance the venue, it is important to be aware of the above limitations within the septic bed area.

NITRATE IMPACT ASSESSMENT

The retained and severed lots will be serviced with private septic systems. The design of the septic system must adhere to the requirements outlined in Section 8 of the Ontario Building Code. The systems will be designed for municipal approval according to the requirements of the Ontario Building Code (OBC) for systems with peak daily loading expected to be less than 10,000 L/day. Such on-site systems are used in un-serviced areas and provide primary treatment of effluent for dissipation and dilution into the subsoil and eventually to receiving waters. Secondary and tertiary treatment systems are currently in common use to provide improved treatment of wastewater prior to subsurface discharge. Although not usually a concern for single lot development on acreage, in the context of a multi-lot development, the municipality requires assessment of groundwater impacts in accordance with MECP Procedure D-5-4.

Residential sewage systems for treatment of domestic waste generally produce nutrients and bacteria in their effluent waters for treatment and uptake by natural decomposition processes in soil and vegetation. Bacteria and phosphorus are adequately removed where soils exist that reasonably treat the effluent such as those at this site. However, nitrate is the most transportable potential contaminant that remains in solution and can be transmitted to groundwater and laterally to off-site properties. Nitrate is considered the critical parameter for analysis of domestic sewage system impacts on groundwater in sandy soils.

In the Ontario Drinking Water Guidelines, the maximum acceptable concentration of nitrates is set at 10 mg/L. This parameter has been found in conventional septic tank effluent at concentrations of about 40 mg/L, in studies conducted by MECP.

Predictive Assessment Model Calculations

Stonecairn has carried out a nitrate impact assessment for the proposed septic system Enviro-Septic system), in accordance with the predictive assessment model (calculation) outlined in the MECP D-5-4 Guideline document. The model has been established to demonstrate the theoretical nitrate concentration which would occur at the downstream property boundary (considered to be the worst-case boundary condition), and sets a target value of 10 mg/L, based on the applicable Ontario Drinking Water Objective (ODWO).

The following is a mass balance calculation for the theoretical nitrate concentration which would occur at the downstream property boundary based on a conventional Class IV septic system.

$$Co = [Q_E (N_E) + DW (NB)]/[DW + Q_E]$$

Where: Co = Nitrate Concentration at the property boundary (mg/L);
N_E = Nitrate Concentration of the sewage effluent (from the tank) (mg/L);
Q_E = Yearly volume of effluent produced (L/year);
DW = Dilution Water available (L/year);
NB = Background Nitrate Concentration, (mg/L).

The average daily design sewage load per residence is 1000 L/day, based on Procedure D-5-4. This average flow rate is considered a realistic and conservative average daily flow rate and not a peak design flow used to design the sewage system, (which is often 2 to 3 times this amount).

Precipitation and infiltration through the soil to groundwater normally provide dilution water. Precipitation (annual precipitation 961.6 mm/year, 30-year Climate Normal averages for London Weather Station) and infiltration (infiltration factor of 70% based on topography, soil and vegetative cover) through the soil to groundwater normally provide dilution and provide the basis for the following nitrite loading calculations.

We have also assumed that stormwater run-off generated from the new residences and hard surfaces (such as decks or patios) will be directed into the side and rear yards, and will not be intercepted and diverted away from the property through storm sewer connections.

For the purposes of the analyses, a background nitrate level of 1.2 mg/L has been utilized. This concentration is considered representative of the average values in precipitation reported by the US EPA National Air Quality and Emissions Trend Report, 1997, and referenced by Environment Canada in the Canada – United States Air Quality Agreement, 2012. The typical background nitrate concentration of 3.1 mg/L which was used in the calculations is considered reasonable and appropriate – additional discussion is provided at the end of this Report Section in this regard.

The following summary is provided for various scenarios at the site.

Scenario	Details	Nitrate Concentration at Boundary Condition
1A	Retained lot (5016 m^2) parcel equipped with conventional Class IV septic system, nitrate concentration in effluent at 40 mg/L	8.99 mg/L *Meets ODWS Guidelines*
1B	Retained lot (5016 m^2) parcel equipped with Level 4 treatment system (as noted in the septic sizing calculation), nitrate concentration in effluent at 28 mg/L (30% reduction)	6.58 mg/L *Meets ODWS Guidelines*
2A	Severed lot (5945 m^2) parcel equipped with conventional Class IV septic system, nitrate concentration in effluent at 40 mg/L	7.99 mg/L *Meets ODWS Guidelines*
2B	Severed lot (5945 m^2) parcel equipped with Level 4 treatment system (as noted in the septic sizing calculation), nitrate concentration in effluent at 28 mg/L (30% reduction)	5.89 mg/L *Meets ODWS Guidelines*

**Calculation Worksheet is appended*

As shown in the sample calculations above, both the severed and retained parcels can satisfy the nitrate loading limits (based on ODWS guidelines) at the boundary conditions, with conventional septic systems. A further improvement on the overall nitrate levels can be achieved with the Level 4 treatment system, although this is not strictly required.

WELL INSTALLATION RECOMMENDATIONS

The existing well on the retained parcel, and other well records in the area demonstrate that there is suitable potable water supply within the deep overburden and bedrock aquifer. Reported pump rates in the well records

Appropriate well construction techniques (in accordance with Ontario Regulation (O.Reg. 903) must be followed in order to minimize the possibility of well water quality degradation. Water supply wells must be installed by a licensed well driller, with openings having suitable clearance above the ground surface.

O.Reg. 903 as amended, outlines the requirements for proper well installation, and water quality testing prior to use. Prior to commissioning the water supply wells for use for future residences and permanent installation of pumps into each of the wells, it is recommended that the wells be inspected by a licensed well technician, and that water quality sampling be conducted to verify the water quality. New home owners should be provided with the water quality information for their respective water supply wells, to ensure that water quality is adequate for their needs.

Finished grades around the finished well locations should be sloped away from the wells to promote surface drainage away from the well casings and to help prevent surface contamination.

It is the responsibility of the well owner to maintain the well in a manner sufficient to prevent contamination, resulting from the introduction of contaminants at the well head (ground surface). In this regard, homeowners should be advised that the well head should protrude above grade at least 0.3 m above ground surface, and that the finished grade of the ground surface prevents ponding of surface water adjacent to the well.

GEOTECHNICAL COMMENTS AND RECOMMENDATIONS

A review of historical aerial photographs for the site does not indicate any historic fill placement or any former buildings or structures in the area of the proposed lot severance. However, during the construction of the new residence, a site inspection by a geotechnical engineer is recommended to review the exposed subgrade soils and to confirm the soil bearing capacity, to ensure that natural undisturbed subgrade soils can provide adequate support for the new building. In this regard, soils which can support a design bearing pressure of 150 kPa (3000 psf) are considered suitable for construction of typical single-family residential buildings. All footings exposed to seasonal freezing conditions should be protected from frost action by at least 1.2 m (4 ft.) of soil cover or equivalent insulation.

In the event that uncontrolled fill is present within the founding soils, local remedial measures to remove and restore unsuitable soils should be carried out under the supervision of a geotechnical engineer. In areas which engineered fill is to be placed to raise grades, the exposed subgrade soils should be reviewed approved by the geotechnical consultant following topsoil stripping. In accordance with the Ontario Building Code (Section 4.2.4.15), foundations may be set on fill material provided that it can be demonstrated that the fill is capable of safely supporting the building and that detrimental movement of the building will not occur. In this regard, it is recommended that any fill material placed in future building footprints be engineered and verified through an inspection and testing program. Engineered fill should consist of suitable, compactable, inorganic soils, which are free of topsoil, organics and miscellaneous debris. For best compaction results, the fill material should have a moisture content within about 3 percent of optimum.

The placement of the engineered fill should be monitored by the geotechnical consultant to verify that suitable materials are used, and to confirm that suitable levels of compaction are achieved. The engineered fill material should be placed in maximum 300 mm (12 inch) thick lifts and uniformly compacted to 100 percent Standard Proctor Maximum Dry Density (SPMDD). Additional notes regarding engineered fill placement are provided in Drawing 4, in Appendix A.

Provided that the stability of the soils exposed at the founding level is not compromised as a result of construction activity, precipitation, cold weather conditions, etc., and the design bearing pressures are not exceeded, the total and differential settlements of footings are expected to be less than 25 mm and 19 mm, respectively.

Founding levels should be reviewed to confirm that footings will remain above the stabilized groundwater level. Typical foundation damp-proofing requirements and exterior perimeter weeping tiles are expected to be suitable to address and surface water infiltration which may occur within the foundation wall backfill zone around the building foundation.

The basement floors can be constructed using cast slab-on-grade techniques provided that the subgrade is stripped of unsuitable material. It is recommended that a minimum 200 mm (8 inch) thick compacted layer of 19 mm (¾ inch) clear stone be placed between the prepared subgrade and the floor slab to serve as a moisture barrier.

In general, the existing native soils excavated from the building footprint are expected to be suitable for re-use as exterior foundation wall backfill. If the weather conditions are very wet during construction, site review by the geotechnical consultant may be advised to confirm the suitability of onsite soils for reuse. It is recommended that heavy compaction equipment be restricted within 0.5 m of the wall. Backfill should be brought up evenly on both sides of the foundation walls which have not been designed to resist lateral earth pressures.

CLOSING

The recommendations provided in this report are applicable to the project described in the text. Stonecairn would be pleased to provide a review of design drawings and specifications to ensure that the geotechnical comments and recommendations provided in this report have been accurately and appropriately interpreted.

We trust the above is satisfactory for your present requirements.

Respectfully Submitted,

Rebecca Walker, P.Eng.
Director, Geotechnical Services

Attachments:
Appendix A – Drawings
Appendix B – Nitrate Impact Assessment Calculation Worksheet

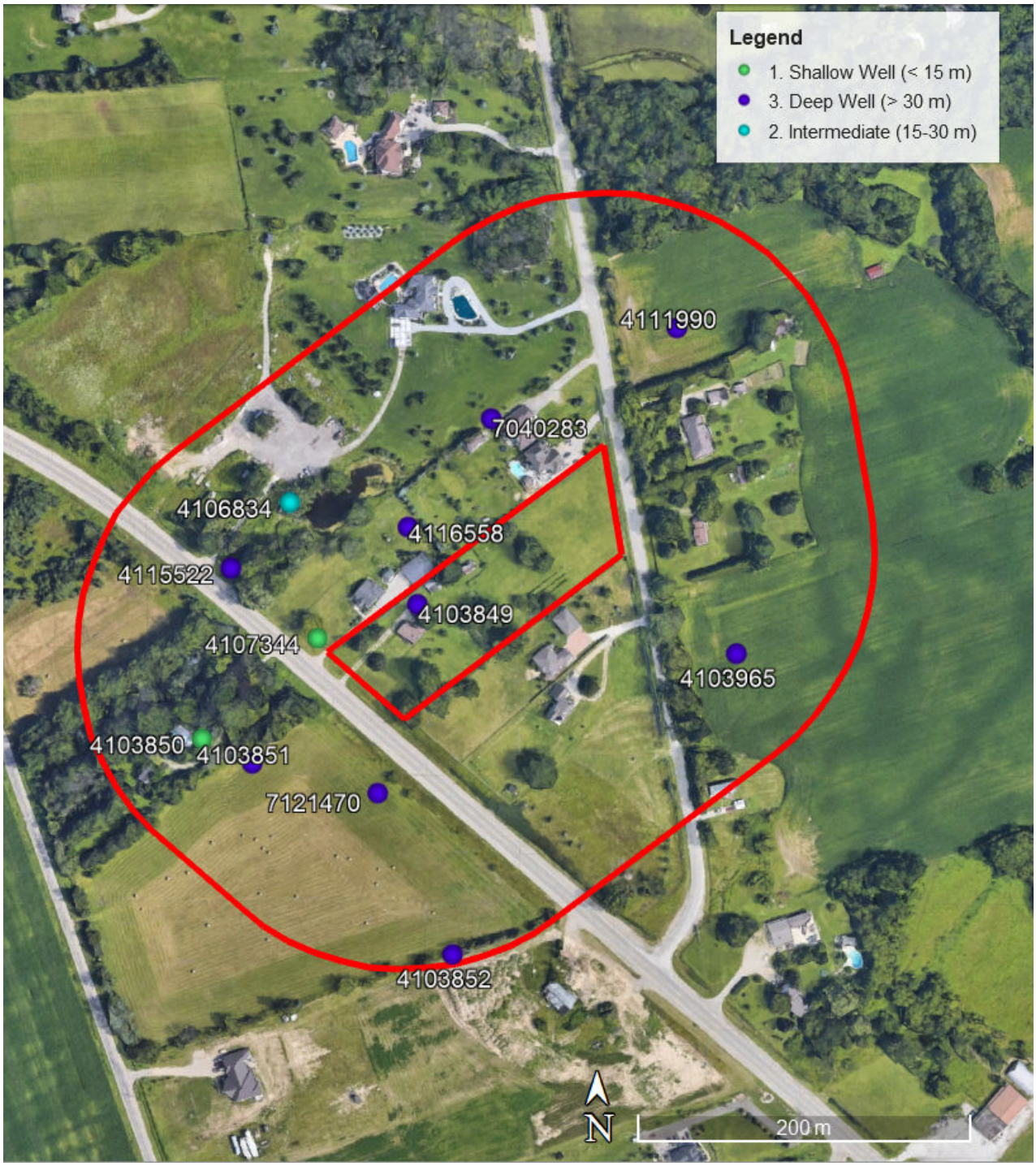
APPENDIX A
DRAWINGS

Source: City of London Aerial Photographs, 2024

STONECAIRN CONSULTING	**PROJECT NAME** PROPOSED LOT SEVERANCE 8530 LONGWOODS RD, LONDON	**SCALE** NTS	**PROJECT NO.** SC-02075
	DRAWING NAME 2024 AERIAL PHOTOGRAPH	**DATE** JAN 2025	**DWG NO.** 1

Source: City of London Aerial Photographs, 2024

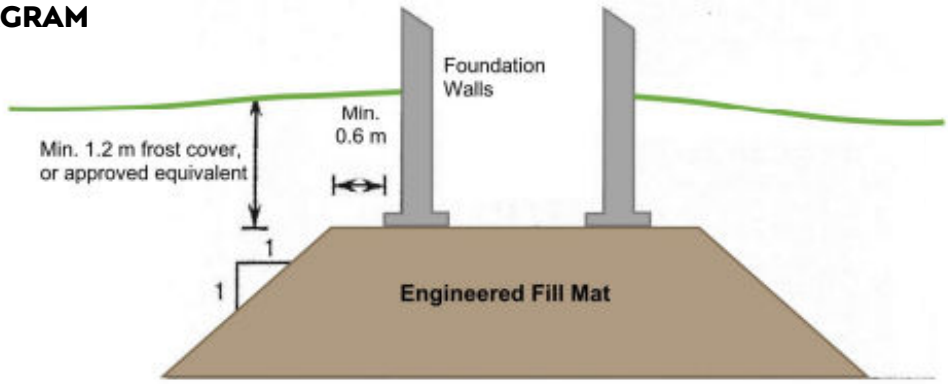
	PROJECT NAME	SCALE	PROJECT NO.
STONECAIRN CONSULTING	PROPOSED LOT SEVERANCE 8530 LONGWOODS RD, LONDON	NTS	SC-02075
	DRAWING NAME	**DATE**	**DWG NO.**
	MECP WELL RECORD REVIEW	JAN 2025	2



Source: MECP Interactive Well Record Database, current to January 2024.

	PROJECT NAME	SCALE	PROJECT NO.
STONECAIRN CONSULTING	PROPOSED LOT SEVERANCE 8530 LONGWOODS RD, LONDON	NTS	SC-02075
	DRAWING NAME	**DATE**	**DWG NO.**
	MECP WELL RECORD REVIEW	JAN 2025	3

SCHEMATIC DIAGRAM



NOTES:

1. The area must be stripped of all topsoil contaminated fill material, and other unsuitable soils, and proof rolled. Soft spots must be dug out. The stripped natural subgrade must be examined and approved by the geotechnical consultant**.**
2. In areas where engineered fill is placed on a slope, the fill should be benched into the approved subgrade soils.
3. Material used for engineered fill must be free of topsoil, organics, frost and frozen material, and otherwise unsuitable or compressible soils, as determined by a Geotechnical Engineer. Any material proposed for use as engineered fill must be examined and approved prior to use onsite.
4. Engineered fill should be placed in maximum 300 mm thick lifts, and uniformly compacted to 100% Standard Proctor dry density. For best compaction results, engineered fill should be within 3 percent of its optimum moisture content, as determined by the Standard Proctor density test.
5. Full time geotechnical monitoring, inspection and in-situ density (compaction) is required during placement of the engineered fill.
6. Site grades should be maintained during area grading activities to promote drainage, and to minimize ponding of surface water on the engineered fill mat. Rutting by construction equipment should be kept to a minimum, where possible. Additional work to ensure suitability of engineered fill may be required if fill is placed in inclement weather conditions.
7. The fill must be placed such that the specified geometry is achieved. Refer to schematic diagram for minimum requirements. Environmental protection may be required, such as frost protection during construction, and after the completion of the engineered fill mat.
8. An allowable bearing pressure of 145 kPa (3000 psf) may be used provided that all conditions outlined above, and in the accompanying report are adhered to.
9. These guidelines are to be read in conjunction with the Geotechnical Report prepared by Stonecairn.
10. For foundations set on engineered fill, footing enhancement and/or concrete reinforcing steel placement may be recommended. The footing geometry and extent of concrete reinforcing steel will depend on site specific conditions. In general, consideration may be given to having a minimum strip footing width of 500 mm (20 inches), containing nominal steel reinforcement.

STONECAIRN CONSULTING	**PROJECT NAME** PROPOSED LOT SEVERANCE 8530 LONGWOODS RD, LONDON	**SCALE** NTS	**PROJECT NO.** SC-02075
	DRAWING NAME ENGINEERED FILL PLACMENT DETAILS	**DATE** JAN 2025	**DWG NO.** 4

APPENDIX B

NITRATE IMPACT ASSESSMENT CALCULATION WORKSHEET

D-5-4 Septic Calculations

Residential Lots - Effluent Flow

Septic Design as per LDS Nitrate Impact Assessment Report
1,000 L/day
365 days/yr

365,000 L/year per Lot

Surplus Water (Run-off and Infiltration)

Precipitation	961.6	mm/yr
Based in 1991-2020 Climate Normals @ London Weather Station		
Evaportransporation	548	mm/yr
MECP SWM Manual, 2003		
Surplus Water	0.4136	m/yr

Dilution Water (Infiltration Component of Precipitation)

Determine Infiltration Factor, based on MECP SWM Design

<u>Topography</u>	
Flat	**0.3**
Rolling	0.2
Hilly	0.1
<u>Soil</u>	
Tight Impervious Clay	0.1
Medium (Clay & Loam)	**0.2**
Open Sandy Loam	0.4
<u>Vegetative Cover</u>	
Cultivated Land	0.1
Woodland	0.2
Grassland	**0.2**
Infiltration Factor, I	70%

Dilution Water 1,452.23 m^3/yr
1,452,232 L/year

Nitrate Concentration

Nc = [QE (NE) + DW (NB)]/[DW + QE]

Nc = Nitrate Concentration at the property boundary (mg/L);
NE = Nitrate Concentration of the sewage effluent (from the tank) (mg/L);
QE = Yearly volume of effluent produced (L/year);
DW = Dilution Water available (L/yr);
NB = Background Nitrate Concentration, (mg/L).

Maximum Allowable Nitrate Concentration at Boundary
10 mg/L *Based on ODWQ Guidelines*

Site Plan

Site Area (retained lot) 0.50 ha
5,016 m^2

Site Area (severed lot) 0.50 ha
5,016 m^2

Comments and Notes

Stonecairn has carried out a nitrate impact assessment for the proposed septic system, in accordance with the predictive assessment model (calculation) outlined in the MECP D-5-4 Guideline document.The model has been established to demonstrate the theoretical nitrate concentration which would occur at the downstream property boundary (considered to be the worst case boundary condition), and sets a target value of 10 mg/L, based on the applicable Ontario Drinking Water Objective (ODWO).

Precipitation and infiltration through the soil to groundwater normally provide dilution water. Precipitation (annual precipitation 961.6 mm/year, 30 year Climate Normal averages for London Weather Station, 1991-2020).

Infiltration factor of 70% based on topography, soil and vegetative cover) through the soil to groundwater normally provide dilution and provide the basis for the following nitrite loading calculations

For the purposes of the analyses, a background nitrate concentration of 1.2 mg/L has been used. This is the average value in precipitation reported by the US EPA National Air Quality & Emissions Trend Report, 1997, referenced by Environment Canada in the Canada – United States Air Quality Agreement, 2012.

Nitrate Loading Rate based on Class IV septic system design, with nitrate concentration at 40 mg/L, or with Level 4 treatment system offering a 30% nitrate reduction.

D-5-4, Nitrate Loading Sample Calculations

Scenario 1A - Design Flow, retained lot, Effluent Nitrate @ 40 mg/L

Daily Flow	1,000	L/day	Area	5,016 m^2
NE	40	mg/L	*standard nitrate level*	
QE	365,000	L/year	*Effluent Flow Calculated for proposed system*	
DW	1,452,232	L/year	*Dilution water calculated for site*	
NB	1.20	mg/L	*Avg value from Env. Canada published data, 2012*	
Co	8.99	mg/L	*meets ODWQ Guidelines*	

Scenario 2A - Design Flow, on severed lot, Effluent N @ 40 mg/L

Daily Flow	1,000	L/day	Area	5,945 m^2
NE	40	mg/L	*standard nitrate level*	
QE	365,000	L/year	*Effluent Flow Calculated for proposed lots*	
DW	1,721,196	L/year	*Dilution water calculated for site*	
NB	1.20	mg/L	*Elevated backgoround nitrate level, for discussion*	
Co	7.99	mg/L	*meets ODWQ Guidelines*	

Scenario 1B - Design Flow, retained lot, Effluent Nitrate @ 28 mg/L

Daily Flow	1,000	L/day	Area	5,016 m^2
NE	28	mg/L	*standard nitrate level*	
QE	365,000	L/year	*Effluent Flow Calculated for proposed system*	
DW	1,452,232	L/year	*Dilution water calculated for site*	
NB	1.20	mg/L	*Avg value from Env. Canada published data, 2012*	
Co	6.58	mg/L	*meets ODWQ Guidelines*	

Scenario 2B - Design Flow, on severed lot, Effluent N @ 40 mg/L

Daily Flow	1,000	L/day	Area	5,945 m^2
NE	28	mg/L	*standard nitrate level*	
QE	365,000	L/year	*Effluent Flow Calculated for proposed lots*	
DW	1,721,196	L/year	*Dilution water calculated for site*	
NB	1.20	mg/L	*Elevated backgoround nitrate level, for discussion*	
Co	5.89	mg/L	*meets ODWQ Guidelines*	

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