Committee of Adjustment Application to Planning Department

Complete Application

A complete Committee of Adjustment application consists of the following:

1. A properly completed and signed application form (signature must on original version);
2. Supporting information adequate to illustrate your proposal as listed in **Section H** of this application form (plans are required in paper copy and digital PDF format);
3. Written authorization from all registered owners of the subject lands where the applicant is not the owner as per Section N; and,
4. Cash, debit or cheque payable to Norfolk County in the amount set out in the Norfolk County User Fees By-Law.
   Planning application development fees are not required with the submission of your completed and signed development application. Your planning application fee will be determined by the planner when your application has been verified and deemed complete. Prepayments will not be accepted.
5. Completed applications are to be mailed to the attention of **Secretary Treasurer – Committee of Adjustment:** 185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6 or email your application committee.of.adjustment@norfolkcounty.ca. Make sure submissions are clearly labelled including address, name, and application type. Failure to do so may impact the timing of your application.

The above listed items are required to ensure that your application is given full consideration. An incomplete or improperly prepared application will not be accepted and may result in delays during the processing of the application. This application must be typed or printed in ink and completed in full.

Please review all of the important information summarised below.

Before your Application is Submitted

A pre-consultation meeting is not usually required for Committee of Adjustment applications; however, discussion with Planning Department staff prior to the submission of an application is **strongly encouraged**. The purpose of communicating with a planner **before** you submit your application is: to review your proposal / application, to discuss potential issues; and to determine the required supporting information and materials to be submitted with your application before it can be considered complete by staff. You might find it helpful to retain the services of an independent professional (such as a registered professional planner) to help you with your application. Information about the Official Plan and Zoning By-law can be found on the County website: www.norfolkcounty.ca/planning

After Your Application is Submitted

Once your payment has been received and the application submitted, in order for your application to be deemed complete all of the components noted above are required.

Incomplete applications will be identified and returned to the applicant. The *Planning Act* permits up to 30 days to review and deem an application complete.

Once your application has been deemed complete by the Planning Department, it is then circulated to public agencies and County departments for review and comment. A sign is also provided that is required to be posted on the subject lands that summarizes the application and identifies the committee meeting date. The comments received from members of the community will be included in the planning report and will inform any recommendations in relation to the application.

If the subject lands are located in an area that is regulated by either the Long Point Region Conservation Authority or by the Grand River Conservation Authority an additional fee will be required if review by the applicable agency is deemed necessary. A separate cheque payable to the Long Point Region Conservation Authority or the Grand River Conservation Authority is required in accordance with their fee schedule at the same time your application is submitted.

Additional studies required as part of the complete application shall be at the sole expense of the applicant. In some instances peer reviews may be necessary to review particular studies and that the cost shall be at the expense of the applicant. The company to complete the peer review shall be selected by the County.

If the application is withdrawn prior to the circulation to commenting agencies, the entire original fee will be refunded. If withdrawn after the circulation to agencies, half the original fee will be refunded. No refund is available after the public meeting and/or approval of application.

Notification Sign Requirements

Planning Department staff may post a notification sign on your property in advance of the public meeting on your behalf. Please keep this sign posted until you have received a notice in the mail indicating that the Secretary Treasurer received no appeals. However, it is the applicant's responsibly to ensure that the sign is correctly posted within the statutory timeframes, according to the *Planning Act*. Failure to post a sign in advance of the public meeting in accordance with statutory requirements will impact the timing of your application at the Committee of Adjustment meeting. Applicants are responsible for removal of the sign following the appeal period. The signs are recyclable and can be placed in your blue box.

Contact Us

For additional information or assistance in completing this application, please contact a planner at 519-426-5870 ext. 1842 or Committee.of.Adjustment@NorfolkCounty.ca

For Office Use Only:

File Number		Application Fee	
Related File Number		Conservation Authority Fee	
Pre-consultation Meeting		Well & Septic Info Provided	
Application Submitted		Planner	
Complete Application		Public Notice Sign	

Check the type of planning application(s) you are submitting.

- ☒ Consent/Severance/Boundary Adjustment
- ☐ Surplus Farm Dwelling Severance and Zoning By-law Amendment
- ☒ Minor Variance
- ☐ Easement/Right-of-Way

Property Assessment Roll Number: 336-040-25800-0000

A. Applicant Information

Name of Owner LENA SMUK

It is the responsibility of the owner or applicant to notify the planner of any changes in ownership within 30 days of such a change.

Address	1003, CONC. 6 TOWNSEND
Town and Postal Code	WATERFORD, ON. N0E 1Y0
Phone Number	
Cell Number	N/A
Email	

Name of Applicant	MR. PETER SMUK
Address	12 FIRST ST.
Town and Postal Code	DUNNVILLE ONTARIO
Phone Number	N1A 0A2
Cell Number	(905)-577-2666
Email	psmuk@aol.com

Name of Agent	SCOTT HANNAH
Address	111 OAKHURST CRESCENT
Town and Postal Code	KITCHENER, ONTARIO N2B3K2
Phone Number	(519)-504-2426 OR (519)-242-3184
Cell Number	
Email	bashannah@gmail.com

Please specify to whom all communications should be sent. Unless otherwise directed, all correspondence and notices in respect of this application will be forwarded to the owner and agent noted above.

☐ Owner ☒ Agent ☒ Applicant

Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:

N/A

B. Location, Legal Description and Property Information

1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet):

PT. LOT 13, CONCESSION 5,

Municipal Civic Address: 1003 CONCESSION 6, TOWNSEND

Present Official Plan Designation(s): HAMLET

Present Zoning: RH

2. Is there a special provision or site specific zone on the subject lands?

☐ Yes ☒ No If yes, please specify:

3. Present use of the subject lands:

SINGLE DETACHED DWELLING

4. Please describe **all existing** buildings or structures on the subject lands and whether they are to be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

1 STOREY DWELLING, 1 STOREY WORKSHOP TO BE RETAINED - SEE SKETCH

5. If an addition to an existing building is being proposed, please explain what it will be used for (for example a bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe.

N/A

6. Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

FUTURE DETACHED DWELLING ON EACH OF THE SEVERED PARCELS.

7. Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant? Yes ☐ No ☒

   If yes, identify and provide details of the building:

8. If known, the length of time the existing uses have continued on the subject lands:

MORE THAN 60 YEARS

9. Existing use of abutting properties:

DETACHED DWELLINGS TO SOUTH + WEST, WOODLOT TO EAST AGRICULTURAL LANDS - CROPS TO NORTH

10. Are there any easements or restrictive covenants affecting the subject lands?

    ☐ Yes ☒ No If yes, describe the easement or restrictive covenant and its effect:

C. Purpose of Development Application

Note: Please complete all that apply. **Failure to complete this section will result in an incomplete application.**

LOT "A"

1. Site Information (Please refer to Zoning By-law to confirm permitted dimensions)

	Existing	Permitted	Provision	Proposed	Deficiency
Lot frontage	NEW LOT	30 M.	5.7.2 b) i)	27.5 M.	2.5 M.
Lot depth				130.15 M	
Lot width				27.5 M	
Lot area	NEW LOT	0.4 hectares 4000 Sq.M.	5.7.2 a)	.35697 hect. 3569.7 Sq.M.	430± Sq.M.
Lot coverage					
Front yard					
Rear yard					
Height					
Left Interior side yard		N/A		WILL APPLY WHEN NEW LOT IS DEVELOPED	
Right Interior side yard					
Exterior side yard (corner lot)					
Parking Spaces (number)					
Aisle width					
Stall size					
Loading Spaces					
Other					

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law:

SEE COVER LETTER

LOT "A"

3. **Consent/Severance/Boundary Adjustment**: Description of land intended to be severed in metric units:

Frontage: 27.50 METRES

Depth: 130.15 METRES

Width: 27.50 METRES

Lot Area: 3569.7 SQ. M.

Present Use: FIELD

Proposed Use: LOT FOR DETACHED DWELLING

Proposed final lot size (if boundary adjustment): N/A

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: N/A

Description of land intended to be retained in metric units:

Frontage: 118.59 METRES

Depth: 145.39 METRES

Width: 118.59 METRES

Lot Area: 17,086.8 SQ. M.

Present Use: DETACHED DWELLING

Proposed Use: SAME

Buildings on retained land: DWELLING & WORKSHOP

4. **Easement/Right-of-Way:** Description of proposed right-of-way/easement in metric units:

Frontage: N/A

Depth:

C. Purpose of Development Application

Note: Please complete all that apply. **Failure to complete this section will result in an incomplete application.**

"B"
LOT

1. **Site Information** (Please refer to Zoning By-law to confirm permitted dimensions)

	Existing	Permitted	Provision	Proposed	Deficiency
Lot frontage	NEW LOT	30 M	5.7.2 b) i)	27.5 M	2.5 M
Lot depth					
Lot width					
Lot area	NEW LOT	0.4 hectares 4000 Sq. M	5.7.2 a)	.35699 hect. 3569.99 sq.m.	430 +/- Sq.M.
Lot coverage					
Front yard					
Rear yard					
Height					
Left Interior side yard			N/A	WILL APPLY WHEN NEW LOT IS DEVELOPED	
Right Interior side yard					
Exterior side yard (corner lot)					
Parking Spaces (number)					
Aisle width					
Stall size					
Loading Spaces					
Other					

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law:

SEE COVER LETTER

LOT "B"

3. **Consent/Severance/Boundary Adjustment**: Description of land intended to be severed in metric units:

Frontage: 27.50 METRES

Depth: 130.16 METRES

Width: 27.50 METRES

Lot Area: 3569.9 sq. m.

Present Use: FIELD

Proposed Use: LOT FOR DETACHED DWELLING

Proposed final lot size (if boundary adjustment): N/A

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: N/A

Description of land intended to be retained in metric units:

Frontage: 118.59 METRES

Depth: 145.39 METRES

Width: 118.59 METRES

Lot Area: 17,086.8 Sq. m.

Present Use: DETACHED DWELLING

Proposed Use: SAME

Buildings on retained land: DWELLING + WORKSHOP

4. **Easement/Right-of-Way:** Description of proposed right-of-way/easement in metric units:

Frontage: N/A

Depth:

Width: ______________________________

Area: ______________________________

Proposed Use: ______________________________

5. **Surplus Farm Dwelling Severances Only:** List all properties in Norfolk County, which are owned and farmed by the applicant and involved in the farm operation N/A

Owners Name: ______________________________

Roll Number: ______________________________

Total Acreage: ______________________________

Workable Acreage: ______________________________

Existing Farm Type: (for example: corn, orchard, livestock) ______________

Dwelling Present?: ☐ Yes ☐ No If yes, year dwelling built ______________

Date of Land Purchase: ______________________________

Owners Name: ______________________________

Roll Number: ______________________________

Total Acreage: ______________________________

Workable Acreage: ______________________________

Existing Farm Type: (for example: corn, orchard, livestock) ______________

Dwelling Present?: ☐ Yes ☐ No If yes, year dwelling built ______________

Date of Land Purchase: ______________________________

Owners Name: ______________________________

Roll Number: ______________________________

Total Acreage: ______________________________

Workable Acreage: ______________________________

Existing Farm Type: (for example: corn, orchard, livestock) ______________

Dwelling Present?: ☐ Yes ☐ No If yes, year dwelling built ______________

Date of Land Purchase: ______________________________

Owners Name: _____

Roll Number: _____

Total Acreage: _____

Workable Acreage: _____

Existing Farm Type: (for example: corn, orchard, livestock) _____

Dwelling Present?: ☐ Yes ☐ No If yes, year dwelling built _____

Date of Land Purchase: _____

Owners Name: _____

Roll Number: _____

Total Acreage: _____

Workable Acreage: _____

Existing Farm Type: (for example: corn, orchard, livestock) _____

Dwelling Present?: ☐ Yes ☐ No If yes, year dwelling built _____

Date of Land Purchase: _____

Note: If additional space is needed please attach a separate sheet.

D. All Applications: Previous Use of the Property

1. Has there been an industrial or commercial use on the subject lands or adjacent lands? ☐ Yes ☒ No ☐ Unknown
   If yes, specify the uses (for example: gas station, or petroleum storage):
   _____
   _____
   _____

2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? ☐ Yes ☒ No ☐ Unknown

3. Provide the information you used to determine the answers to the above questions:
   AREA TO WEST OF HOUSE WHERE SEVERANCES (NEW LOTS) ARE CONTEMPLATED HAS HISTORICALLY BEEN USED FOR AGRICULTURAL PURPOSES (I.E. CULTIVATED)

4. If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? ☐ Yes ☒ No

E. All Applications: Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*? ☒ Yes ☐ No

   If no, please explain:

   SEE COVER LETTER

2. It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? ☐ Yes ☒ No

   If no, please explain:

   LANDS USES FOR RESIDENTIAL & AGRICULTURAL PURPOSE AND NOT IDENTIFIED AS A "NHS"

3. Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? ☐ Yes ☒ No

   If no, please explain:

   LANDS OUTSIDE OF SOURCE WATER PROTECTION AREA IN OFFICIAL PLAN

   Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.

4. All Applications: Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.

Livestock facility or stockyard (submit MDS Calculation with application)

☐ On the subject lands or ☐ within 500 meters – distance _____

Wooded area

☐ On the subject lands or ☒ within 500 meters – distance ABUTTING RETAINED LANDS TO EAST IS A WOODLOT NOT IMPACTED BY APPLICATION

Municipal Landfill

☐ On the subject lands or ☐ within 500 meters – distance _____

Sewage treatment plant or waste stabilization plant

☐ On the subject lands or ☐ within 500 meters – distance _____

Provincially significant wetland (class 1, 2 or 3) or other environmental feature

☐ On the subject lands or ☐ within 500 meters – distance _____

Floodplain

☐ On the subject lands or ☐ within 500 meters – distance _____

Rehabilitated mine site

☐ On the subject lands or ☐ within 500 meters – distance _____

Non-operating mine site within one kilometre

☐ On the subject lands or ☐ within 500 meters – distance _____

Active mine site within one kilometre

☐ On the subject lands or ☐ within 500 meters – distance _____

Industrial or commercial use (specify the use(s))

☐ On the subject lands or ☐ within 500 meters – distance _____

Active railway line

☐ On the subject lands or ☐ within 500 meters – distance _____

Seasonal wetness of lands

☐ On the subject lands or ☐ within 500 meters – distance _____

Erosion

☐ On the subject lands or ☐ within 500 meters – distance _____

Abandoned gas wells

☐ On the subject lands or ☐ within 500 meters – distance _____

F. All Applications: Servicing and Access

1. Indicate what services are available or proposed:

Water Supply

- ☐ Municipal piped water
- ☒ Individual wells
- ☐ Communal wells
- ☐ Other (describe below)

Sewage Treatment

- ☐ Municipal sewers
- ☒ Septic tank and tile bed in good working order
- ☐ Communal system
- ☐ Other (describe below)

Storm Drainage

- ☐ Storm sewers
- ☒ Open ditches
- ☐ Other (describe below)

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2. Existing or proposed access to subject lands:

- ☒ Municipal road
- ☐ Provincial highway
- ☐ Unopened road
- ☐ Other (describe below)

Name of road/street:

G. All Applications: Other Information

1. Does the application involve a local business? ☐ Yes ☒ No

   If yes, how many people are employed on the subject lands?

---

2. Is there any other information that you think may be useful in the review of this application? If so, explain below or attach on a separate page.

H. Supporting Material to be submitted by Applicant

In order for your application to be considered complete, folded hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

1. Concept/Layout Plan
2. All measurements in metric
3. Existing and proposed easements and right of ways
4. Parking space totals – required and proposed
5. All dimensions of the subject lands
6. Dimensions and setbacks of all buildings and structures
7. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
8. Names of adjacent streets
9. Natural features, watercourses and trees

In addition, the following additional plans, studies and reports, including but not limited to, **may** also be required as part of the complete application submission:

☒ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)

☐ Environmental Impact Study

☒ Geotechnical Study / Hydrogeological Review

☐ Minimum Distance Separation Schedule

☐ Record of Site Condition

Your development approval might also be dependent on Ministry of Environment Conservation and Parks, Ministry of Transportation or other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

All final plans must include the owner's signature as well as the engineer's signature and seal.

I. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, and/or transfer(s) of easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act, R.S.O. 1990, c. P. 13* for the purposes of processing this application.

R Scott Hannah — DEC 11, 2023

Owner/Applicant/Agent Signature — Date

J. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner must complete the authorization set out below.

I/We Lena Smuk am/are the registered owner(s) of the lands that is the subject of this application.

I/We authorize SCOTT HANNAH to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

* Lena Smuk — Nov 16, 2023

Owner — Date

Owner — Date

***Note:** If property is owned by an Ontario Ltd. Corporation, Articles of Incorporation are required to be attached to the application.*

K. Declaration

I, SCOTT HANNAH of KITCHENER

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Declared before me at:

Cambridge

In township of Puslinch

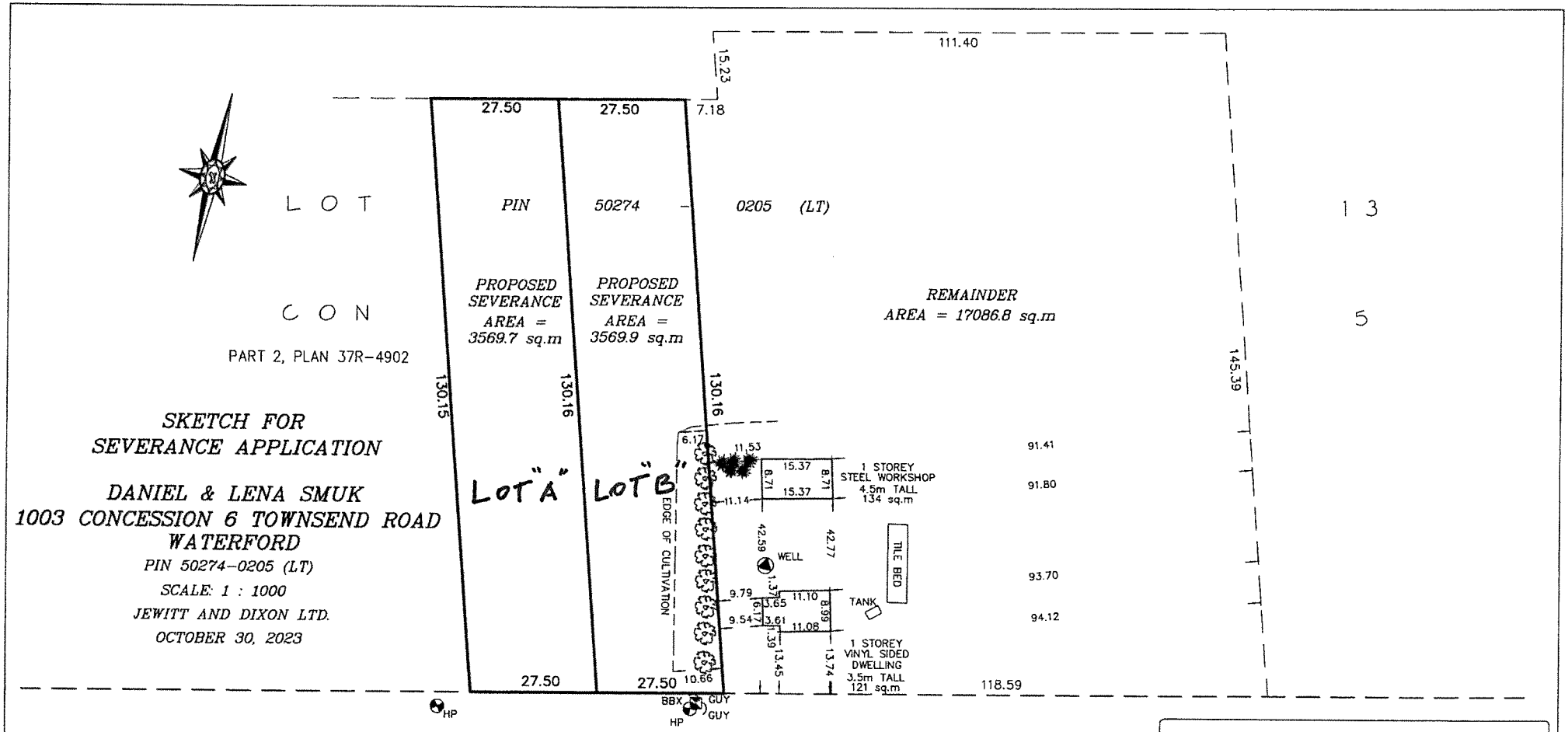
This 11 day of December

A.D., 2023

Owner/Applicant/Agent Signature

A Commissioner, etc.

Stephanie Jean Grundlinger, a Commissioner, etc.,
Province of Ontario, for
Reid's Heritage Homes Ltd. and its
subsidiaries, associated companies, and affiliates.
Expires November 2, 2023



NOTE:

THIS PLAN IS IN METRIC AND CAN BE CONVERTED TO IMPERIAL BY MULTIPLYING BY 3.2808

CAUTION:

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR PURPOSES OTHER THAN THE PURPOSE INDICATED IN THE TITLE BLOCK.

JEWITT AND DIXON LTD.
ONTARIO LAND SURVEYORS
650 IRELAND ROAD, SIMCOE, ON, N3Y 4K2

PHONE: (519) 426-0842
E-mail: info@jewittdixon.com

JOB # 20-2680 CLIENT: SMUK

20-2680 SMUK SEV SK 27.5m FRONTAGE.dwg Model 2023-11-01 11:30:30

January 30, 2024

County of Norfolk,
Committee of Adjustment
185 Robinson Street, Suite 200,
Simcoe, ON
N3Y 5L6

Attention: Sherry Mott - Secretary Treasurer - Committee of Adjustment

Re: Request for Consent and related variance applications — 1003 Conc. 6 Townsend (Hamlet of Bills Corners - Townsend)

Please accept this covering letter, completed application form, and additional material as the request for approval of two (2) consent to convey (severance) applications and related minor variance applications affecting property owned by Ms. Lena Smuk on Townsend Road in the Hamlet of Bills Corners — Townsend, County of Norfolk. The additional material includes:

1. A copy of the severance sketch prepared by Jewitt and Dixon Ontario Land Surveyors.
2. Hydrogeological investigation dated January 29, 2024 prepared by Englobe.
3. Evaluation of On-site Sewage systems report for the existing septic system.

The subject site has been owned by the Smuk family for over 60 years (currently owned by Lena Smuk). The current application includes requests to create two (2) new equal sized lots to the west of the existing dwelling along the Concession 6 road. The existing dwelling will remain on the retained parcel. The subject property is designated “Hamlet" in the County of Norfolk Official Plan and Zoned Residential Hamlet (RH) zone. The retained parcel fully complies with the zoning by-law in terms of lot area, lot frontage and required setbacks. The proposed new lots are equal in size but will require minor variances for lot frontage and lot area.

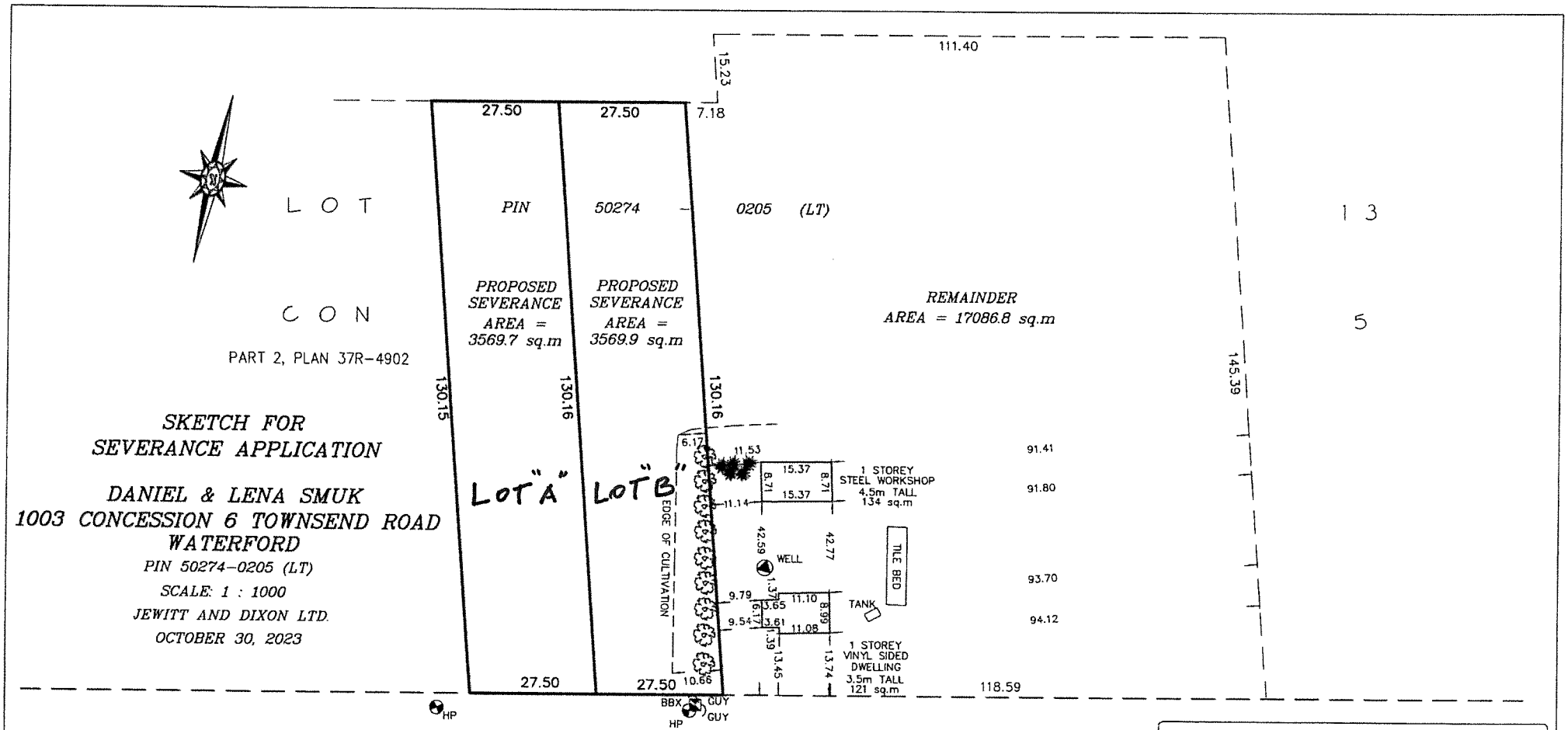
The applications are fully supported by the Provincial Policy Statement (PPS) which states that in rural areas, rural settlement areas shall be the focus of growth and development. In keeping with the PPS, the County of Norfolk Official Plan has identified 42 Hamlet Areas (including the Hamlet of Bills Corners — Townsend) as an important component of Norfolk’s community structure. They are intended to evolve as service and residential centers. In keeping with this application, additional residential development in designated Hamlets is encouraged to occur through infilling. Low density residential dwellings on lots suitably sized to accommodate private servicing systems shall also be the main permitted use. The Englobe report concludes that groundwater supply wells will yield water quality suitable for domestic supply and that the severed lots are of sufficient size to allow for the placement of a septic leaching bed and reserve bed as required, while maintaining the required setbacks for both on-site water supply wells and surrounding servicing.

Prior to filing these applications, numerous discussions have been held with Ms. HanneJore Yager with the County of Norfolk Planning Department. It is my understanding that fees can be submitted once the application has been deemed complete. Based on your 2024 Fee by-law, I have calculated the overall application fee to be $15,698.00 (2 consent and 2 variance). I trust that you now have all required information to confirm the fees and assign this application to the next available Committee of Adjustment meeting. Should you require any additional information, please do not hesitate to contact me.

Sincerely,

R. Scott Hannah,
Land Development Consultant

C: 519-242-3184 bashannah@gmail.com



NOTE:

THIS PLAN IS IN METRIC AND CAN BE CONVERTED TO IMPERIAL BY MULTIPLYING BY 3.2808

CAUTION:

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR PURPOSES OTHER THAN THE PURPOSE INDICATED IN THE TITLE BLOCK.

JEWITT AND DIXON LTD.

ONTARIO LAND SURVEYORS

650 IRELAND ROAD, SIMCOE, ON, N3Y 4K2

PHONE: (519) 426-0842

E-mail: info@jewittdixon.com

JOB # 20-2680 CLIENT: SMUK

Hydrogeological Investigation
Proposed Residential Severance
1003 Concession 6

Townsend, Haldimand County

Mrs. Lena Smuk
1003 Concession 6
Townsend, Ontario
N0E 1Y0

January 29, 2024
02306756.000

eNGLOBe

Ms. Lena Smuk

Prepared by:

Amanda Burden, M. Sc.
Environmental Scientist
Environmental, GTA/SWO

Reviewed by:

Paul L. Raepple, P. Geo.
Senior Project Manager/Senior Hydrogeologist
Environmental, GTA/SWO

Revisions and publications log.

REVISION No.	DATE	DESCRIPTION
0A	January 15, 2024	Draft issued for Client information only
1A	January 29, 2024	Draft issued for Client information only

Distribution

1 digital copy	Mrs. Lena Smuk
1 digital copy	Englobe

Property and Confidentiality

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If tests have been carried out, the results of these tests are valid only for the sample described in this report.

Englobe Corp.’s subcontractors who have carried out on-site or laboratory work are duly assessed according to the purchase procedure of our quality system. For further information, please contact your project manager.”

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FIGURES

TABLES

APPENDICES

1 Introduction

Englobe was retained by the property owner to complete a hydrogeological investigation for the property located at the municipal address of 1003 Concession 6, Townsend, Ontario. The subject property consists of an irregular parcel of land covering an area of approximately 2.42 hectares (6.0 acres). It is proposed to sever the property to create two severed residential lots covering 0.36 hectares (0.89 acres) each with one retained lot covering 1.7 hectares (4.2 acres). The hydrogeological investigation was completed to assess private servicing requirements for the proposed severances, and to confirm the proposed severance lot sizes are of sufficient size to allow for private site servicing given the observed soil and groundwater conditions for the subject site.

2 Scope of Work

The following tasks were completed as part of the Hydrogeological Investigation:

- *Background Review* – A review of available information was conducted, including: geological and hydrogeological mapping, aerial photography, topographic mapping and well records on file with the Ministry of the Environment Conservation and Parks (MECP) completed within a 500 m radius of the site.

- *Private Well Survey* – A private well survey was completed for properties located within a 500 m radius of the site. The well survey was completed to determine the location, construction details and operational history of private wells in the vicinity of the site. Private groundwater supply wells were sampled for microbiology and inorganic parameters including nitrogen containing species and phosphorus where permission was provided by property owners.

- *Subsurface Investigation* – Six test pits were completed across the site to evaluate shallow soil and groundwater conditions. Soil samples were collected for further laboratory analysis to assess percolation rates for shallow soils at the site.

- *Groundwater Sampling* – The existing well in operation for 1003 Concession 6 was sampled for microbiology, total metals and general inorganics and compared against the Ontario Drinking Water Standards and Operational Guidelines (O. Reg. 169/03) to assess groundwater quality for potable use available for the proposed residential severances.

- *Site Servicing Assessment* – Based on the results of the private well survey, groundwater sampling, and subsurface investigation, the feasibility of private servicing including potable groundwater supply wells and subsurface sewage disposal were evaluated given the proposed severance plan.

3 Site Description

3.1 Site Location and Description

The site is located at the municipal address of 1003 Concession 6, Townsend, Ontario and is located approximately 260 m east of the intersection of Concession 6 and Cockshut Road as indicated on the attached **Figure 1**.

The site consists of an irregular shaped parcel of land covering an area of approximately 2.42 hectares (6.0 acres). The existing residence and associated structures will be maintained at the site and will form the proposed retained lot covering an area of 1.7 hectares. Two severed residential lots are currently proposed, each covering 0.36 hectares consisting of lands currently used for agriculture. The site and surrounding properties within a 500 m radius are privately serviced with groundwater supply wells, or cisterns and subsurface sewage disposal. The proposed severance plan is provided in the attached **Appendix A.**

3.2 Topography and Surface Drainage

The site consists of relatively flat lands with gradual slopes to the south and southeast. Topographic mapping for the vicinity of the site indicates that the site lies at an elevation of approximately 233 m above sea level (masl). Topographic variations at the site are expected to be approximately 1 m in elevation.

Surface water runoff and shallow groundwater flow are anticipated to be in a south/southwest direction. The nearest identified surface water feature is Nanticoke Creek located approximately 4.0 km south of the site. The Nanticoke Creek drains towards the east and south into Lake Erie located approximately 21 kilometres south of the site.

3.3 Local Geology and Hydrogeology

Geologic mapping (OGS Map 2369, 1976) for the vicinity of the site indicates that the site is situated within an area of glaciolacustrine deposits characterized by very fine to coarse sands and glaciolacustrine silt deposits that are massive to laminated and varved. Soils in the vicinity of the site are predominately sandy soils, with lands to the west forming the Galt Moraine (silt to sandy silt till) and part of the physiographic region identified as the Norfolk Sand Plain. Areas to the east of the site are characterized as glaciolacustrine deposits of silt and clay with minor sand, which form the physiographic region identified as the Haldimand Clay Plain.

The site is underlain by limestone bedrock of the Salina Formation. The depth to bedrock in the vicinity of the site is reported as between 15 to 18 m below existing grades (50 to 60 feet) based on a review of local well records.

The regional hydrogeologic conditions were assessed based on stratigraphic and groundwater elevations reported within the Ministry of the Environment Conservation and Parks (MECP) well records. The regional hydrogeology is characterized by two principal hydrostratigraphic units:

- Sand Overburden. Shallow deposits of sand form a shallow unconfined aquifer can be utilized for rural residential purposes. It is expected that overburden can yield sufficient groundwater for domestic purposes (i.e., flows of 19 L/min or 5 gpm or lower). Seasonal fluctuations are expected for groundwater within the shallow overburden, and the shallow overburden is generally more susceptible to surrounding land use including agricultural practices and subsurface sewage disposal. Shallow groundwater is generally expected within 3 to 4 m of ground surface and flows will follow local topography.

- Limestone Bedrock. Bedrock is anticipated to be the common source of potable groundwater for the area surrounding the site. Wells are typically screened within shallow fractured bedrock (approximately 1 to 3 m within limestone) generally provide high yields ranging between 38 to 75 L/min (10 to 20 US gpm). The limestone bedrock is expected to form a semi-confined aquifer depending on the presence of overlying clay deposits.

3.4 Summary of Well Records

A review of MECP well records was conducted for 500 m surrounding the subject property. A total of 42 wells were identified within the study area. A summary of the well records within the study area is provided in the table below:

Summary of MECP Well Records

Total Number of wells	42
Overburden	14 (33%)
Bedrock	24 (57%)
Unknown	4 (10%)
Well Depth	
Less than 14.9 m below grade	9 (64 %)
14.9 – 30.5 m below grade	2 (14 %)
Greater than 30.5 m below grade	1 (8 %)
Unknown	2 (14 %)
Well Use	
Domestic	27 (88%)
Livestock	1 (2%)
Unknown	4 (10%)
Well Yield	
Less Than 18.9 L/min (<5 GPM)	4 (10%)
22.5 – 37.8 L/min (5 – 10 GPM)	12 (28%)
41.6 L/min – 76 L/min (11 – 20 GPM)	7 (17%)
Greater than 76 L/min (>20 GPM)	12 (28%)
No Data	7 (17%)

Wells within the study area are primarily completed within bedrock to depths 14.9 m to 30.5 m (50 to 100 feet) for domestic purposes. Well yields are typically reported between 22.5 L/min (5 GPM) and 37.8 L/min (10 GPM) with flow rates reported greater than 76 L/min (>20 GPM). Groundwater yields are considered sufficient for domestic purposes. A summary of well records within the study area are provided in the attached **Table 1**. Well record locations are shown on the attached **Figure 2**.

3.5 Results of Subsurface Investigation

A subsurface investigation was completed at the site by Englobe on October 11, 2023. A series of six test pits were completed across the site to depths of approximately 3.0 m below grade to investigate shallow soil and groundwater conditions. The excavation of test pits was carried out by a backhoe contractor and were supervised and logged by Englobe field staff. Representative soil samples were collected from open test pits for confirmation of soil type by the project engineer and for further laboratory testing consisting of laboratory grain size analysis. Test pit logs and the results of grain size analysis are provided in the attached **Appendix B**. Test pit locations are indicated on the attached **Figure 3**. The general soil conditions encountered in completed test pits are summarized in the sections below.

3.5.1 Topsoil

A layer of topsoil was encountered at the surface of each completed test pit. Topsoil thickness was observed between 25 mm to 76 mm.

It should be noted that topsoil thickness provided as part of the subsurface investigation should not be used to determine volumes of topsoil at the site for stripping and grading purposes.

3.5.2 Silty Sand to Sand with Silt

Native soils underlying topsoil deposits were observed to consist predominately of silty sand to sand with silt trace gravel. Trace cobbles were recorded within each test pit and were found to increase in quantity with depth. The Silty sand to sand with silt was found to extend to the completed depth of each test pit. The colouration of silty sand deposits was observed to transition from brown to grey at depths between 1.3 m to 3.4 m below existing ground surface.

Summary of Soil Grain size Analysis

Test Pit Location	Sample Number	Sample Depth (m)	Sand (%)	Silt (%)	Clay (%)	Description
2	1	0.9	60	31	9	Silty Sand trace Clay
6	1	0.6	91	6	3	Sand trace Silt and Clay

Based on the results of soil grain size analysis, soils present at the site have been classified under the unified soil classification system as S.M. (Silty sands, sand-silt mixtures), given the sand content of the collected samples the percolation rate of the native subgrade was assessed at a rate of 12 min/cm. These values are based on the grain size distribution of sands and percentage of fines as detailed in the Ministry of Municipal Affairs and Housing (MMAH) Supplementary Standard to the Ontario Building Code SB-6 (2012).

3.5.3 Groundwater Conditions

The test pits were left open for a period of 3 to 5 hours following completion to document soil conditions. All completed test pits were observed to have pooling groundwater at the base of the pits. Test pits TP1, TP2, TP4 and TP5 were observed to have seeps in the walls of the test pits; seeps were found at depths between 1.4 m and 2.4 m below grades.

3.6 Results of Private Well Survey

A well survey was completed for properties located within a 500 m radius of the Site to confirm locations and use of private wells. The well survey was completed by distributing letters stating the purpose of the survey and providing contact information should the resident wish to participate in the well survey. The well survey

was conducted to supplement information obtained within well records and to confirm the location, construction details and operational history of private wells completed in the vicinity of the site

In total 57 properties were visited as part of the well survey. Of the properties surveyed, a response was received from 5 property owners (including the property owner of the site), who participated in the well survey. The respondents indicted water servicing was provided through the use of a groundwater supply well, the use of cisterns for water supply was not reported. Based on completed well inspections the depth of wells surveyed were observed to range from 8.5 m to 20.1 m in depth. Groundwater resources were described as adequate for residential demand, with groundwater yields and quality reported as adequate by surveyed property owners. Reported groundwater quality issues pertained to aesthetic parameters including hardness, iron staining, and sulphur odours. Groundwater treatments systems were indicated to be in use for the properties surveyed including water softeners and UV filtration.

A summary of the results of the well survey is provided in the attached **Table 2** and well survey locations are indicated on the attached **Figure 4**. A copy of the letter distributed to properties included within the private well survey and a blank well survey form are provided in the attached **Appendix C**.

3.7 Results of Well Survey Water Quality Sampling

Water quality sampling was completed for the private wells located at 937 and 1002 Concession 6, and 2605 Cockshut Road on November 16, 2023. Water quality samples were obtained directly from each well using a disposable bailer. Water quality sampling was completed for nitrogen containing species including nitrate, nitrite, and ammonia, total phosphorous, various inorganics, and microbiology. Water samples were taken in laboratory supplied bottles appropriate for the completed analysis. Bottles were stored in a cooler on ice for transport to Agat Laboratories, a CALA-accredited third-party laboratory in Mississauga, Ontario for analysis.

Further to the above noted private well sampling locations, a site inspection was completed for the municipal address of 5 Haylk Crescent on November 20, 2023. At the time of the well inspection, it was found that the wellhead was not accessible and a sampling location bypassing water treatment systems was not available.

It should be noted that collected water quality samples were obtained from a point bypassing any water quality treatment systems which may be in use for the residence. Water quality summarized below would be indicative of the raw water quality from the private water supply wells. The results of water quality analysis were compared to the Ontario Drinking Water Standards (O. Reg. 169/03).

Exceedances were noted for total coliform in each of the collected samples, with concentrations of total coliform ranging from 4 Colony Forming Units (CFU) per 100 mL to 199 CFU per 100 mL. Nitrate was

observed to range from non-detectable (<0.05 mg/L) to 2.63 mg/L. The full results of the analyses are summarized in the attached **Table 3** and in the laboratory certificates of analysis provided in the attached **Appendix D**.

Total coliform contamination noted was attributed to poor well maintenance and infrequent disinfection of the water supply well. Bacterial contamination was noted for raw groundwater samples obtained directly from the shallow well column (i.e., sampled using a disposable bailer), and was not indicative of water quality at the point of consumption. The results of private groundwater sampling were provided to participating residents with recommendations for further treatment.

3.8 Results of On-Site Water Quality Sampling

Water quality analysis was completed for the well that services the residential dwelling located at the site (1003 Concession 6). Well water was sampled from a tap bypassing filtration systems in use, including softener and UV filter. The tap was left open for approximately 10 minutes to clear standing water from within the distribution system and pressure tank. Samples were analyzed for general inorganics, metals, and microbiology.

The results of groundwater quality analysis indicated aesthetic and operational exceedances for hardness at 559 mg/L (guideline value of 100 mg/L), total solids (dissolved) at 722 mg/L (guideline limit of 500 mg/L), colour at 11.2 TCU (guideline limit of 5 TCU), turbidity at 27.0 NTU (guideline limit of 5 NTU), and iron at 2.02 mg/L (guideline limit of 0.3 mg/L). These exceedances represent aesthetic and operational exceedances which generally result in undesirable taste, colouration, and odour (i.e., TSS, colour, iron) and impact the distribution system including scale build-up and interference with disinfection (i.e., hardness and turbidity).

Health related exceedances were noted for fluoride at 1.65 mg/L, (health limit of 1.5 mg/L). Fluoride is considered as naturally occurring and was observed at concentrations marginally above the health-related limit. Fluoride is considered treatable using commercially available methodology including, but not limited to membrane filtration (i.e., reverse osmosis systems).

Based on the water quality analysis and the results of the private well survey it is recommended to service the proposed residential lots using drinking water wells. It is expected that groundwater supply wells will yield quality is suitable for domestic supply. Exceedances for aesthetic objectives and operational guidelines of O. Reg. 169/03 are reasonably treatable.

4 Hydrogeological Assessment

4.1 Summary of Hydrogeological Conditions

The following summarizes the site conditions encountered as part of the completed site investigations:

- Six test pits were completed at the site to assess soil and groundwater conditions. Soils at the site generally consisted of topsoil overlying silty sand to sand with silt with the colouration of silty sand transitioning from brown to grey at depths ranging from 1.3 m to 3.4 m below grade. The test pits were completed to an approximate depth of 3.0 m below existing grades.

- Shallow groundwater is expected to follow topography and be directed to the south towards Nanticoke Creek. Shallow groundwater levels observed within open test pits following completion were observed between 1.4 m to 2.4 m below existing grades.

- Laboratory grain size analyses were completed for representative soil samples obtained from two test pits. Percolation rates were assessed at a rate of 12 min/cm based on a comparison of results of grain size analysis with the 2012 MMAH Supplementary Standard SB-6 to the Ontario Building Code.

- A private well survey was completed for properties within a 500 m radius of the Site. Based on the response to the well survey properties were serviced with groundwater supply wells reported

to depths between 8.5 m and 20.1 m. Groundwater supplies were reported to be adequate for residential demand. Treatment systems including water softeners and UV filtration were reported to be in use for surveyed properties.

- Water quality sampling was completed for private wells where permission was granted by the property owner. Results indicated exceedances of total coliforms for the three residential wells sampled. Concentrations of nitrate were measured to range from non-detectable (<0.05 mg/L) to 2.63 mg/L.

- Based on the water quality analysis and the results of the private well survey it is recommended to service the proposed residential lots using drinking water wells. It is expected that groundwater supply wells will yield quality that is considered suitable for domestic supply. Exceedances for O. Reg. 169/03 are reasonably treatable.

4.2 Sewage Impact Assessment

The impact of proposed private subsurface sewage disposal beds were evaluated following the approach provided within the Ministry of the Environment Procedure D-5-4 (Technical Guideline for Individual On-Site Sewage Systems: Water Quality Risk Assessment, August 1996). The risk assessment was based on soil and groundwater conditions observed within completed test pits and information obtained as part of the private well survey and MECP well record review.

4.2.1 Background Nitrate in Groundwater

Background nitrate concentrations in shallow ground water were evaluated as part of the completed private well sampling. The following table summarizes the measured concentration of nitrates in ground water at and surrounding the site:

Summary of Background Nitrate Concentrations

Private Well Location	Well Depth (m)	Nitrate (mg/L)	Distance from Site
1003 Concession 6	18.3	<0.5	0 m (site location)
937 Concession 6	16.1	<0.5	415 m west
1002 Concession 6	20.1	0.12	8 m south
2605 Cockshut Rd.	8.5	2.65	300 m southeast

Nitrate in groundwater was noted for the well located at the municipal address of 2605 Cockshut Road at a concentration of 2.65 mg/L. Significant background nitrate concentrations for the site are not expected.

4.2.2 Nitrate Impact Assessment

Soil conditions at the site consisted primarily of silty sands and sands with silt to the completed depths of investigation at approximately 3.0 m below existing grades with percolation rates for the shallow native subgrade assessed at 12 min/cm. Groundwater seepage was noted at depths between 1.4 m and 2.4 m below existing grades. Proposed severances are expected to be privately serviced with groundwater supply wells and subsurface sewage disposal systems. Private supply wells, where installed, typically are completed within limestone bedrock at depths greater than 7.6 m (25 feet).

Hydrogeologically sensitive features were not noted at the site and surrounding vicinity (i.e., within a 500 m radius of the site). The site is expected to function as an area of groundwater recharge given the moderate permeability of native silty sand soils and the depth to groundwater. It is expected that the underlying bedrock aquifer would be the primary receiver for sewage effluent.

The following methodology was used to assess the potential increase in nitrates within shallow groundwater at the downgradient property boundary for the proposed development area:

$$\frac{Q \times N \times P}{(A \times I) + (Q \times P)}$$

Where: Q is the daily flow sewage flow rate (1,000 L/day as per D-5-4 Section 5.6.2 (a))

N is the nitrate loading for a conventional Class IV sewage system (40 mg/L)

P is the number of proposed severed lots (2 lots)

A is the site area (7,140 m^2)

I is the infiltration rate of underlying native silty sand soils (0.175 m/yr)

The maximum permissible concentration of nitrate in groundwater at the down-gradient property boundary is considered at 10 mg/L corresponding to the health-related maximum acceptable concentration (MAC) guideline within the Ontario Drinking Water Standards. The resultant expected nitrate increase in shallow groundwater is calculated at 14.8 mg/L for a conventional system for each of the proposed severed lots at 0.36 ha. Given this outcome the pre-treatment of sewage will be required in order to meet acceptable concentrations of nitrate within shallow groundwater at the down-gradient property boundary (i.e., tertiary treatment of effluent).

It is expected that standard tertiary treatment systems capable of a 50% reduction in nitrate (i.e., 20 mg/L) would be acceptable to provide sufficient treatment to maintain nitrate concentrations within 10 mg/L at the downgradient property boundary.

Changes to the septic system in operation for the retained lot are not proposed as part of the severance application. Existing structures and servicing for the retained lot are to be maintained and are considered as self-sufficient.

4.3 Preliminary Leaching Bed Design

Preliminary leaching bed design including the required minimum leaching bed area was evaluated based on the observed shallow soil and groundwater conditions at the site. The sewage design flows for the proposed residential dwellings were determined based on values listed within Table 8.2.1.3.A of the Ontario Building Code (OBC) for residential occupancies.

Preliminary leaching bed design options were developed for the site based on the following technical considerations:

Native Soil	Silty Sands
Unified Soil Classification	S. M.
Estimated Percolation Rate	Greater than 12 min/cm
Depth to Groundwater	Approximately 1.4 m below grade
Type of Sewage System	In-Ground Leaching bed with tertiary treatment
Design Flow	2,000 L/day

Based on the above design considerations the following septic leaching bed sizing considerations are provided:

4.3.1 Absorption Trenches

4.3.1.1 Bed Sizing

The leaching bed would be constructed as an in-ground bed given that the system would maintain suitable clearances from groundwater (1.4 m expected, 0.9 m required) and native soils consist of silty sand.

Where a conventional Class IV leaching bed with treatment system is constructed, the total length of distribution pipe required is determined as follows:

$$L = QT/300$$

Where: L is total length of distribution pipe in metres;
Q is the total daily design sanitary sewage flow (2,000 L/day); and,
T is the design percolation time (12 min/cm).

The total length of distribution pipes required for a Class IV leaching bed with treatment unit given the observed shallow soil conditions at the site is expected at approximately 80 m. Distribution pipe length is not to exceed 30 m in length and spaced a minimum distance of 1.6 m between runs. Distribution pipe required based on sewage flows for a four-bedroom residence is expected to consist of 8 runs of tile 15.5 m in length covering a total area of approximately 198.4 m^2 (15.5 m by 12.8 m). It should be noted that the above estimated percolation rates used for the preliminary design of the septic leaching bed were based on sieve and hydrometer testing completed for shallow soils at the site at test pit TP6. Soils within envelopes proposed for leaching bed should be confirmed by the septic installer prior to installation.

4.3.2 Septic Tank

The septic tanks for each proposed residential dwelling should be constructed in accordance with the OBC guidelines as follows:

- Septic tank shall be greater of the minimum capacity of 3,600 L or two times the daily design flow for residential occupancies. Based on the expected dwelling size consisting of a four-bedroom residence the minimum septic tank volume is considered at 4,000 L.
- The septic tank should be completed such that there is a minimum of two compartments. The first compartment should consist of a minimum volume of 1.3 times the daily sanitary sewage flow at a minimum volume of 2,600 L with the second compartment at a volume of 1,400 L (minimum 50% volume of the first compartment).

It is anticipated that setback requirements for the sewage disposal system can be met. Setback requirements for the septic tank and distribution pipe are further discussed in Section 4.4 below.

4.4 Leaching Bed Setback Requirements

The following setbacks must be observed when siting septic leaching fields and tanks:

- Septic tank not closer than:
    - 1.5 m to any structure;
    - 3.0 m to the property line;
    - 15 m to surface water body or well.
- Distribution pipe not closer than:
    - 5 m to any structure;
    - 3 m to the property line;
    - 5 m between distribution pipes of leaching beds;
    - 15 m to surface water body or a well with a watertight casing to a depth of at least 6 m;

- 30 m to any other well.

It is expected that severed lots are of a sufficient size to allow for the placement of a septic leaching bed and reserve bed as required while maintain the above noted setbacks for both on-site water supply wells and surrounding servicing. Lot layout should be reviewed once residence size and layout has been finalized given the above preliminary tile bed design.

5 Conclusions and Recommendations

The following summarizes the results of field investigations for the site completed as part of this hydrogeological investigation:

1. The site comprises a total site area of approximately 2.42 hectares (6.0 acres). It is proposed to sever the property into two residential lots on the west side of the site and retain the remainder of the property. Each severed lot is to be approximately 0.36 hectares (0.90 acres) in area.

2. Six shallow test pits were completed to depths of 3.0 m below existing grades at the site to assess shallow soil and groundwater conditions. Soils at the site were observed to consist of topsoil overlying silty sand and sand with silt trace gravel and cobbles. The colouration of silty sand was observed to transition in colouration from brown to grey at depths ranging from 1.3 m to 3.4 m below grade.

3. Shallow groundwater is expected to follow topography and be directed to the south towards a tributary of Nanticoke Creek. Shallow groundwater levels observed within open test pits following completion were observed between depths of 1.4 to 2.4 metres below existing grades.

4. Laboratory grain size analyses were completed for representative soil samples obtained from two test pits. Percolation rates were assessed at a rate of 12 min/cm based on a review of the 2012 MMAH Supplementary Standard SB-6 to the Ontario Building Code.

5. A private well survey was completed for properties within a 500 m radius of the site. Based on the response to the well survey properties were serviced with groundwater supply wells reported to depths between 8.5 m and 20.1 m. Groundwater supplies were reported to be adequate for residential demand. Treatment systems including water softeners and UV filtration were reported to be in use for surveyed properties.

6. Water quality sampling was completed for private wells where permission was granted by the property owner. Results indicated exceedances of total coliforms for the three residential wells sampled. Concentrations of nitrate were measured to range from non-detectable (<0.05 mg/L) to 2.63 mg/L.

7. Based on the water quality analysis and the results of the private well survey it is recommended to service the proposed residential lots using drinking water wells. It is expected that groundwater supply wells will yield quality suitable for domestic supply. Exceedances for O. Reg. 169/03 are reasonably treatable.

Based on the above investigation the following summarizes the conclusions and recommendations of this investigation:

1. Nitrate impact assessment for a conventional Class IV sewage system was calculated at 14.8 mg/L at the down-gradient property boundary. Given the size of proposed residential severances the use of standard tertiary treatment systems capable of a 50% reduction in nitrate will be required for the severed residential lots. It is anticipated that nitrate impacts to shallow groundwater would be below 10 mg/L provided use of pre-treatment for effluent using a CAN/BNQ 3680-600 or NSF/ANSI 245 certified treatment system as required under the OBC.

2. Sewage flows for the proposed development were determined based on daily design sewage flows for proposed uses found within the Ontario Building Code. It was assumed that residential dwellings will consist of four bedrooms with sewage flows of 2,000 L/day.

3. It is anticipated that the leaching bed would consist of 8 runs of 15.5 m pipe for a leaching bed area of approximately 198.4 m^2 (12.8 m by 15.5 m).

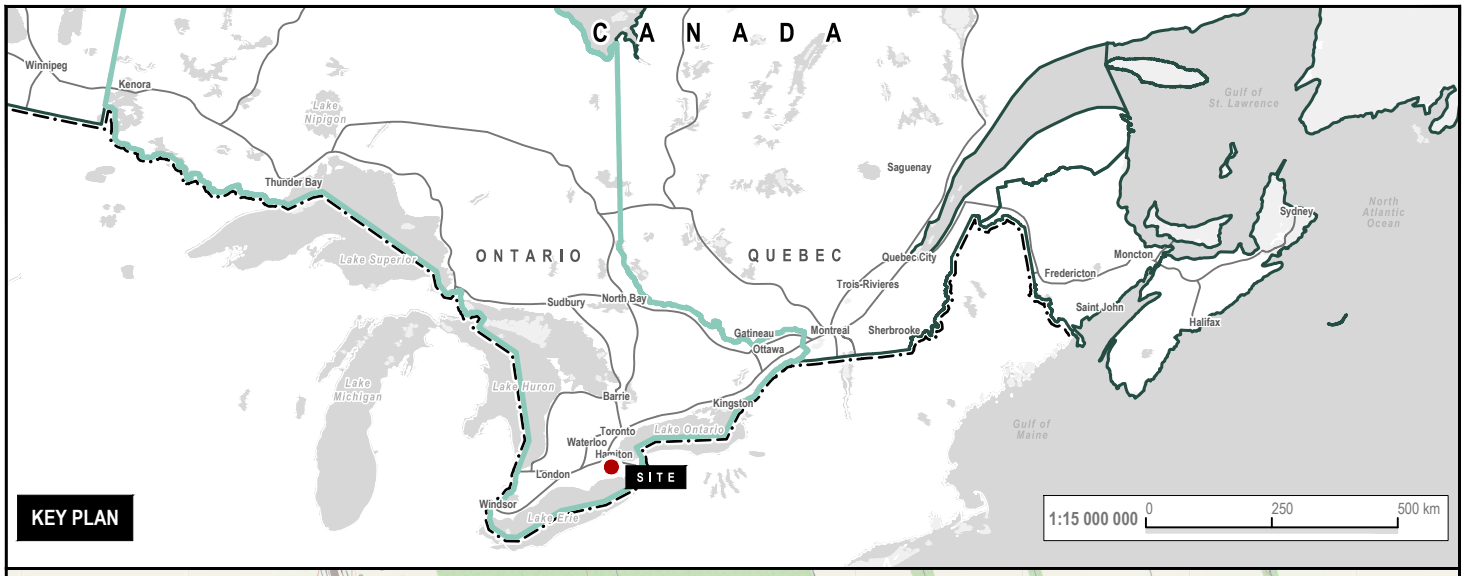
4. The septic tank volume would be required at twice the daily design flow at a capacity of 4,000 L. The septic tank is recommended to consist of two compartments with the first compartment at 1.3 times the daily design flow at a volume of 2,600 L with the second compartment at a volume of 1,400 L.

5. It is expected that severed lots are of a sufficient size to allow for the placement of a septic leaching bed and reserve bed as required while maintain the above noted setbacks for both on-site water supply wells and surrounding servicing. Lot layout should be reviewed once residence size and layout has been finalized given the above preliminary tile bed design.

We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Figures

ENGLOBE



Note

1. This drawing shall be read in conjunction with the associated technical report.

A	17/01/2024	Final	X.X
Revision	Date	Issue	Approval

Client: **Vantage Appraisal & Management Services Inc.**

Site: **1003 Concession 6 Townsend, Waterford, Ontario**

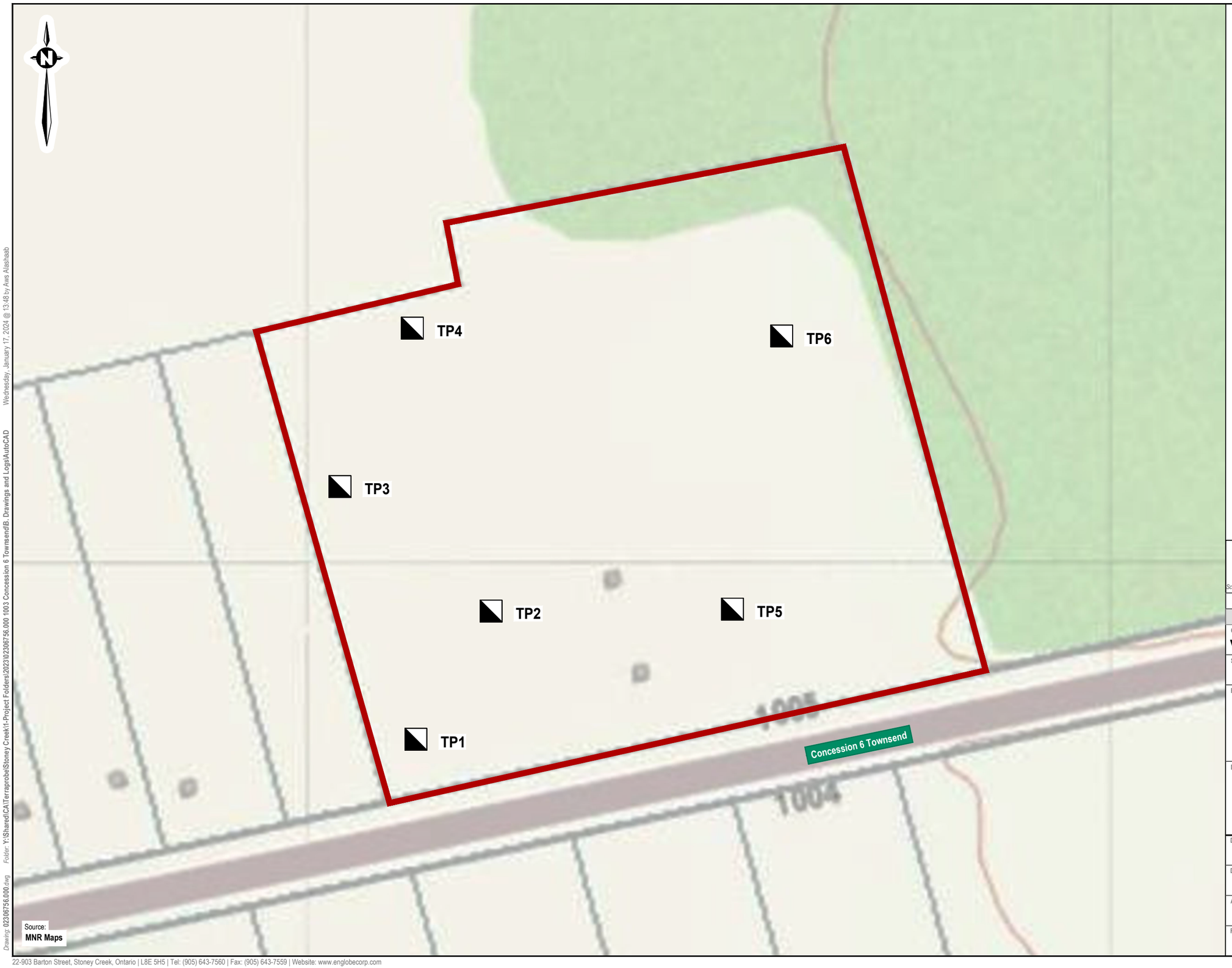
ENGLOBE

Report Title: **Hydrogeological Investigation**

Drawing Title: **Location Plan**

Designed By	Date
A.B	January 2024
Drawn By	Project No.
A.A	02306756.000
Approved By	Figure No.
T.W	1
Scale	
As Shown	

22-903 Barton Street, Stoney Creek, Ontario | L8E 5H5 | Tel: (905) 643-7560 | Fax: (905) 643-7559 | Website: www.englobecorp.com



ENGLOBE

Legend

- Site Boundary
- Test Pit Location

Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Drawing scale may be distorted. Measurements/locations taken from the drawing must be verified in the field.
3. Survey benchmark is the xxx located on xxx. Assumed datum of 100.000 m.
4. Groundwater contours generated using AutoDesk Civil3D.

1:1 000 000

0 10 20 30 40 50 km

0 1:1 5 cm

Scale accurate when printed at 100% using paper size ANSI Full Bleed B (11.0 x 17.0 Inches). Field verify all measurements.

Revision	Date	Issue	Approval
A	17/01/2024	Final	X.X

Client
Vantage Appraisal & Management Services Inc.

Site
1003 Concession 6 Townsend, Waterford, Ontario

Report Title
Hydrogeological Investigation

Drawing Title
Test Pit Location Plan

Designed By: A.B	Scale: As Shown
Drawn By: A.A	Date: January 2024
Approved By: T.W	Project No.: 02306756.000

Figure No.
2

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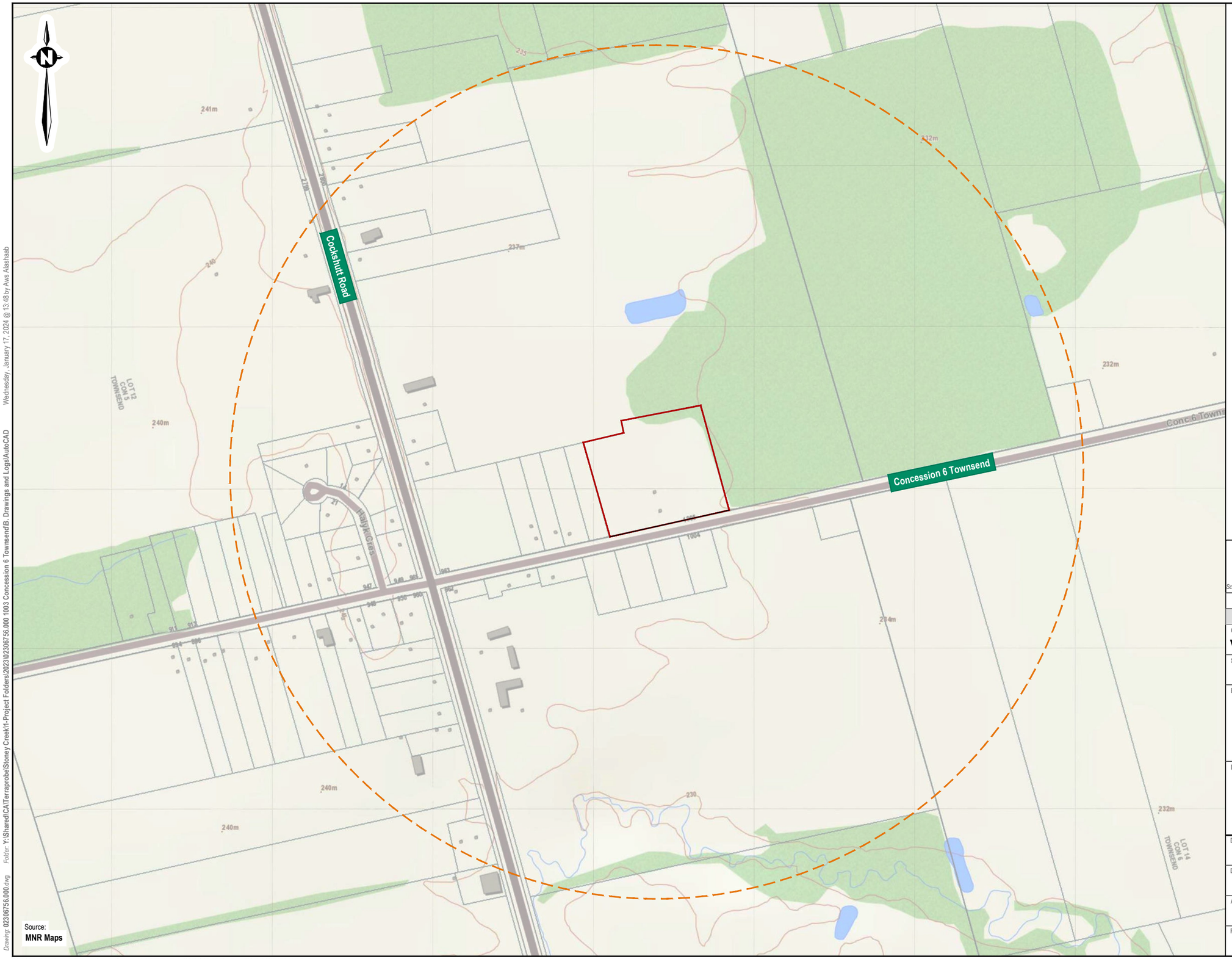

Legend

- Site Boundary
- Study Area (500m Radius)

Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Drawing scale may be distorted. Measurements/locations taken from the drawing must be verified in the field.

1:5 000

0 50 100 150 200 250 m

0 1:1 5 cm

Scale accurate when printed at 100% using paper size ANSI Full Bleed B (11.0 x 17.0 Inches). Field verify all measurements.

Revision	Date	Issue	Approval
A	17/01/2024	Final	X.X

Client
Vantage Appraisal & Management Services Inc.

Site
1003 Concession 6 Townsend, Waterford, Ontario

Report Title
Hydrogeological Investigation

Drawing Title
MECP Well Record Location Plan

Designed By	Scale
A.B	As Shown
Drawn By	**Date**
A.A	January 2024
Approved By	**Project No.**
T.W	02306756.000

Figure No.
3

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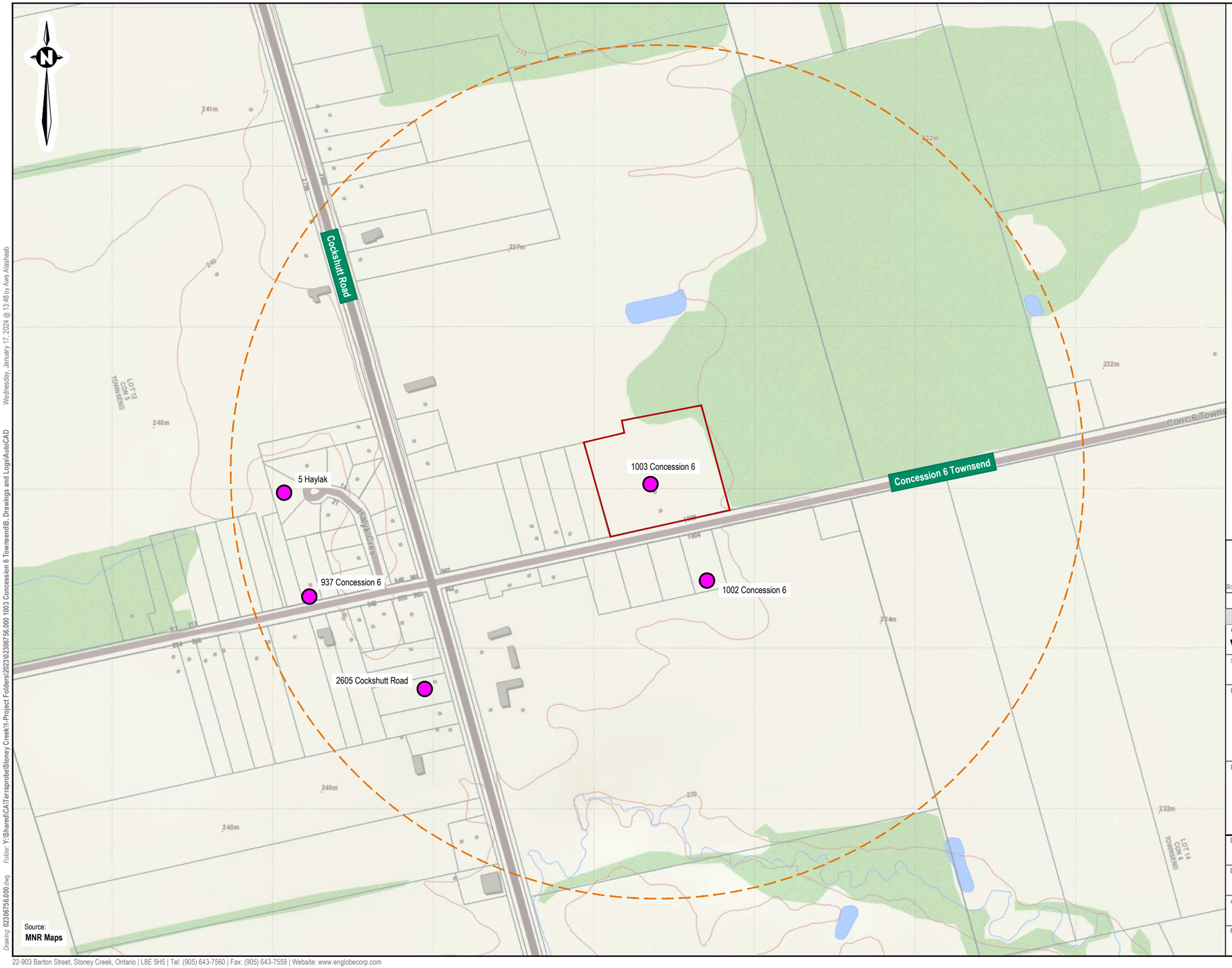


ENGLOBE

Legend

- Site Boundary
- Study Area (500m Radius)
- Well Location

Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Drawing scale may be distorted. Measurements/locations taken from the drawing must be verified in the field.

1:5 000

0 50 100 150 200 250 m

0 1:1 5 cm

Scale accurate when printed at 100% using paper size ANSI Full Bleed B (11.0 x 17.0 Inches). Field verify all measurements.

Revision	Date	Issue	Approval
A	17/01/2024	Final	X.X

Client

Vantage Appraisal & Management Services Inc.

Site

1003 Concession 6 Townsend, Waterford, Ontario

Report Title

Hydrogeological Investigation

Drawing Title

Well Survey Location

Designed By	Scale
A.B	As Shown
Drawn By	**Date**
A.A	January 2024
Approved By	**Project No.**
T.W	02306756.000

Figure No.

4

22-903 Barton Street, Stoney Creek, Ontario | L8E 5H5 | Tel: (905) 643-7560 | Fax: (905) 643-7559 | Website: www.englobecorp.com

Tables

ENGLOBE

Water Well Records

Friday, October 27, 2023

1:35:08 PM

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
TOWNSEND TOWNSHIP	17 560234 4757480 W	2014/02 7356	5	FR 0049	49/52/15/1:	DO	0056 5	7217872 (Z184172) A160275	BRWN SAND LOAM 0002 BRWN SAND GRVL 0020 GREY GRVL HARD 0035 BRWN SAND GRVL 0049 BRWN SAND MSND 0061
TOWNSEND TOWNSHIP	17 560141 4757609 W	2017/08 6824	6 6	UT 0087	20/62/22/1:	DO		7294733 (Z270563) A229462	BRWN CLAY 0007 GREY CLAY 0035 GREY CLAY GRVL 0051 GREY LMSN 0089
TOWNSEND TOWNSHIP	17 560125 4757598 W	2017/08 6824	4					7294734 (Z270565) A	
TOWNSEND TOWNSHIP	17 560109 4757560 W	2018/08 6824	6 6	UT 0060 UT 0063	34/102/8/1:	DO		7318779 (Z296809) A247619	BLCK LOAM 0001 BRWN CLAY 0020 GREY CLAY GRVL 0053 BRWN LMSN 0075 BLCK LMSN 0076 WHIT LMSN 0100 BRWN LMSN 0104
TOWNSEND TOWNSHIP 6	17 560067 4757148 W	2007/10 7356	5.15	FR 0065	25/49/6/48:0	DO		7101384 (Z67096) A060511	BRWN CLAY 0013 BLUE CLAY SOFT 0060 GREY LMSN 0066
TOWNSEND TOWNSHIP CON 05 011	17 560140 4757461 W	2002/11 7193	5	FR 0060	15/50/25/2:0	DO		4407838 (230953)	BLCK LOAM 0002 BRWN CLAY 0015 BLUE CLAY 0058 GREY LMSN FCRD 0060
TOWNSEND TOWNSHIP CON 05 012	17 560155 4757442 W	2020/09 7343	6.25 6.11	FR 0071	21/27/12/3:	DO		7371313 (Z344713) A297802	BRWN CLAY 0006 GREY CLAY 0059 GREY LMSN 0072
TOWNSEND TOWNSHIP CON 05 012	17 560234 4757480 W	2013/12 7356	5 5	SU 0064	19/19/30/2:	DO		7217873 (Z184146) A160265	BRWN LOAM 0002 BRWN CLAY SAND 0009 GREY CLAY GRVL 0048 GREY CLAY GRVL 0054 GREY LMSN 0066
TOWNSEND TOWNSHIP CON 05 012	17 560224 4757613 W	1972/06 3604	5 5	SU 0060 SU 0080	19/40/20/1:30	DO		4402985 ()	BRWN CLAY 0020 GREY CLAY 0040 GREY GRVL 0050 GREY LMSN 0060 BRWN LMSN 0081
TOWNSEND TOWNSHIP CON 05 012	17 560134 4757563 W	1980/10 5201	4	UK 0060	30//8/2:30	DO		4404365 ()	BLCK LOAM 0003 YLLW CLAY 0038 BLUE CLAY 0057 GREY LMSN 0061
TOWNSEND TOWNSHIP CON 05 012	17 560214 4757583 W	1980/11 5201	4	FR 0077	30/60/6/2:30	DO		4404364 ()	PRDG 0010 BLUE CLAY 0058 GREY LMSN 0078
TOWNSEND TOWNSHIP CON 05 012	17 560234 4757543 W	1978/07 5201	4	SU 0067	42//5/2:30	DO		4404018 ()	BLCK LOAM 0003 YLLW CLAY 0005 BLUE CLAY 0052 GREY STNS 0068
TOWNSEND TOWNSHIP CON 05 012	17 560254 4757523 W	1978/07 5201	4	FR 0057	40//5/2:30	DO		4404020 ()	BLCK LOAM 0003 YLLW SAND 0007 BLUE CLAY 0054 GREY STNS 0058
TOWNSEND TOWNSHIP CON 05 012	17 560114 4757423 W	1976/10 3030	36	FR 0007 UK 0025	///:	DO		4403751 ()	BRWN SAND 0007 GREY CLAY STNS 0025 GREY SAND 0035 GREY SAND SILT 0050 ROCK 0050
TOWNSEND TOWNSHIP CON 05 012	17 560064 4758043 W	1972/09 4804	5	FR 0076 FR 0078	15/20/20/1:0	DO		4402986 ()	YLLW CLAY 0039 BRWN LMSN 0078
TOWNSEND TOWNSHIP CON 05 012	17 560154 4757643 W	1984/10 5201	4	SU 0063	30/54/6/3:0	DO		4404833 ()	BRWN SAND DRY 0005 BRWN CLAY 0030 GREY SAND 0054 GREY LMSN 0064

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
TOWNSEND TOWNSHIP CON 05 012	17 560254 4757483 W	1982/03 1702	6	FR 0064	6/63/5/0:30	DO		4404569 ()	BRWN SAND 0015 GREY CLAY 0055 GREY GRVL CLAY 0059 GREY LMSN 0068
TOWNSEND TOWNSHIP CON 05 013	17 560359 4757473 W	1963/11 4804	5 5	FR 0044	16/18/5/0:30	DO		4401375 ()	CLAY 0038 BRWN LMSN 0044
TOWNSEND TOWNSHIP CON 05 013	17 560254 4757823 W	1967/10 4810	6 6	FR 0047	12/20/25/2:0	DO		4401376 ()	CLAY 0040 LMSN MSND 0048
TOWNSEND TOWNSHIP CON 05 013	17 560164 4758123 W	1962/09 4810	6 6	FR 0045	14/15/20/1:0	DO		4401373 ()	PRDG 0036 LMSN MSND 0048
TOWNSEND TOWNSHIP CON 05 013	17 560264 4758023 W	1961/06 4810	6 6	FR 0042	10/15/15/1:30	DO		4401372 ()	CLAY BLDR 0037 LMSN MSND 0045
TOWNSEND TOWNSHIP CON 05 013	17 560174 4758023 W	1960/10 4810	6 6	FR 0050	14/14/15/2:0	DO		4401370 ()	CLAY SILT 0037 LMSN MSND 0053
TOWNSEND TOWNSHIP CON 05 013	17 560464 4757573 W	1963/10 3001	36	FR 0009	9/11/5/1:0	DO		4401374 ()	BLCK LOAM 0002 BRWN MSND CLAY 0009 BRWN MSND 0012 GREY FSND 0017 SILT CLAY 0020
TOWNSEND TOWNSHIP CON 05 014	17 560451 4757562 W	2002/01 5201	5	SU 0062	12/56/6/10:15	DO		4407679 (230939)	BLCK LOAM 0002 BRWN CLAY SAND 0020 BLUE CLAY 0052 GREY LMSN 0063
TOWNSEND TOWNSHIP CON 05 015	17 560310 4757814 W	2005/03 3030	48 36	0006 0014 0034	///:	DO		4408271 (Z23410) A023126	BRWN LOAM 0001 BRWN SAND 0009 GREY SAND 0014 GREY CLAY STNS 0020 GREY CLAY SILT LYRD 0034 GREY SAND 0036 GREY CLAY STNS 0037 ROCK
TOWNSEND TOWNSHIP CON 06 006	17 560553 4757583 W	2004/09 7193	5	SU 0056	10/59/4/24:0	DO		4408176 (Z09085) A008976	BRWN SAND CLAY 0004 BRWN CLAY 0015 BLUE CLAY GRVL 0046 BLUE CLAY 0052 GREY LMSN 0067
TOWNSEND TOWNSHIP CON 06 012	17 560214 4757353 W	1957/11 4810	6 6	FR 0040	4/52/3/:	DO		4401403 ()	CLAY 0038 LMSN MSND 0055
TOWNSEND TOWNSHIP CON 06 012	17 560239 4757373 W	1959/08 4804	7 7	FR 0078	16/16/60/1:0	DO		4401404 ()	CLAY BLDR 0064 BRWN LMSN 0080
TOWNSEND TOWNSHIP CON 06 012	17 560264 4757323 W	1973/02 3030	36	FR 0003 FR 0025 FR 0042	6/45/0/:	DO		4403050 ()	BRWN LOAM 0001 BRWN OBDN SAND 0003 BRWN CLAY STNS 0009 GREY SILT CLAY STNS 0045
TOWNSEND TOWNSHIP CON 06 012	17 560231 4757411 W	1974/06 3030	36 30	FR 0006	23///:	DO		4403283 ()	BRWN LOAM 0001 BRWN SAND 0009 GREY SILT SAND 0015 BLUE CLAY BLDR 0025
TOWNSEND TOWNSHIP CON 06 012	17 560144 4757372 W	1974/10 3030	36	FR 0020	20///:	DO		4403343 ()	BRWN CLAY 0015 BRWN SAND 0020 GREY SAND 0030 GREY CLAY SILT 0031
TOWNSEND TOWNSHIP CON 06 012	17 560314 4757283 W	1978/11 5201	4	SU 0067	48/48/10/3:0	DO		4404085 ()	BLCK LOAM 0003 YLLW CLAY 0020 BLUE CLAY 0060 GREY ROCK 0068
TOWNSEND TOWNSHIP CON 06 012	17 560075 4757373 W	2020/09 7356						7415082 (Z327862) A259151 P	
TOWNSEND TOWNSHIP CON 06 012	17 560026 4757362 W	2020/01 7100						7391962 (Z335034) _NO_TAG P	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
TOWNSEND TOWNSHIP CON 06 012	17 560278 4757080 W	2021/10 7343						7402673 (Z371898) A324503 P	
TOWNSEND TOWNSHIP CON 06 012	17 560214 4757403 W	1978/06 5201	4	SU 0062	35//8/2:30	DO		4404024 ()	YLLW LOAM 0003 GREY SAND 0008 BLUE CLAY 0060 GREY LMSN STNS 0063
TOWNSEND TOWNSHIP CON 06 013	17 560504 4757443 W	1968/10 1304	36	FR 0008	12///:	DO		4402287 ()	YLLW MSND 0014 BLUE CLAY 0019
TOWNSEND TOWNSHIP CON 06 013	17 560504 4757423 W	1960/08 4810	6 6	FR 0063	12/50/15/2:0	DO		4401409 ()	CLAY MSND 0056 LMSN MSND 0065
TOWNSEND TOWNSHIP CON 06 013	17 560414 4757323 W	1959/11 3510	6 6	FR 0063	12/28/10/2:0	ST DO		4401408 ()	MSND 0015 CLAY 0056 LMSN MSND 0066
TOWNSEND TOWNSHIP CON 06 013	17 560629 4757476 W	2007/08 7193	5	FR 0074	15/66/5/3:0	DO		7049541 (Z65625) A056474	BRWN SAND FILL 0006 BRWN SAND BLDR 0012 BLUE CLAY SILT 0039 BLUE CLAY GRVL 0066 GREY GRVL 0067 GREY LMSN 0074
TOWNSEND TOWNSHIP CON 06 013	17 560604 4757459 W	2004/09 7193	5	SU 0056	10/58/4/5:0	DO		4408177 (Z09084) A008979	BRWN FILL 0004 BRWN SAND 0007 GREY SILT CLAY 0019 BLUE CLAY GRVL 0045 BLUE CLAY 0052 GREY LMSN 0064
TOWNSEND TOWNSHIP CON 06 013	17 560676 4757588 W	2006/09 7193	5	FR 0074	10/72/5/3:0	DO		7039125 (Z27019) A038128	BRWN SAND 0005 BRWN SILT 0013 GREY SILT CLAY 0020 BLUE CLAY GRVL 0068 GREY LMSN 0075

Notes:
UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
DATE CNTR: Date Work Completedand Well Contractor Licence Number
CASING DIA: .Casing diameter in inches
WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
WELL USE: See Table 3 for Meaning of Code
SCREEN: Screen Depth and Length in feet
WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only
FORMATION: See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

2. Core Color

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

3. Well Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial	MT	Monitoring TestHole
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		

TABLE 2: SUMMARY OF PRIVATE WELL SURVEY
RESIDENTIAL PROPERTY SEVERANCE
1003 CONCESSION 6
TOWNSEND, ONTARIO

ADDRESS	NAME	WELL TYPE	WATER LEVEL (mbgl)	WELL DEPTH (mbgl)	TREATMENT SYSTEMS	WELL USE	WELL DEMAND	COMMENTS
Cockshutt Road								
2605 Cockshutt Road	Ben	Bored	2.3	8.5	1 cup of hydrogen peroxide per month	Domestic	1	Resident adds one cup of hydrogen peroxde once a month at the top of the well cap to disinfect the well
Concession 6								
937 Concession 6	John	Bored	1.44	16.4	Softner, R/O, and UV	Domestic	2	Resident had pump changed a couple of years due to electrical issue. No reported issues with quality or quantity.
1002 Concession 6	Michelle	Drilled	4.15	20.15	Unknown	Domestic	Unknown	Residents utilize home as weekend home. Water quality and quantity reported as good. Property was bought 2-years ago with well and treatment system prevously installed.Resident unsure of filtration systems in place.
1003 Concessio 6	Lena	Drilled	Unknown	18.3	Softner and UV filter	Domestic	1	Water quality and quantity have been reported as being good since well installation.
Halyk Crescent								
5 Halyk Crescent	Lee	Drilled	Unknown	Unknown	Softner and Hydrogen Peroxide	Domestic	3	Water quntity reported as fair since property owner bought house in 2012. Some issues with Sulphur, iron staining and hard water. Replaced intake piping throughout the house. In addition to softner for treatment resident adds hydrogen peroxide to well every couple of months.

Sampling Date						
	ODWS	**AO/OG**	**Units**	**937**	**1002**	**2065**
INORGANICS						
Total Ammonia-N			mg/L	<0.02	<0.02	<0.02
Phosphate (P)			mg/L	<0.1	<0.1	<0.1
Dissolved Sulphate (SO4)		500	mg/L	36.4	358	24.6
Bromide			mg/L	<0.05	<0.05	<0.05
Fluoride	1.5		mg/L	<0.05	1.31	<0.05
Dissolved Chloride (Cl)		250	mg/L	0.12	3.63	20.8
Nitrite (N)	1.0		mg/L	<0.05	<0.05	<0.05
Nitrate (N)	10.0		mg/L	<0.05	0.12	2.63
NUTRIENTS						
Total Phosphorous			mg/L	0.04	<0.02	0.03
MICROBIOLOGICAL						
Escherichia coli	0		CFU/100mL	0	0	0
Total Coliform	0		CFU/100mL	199	4	75

ODWS - Ontario Drinking Water Standards
AO/OG - Aesthetic Objective/Operational Guidelines
(1) Values reported may be biased low due to overgrowth.

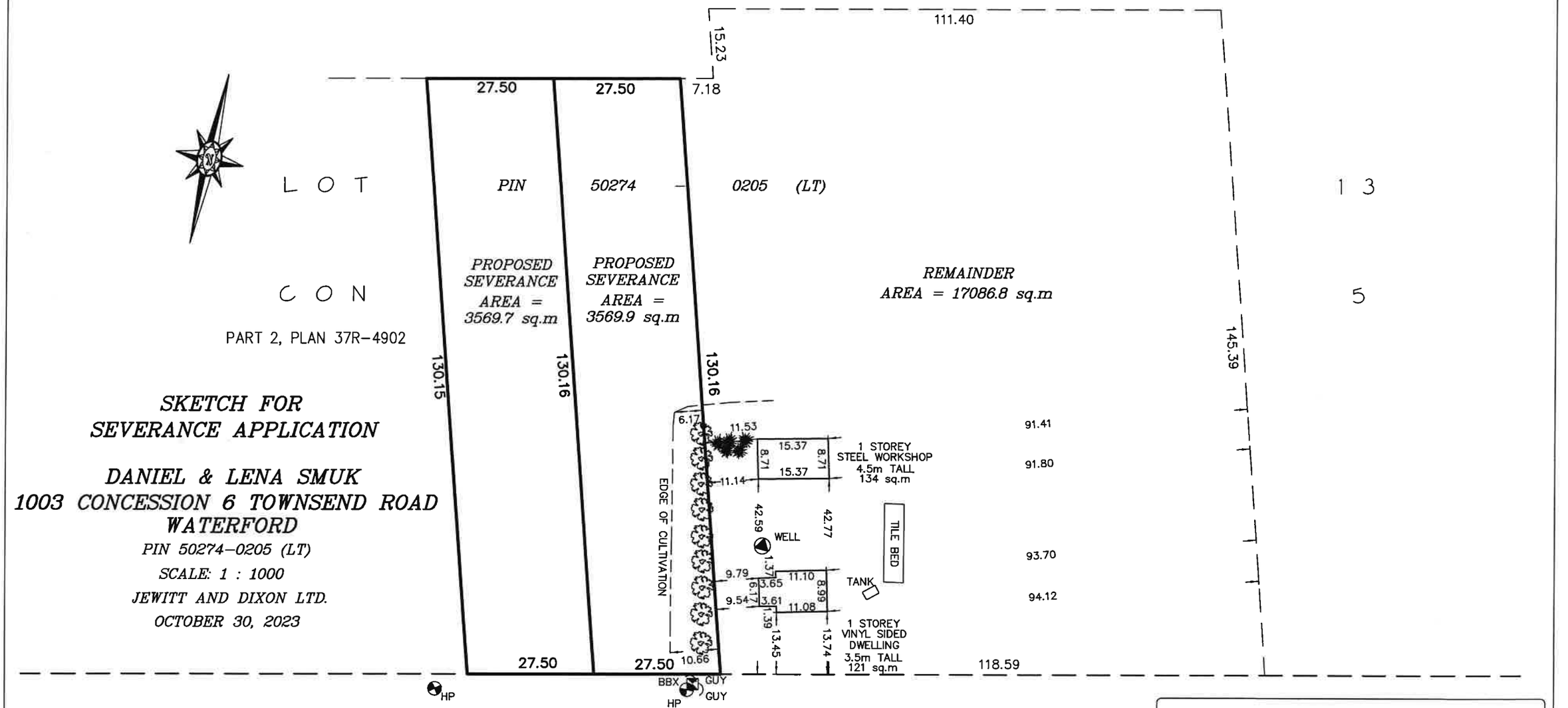
HYDROGEOLOGICAL INVESTIGATION
PROPOSED RESIDENTIAL SEVERANCE
1003 CONCESSION 6
TOWNSEND, ONTARIO

	ODWS	AO/OG	Units	1003
INORGANICS				
Total Ammonia-N			mg/L	0.1
Conductivity			umho/cm	857
Hardness (CaCO3)		80-100	mg/L	559
Total Organic Carbon		5	mg/L	0.7
Fluoride	1.5		mg/L	1.7
Turbidity		5	NTU	27
Apparent Colour		5	TCU	11.2
Bromide			mg/L	<0.05
Total Dissolved Solids		500	mg/L	722
Orthophosphate (P)			mg/L	<0.1
pH		6.5-8.5	pH	7.56
Dissolved Sulphate (SO4)		500	mg/L	366
Alkalinity (Total as CaCO3)		30-500	mg/L	158
Dissolved Chloride (Cl)		250	mg/L	5.75
Nitrite (N)	1.0		mg/L	<0.05
Nitrate (N)	10.0		mg/L	<0.05
METALS				
Dissolved Aluminum (Al)		0.1	mg/L	0.012
Dissolved Antimony (Sb)	0.006		mg/L	<0.003
Dissolved Arsenic (As)	0.01		mg/L	<0.003
Dissolved Barium (Ba)	1		mg/L	0.01
Dissolved Beryllium (Be)			mg/L	<0.001
Dissolved Boron (B)	5		mg/L	0.264
Dissolved Cadmium (Cd)	0.005		mg/L	<0.001
Dissolved Calcium (Ca)			mg/L	118
Dissolved Chromium (Cr)	0.05		mg/L	<0.001
Dissolved Cobalt (Co)			mg/L	<0.001
Dissolved Copper (Cu)		1	mg/L	<0.003
Dissolved Iron (Fe)		0.3	mg/L	2.02
Dissolved Lead (Pb)	0.01		mg/L	<0.001
Dissolved Magnesium (Mg)			mg/L	64.3
Dissolved Manganese (Mn)		0.05	mg/L	0.023
Dissolved Molybdenum (Mo)			mg/L	<0.002
Dissolved Nickel (Ni)			mg/L	<0.003
Dissolved Potassium (K)			mg/L	3.61
Dissolved Selenium (Se)	0.05		mg/L	<0.002
Dissolved Silver (Ag)			mg/L	<0.002
Dissolved Sodium (Na)		200/20	mg/L	18.9
Dissolved Strontium (Sr)			mg/L	21.8
Dissolved Thallium (Tl)			mg/L	<0.006
Dissolved Tin (Sn)			mg/L	<0.002
Dissolved Titanium (Ti)			mg/L	<0.010
Dissolved Tungsten (W)			mg/L	<0.010
Dissolved Uranium (U)	0.02		mg/L	<0.002
Dissolved Vanadium (V)			mg/L	<0.002
Dissolved Zinc (Zn)		5	mg/L	<0.02
Total Zirconium			mg/L	<0.004
MICROBIOLOGICAL				
Total Coliform	0		CFU/100mL	0
Escherichia coli	0		CFU/100mL	0

ODWS - Ontario Drinking Water Standards
AO/OG - Aesthetic Objective/Operational Guidelines
(1) Values reported may be biased low due to overgrowth.

Appendix A
Proposed Site Severance Plan

ENGLOBE



NOTE:

THIS PLAN IS IN METRIC AND CAN BE CONVERTED TO IMPERIAL BY MULTIPLYING BY 3.2808

CAUTION:

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR PURPOSES OTHER THAN THE PURPOSE INDICATED IN THE TITLE BLOCK.

JEWITT AND DIXON LTD.

ONTARIO LAND SURVEYORS

650 IRELAND ROAD, SIMCOE, ON, N3Y 4K2

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E-mail: info@jewittdixon.com

JOB # 20-2680 CLIENT: SMUK

Appendix B
Test Pit Logs and Grain Size Analysis

ENGLOBE

LOG OF TEST PIT No. TP 1

LVM

Project No. 02306757.000 DRAWING No. 1

Project: Residential Severance Sheet No. 1 of 1

Location: N:4757523, E:560550

Date Drilled: 10/11/2023

Drill Type: Excavator

Datum: Assumed

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH
		TOPSOIL (75 mm)	234.0 233.9	0
		SILTY CLAY: with rootlets, brown		
			233.1	1
		SILTY CLAY: to sand with silt, trace gravel, trace cobble, brown		
		grey		2
		seeps		
			230.6	3
		Terminated at 3.5 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	1.9

LOG TEST PIT 02306757.000 TEST PIT.GPJ LOG A GWGL02.GDT 1/25/24

LVM

LOG OF TEST PIT No. TP 2

Project No. 02306757.000 DRAWING No. 2

Project: Residential Severance Sheet No. 1 of 1

Location: N:4757558, E:560570

Date Drilled: 10/11/2023

Drill Type: Excavator

Datum: Assumed

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH
		TOPSOIL (75 mm)	234.0	0
		SILTY CLAY: with rootlets, brown	233.9	
		SILTY CLAY: to sand with silt, trace gravel, trace cobble, brown	233.5	
		grey		1
		seeps		
				2
			231.0	3
		Terminated at 3.0 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	0.5

LOG TEST PIT 02306757.000 TEST PIT.GPJ LOG A GWGL02.GDT 1/25/24

LOG OF TEST PIT No. TP 3

LVM

Project No. 02306757.000 DRAWING No. 3

Project: Residential Severance Sheet No. 1 of 1

Location: N:4757595, E:560527

Date Drilled: 10/11/2023

Drill Type: Excavator

Datum: Assumed

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH
			233.0	0
		TOPSOIL (75 mm)	232.9	
		SILTY CLAY: with rootlets, brown		
			232.5	
		SILTY CLAY: to sand with silt, trace gravel, trace cobble, brown		1
		grey		2
			229.6	3
		Terminated at 3.4 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	1.7

LOG TEST PIT 02306757.000 TEST PIT.GPJ LOG A GWGL02.GDT 1/25/24

LVM

LOG OF TEST PIT No. TP 4

Project No. 02306757.000 DRAWING No. 4

Project: Residential Severance Sheet No. 1 of 1

Location: N:4757641, E:560546

Date Drilled: 10/11/2023

Drill Type: Excavator

Datum: Assumed

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH
		TOPSOIL (75 mm)	233.0 232.9	0
		SILTY CLAY: with rootlets, brown		
			232.2	
		SILTY CLAY: to sand with silt, trace gravel, trace cobble, brown		1
		grey seeps		2
			229.8	3
		Terminated at 3.2 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	2.4

LOG TEST PIT 02306757.000 TEST PIT.GPJ LOG A GWGL02.GDT 1/25/24

LOG OF TEST PIT No. TP 5

LVM

Project No. 02306757.000 DRAWING No. 5

Project: Residential Severance Sheet No. 1 of 1

Location: N:4757562, E:560640

Date Drilled: 10/11/2023

Drill Type: Excavator

Datum: Assumed

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH
			233.0	0
		TOPSOIL (50 mm)	233.0	
		SILTY CLAY: with rootlets, brown		
			232.7	
		SILTY CLAY: to sand with silt, trace gravel, trace cobble, brown		1
		seeps		2
			230.0	3
		Terminated at 3.0 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	1.2	none

LOG TEST PIT 02306757.000 TEST PIT.GPJ LOG A GWGL02.GDT 1/25/24

LOG OF TEST PIT No. TP 6

LVM

Project No. 02306757.000 DRAWING No. 6

Project: Residential Severance Sheet No. 1 of 1

Location: N:4757640, E:560652

Date Drilled: 10/11/2023

Drill Type: Excavator

Datum: Assumed

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH
			233.0	0
		TOPSOIL (25 mm)	233.0	
		SAND: with rootlets, trace silt, brown	232.8	
		SAND: trace silt, trace gravel, brown	232.4	
		SAND: trace silt, trace gravel, trace cobble, brown		1
		grey		2
			229.7	3
		Terminated at 3.4 m		

Standard Penetration Test N Value
Shear Strength kPa: 20, 40, 60, 80; 50, 100, 150, 200
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10, 20, 30
SAMPLES
Natural Unit Weight kN/m³

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	0.3

LOG TEST PIT 02306757.000 TEST PIT.GPJ LOG A GWGL02.GDT 1/25/24

Terraprobe

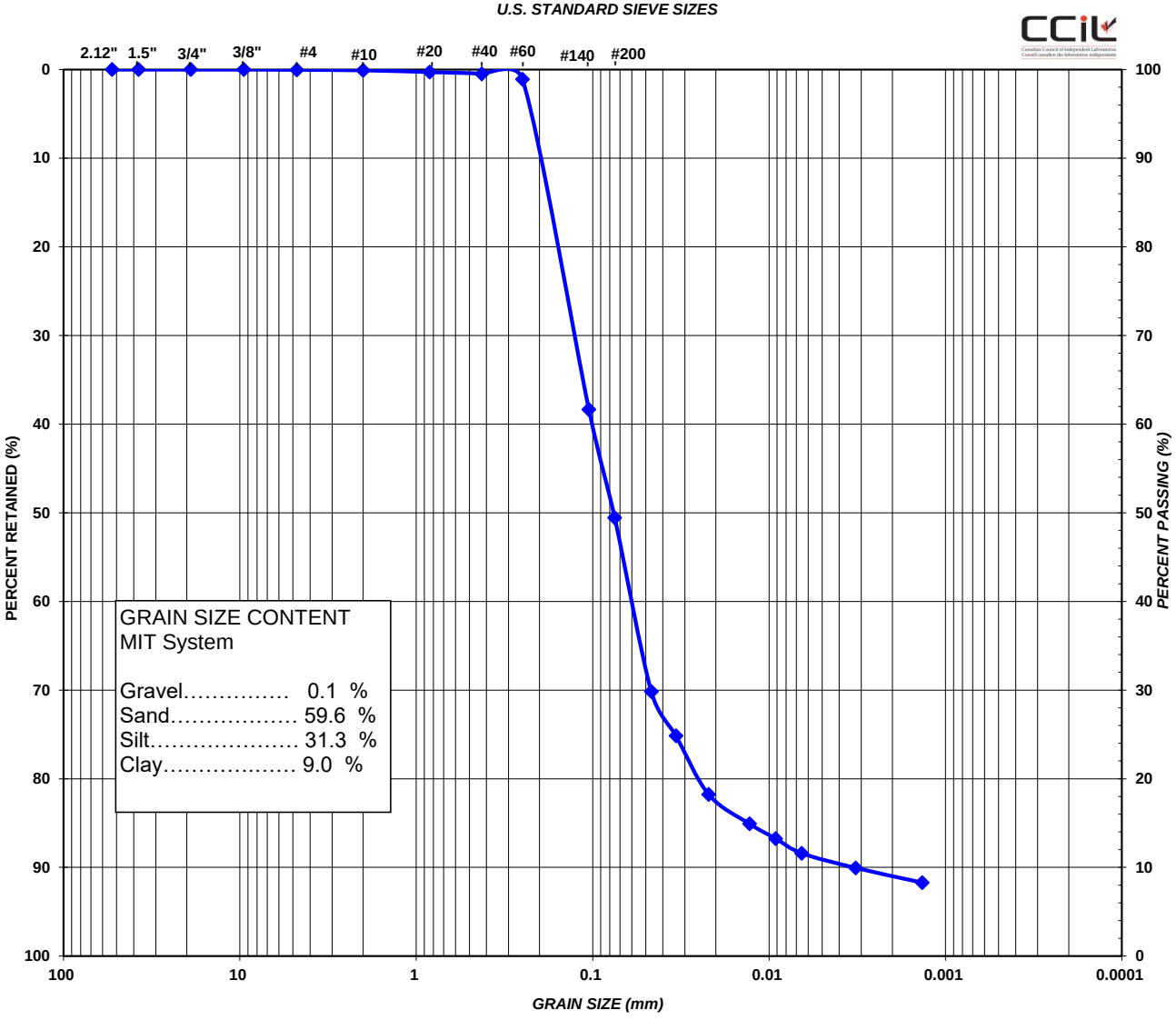
SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **1003 Concession 6 Townsend**
LOCATION: **#VALUE!**
CLIENT: **Vantage Appraisals and Management Services Inc.**
BOREHOLE: **TP 2**
SAMPLE NUMBER: **1**
SAMPLE DEPTH:
SAMPLE DESCRIPTION: **Silty Sand trace Clay**

FILE NO.: **02306756.000**
LAB NO.: **S5699**
SAMPLE DATE: **October 11, 2023**
SAMPLED BY: **A.B.C.**

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL	COARSE	MEDIUM	FINE	SILT	CLAY
		SAND				

UNIFIED SYSTEM	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
	GRAVEL		SAND			

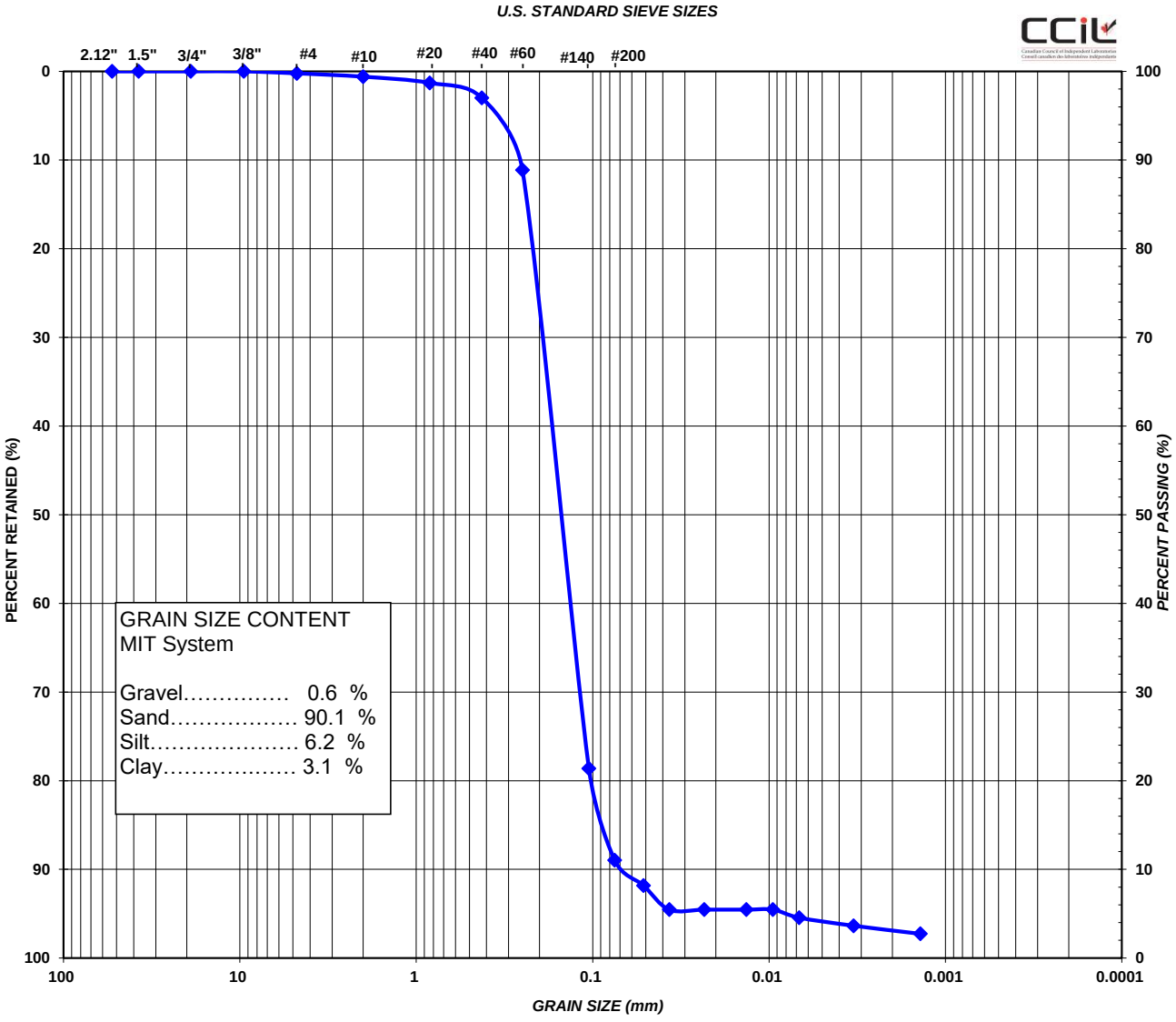
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **1003 Concession 6 Townsend**
LOCATION: **#VALUE!**
CLIENT: **Vantage Appraisals and Management Services Inc.**
BOREHOLE: **TP 6**
SAMPLE NUMBER: **1**
SAMPLE DEPTH:
SAMPLE DESCRIPTION: **Sand trace Silt and Clay**

FILE NO.: **02306756.000**
LAB NO.: **S5698**
SAMPLE DATE: **October 11, 2023**
SAMPLED BY: **A.B.C.**

GRAIN SIZE DISTRIBUTION



MIT SYSTEM	GRAVEL		COARSE	MEDIUM	FINE	SILT	CLAY
			SAND				
UNIFIED SYSTEM	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY	
	GRAVEL		SAND				

Terraprobe Hamilton-Niagara Office: 903 Barton Street, Unit#22 Stoney Creek, ON, L8E 5P5 - Ph: (905) 643-7560

Appendix C
Well Survey Letter and Well Survey Field Sheet

ENGLOBE

Terraprobe
Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

October 25, 2023

File No. 2306756.000
Stoney Creek Office

RE: PRIVATE WELL SURVEY
HYDROGEOLOGICAL ASSESSMENT – RESIDENTIAL SEVERANCE
1003 CONCESSION 6
TOWNSEND, ONTARIO

Dear Resident/Property Owner:

Terraprobe was retained to complete a private well survey for properties within a 500 m radius of the above noted property. The subject property is located immediately north of Concession 6, approximately 850 feet from the intersection of Concession 6 and Cockshutt Road. The site currently consists of a single, detached residential dwelling and surrounding grassed field. It is proposed to sever the lot into three parcels for the purpose of residential development.

The well survey is being completed to determine the locations of private supply wells and private septic systems surrounding the subject property.

As part of the well survey, Terraprobe is requesting to complete a brief questionnaire regarding the operating history and construction details of your well. The information we hope to obtain will include:

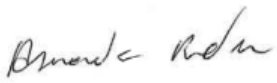
1. The location of well(s) and septic bed, if known;
2. The depth, diameter and construction details of the well(s);
3. The pump type and depth, and any water treatment systems in use;
4. Information regarding the past performance of the well(s) (i.e. water quality and yield).

Well testing is being completed to assess if the existing well can provide adequate water supplies for the redevelopment without impacting surrounding private wells. As part of the survey, we are seeking permission from property owners to survey private wells, where installed, surrounding the subject property.

Should you be interested in scheduling a well inspection, participating in the private well monitoring program or have any further questions please contact Amanda Burden of Terraprobe at (905) 643-7560, or by email at aburden@terraprobe.ca. We encourage participation in the survey so that a detailed inventory of private wells in the vicinity of the proposed development can be compiled and assessed in advance of the proposed works. We understand that your participation in this survey is voluntary; however, your co-operation is greatly appreciated. Thank you for your consideration of our private well survey.

Yours truly,

Terraprobe Inc.



Amanda Burden, M.Sc.
Environmental Scientist

Terraprobe

Private Well Survey

PROJECT No.

I.D. No. _____

OWNER _____ ORIGINAL OWNER _____

ADDRESS _____

LOT/CONC./TWP. _____ PHONE _____

DATE

_____

_____

_____

WELL DETAILS

TYPE _____ DIAMETER _____

CASING _____ SCREEN _____

PUMP TYPE & DEPTH _____

WATER TREATMENT _____

DATE CONSTRUCTED _____

DEPTH _____ Meas/Stated

WATER LEVEL _____ b.m.p.

STICK-UP _____ a.g.l.

INSPECTION NOTES :

WELL USE

WELL USE _____

No. OF RESIDENTS _____

WATER QUALITY _____

WATER QUANTITY _____

EVER BOUGHT WATER? _____

WHEN? WHY? _____

PREVIOUS PROBLEMS WITH WELL (WHEN?)

COMMENTS:

WELL CONSTRUCTION

WELL LOCATION / SEPTIC

NOTES:

GEODeTIC ELEVATION: _____

MOE WELL No.: _____

OWNER: _____

ENGINEER: _____

PERMISSION TO SURVEY WELL: _____

Appendix D
Laboratory Certificates of Analysis

ENGLOBE

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC
903 Barton Street
Stoney Creek, ON L8E5P5
(905) 643-7560
ATTENTION TO: Amanda Burden
PROJECT: 0236796.000
AGAT WORK ORDER: 23H093409
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead
WATER ANALYSIS REVIEWED BY: Yris Verastegui, Inorganic Team Lead
DATE REPORTED: Nov 20, 2023
PAGES (INCLUDING COVER): 8
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H093409

PROJECT: 0236796.000

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:ABC

Total Coliforms & E.Coli (MI-Agar)

DATE RECEIVED: 2023-11-15

DATE REPORTED: 2023-11-20

				SAMPLE DESCRIPTION:	937	1002	2065
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2023-11-14 13:30	2023-11-14 15:00	2023-11-14 16:00
Parameter	Unit	G / S	RDL		5462353	5462359	5462360
Escherichia coli	CFU/100mL				0	0	0
Total Coliforms	CFU/100mL				199	4	75

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5462353-5462360 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H093409

PROJECT: 0236796.000

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:ABC

(Water) Inorganic Chemistry

DATE RECEIVED: 2023-11-15

DATE REPORTED: 2023-11-20

		SAMPLE DESCRIPTION:		**937**	**1002**	**2065**
		SAMPLE TYPE:		**Water**	**Water**	**Water**
		DATE SAMPLED:		**2023-11-14 13:30**	**2023-11-14 15:00**	**2023-11-14 16:00**
Parameter	**Unit**	**G / S**	**RDL**	**5462353**	**5462359**	**5462360**
Ammonia as N	mg/L		0.02	<0.02	<0.02	<0.02
Total Phosphorus	mg/L		0.02	0.04	<0.02	0.03

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H093409

PROJECT: 0236796.000

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:ABC

Anion Scan

DATE RECEIVED: 2023-11-15

DATE REPORTED: 2023-11-20

			SAMPLE DESCRIPTION:	937		1002	2065
			SAMPLE TYPE:	Water		Water	Water
			DATE SAMPLED:	2023-11-14 13:30		2023-11-14 15:00	2023-11-14 16:00
Parameter	**Unit**	**G / S**	**RDL**	**5462353**	**RDL**	**5462359**	**5462360**
Fluoride	mg/L		0.05	<0.05	0.05	1.31	<0.05
Chloride	mg/L		0.12	217	0.10	3.63	20.8
Nitrate as N	mg/L		0.05	<0.05	0.05	0.12	2.63
Nitrite as N	mg/L		0.05	<0.05	0.05	<0.05	<0.05
Bromide	mg/L		0.05	<0.05	0.05	<0.05	<0.05
Sulphate	mg/L		0.10	36.4	0.10	358	24.6
Phosphate as P	mg/L		0.10	<0.10	0.10	<0.10	<0.10

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5462353 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H093409

PROJECT: 0236796.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:ABC

Microbiology Analysis

RPT Date: Nov 20, 2023			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli (MI-Agar)															
Escherichia coli	5462353	5462353	0	0	NA										
Total Coliforms	5462353	5462353	199	198	0.5%										

Comments: NA - % RPD Not Applicable.

Certified By:

AGAT Laboratories
5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H093409

PROJECT: 0236796.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:ABC

Water Analysis

RPT Date: Nov 20, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Anion Scan															
Fluoride	5462353	5462353	<0.05	<0.05	NA	< 0.05	100%	70%	130%	102%	80%	120%	91%	70%	130%
Chloride	5462353	5462353	217	221	1.8%	< 0.10	97%	70%	130%	101%	80%	120%	NA	70%	130%
Nitrate as N	5462353	5462353	<0.05	<0.05	NA	< 0.05	97%	70%	130%	99%	80%	120%	98%	70%	130%
Nitrite as N	5462353	5462353	<0.05	<0.05	NA	< 0.05	95%	70%	130%	94%	80%	120%	100%	70%	130%
Bromide	5462353	5462353	<0.05	<0.05	NA	< 0.05	100%	70%	130%	96%	80%	120%	95%	70%	130%
Sulphate	5462353	5462353	36.4	37.4	2.7%	< 0.10	101%	70%	130%	102%	80%	120%	100%	70%	130%
Phosphate as P	5462353	5462353	<0.10	<0.10	NA	< 0.10	99%	70%	130%	100%	80%	120%	93%	70%	130%
(Water) Inorganic Chemistry															
Ammonia as N	5460541		<0.02	<0.02	NA	< 0.02	107%	70%	130%	104%	80%	120%	80%	70%	130%
Total Phosphorus	5448990		0.07	0.07	NA	< 0.02	90%	70%	130%	100%	80%	120%	97%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By: Iris Verástegui

AGAT Laboratories
5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H093409

PROJECT: 0236796.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:ABC

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration
Water Analysis			
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH

AGAT Laboratories

Have feedback? Scan here for a quick survey!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 23H093409

Cooler Quantity: 1 large

Arrival Temperatures: 4.6 | 9.7 | E.E. | 2.8 | 3.0 | 3.1

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: Terraprobe Inc
Contact: Amanda Burden
Address: 903 Barton St. East unit 33
Stoney Creek
Phone: Fax:
Reports to be sent to:
1. Email: aburden@terraprobe.ca
2. Email:

Project Information:

Project: 0236796.000
Site Location:
Sampled By: ABC
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email: lrossi@terraprobe.ca

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04
Table — Indicate One
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Regulation 406
Table — Indicate One

☐ Regulation 558

☐ CCME

☐ Sewer Use ☐ Sanitary ☐ Storm
Region

☐ Prov. Water Quality Objectives (PWQO)

☐ Other
Indicate One

Is this submission for a **Record of Site Condition?** ☐ Yes ☑ No

Report Guideline on *Certificate of Analysis* ☑ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	VOC	PAHs	PCBs	PCBs: Aroclors ☐	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Regulation 406 SPLP Rainwater Leach ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Regulation 406 Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: ☐ Moisture ☐ Sulphide	E.coli & Total Coliforms	Nitrate, Nitrite, Ammonia	Total phosphorous	Anions			Potentially Hazardous or High Concentration (Y/N)
1. 937	Nov 14/23	1:30 AM/PM	5	GW		N												✓	✓	✓	✓			
2. 1002	"	3:00 AM/PM	"	GW		"												✓	✓	✓	✓			
3. ~~SD~~ 2065	"	4:00 AM/PM	"	GW		"												✓	✓	✓	✓			
4.	"	AM/PM																						
5.		AM/PM																						
6.		AM/PM																						
7.		AM/PM																						
8.		AM/PM																						
9.		AM/PM																						
10.		AM/PM																						
11.		AM/PM																						

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Amanda Burden	Nov 15/23	3:20pm	Travis Judd	Nov 15/23	3:26PM
			Aniqa Tahir	15/11/23	5:37pm

Page 1 of 1

N°: T-149203

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC
903 Barton Street
Stoney Creek, ON L8E5P5
(905) 643-7560

ATTENTION TO: Amanda Burden

PROJECT: 02306756.000

AGAT WORK ORDER: 23H091337

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Inorganic Team Lead

DATE REPORTED: Nov 15, 2023

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.

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Certificate of Analysis

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

Total Coliforms & E.Coli (MI-Agar)

DATE RECEIVED: 2023-11-09

DATE REPORTED: 2023-11-15

			SAMPLE DESCRIPTION:	SA 1
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2023-11-08 15:00
Parameter	Unit	G / S	RDL	5445339
Escherichia coli	CFU/100mL	0		0
Total Coliforms	CFU/100mL	0		0

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5445339 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.
Temperature of sample upon receipt was determined to be above 10 C. Evidence of attempt to cool during shipment to lab was observed.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

CLIENT NAME: TERRAPROBE INC

SAMPLING SITE:

ATTENTION TO: Amanda Burden

SAMPLED BY:Amanda Burden

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2023-11-09

DATE REPORTED: 2023-11-15

		SAMPLE DESCRIPTION:		SA 1
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-11-08 15:00
Parameter	Unit	G / S	RDL	5445339
Electrical Conductivity	µS/cm		2	857
pH	pH Units		NA	7.46
Hardness (as CaCO3) (Calculated)	mg/L		0.5	559
Total Dissolved Solids	mg/L		10	722
Alkalinity (as CaCO3)	mg/L		5	158
Fluoride	mg/L	1.5	0.05	1.65
Chloride	mg/L		0.12	5.75
Nitrate as N	mg/L	10.0	0.05	<0.05
Nitrite as N	mg/L	1.0	0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	366
Ortho Phosphate as P	mg/L		0.10	<0.10
Ammonia as N	mg/L		0.02	0.10
Total Phosphorus	mg/L		0.02	<0.02
Total Organic Carbon	mg/L		0.5	0.7
Apparent Colour	TCU		2.50	11.2
Turbidity	NTU		0.5	27.0
Total Calcium	mg/L		0.20	118
Total Magnesium	mg/L		0.10	64.3
Total Potassium	mg/L		0.50	3.61
Total Sodium	mg/L	20	0.10	18.9
Total Aluminum	mg/L		0.010	0.012
Total Antimony	mg/L	0.006	0.003	<0.003
Total Arsenic	mg/L	0.01	0.003	<0.003
Total Barium	mg/L	1.0	0.002	0.010
Total Beryllium	mg/L		0.001	<0.001
Total Boron	mg/L	5.0	0.010	0.264
Total Cadmium	mg/L	0.005	0.001	<0.001
Total Chromium	mg/L	0.05	0.003	<0.003

Certified By: Iris Verástegui

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Certificate of Analysis

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2023-11-09

DATE REPORTED: 2023-11-15

			SAMPLE DESCRIPTION:	SA 1
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2023-11-08 15:00
Parameter	Unit	G / S	RDL	5445339
Total Cobalt	mg/L		0.001	<0.001
Total Copper	mg/L		0.003	<0.003
Total Iron	mg/L		0.010	2.02
Total Lead	mg/L	0.010	0.001	<0.001
Total Manganese	mg/L		0.002	0.023
Total Mercury	mg/L	0.001	0.0001	<0.0001
Total Molybdenum	mg/L		0.002	<0.002
Total Nickel	mg/L		0.003	<0.003
Total Selenium	mg/L	0.01	0.002	<0.002
Total Silver	mg/L		0.002	<0.002
Total Strontium	mg/L		0.05	21.8
Total Thallium	mg/L		0.006	<0.006
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.010	<0.010
Total Tungsten	mg/L		0.010	<0.010
Total Uranium	mg/L	0.02	0.002	<0.002
Total Vanadium	mg/L		0.002	<0.002
Total Zinc	mg/L		0.020	<0.020
Total Zirconium	mg/L		0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5445339 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

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Exceedance Summary

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amanda Burden

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
5445339	SA 1	ON 169/03 MAC/IMAC	DRINKING WATER - Water Quality Assessment (mg/L)	Fluoride	mg/L	1.5	1.65

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

Microbiology Analysis

RPT Date: Nov 15, 2023			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli (MI-Agar)															
Escherichia coli	5445339	5445339	0	0	NA										
Total Coliforms	5445339	5445339	0	0	NA										

Comments: NA - % RPD Not Applicable.

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

Water Analysis

RPT Date: Nov 15, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
DRINKING WATER - Water Quality Assessment (mg/L)															
Electrical Conductivity	5443565		448	445	0.7%	< 2	100%	90%	110%						
pH	5443565		7.38	7.55	2.3%	NA	100%	90%	110%						
Total Dissolved Solids	5445339	5445339	722	722	0.0%	< 10	96%	80%	120%						
Alkalinity (as CaCO3)	5443565		206	204	1.0%	< 5	88%	80%	120%						
Fluoride	5445339	5445339	1.65	1.60	3.1%	< 0.05	106%	70%	130%	115%	80%	120%	102%	70%	130%
Chloride	5445339	5445339	5.75	5.70	0.9%	< 0.10	100%	70%	130%	104%	80%	120%	102%	70%	130%
Nitrate as N	5445339	5445339	<0.05	<0.05	NA	< 0.05	104%	70%	130%	105%	80%	120%	103%	70%	130%
Nitrite as N	5445339	5445339	<0.05	<0.05	NA	< 0.05	100%	70%	130%	96%	80%	120%	106%	70%	130%
Bromide	5445339	5445339	<0.05	<0.05	NA	< 0.05	106%	70%	130%	103%	80%	120%	114%	70%	130%
Sulphate	5445339	5445339	366	367	0.3%	< 0.10	101%	70%	130%	100%	80%	120%	NA	70%	130%
Ortho Phosphate as P	5445339	5445339	<0.10	<0.10	NA	< 0.10	98%	70%	130%	98%	80%	120%	91%	70%	130%
Ammonia as N	5445339	5445339	0.10	0.09	NA	< 0.02	106%	70%	130%	100%	80%	120%	97%	70%	130%
Total Phosphorus	5442118		0.22	0.24	8.7%	< 0.02	95%	70%	130%	97%	80%	120%	NA	70%	130%
Total Organic Carbon	5440350		1.2	1.2	NA	< 0.5	91%	90%	110%	94%	90%	110%	91%	80%	120%
Apparent Colour	5445339	5445339	11.2	11.4	NA	< 2.5	98%	90%	110%						
Turbidity	5443565		24.9	25.4	2.0%	< 0.5	111%	80%	120%						
Total Calcium	5427240		27.3	28.7	5.0%	< 0.20	97%	70%	130%	96%	80%	120%	94%	70%	130%
Total Magnesium	5427240		7.31	7.63	4.3%	< 0.10	99%	70%	130%	96%	80%	120%	93%	70%	130%
Total Potassium	5427240		1.06	1.10	NA	< 0.50	100%	70%	130%	98%	80%	120%	92%	70%	130%
Total Sodium	5427240		2.81	2.93	4.2%	< 0.10	101%	70%	130%	96%	80%	120%	93%	70%	130%
Total Aluminum	5437932		<0.010	0.012	NA	< 0.010	113%	70%	130%	96%	80%	120%	105%	70%	130%
Total Antimony	5437932		<0.003	<0.003	NA	< 0.003	107%	70%	130%	107%	80%	120%	118%	70%	130%
Total Arsenic	5437932		<0.003	<0.003	NA	< 0.003	109%	70%	130%	104%	80%	120%	102%	70%	130%
Total Barium	5437932		0.024	0.023	4.3%	< 0.002	104%	70%	130%	105%	80%	120%	110%	70%	130%
Total Beryllium	5437932		<0.001	<0.001	NA	< 0.001	104%	70%	130%	98%	80%	120%	113%	70%	130%
Total Boron	5437932		0.027	0.027	NA	< 0.010	100%	70%	130%	100%	80%	120%	111%	70%	130%
Total Cadmium	5437932		<0.001	<0.001	NA	< 0.001	102%	70%	130%	99%	80%	120%	108%	70%	130%
Total Chromium	5437932		<0.003	<0.003	NA	< 0.003	100%	70%	130%	99%	80%	120%	101%	70%	130%
Total Cobalt	5437932		<0.001	<0.001	NA	< 0.001	107%	70%	130%	107%	80%	120%	111%	70%	130%
Total Copper	5437932		<0.003	<0.003	NA	< 0.003	97%	70%	130%	100%	80%	120%	99%	70%	130%
Total Iron	5437932		<0.010	<0.010	NA	< 0.010	96%	70%	130%	100%	80%	120%	101%	70%	130%
Total Lead	5437932		<0.001	<0.001	NA	< 0.001	99%	70%	130%	95%	80%	120%	108%	70%	130%
Total Manganese	5437932		<0.002	<0.002	NA	< 0.002	105%	70%	130%	101%	80%	120%	106%	70%	130%
Total Mercury	5445339	5445339	<0.0001	<0.0001	NA	< 0.0001	105%	70%	130%	101%	80%	120%	100%	70%	130%
Total Molybdenum	5437932		<0.002	<0.002	NA	< 0.002	101%	70%	130%	107%	80%	120%	109%	70%	130%
Total Nickel	5437932		<0.003	<0.003	NA	< 0.003	103%	70%	130%	101%	80%	120%	96%	70%	130%
Total Selenium	5437932		<0.002	<0.002	NA	< 0.002	109%	70%	130%	102%	80%	120%	102%	70%	130%
Total Silver	5437932		<0.002	<0.002	NA	< 0.002	96%	70%	130%	104%	80%	120%	100%	70%	130%
Total Strontium	5437932		0.150	0.171	13.1%	< 0.005	94%	70%	130%	106%	80%	120%	118%	70%	130%

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

Water Analysis (Continued)

RPT Date: Nov 15, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Thallium	5437932		<0.006	<0.006	NA	< 0.006	95%	70%	130%	94%	80%	120%	104%	70%	130%
Total Tin	5437932		<0.002	<0.002	NA	< 0.002	105%	70%	130%	115%	80%	120%	108%	70%	130%
Total Titanium	5437932		<0.010	<0.010	NA	< 0.010	107%	70%	130%	90%	80%	120%	82%	70%	130%
Total Tungsten	5437932		<0.010	<0.010	NA	< 0.010	92%	70%	130%	91%	80%	120%	107%	70%	130%
Total Uranium	5437932		<0.002	<0.002	NA	< 0.002	104%	70%	130%	104%	80%	120%	111%	70%	130%
Total Vanadium	5437932		<0.002	<0.002	NA	< 0.002	103%	70%	130%	106%	80%	120%	107%	70%	130%
Total Zinc	5437932		<0.020	<0.020	NA	< 0.020	100%	70%	130%	98%	80%	120%	96%	70%	130%
Total Zirconium	5437932		<0.004	<0.004	NA	< 0.004	96%	70%	130%	102%	80%	120%	98%	70%	130%

Comments: NA Signifies Not Applicable
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By: Iris Verástegui

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Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Total Coliforms	MIC-93-7010	EPA 1604	Membrane Filtration

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Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
Apparent Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6000	modified from SM 2130 B	PC TITRATE
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS

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Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 23H091337

PROJECT: 02306756.000

ATTENTION TO: Amanda Burden

SAMPLING SITE:

SAMPLED BY:Amanda Burden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Temps: 1-5, 2-1, 2-3

AGAT Laboratories

5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2

Drinking Water Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122 • TF: 1.800.856.6261

Laboratory Use Only

Arrival Condition: ☐ Good ☐ Poor (complete notes)
Arrival Temperature: 11.1, 10.4, 10.7
AGAT Job Number: 23H091337
Notes: On ice → Small cooler

Client Information

Company: Terraprobe Inc.
Contact: Amanda Burden
Address: 903 Barton St. East Unit 22
Phone: 905-643-7560 Fax:
PO #:
Client Project #: 02306756.000
AGAT Quotation #:

Report Information

1. Name: Amanda Burden
Email: aburden@terraprobe.ca
2. Name:
Email:

Report Format

☑ Single Sample per page
☐ Multiple Samples per page

Facility Type *(Check all that are applicable)*

☐ Large	OR	☐ Small
☑ Residential	OR	☐ Non-Residential
☐ Municipal	OR	☐ Non-Municipal

+ Water Type
(Specify in column below)
Raw (R), Treated (TR), Distribution (D), Tap (TP) Private Well (P)

Turnaround Time Required (TAT) *

Regular TAT	7 to 14 business days	☑	Sch 23/24 only
	5 to 7 business days	☐	
Rush TAT (please provide prior notification)	3 to 4 business days	☐	**Rush**
	2 business days	☐	**surcharges**
	1 business days	☐	**apply**

Date Required (Rush surcharges may apply):

Requirements *(Check one)*

☐ O. Regulation 170	☑ Not Applicable
☐ O. Regulation 243	☐ Federal
☐ O. Regulation 318/319	☐ Other

IS THIS WATER BEING CONSUMED BY HUMANS?	☑ Yes ☐ No
DO THE RESULTS REQUIRE REPORTING TO THE MECP OR LOCAL PUBLIC HEALTH UNIT?	☐ Yes ☑ No
FOR RAW WATER (E.G. UNTREATED), IS THE SAMPLE COLLECTED FROM A POINT OF HUMAN CONSUMPTION?	☐ Yes ☑ No

CLIENT IS RESPONSIBLE TO COMPLETE AND SUBMIT LAB SERVICE NOTIFICATION (LSN) FORM TO THE MOECC/PHU. FAILURE TO DO SO MAY DELAY REPORTING.
"NOTIFICATION INFORMATION" MUST BE COMPLETE BELOW UPON SUBMISSION OF SAMPLES. LABORATORY ANALYSIS WILL NOT COMMENCE UNTIL ALL INFORMATION HAS BEEN PROVIDED

SAMPLE IDENTIFICATION/LOCATION	DATE SAMPLED	TIME SAMPLED	WATER TYPE	# OF CONTAINERS	CHLORINE RESIDUAL (incl. Units)	STANDING	FLUSHED	COMMENTS/STANDING TIME (IN MINUTES)	Inorganics (Sch. 23)	Organics (Sch. 24)	Lead	Fluoride	Sodium	Turbidity	Nitrate, Nitrite	Trihalomethanes / HAAs	E.coli, Total Coliforms	Water Quality Assessment Package
SA 1	NOV 8/23	300 AM PM	R	10			✓										✓	✓
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Taken By (Print Name and Sign):

* TAT is exclusive of weekends and statutory holidays. Prior arrangements must be made with the laboratory in order to submit Microbiology samples on Fridays

NOTIFICATION INFORMATION - (required to report adverse results as per the *Safe Drinking Water Act*) - **Laboratory analysis will not commence until all information is received.**

INFORMATION FOR ADVERSE REPORTING

Waterworks Name: Phone: Fax:
MOECC# (ie: Waterworks #): After Hours Phone:
Contact: Address/Location (if different from client above): NOT APPLICABLE
Email:

MEDICAL OFFICER OF HEALTH (MOH)

Region:
PHU Contact:
Phone: Fax:
Email:

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Amanda Burden	NOV 9/23 2:50 pm	Chris Tahone	Nov 9/23 2:50 pm
Chris Tahone	Nov 9/23 3pm		Nov 9 4:45 pm
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow/Golden Copy - AGAT
White Copy- AGAT

Page 1 of 1

N°: DW 08293

Document #: DW-78-1512.011

Date Revised: March 18, 2021

AGAT Laboratories

Non-Reportable Drinking Water Sample Inquiry Form

This form is to ensure your water is tested and reported in accordance with Ontario Regulation 248/03 for testing of Drinking Water under the Safe Drinking Water Act. We require the information below to help uphold our high standard of regulatory compliance, for both AGAT as a laboratory and you, as our valued customer. Please ensure all information is filled out completely and accurately. If you have any questions, please do not hesitate to contact your AGAT Client Project Manager at 905-712-5100.

(1) What is the purpose for your testing? Please provide details below.

Water quality analysis of private drinking water well.

(2) Please answer the following questions.

(a) Is there a request from a Public Health Inspector or a Ministry of Environment Drinking Water Inspector to complete this testing? ☐ Yes ☑ No
If Yes, please contact an AGAT Client Project Manager at 905-712-5100

(b) Is there a provincial order in effect for your water system? ☐ Yes ☑ No
If Yes, please provide details below including limit for the test parameter if not listed with a standard under O.Reg.169/03

(c) Does your facility have a drinking water system (DWS) number provided by either MECP or MOHLTC? ☐ Yes ☑ No

(i) If yes, why is the sample not reportable to either MECP or MOHLTC? Please provide details below.

(ii) If yes, is the test for sodium and/or fluoride? ☐ Yes ☐ No

- If the test is for sodium and/or fluoride, was sodium and/or fluoride testing completed and reported to the ***MECP*** in the last 57 months or ***MOHLTC*** in the last 60 months?
  ☐ Yes ☐ No

As per the SWDA, Sodium and fluoride (if required by DWS) are required to be tested every 5 years (60 months) by the operator. The sodium and/or fluoride adverse are not required to be reported if two samples are less than 5 years apart.

Document #: ADM-78-2533.004
Issued Date: 2020-08-25

(d) Is the water collected from a Federally owned, operated or regulated property or water source? ☐ Yes ☑ No

If Yes, please indicate this on the COC under Requirements

(3) If you are private home owner looking to test your drinking water, please answer the following questions:

(i) Are you consuming this water from the point of sample collection? ☐ Yes ☑ No

(ii) Do you have a water treatment unit installed in your system? ☑ Yes ☐ No

(iii) Is your water collected before or after treatment?

☑ Before ☐ After ☐ Not Applicable

(iv) Are you testing your water due to concerns regarding your plumbing?

☐ Yes ☑ No

If Yes, have you done any improvements to your plumbing recently? Please provide details below.

For further assistance, please contact the MECP at the following phone and email:

(1) For inquiries related to O.Reg.170 or O.Reg.318/319

Email: waterforms@ontario.ca

Phone Number: 1-866-793-2588

(2) For inquiries related to O.Reg.243 (Schools and Daycares)

Phone Number: 1-855-515-1331.

Company Name: Terraprobe Inc. DWCOC#: (if applicable)

Name: Amanda Burden (please print name) Date: 2023-01-09 (yyyy-mm-dd)

Signature: Amanda Burden

AGAT WorkOrder #: (To be entered by AGAT CPM)

Document #: ADM-78-2533.004
Issued Date: 2020-08-25

Evaluation of On-Site Sewage Systems

INSTRUCTIONS

1. Please complete the following form by checking appropriate lines and filling in blanks.

2. This Evaluation Form must be completed by a "Qualified" person engaged in the business of constructing on site, installing, repairing, servicing, cleaning or emptying sewage systems.

3. If sewage system malfunctions are found during an evaluation (surfacing or discharge of improperly treated sewage effluent) which indicate a possible health hazard or nuisance, orders may be issued for correction.

4. Evaluations should be scheduled accordingly so as not to delay the application process.

5. Completed Forms MUST be submitted as part of a "complete" Planning Application. Failure to meet this date may cause the application to be deferred.

6. Evaluation Forms will become part of the property records of Norfolk County Building Department.

7. No On-Site Sewage System Evaluation will be conducted where:

    a. `snow depth exceeds two (2) inches, or
    b. grass and brush exceeds twelve (12) inches

8. The comments that are given as a result of this evaluation are rendered without complete knowledge or observation of some of the individual components of the sewage system and applies only to the date and time the evaluation is conducted.

Collection of Personal Information.

Personal information submitted in this form is collected under the authority with the Municipal Freedom of Information and Protection Act, or for the purpose stated on the specific form being submitted. The information will be used by the Building Department administration for its intended submitted purpose.

Questions about the collection of personal information through this form may be directed to:

Norfolk County's Chief Building Official,
185 Robinson Street, Simcoe, ON N3Y 5L6, 519-426-5870 ext. 2218,

Information and Privacy Coordinator,
50 Colborne Street South, Simcoe ON N3Y 4H3, 519-426-5870 ext. 1261,

Property Information	
Municipal Address	1003 CONCESSION #6 (TOWNSEND) - WATERFORD, ON
Assessment Roll Number	
Date of Evaluation	NOVEMBER 2/2022

Evaluators Information		
Evaluators Name:	ED DOVE	
Company Name:	STEALTH ENVIRONMENTAL INC.	
Address:	1809 8TH CONCESSION ROAD - LANGTON, ON	
Phone:	519-426-7108	
Email	Ed.Dove@stealthenvironmental.ca	
BCIN #	38413 / 38259	
Purpose of Evaluation	☐ Consent ☐ Zoning ☐ Minor Variance	☐ Site Plan ☐ Building Permit Application ☑ Other SEVERANCE
Building Information	☑ Residential ☐ Commercial	☐ Industrial ☐ Agricultural
Gross building area: (m^2):	140 m^2	1500 ft^2
Number of bedrooms:	3	
Number of fixture units:	12.5	
Daily Design Flow: (Litres)	1,600 L / DAY	
Is the building currently occupied?	☑ Yes ☐ No If No, how long?	

Site Evaluation			
Soil type, percolation time (T)			
Site slope	☑ Flat ☐ Moderate ☐ Steep		
Soil condition:	☐ Wet ☑ Dry		
Surface discharge observed	☐ Yes ☑ No		
Odour detected:	☐ Yes ☑ No		
Weather at time of evaluation:	SUNNY + DRY		

System Description		
☐ Class 1 - Privy ☐ Class 2- Greywater ☐ Class 3 - Cesspool ☐ Class 4 - Leaching Bed) ☐ Class 5 - Holding Tank		
Type of leaching bed. Class 4 –Leaching Bed only – Complete & attach Worksheet E		
☑ A. Absorption Trench	☐ B. Filter Bed	☐ C. Shallow Buried Trench
☐ D. Advance Treatment System	☐ E. Type A Dispersal Bed	☐ F. Type B Dispersal Bed
Existing Tank Size (litres):		
☑ Pre-cast Concrete	☐ Plastic	☐ Fibreglass
☐ Wood	☐ Other (specify):	Pump: ☐ Yes ☑ No
☑ In ground system	☐ Raised Bed system Height raised above original grade (metres)	

Setbacks (metres)	Tank		Distribution Pipe	
Distance to buildings & structures	25 FT		30 FT	
Distance to bodies of water	N/A		N/A	
Distance to nearest well	OVER 75 FT		OVER 75 FT	
Distance to proposed property lines	Front: >50 FT Rear: >50 FT	Left: >50 FT Right: >50 FT	Front: >50 FT Rear: >100 FT	Left: >50 FT Right: >100 FT

Worksheet A: Dwellings - Daily Design Flow Calculations (Q)

A) Residential Occupancy		(Q) Litres	Total
Number of Bedrooms	1 Bedroom	750	
	2 Bedrooms	1100	
	3 Bedrooms	1600	1,600 L
	4 Bedrooms	2000	
	5 Bedrooms	2500	
		Subtotal (A)	1,600 L

B) Plus Additional Flow for: Note: Use the largest additional flow calculation to determine Daily Design Flow (Q). If none apply Subtotal (B) is zero.		Quantity	(Q) Litres	Total
Either	Each bedroom over 5		500	
Or	Floor space for each 10m² over 200m² up to 400m²		100	
	Floor space for each 10m² over 400m² up to 600m²		75	
	Floor space for each 10m² over 600m²		50	
Or	Each Fixture Unit over 20 fixture Units *(Total of Worksheet B - 20 = Quantity)*		50	
			Subtotal (B)	
			Subtotal A+B=Daily Design Flow (Q)	

Worksheet B: Dwellings Fixture Unit Count

Fixtures	Units		How Many?		Total
Bath group (toilet, sink, tub or shower) with flush tank	6.0	X	1	=	6
Bathtub only(with or without shower)	1.5	X		=	
Shower stall	1.5	X		=	
Wash basin / Lavatory (1.5 inch trap)	1.5	X		=	
Water closet (toilet) tank operated	4.0	X		=	
Bidet	1.0	X		=	
Dishwasher	1.0	X	1	=	1
Floor Drain (3 inch trap)	3.0	X		=	
Sink (with/without garbage grinder, domestic and other small type single, double or 2 single with a common trap)	1.5	X	1	=	1.5
Domestic washing machine	1.5	X	1	=	1.5
Combination sink and laundry tray single or double (installed on 1.5 inch trap)	1.5	X	1	=	1.5
Other:					
			Total Number of Fixture Units:		11.5

1. Refer to Ontario Building Code Division B Table 7.4.9.3 for a complete listing of fixture types and units.
2. Where the laundry waste is not more than 20% of the total daily design flow, it may discharge to the sewage system. OBC 8.1.3.1(2)
3. Sump pumps are not to be connected to the sewage system. Connection to sewage system may lead to a hydraulic failure of the system.

Worksheet C: Other occupancies types

Camp for the Housing of Workers	Number of Employees	(Q) Litres	Total
Note: building size, number of bedrooms and fixture count are not required for a Camp for the Housing of Workers		250	
		Daily Design Flow (Q)	

Other Occupancy Daily Design Flow Calculation (Q)

To calculate the daily design flow for occupancies, please refer to Ontario Building Code Division B – Part 8 Table 8.2.1.3.B

Establishment	Operator Example: number of seats, per floor area, number of employees/students	Volume Litres	Total
		Daily Design Flow (Q)	

Work Sheet D: Septic Tank Size

Minimum septic tank size permitted by the Ontario Building Code is 3600 litres.

Minimum holding tank size permitted by the Ontario Building Code is 9000 litres.

Occupancy type	Daily Design Flow (Q)	Minimum tank size (L)
Residential Occupancy house, apartment, camp for housing of workers	1600 X 2 =	3,600 L
All Other Occupancies	X 3 =	
Holding Tank	X 7 =	

Worksheet E: Leaching Bed Calculations (Class 4)

Complete One of A, B, C, D, E, F

□ A. Absorption Trench

Total length of distribution pipe	**Conventional (Q x T) + 200 =** _____ m **Type I leaching chambers (Q x T) + 200 =** _____ m **Type II leaching chambers (Q x T) + 300 =** 42.67 m **Configured as:** 3 runs of 14.2 m Total: 43.89 m

□ B. Filter Bed

Effective Area If Q ≤ 3000 litres per day use Q + 75 If Q > 3000 litres per day use Q + 50 Level II-IV treatment units, use Q + 100 **Distribution Pipe** **Contact Area = (Q x T) + 850** **Mantel (see Part 1)**	**Effective area:** _____ (Q) + _____ (75, 50, or 100) = _____ m² **Configured as:** _____ m x _____ m **Number of beds** _____ **Number of runs:** _____ **Spacing of runs:** _____ m **Contact Area:** (_____ (Q) X _____ (T)) + 850 = _____ m² _____ m²

□ C. Shallow Buried Trench

Percolation time (T) of soil in minutes:	Length of distribution pipe (metres)
1 < T ≤ 20	Q + 75 metres
20 < T ≤ 50	Q + 50 metres
50 < T < 125	Q + 30 metres

(L) = _____ (Q) + _____ (75, 50, 30) = _____ m
Configured as: _____ runs of _____ m Total: _____ m

□ D. Advance Treatment System

Provide description of system.

□ E. Type A Dispersal Bed

Stone Layer If Q ≤ 3000 litres per day, use Q + 75 If Q > 3000 litres per day, use Q + 50 **Sand Layer** 1 < T ≤ 15 use (Q x T) + 850 T > 15 use (Q x T) + 400	**Stone Layer =** _____(Q) + _____ (75 or 50) = _____ m² **Sand Layer = (** _____ (Q) x _____ (T)) + (850 or 400) = _____ m²

□ F. Type B Dispersal Bed

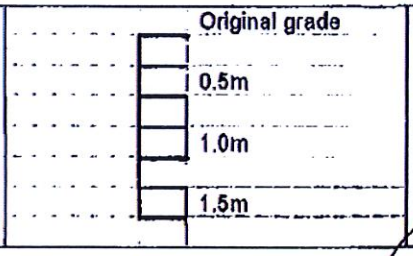
Area = (Q X T) + 400 **Linear Loading Rate (LLR)** T < 24 minutes, use 50 L/min If T ≥ 24 minutes, use 40 L/min **Distribution Pipe**	**Area = (** _____(Q) x _____ (T)) + 400 = _____ m2 **Pump chamber capacity =** _____ L **Length (Q + LLR) =** _____ m **Bed configuration =** _____m x _____ m = _____ m2 **Number of Beds =** _____ **Configured as:** _____ runs of _____ m Total: _____ m

INFORMATION TAKEN FROM ORIGINAL SEPTIC PERMIT PRSEP2021105 - 140 FT OF INFILTRATOR EQ-36 CHAMBERS

Worksheet F: Cross Sectional Drawings

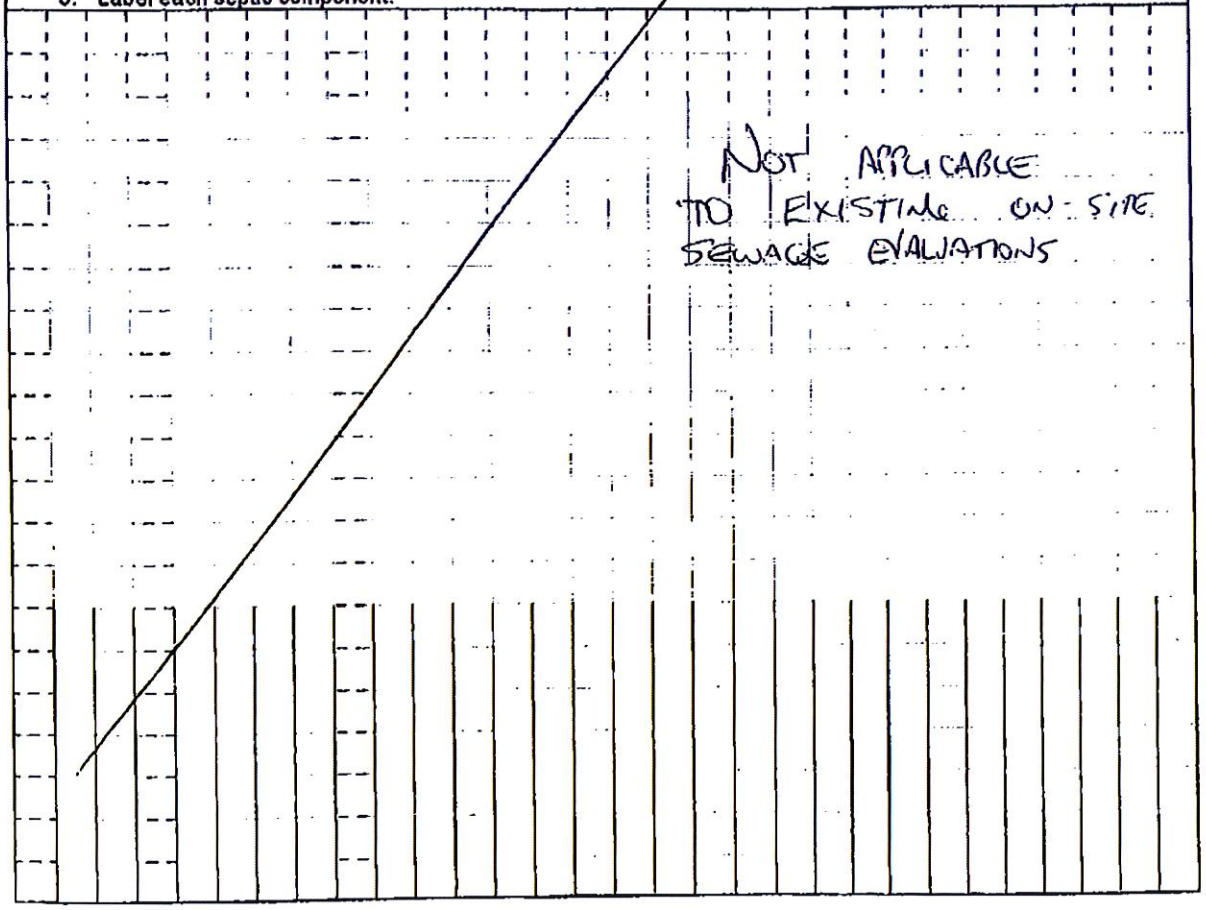
Subsoil Investigation – Test pit

1. Soil sample to be taken at a depth of
2. Test pit to be a minimum 0.9m

Indicate level of rock and ground water level below original grade.		Soil and subgrade investigation. Indicate soil types

Cross sectional drawings are required for all septic systems

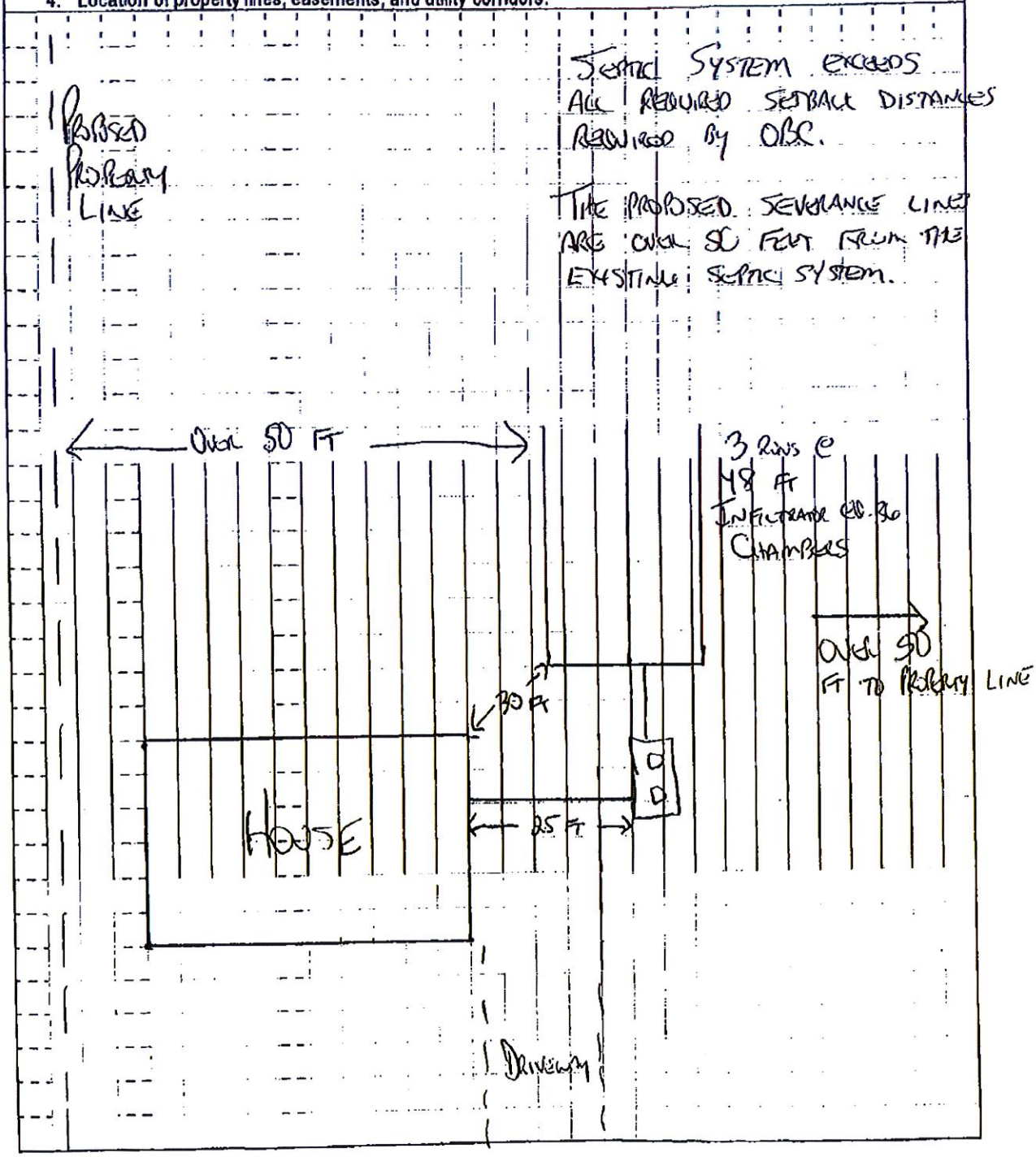
1. Location of existing grade.
2. Measurements to each component, distances to water table
3. Label each septic component.



Worksheet G: Septic Plot Plan

Please provide the following information on this work sheet:

1. Location of sewage system and its components (e.g. tank, leaching bed, pump chamber)
2. Location of all buildings, pools and wells on the property and neighbouring properties
3. Locate and show minimum clearances for treatment units and distribution piping of items. Ontario Building Code, Division B, Table 8.2.1.6.A. and 8.2.1.6.B.
4. Location of property lines, easements, and utility corridors.



Overall System Rating

☑ System working properly / no work required.

☐ System functioning / Maintenance required.

☐ System functioning / Minor repairs required

☐ System failure / Replacement required.

Additional Comments: SEPTIC SYSTEM COMPONENTS APPEAR TO BE IN GOOD WORKING ORDER AND IN A GOOD STATE OF REPAIR AT THE TIME OF EVALUATION.

Note: Any repair or replacement of an on-site sewage system requires a building permit.

Contact the Norfolk County Building Department at (519) 426-5870 ext. 6016 for more information.

Verification

Owner:

The owner is responsible for having a site evaluation conducted of the above mentioned property. Neither the evaluation nor the approval thereof shall exempt the owner(s) from complying with the Ontario Building Code or any other applicable law.

I, _____(the owner of the subject property) hereby authorize the above mentioned evaluator to act on my behalf with respects to all matters pertaining to the existing onsite sewage system evaluation.

Owners Signature:

Date:

Evaluator:

I, ED DOVE declare that this site evaluation is accurate as of the date of inspection. No determination of future performance can be made due to unknown conditions, future water usage over the life of the system, abuse of the system and/or inadequate maintenance, all of which can affect the life of the system. This evaluation does not grant or imply any guarantee or warranty of the future performance of the sewage system. The undersigned takes no responsibility for the accuracy of existing or proposed property lines, whether measured or implied.

Evaluator Signature:

Date: NOVEMBER 2/2022

Building Department Review

Comments:

Building Inspectors Name:

Building Inspector Signature:

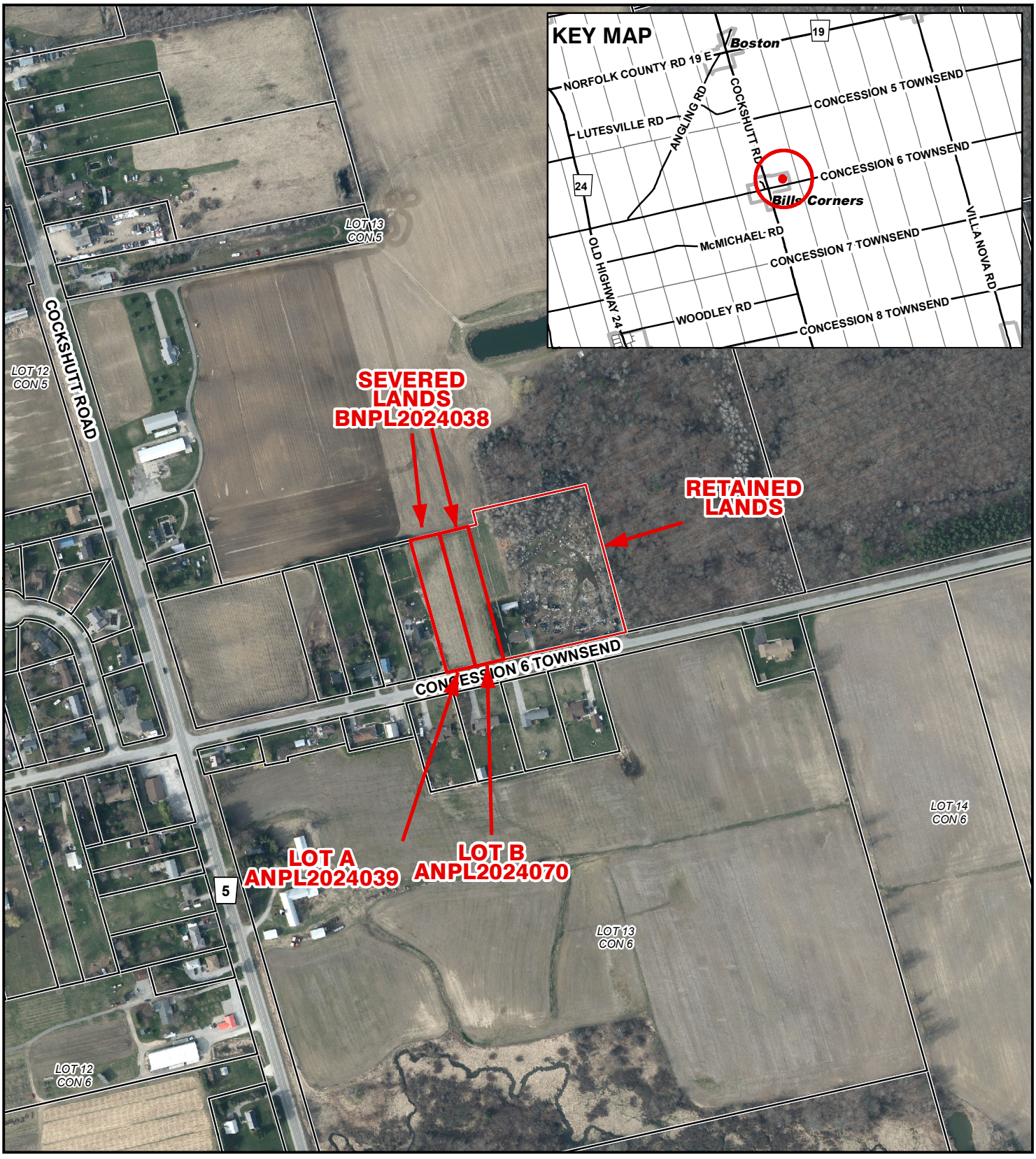
Date:

MAP A

CONTEXT MAP

Geographic Township of TOWNSEND

BNPL2024038
ANPL2024039
ANPL2024070



Legend

Subject Lands

Lands Owned

2020 Air Photo

3/5/2024

N

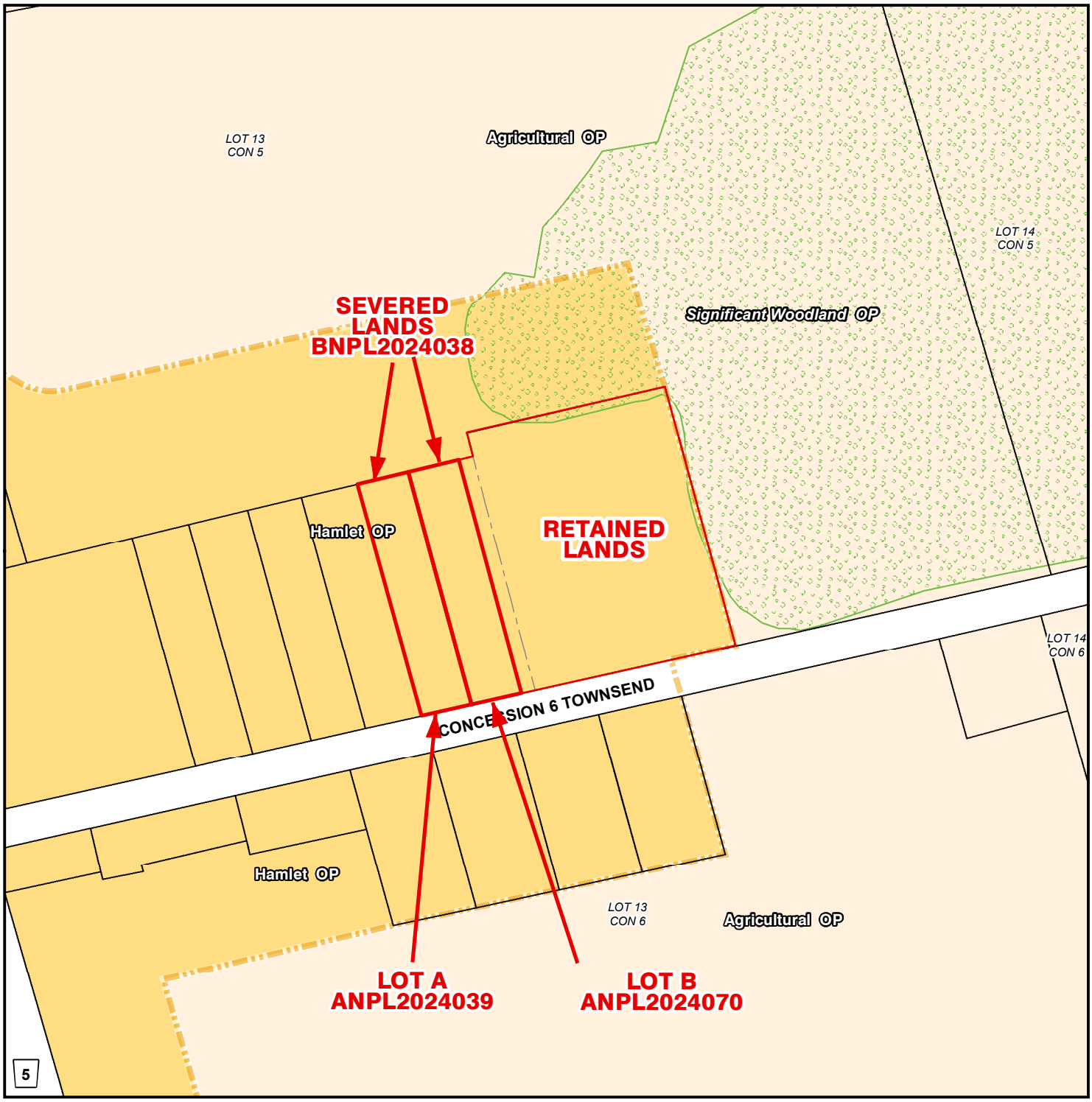
40 20 0 40 80 120 160 Meters

MAP B

OFFICIAL PLAN MAP

Geographic Township of TOWNSEND

BNPL2024038
ANPL2024039
ANPL2024070



Legend

- Subject Lands
- Lands Owned

Official Plan Designations

- Agricultural
- Hamlet
- Hamlet Area Boundary
- Significant Woodland

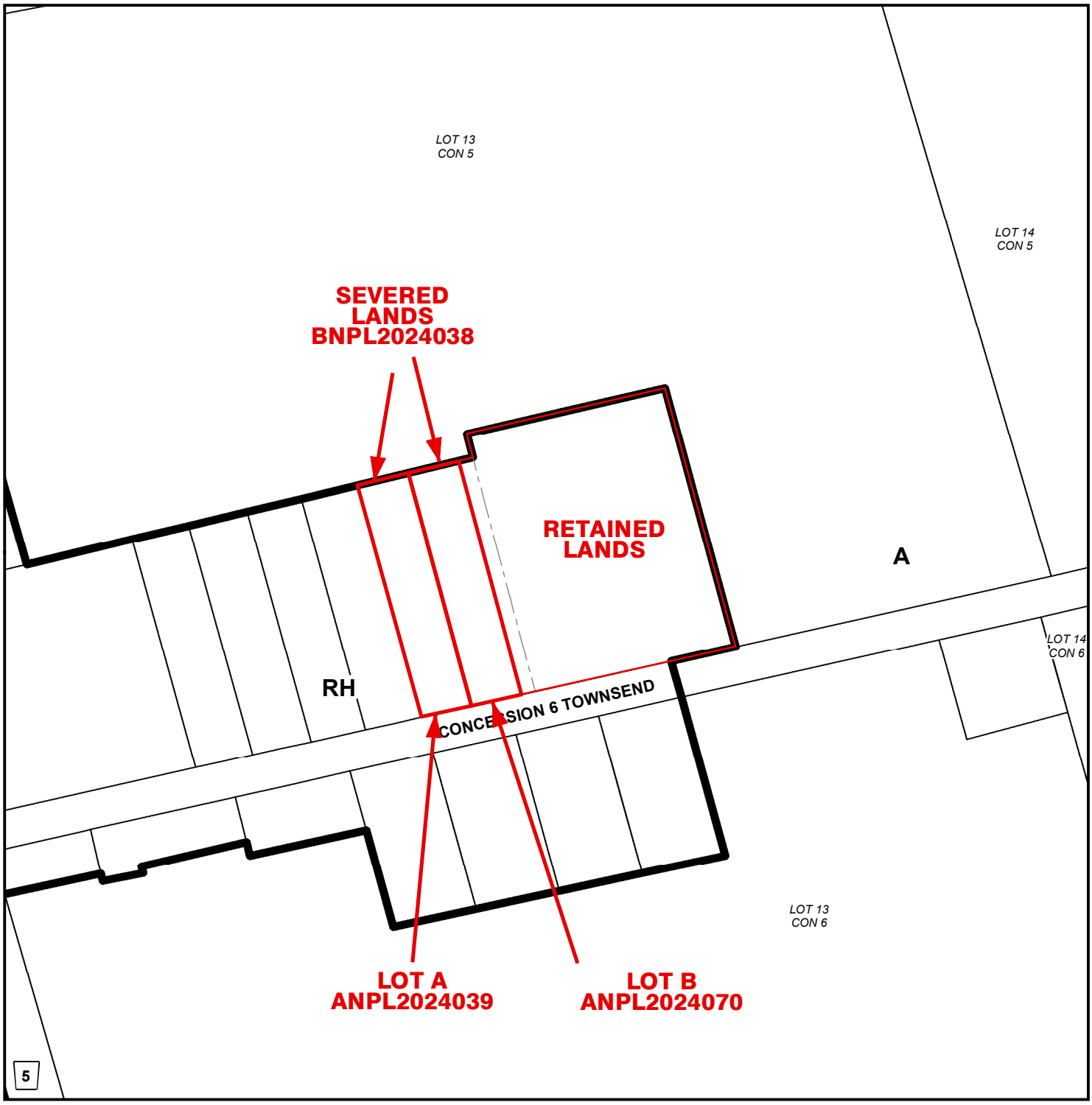
3/5/2024

N

20 10 0 20 40 60 80 Meters

MAP C
ZONING BY-LAW MAP
Geographic Township of TOWNSEND

BNPL2024038
ANPL2024039
ANPL2024070



LEGEND

Subject Lands

Lands Owned

ZONING BY-LAW 1-Z-2014

(H) - Holding

A - Agricultural Zone

RH - Hamlet Residential Zone

3/5/2024

N

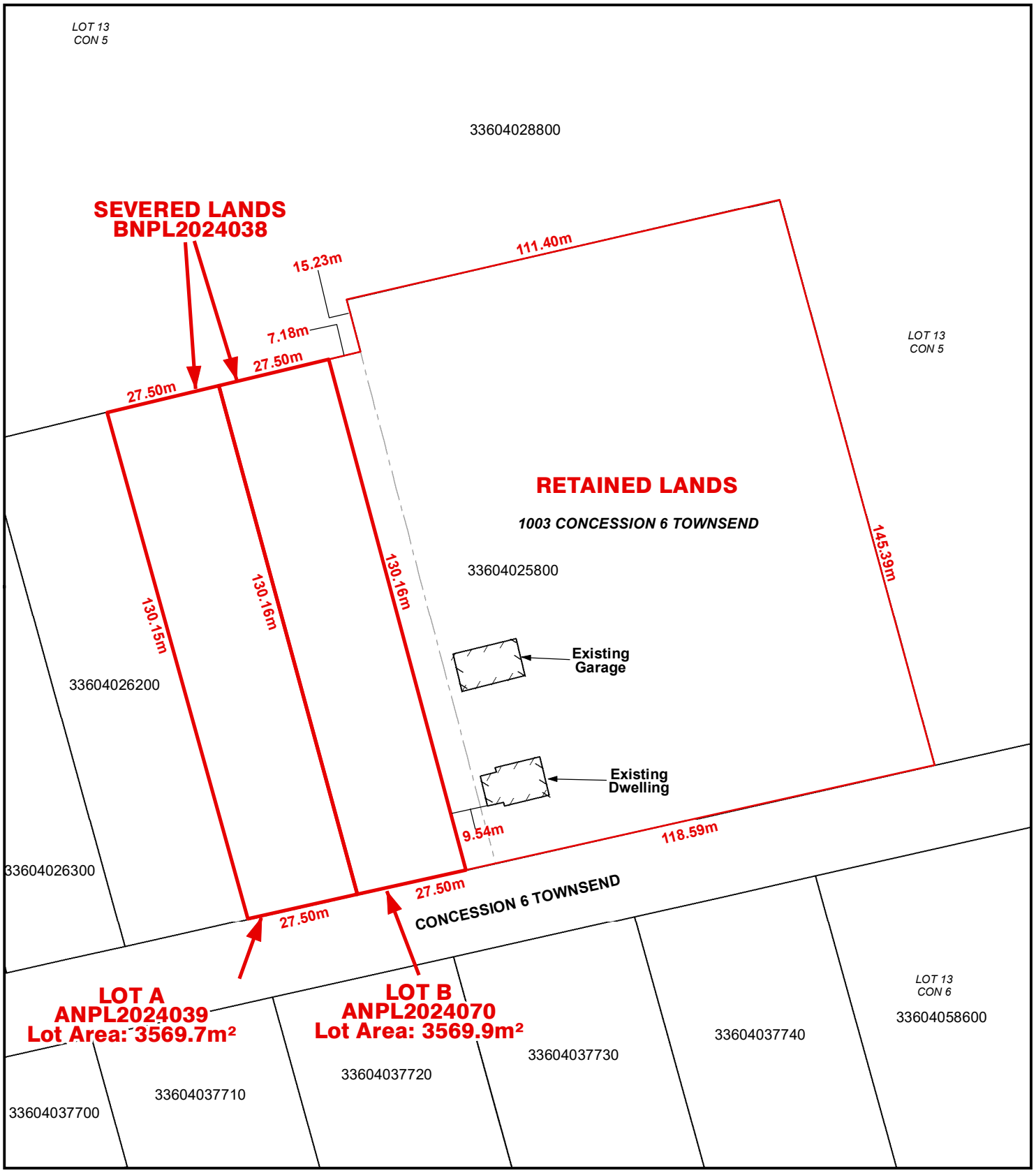
20 10 0 20 40 60 80
Meters

MAP D

CONCEPTUAL PLAN

Geographic Township of TOWNSEND

BNPL2024038
ANPL2024039
ANPL2024070



Legend

- Subject Lands
- Lands Owned

3/5/2024

N

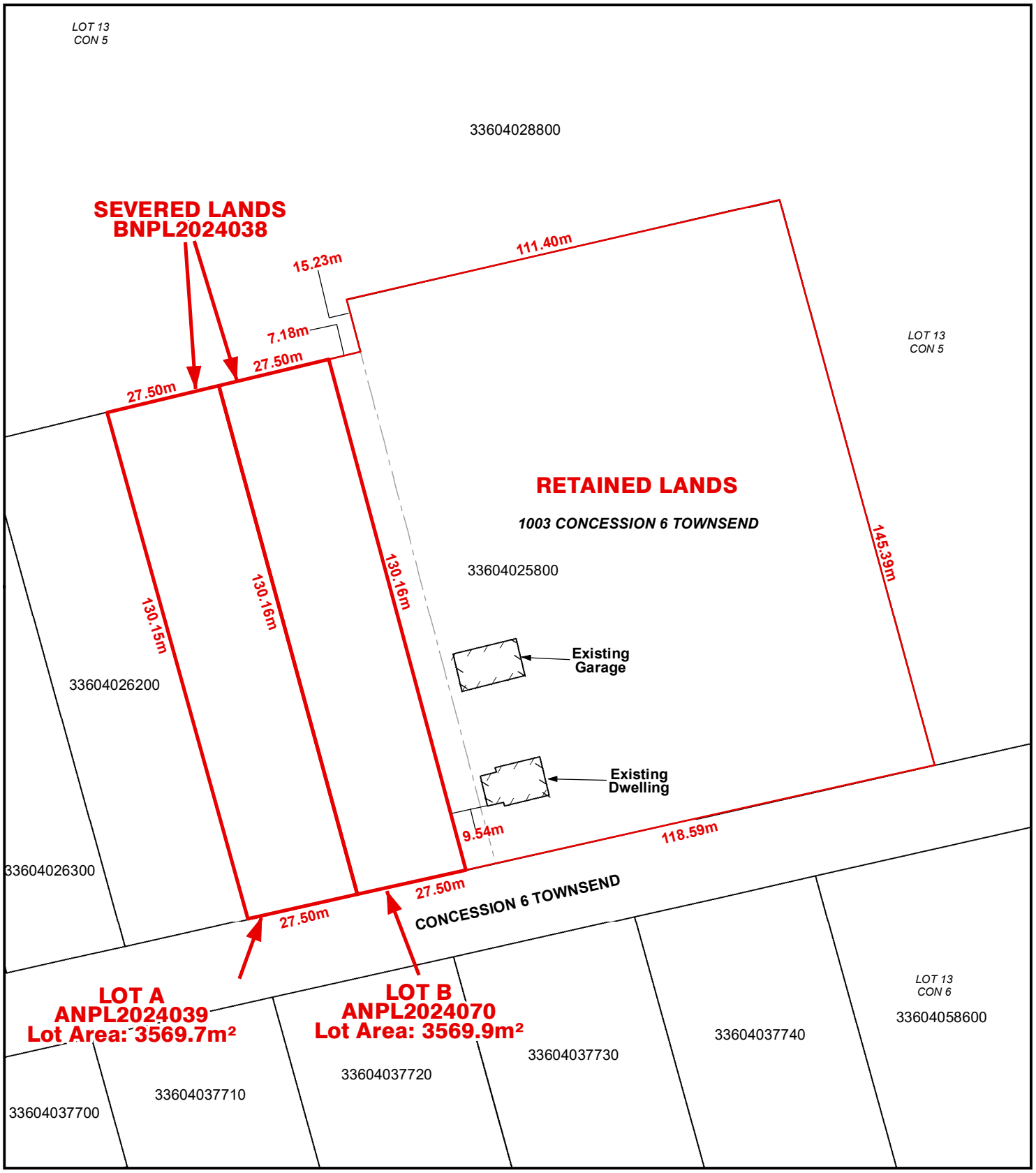
10 5 0 10 20 30 40 Meters

LOCATION OF LANDS AFFECTED

CONCEPTUAL PLAN

Geographic Township of TOWNSEND

BNPL2024038
ANPL2024039
ANPL2024070



Legend

- Subject Lands
- Lands Owned

3/5/2024

N

10 5 0 10 20 30 40 Meters