Hydrogeological Assessment

202 Brennan Road, (Severed Parcel B)
Thurlow, ON

Prepared for:
Mr. Andy Vos
202 Brennan Road,
Thurlow, ON K8N 4Z6

Prepared by:
ASC Environmental Inc.
1305 Princess St,
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File: ASC-1052 100r
August 21, 2025

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1.0 INTRODUCTION

1.1 Initiation and Objective

ASC Environmental Inc. (ASC) was retained by *Andy Vos* (Client) to conduct a hydrogeological assessment in support of a land severance application in accordance with Belleville Committee of Adjustment. The subject property encompasses approximately 35.6 hectares located along the north side of Brennan Road, Thurlow, Ontario. The proposed Severed Parcel B encompasses approximately 0.78 hectare with 60 metres of road frontage along the north side of Brennan Road. The retained parcel encompasses approximately 34.0 hectares with approximately 176.3 metres of road frontage. The extent of this study concerns the Severed Parcel B. A site location plan is shown on Drawing No. 1 in Appendix A.

The purpose of the hydrogeological study was to assess the viability of one drilled well (identified as TW2) to support the proposed severance (Severed Parcel B). The study evaluated whether groundwater quality and quantity are sufficient to support the residential development without adversely impacting upon existing neighbouring wells.

One (1) newly drilled well (MECP Tag #A406205) was advanced on the severed B portion of the subject property by Campbell Well Drilling Ltd. (Well Contractor's Licence # 4554). No date was indicated on the well record.

1.2 Scope of Work

The agreed scope of work included the following efforts:

- Reviewing available Ministry of Environment, Conservation and Parks (MECP) well water records and historical data for the local area
- Undertake one (1) six-hour pumping test (with recovery) on the newly drilled well located on the subject property.
- Monitor water levels in available neighbouring adjacent wells during pumping.
- Collect well water sample following zero chlorine residual and near the end of the pumping test (approximate 5.5-hour mark).
- Submit well water sample to a certified laboratory for the required suite of parameters, as indicated in the MECP D-5-5 Procedure.
- Prepare a hydrogeological assessment, in accordance with the Belleville Committee of Adjustment provision for consent, as amended, including assessment of water quality, water quantity, and potential well interference, in support of the proposed land severance.

2.0 BACKGROUND

2.1 Site Information

The subject property is an approximate 35.63-hectare parcel of land with approximately 281.3 metres of frontage along the north side of Brennan Road, Thurlow, ON. The proposed severed lot (B) encompasses approximately 0.78 hectares with 60 metres of road frontage. The property is located approximately 7.0 kilometres northwest of the Village of Shannonville. A site layout plan may be found in Drawing No. 2 in Appendix A.

Ground cover generally consists of grass covered fields with scattered coniferous and deciduous trees. Surrounding land use within a 500-metre radius consists primarily of rural residential, agricultural and forested areas.

2.2 Surficial Soil Conditions

The physiographic area is described as Bevelled Till Plains which is characterized by stony and sandy silt to silty sand-textured till overlying Paleozoic bedrock. [1]

Review of local well records showed an overburden thickness of approximately 0.91 to 8.1 m, overlying limestone bedrock. Records reported the local overburden consisted of topsoil, clay till and stones.

2.3 Background Geology

Bedrock geology in the study area consists of Paleozoic bedrock comprised of limestone, dolostone, shale, arkose, and sandstone from the Ottawa Group; Simcoe group and Shadow Lake Formations. [2]

2.4 Local Hydrogeology

Four (4) water well summary records of local wells (within a 750-metre radius of the subject property) were available for review from the MECP online database (see Appendix C). Review of the well records identified four (4) drilled wells. Three (3) wells were intended for domestic household water supply and one (1) was intended for stock water supply. Reported well depths ranged from 11.9 m to 30.1 m. Water was encountered at depths ranging from 4.0 mbgs to 18.6 mbgs. Copies of the well records identified in the MECP database can be seen in Appendix C.

Groundwater flow is typical through pores in the overburden shallow soils and through fractures, joints and bedding planes within the limestone bedrock formation.

[1] Chapman, L.J. and Putnam, D.F. 1972. Physiography of Southern Ontario. Map 2227.
[2] Ontario Geological Survey. 1991: Bedrock Geology of Ontario, Southern Sheet. Map. 2544.

3.0 WELL CONSTRUCTION

The well was drilled for the purpose of domestic water supply by Campbell Well Drilling Ltd., (Well Contractor's Licence # 4554) in support of the proposed land severance. The well location is shown in Drawing No. 2 in Appendix A and the well record is included in Appendix B.

The well record for TW2 indicated that the annular space between the steel casing and native materials was sealed with cement to a depth of approximately 6.1 m below ground surface. The well record for TW2 shows that the steel casing extends to a depth of approximately 6.1 m. According to measurements taken by ASC personnel on August 12, 2025, the well casing extends above ground surface approximately 0.66 m.

The well record for TW2 indicated overburden consisting of brown soil with rocky texture from surface to approximately 4.6 m and completed within the limestone bedrock at a depth of approximately 10.7 m. Water was reportedly encountered at a depth of approximately 7.3 mbgs in the limestone bedrock. The well was completed at an approximate depth of 10.7 m in the underlying limestone bedrock.

Visual observations during field work indicated that the well was constructed and maintained to prevent surface water and other foreign materials from entering the well. The height of the casing above grade meets Ontario's Revised Regulation (RRO) 903, Wells, amended to Ontario Regulation (O Reg) 372/07, under the *Ontario Water Resources Act*. The test well location is shown on Drawing No. 2 in Appendix A.

No sources of potential contamination were evident during the site work on the subject property.

We understand that water will be supplied using submersible pump. Pump installation shall be undertaken in accordance with RRO 903 (Section 17).

Copy of the test well record is attached in Appendix B.

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4.0 WATER QUANTITY

4.1 Background

The quantity of groundwater available for the test well was investigated through one (1) scheduled 6-hour pumping test in accordance with MECP Procedure D-5-5 and Belleville Committee of Adjustment, as amended. Referencing Government of Canada precipitation data (Kingston weather station), fourteen (14) days leading up to the pumping test showed approximately 0.1 mm of precipitation. On this basis, the pumping test was not undertaken during a period of heavy precipitation (Appendix E).

Referencing MECP D-5-5 guidelines, the minimum pumping rate per person based on peak demand is 3.75 L/min. Therefore, considering a 3-bedroom home (3 + 1), the minimum pumping rate required would be 15 L/min (3.75 L/min * 4). On this basis, the test well could be pumped at rate of 15 L/min for purposes of assessing peak demand and long term well yield. The pumping test was conducted at a rate of 20 L/min throughout the duration of the test.

Bedrock hydrogeological values of transmissivity were calculated from the pumping data by the Jacob method, which assumes the heterogeneous limestone bedrock as an unconfined, porous media aquifer of infinite horizontal extent. Recognizing that the limestone bedrock water bearing unit is likely unconfined, the Jacob method sufficiently estimates the aquifer parameters to assess well hydrogeological conditions.

4.2 Test Well TW2

Test well TW2 is approximately 11.47 metres deep (from top of casing). Prior to the initiation of pumping the static water level was measured to be approximately 4.58 metres from the top of the casing. The water in the well was pumped at a rate of 20 litres/min for a total of 360 minutes, yielding approximately 7,200 litres of water. Maximum drawdown was manually measured at approximately 0.34 metres over the duration of the test. At the completion of the pumping test, approximately 95% of the total well supply was remaining. Specific capacity calculated over the final 60 minutes of the pumping test was found to be approximately 2,000 litres/minute/metre. A plot of drawdown versus time shows a logarithmic relationship (see Figure 1 in Appendix D).

Section 4.3.1 of the Ministry of Environment, Conservation and Parks (MECP*) (previously known as the Ministry of Environment)* D-5-5 Procedure, Technical Guideline for Private Wells: Water Supply Assessment requires that water level recovery must be monitored in the test well for the lesser of 95% recovery or 24 hours. Total drawdown over the period of pumping was measured at approximately 0.34 m, recovery to 95% occurred approximately 25 minutes following pump shutdown. Based on the minimal measured drawdown (0.34 m), well supply remaining following pump shut down (95%), and the wells ability to recover 95% following pump shut down; the well is sufficiently able to meet peak usage periods, recover and meet the daily requirement for the proposed severance.

The transmissivity (T) after approximately 100 minutes of pumping was calculated to be approximately 1.36 x 10^{-4} m^2/s. Hydraulic Conductivity (K = T/b), where b = 6.89 m

(represents approximate aquifer thickness at time of pumping), was determined to be approximately K= 9.54 x 10^{-5} m/s. The test well recovery and transmissivity data may be found in Appendix D.

As indicated above and based on the considered number of bedrooms expected (3 + 1), a minimum pumping rate of 15 L/min is required with a resulting water requirement of 1,800 litres/day during peak demand. Peak demand (at pumping rate of 20 L/min) was reached approximately 90 minutes into the pumping test, with a measured drawdown of approximately 0.3 m. Additional drawdown recorded over the remainder of the pumping test was measured to be 0.04 m. This indicates that the well sufficiently met “peak demand” conditions.

Based on the observations from the drawdown versus time relationship, it is concluded that the long-term yield of TW1 is sufficient to meet normal domestic requirements in accordance with the MECP Procedure D-5-5 and City of Belleville Committee of Adjustment.

Drawdown and recovery measurements obtained during the pumping test are presented in Appendix D.

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5.0 INTERFERENCE

The effects of interference were monitored during well development and pumping from the test well. Neighbouring observation wells were utilized during pumping to assess potential interference. Observation well locations are shown on Drawing No. 2.

5.1 Test Well TW2

Seven (7) observation wells, located on the retained parcel of 202 Brennan Road (OW1), 197 Brennan Road (OW2), 175 Brennan road (OW3), 159 Brennan Road (OW4 & OW6), 132 Brennan Road (OW5) and the Severed Parcel A at 202 Brennan Road (TW1) were utilized to assess potential interference during the TW2 pumping test. The observation wells were located between approximately 140 and 285 metres horizontal distance from the subject test well. See Table 1 below, for observation well information.

Water levels measured in the observation wells during the TW2 pumping test did not show a significant positive response (see Section 5.2 below).

Table 1. Test Well – TW2 Neighbouring wells involved in hydrogeological assessment at the subject property.

Observation Well ID	Well type	Observation Well Address	Distance from Test Well (m)
OW1	Drilled	202 Brennan Road (Retained)	200
OW2	Dug	197 Brennan Road	195
OW3	Dug	175 Brennan Road	105
OW4	Drilled	159 Brennan Road	90
OW5	Dug	132 Brennan Road	210
OW6	Dug	159 Brennan Road	80
TW1	Drilled	202 Brennan Road (Severed Parcel A)	60

5.2 Discussion of Results

Potential water quantity problems resulting from mutual well interference are not expected for the test well TW2. A maximum drawdown of 0.05 m was measured in OW6, located approximately 80 metres horizontal distance, from the test well.

On this basis, ASC is of the opinion that the associated measured drawdown is an appropriate estimation of the influence. The measured influence indicates potential well interference will not likely create adverse conditions to the existing neighbouring well supply. Copies of the residential water level measurements recorded during the pumping test are presented in Appendix D.

6.0 WATER QUALITY

A well water sample was collected from the test well on August 12, 2025, during the final hour of the pumping test and stored in a cooler with ice and transported to a Canadian Association of Laboratory Accreditation (CALA) certified laboratory in Kingston, Ontario. Chemical and bacteriological parameter analyses were undertaken in accordance with the MECP Procedure D-5-5 and compared to the Ontario Drinking Water Quality Objectives (ODWO).

Results of analyses for the test well (TW2) are presented in the following section.

6.1 Test Well TW1

Bacteriological parameter analyses met the MECP Procedure D-5-5 and ODWO for Total Coliform (<5 cfu/100ml), E. Coli (0 cfu/100ml), and Fecal Coliform (0 cfu/100ml) in the sample collected on August 12, 2025. MECP Procedure D-5-5 states that a Total Coliform count of <6 cfu/100ml is considered indicative of acceptable drinking water quality when E. Coli and Fecal Coliform counts are 0 cfu/100ml.

Health related parameters (nitrite, nitrate, sodium and turbidity) met the MECP Procedure D-5-5 and ODWO.

Remaining aesthetic parameters met MECP Procedure D-5-5 and ODWO.

To ensure safe drinking water is provided to future residents, we recommend contracting a professional water quality specialist to confirm aesthetic treatment options. At a minimum, we recommend disinfection (i.e. UV light) of the water source to ensure bacteriological free groundwater for consumption purposes.

Results of laboratory sample analyses are presented in Appendix E.

7.0 SEWAGE SYSTEM SERVICES

ASC understands that the proposed dwelling on the severed lands is likely to consist of one (1) 3-bedroom rural residential dwelling with associated private well and septic service.

At the time of this assessment, ASC understands no existing sewage disposal system is present on the proposed severed land. Furthermore, considering site subsurface conditions, ASC understands that a proposed 3-bedroom dwelling is most likely to be serviced with a raised bed Class 4 Sewage System and the proposed severed lands have sufficient space to accommodate a viable septic system. To ensure the most optimal septic design is undertaken at the subject property, we recommend contracting a professional septic design specialist to confirm servicing options for the subject property.

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8.0 CONCLUSIONS AND RECOMMENDATIONS

- Based on the considered number of bedrooms expected (3 + 1), a minimum pumping rate of 15 L/min is required with a resulting water requirement of 1,800 litres/day during peak demand. Peak demand (20 L/min) was reached approximately 90 minutes into the pumping test with a measured drawdown of 0.3 m. Additional drawdown recorded over the remainder of the pumping test was measured at 0.04 m. This indicates that the well sufficiently met “peak demand” conditions.

- The water in the well was pumped at a rate of 20 litres/min for a total of 360 minutes, yielding approximately 7200 litres of water. Maximum drawdown was manually measured at approximately 0.34 metres over the duration of the test. At the completion of the pumping test, approximately 95% of the total well supply was remaining. Ninety-five percent (95%) recovery was reached approximately 25 minutes following pump shut down. On this basis, the well is sufficiently able to supply peak usage periods and meet the daily requirement for the proposed severance.

- Based on results of the pumping tests and monitoring results of neighbouring residential well water supplies, water quantity problems resulting from mutual well interference is not expected.

- Bacteriological parameter analyses met the MECP Procedure D-5-5 and ODWO for Total Coliform (<5 cfu/100ml), E. Coli (0 cfu/100ml), and Fecal Coliform (0 cfu/100ml) in the sample collected on July 16, 2025. MECP Procedure D-5-5 states that a Total Coliform count of <6 cfu/100ml is considered indicative of acceptable drinking water quality when E. Coli and Fecal Coliform counts are 0 cfu/100ml.

- Remaining aesthetic parameters met MECP Procedure D-5-5 and ODWO.

- To ensure safe drinking water is provided to future residents, we recommend contracting a professional water quality specialist to confirm aesthetic treatment options. At a minimum, we recommend disinfection (i.e. UV light) of the water source to ensure bacteriological free groundwater for consumption purposes.

- Visual observations during field work indicated that the well was constructed and maintained to prevent surface water and other foreign materials from entering the well. The height of the casing above grade meets Ontario’s Revised Regulation (RRO) 903, Wells, amended to Ontario Regulation (O Reg) 372/07, under the *Ontario Water Resources Act*.

- No land and water use conflicts were identified in an evaluation of the surrounding properties within 500 metres of the subject property.

- Surrounding land use within a 500-metre radius consists primarily of rural

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residential, agricultural and forested areas.

- At the time of this assessment, ASC understands no existing sewage disposal system is present on the proposed severed land. Furthermore, considering site subsurface conditions, ASC understands that a proposed 3-bedroom dwelling is most likely to be serviced with a raised bed Class 4 Sewage System and the proposed severed lands have sufficient space to accommodate a viable septic system. To ensure the most optimal septic design is undertaken at the subject property, we recommend contracting a professional septic design specialist to confirm servicing options for the subject property.

- Reviewing the existing site and local lithology, and taking local hydrogeological characteristics into account, well construction details and the results from groundwater chemistry; the limestone bedrock groundwater resource has not been significantly impacted from surface infiltration sources. Results indicate sufficient long-term water supply to support the proposed severance.

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9.0 LIMITATIONS

ASC Environmental (ASC) was retained by *Andy Vos* (Client) to undertake a Hydrogeological Assessment in support of a proposed land severance at the subject property, located at 202 Brennan Road, Thurlow, Ontario.

The scope of work for this assessment included:

- Undertaking a minimum six-hour pumping test, with recovery on the test well.
- Monitoring adjacent residential wells during pumping, to assess potential interference.
- Collection of well water samples, following field confirmation of zero residual chlorine and within the last hour of the pumping test.
- Submission of samples to a certified laboratory for the required suite of parameters.
- Preparation of a hydrogeological assessment report, addressing well construction, water quality and quantity, and potential interference.

The findings reported in this document are based on the tasks completed by ASC under the mutually agreed upon scope of work. Professional judgement, experience with similar investigations, and available data collected within the scope of work form the basis for this report. ASC has prepared this report using information understood to be factual and correct and shall not be responsible for conditions arising from information or facts that were inaccurate, concealed, or not fully disclosed at the time of investigation.

ASC Environmental Inc. makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time.

The nature of the investigation makes it possible that contrary conditions may be identified due to seasonal or meteorological changes that are beyond the control of ASC. Groundwater sampling results are current at the time of sampling only, seasonal conditions and future changes to the property may influence groundwater quality. The passage of time affects the information provided in the report. Environmental conditions of a Site can change. Opinions relating to the Site conditions are based upon information that existed at the time that the conclusions were formulated. ASC does not certify or warrant the future environmental/hydrogeological status of the property.

This document has been prepared by ASC Environmental Inc. for the sole use of *Andy Vos* and *assignees* to assess hydrogeological conditions related to the subject property. Unauthorized reuse of this document for other purposes, or by any other party, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from ASC

Environmental Inc. will be required. Such reliance will only be provided by ASC Environmental Inc. following written authorization from the Client. ASC Environmental Inc. disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed.

ASC Environmental Inc. will not be responsible for any consequential or indirect damages. ASC Environmental Inc. will only be liable for damages resulting from negligence of ASC Environmental Inc. ASC Environmental Inc. will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered (Claim Period), to commence legal proceedings against ASC Environmental Inc. to recover such losses or damage unless the laws of the jurisdiction which govern the Claim Period which is applicable to such claim provides that the application Claim Period is greater than two years and cannot be abridged by the contract between the Client and ASC Environmental Inc., in which case the Claim Period shall be deemed to be extended by the shortest additional period which results in this provision being legally enforceable.

Yours truly,
ASC Environmental Inc.

Tanner Cook, B.A.
Environmental Technical Specialist

Reviewed by:



Paul Johnston, M.Sc., P. Eng. QP$_{ESA}$
President

APPENDIX A
Drawing No. 1 - 2

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LEGEND

- SUBJECT PROPERTY LOCATION
- APPROXIMATE LOCATION OF SUBJECT PROPERTY
- APPROXIMATE LOCATION OF PROPOSED SEVERED PARCELS

DRAWING TITLE
Site Location Plan

FIGURE NO.	DRAWN BY
01	J. Braznick

PROJECT
Hydrogeological Assessment

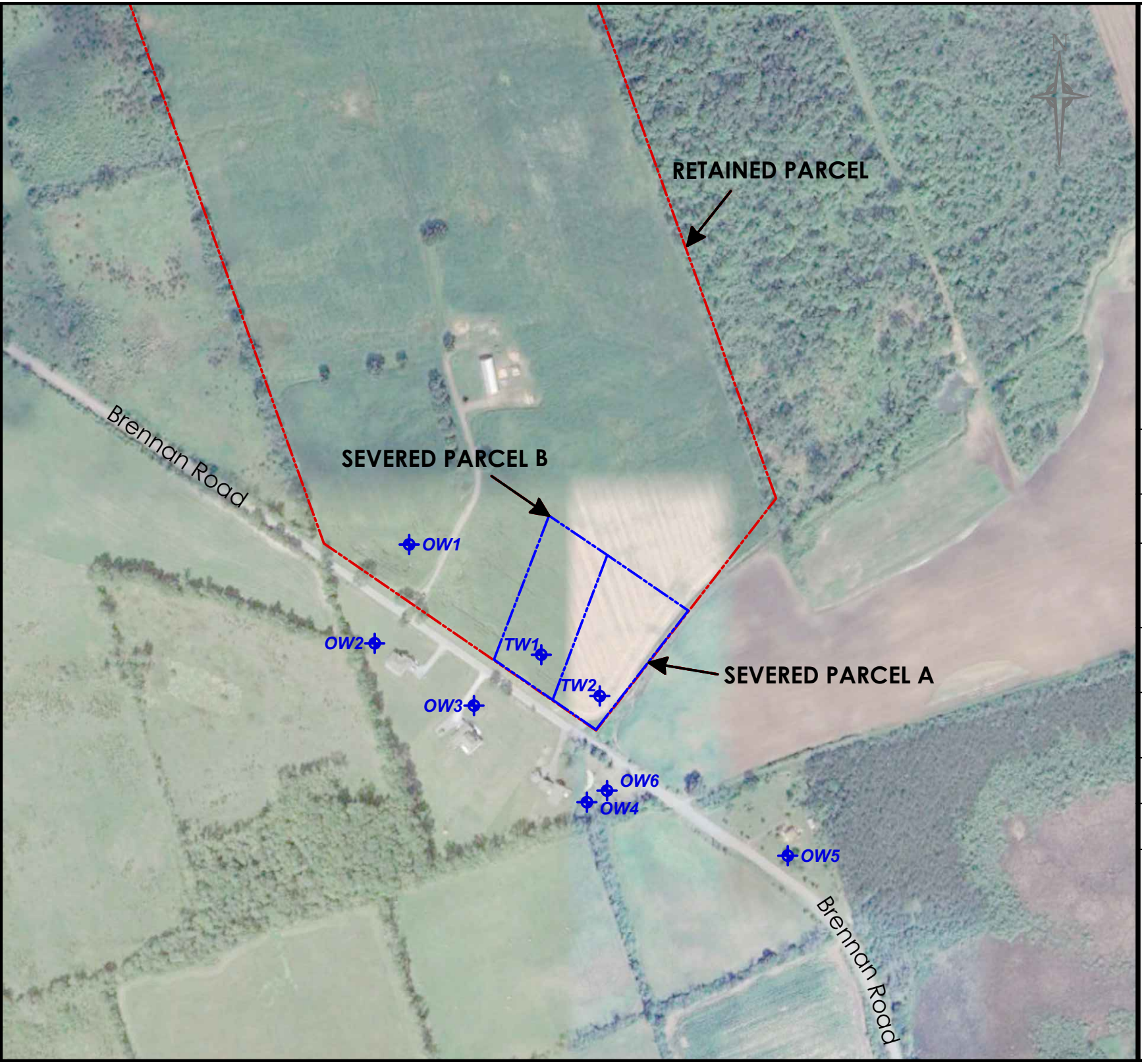
CLIENT
Andy Vos

LOCATION
202 Brennan Road, Thurlow, ON

PROJECT NO.	SCALE:
ASC-1052	0 METRES 1370
DATE	
8-August-2025	

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LEGEND

APPROXIMATE LOCATION OF SUBJECT PROPERTY

APPROXIMATE LOCATION OF PROPOSED SEVERED PARCELS

DRAWING TITLE
Site Layout Plan

FIGURE NO.	DRAWN BY
02	J. Braznick

PROJECT
Hydrogeological Assessment

CLIENT
Andy Vos

LOCATION
202 Brennan Road, Thurlow, ON

PROJECT NO.	SCALE:
ASC-1052	0 METRES 90
DATE	
8-August-2025	

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APPENDIX B
Test Well Record

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Tel: (613) 634-5596

Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below): A406205

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
Andy	VOS		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
1585 thrasher rd	tyendinaga	ON	K0K2V0	6139489108

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Brenan rd	tyendinaga		

County/District/Municipality	City/Town/Village	Province	Postal Code
Hastings County	Plainfield	Ontario	K0K2V0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD	18	31 59 72	49 01 15 34		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
brown	Soil		rocks	0	15
Grey	limestone		bedrock	15	35

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20	bentonite Slurry	1.4 ft³

Method of Construction

☑ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☑ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6in	Steel	.188	0	20

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☑ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
24ft	☐	☐ Fresh ☑ Untested	
	☐	☐ Fresh ☐ Untested	
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	20	8in
20	35	6in

Results of Well Yield Testing

After test of well yield, water was:
☑ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 32 ft

Pumping rate (l/min / GPM): 3 GPM

Duration of pumping: 2 hrs + ____ min

Final water level end of pumping (m/ft): 15ft

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft): 30ft

Recommended pump rate (l/min/GPM): 3.5GPM

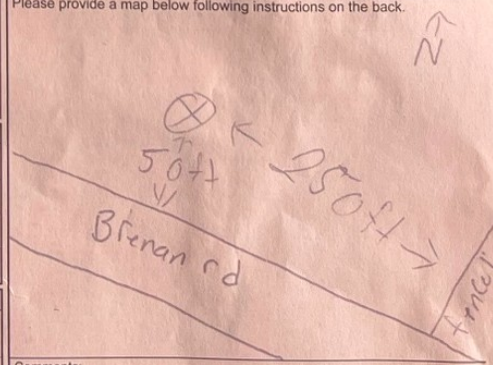
Well production (l/min/GPM): 4.5 GPM

Disinfected? ☑ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		11		
1	1	13	1	22
2	2	15	2	21
3	3	17	3	21
4	4	19	4	20
5	5	20	5	20
10	10	21	10	19
15	15	22	15	18
20	20	23	20	18
25	25	23	25	17
30	30	23	30	17
40	40	23	40	16
50	50	23	50	16
60	60	23	60	15

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Campbell well drilling	8142

Business Address (Street Number/Name)	Municipality
337 dowdle rd	

Province	Postal Code	Business E-mail Address
ON	K0K2S0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6134851818	Cole Campbell

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
4154	Campbell	

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No		

Ministry Use Only

Audit No. Z430180

Received

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Well Owner's Copy

APPENDIX C
MECP Water Well Records

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Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Place Sticker and/or Print Below): A312707 Tag#:A312707

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Brennan Rd.	Thurlow	30	III
County/District/Municipality	**City/Town/Village**	**Province**	**Postal Code**
Hastings	City of Belleville	Ontario	
UTM Coordinates Zone / Easting / Northing	**Municipal Plan and Sublot Number**	**Other**	
NAD 8 3 18 317343 4901037			

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay Till		Packed	0	3
Grey	Limestone		Broken	3	12
Grey	Limestone		Hard	12	61

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
12	0	Bentonite	4.0

Method of Construction

☐ Cable Tool ☐ Diamond ☐ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used ☒ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6.25	Steel	.188	+2	12

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
13	☐	☐ Fresh ☒ Untested	
17	☐	☐ Fresh ☒ Untested	
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	12	10"
12	61	6"

Results of Well Yield Testing

After test of well yield, water was: ☒ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 58

Pumping rate (l/min / GPM): 5 gpm

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 32.8

If flowing give rate (l/min/GPM):

Recommended pump depth (m/ft): 58

Recommended pump rate (l/min/GPM): 5 gpm

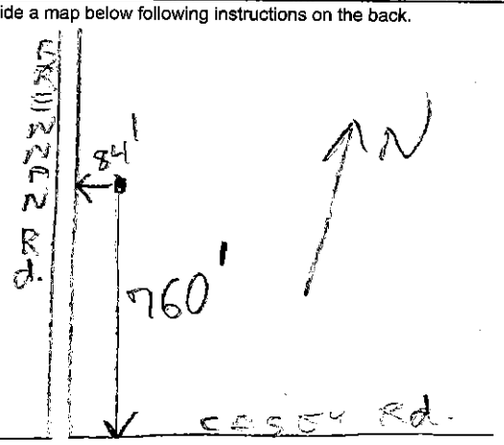
Well production (l/min/GPM): 5 gpm

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		9.8		
1	1	10.5	1	31.2
2	2	10.8	2	27.7
3	3	11.1	3	24.2
4	4	11.2	4	21.2
5	5	11.3	5	18.0
10	10	12.9	10	10.4
15	15	13.4	15	10.1
20	20	14.5	20	9.8
25	25	14.5	25	9.8
30	30	14.6	30	9.8
40	40	20.6	40	9.8
50	50	26.7	50	9.8
60	60	32.8	60	9.8

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Chalk Well Drilling Ltd.	1505
Business Address (Street Number/Name)	**Municipality**
31 Johnsons Side Rd.	Napanee
Province	**Postal Code** / **Business E-mail Address**
Ontario	K7R 3L1 / chalkwel kos.net
Bus. Telephone No. (inc. area code)	**Name of Well Technician (Last Name, First Name)**
613-388-2809	Chalk Kevin
Well Technician's Licence No.	**Signature of Technician and/or Contractor** / **Date Submitted**
0627	Kevin Chalk / 2021 08 03

Well owner's information package delivered: ☒ Yes ☐ No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: 2021 07 27

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Audit No. Z352283

Received NOV 09 2021

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Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Place Sticker and/or Print Below): **A116944**

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 3

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
159 BRENNAN RD.	THURLOW	29	4
County/District/Municipality	**City/Town/Village**	**Province**	**Postal Code**
HASTINGS	BELLEVILLE	Ontario	K8N4Z6
UTM Coordinates Zone / Easting / Northing	**Municipal Plan and Sublot Number**	**Other**	
NAD 83 18 370264 9014 36			

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	CLAY	STONES		0	8
BROWN	CLAY	STONES	HARD	8	11
GREY	LIMESTONE			11	101

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
11	7	3/8 BENTONITE CHIPS	4 BAGS
7	0	BENTONITE SLURRY 20%	1 BAG

Method of Construction

☒ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, *specify*

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4	STEEL	.188	+2	11
6 1/8	OPEN HOLE		11	101

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
13	☐	☐ Fresh ☒ Untested	
61	☐	☐ Fresh ☒ Untested	SULFUR.
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
+2	11	6 1/4
11	101	6 1/8

Results of Well Yield Testing

After test of well yield, water was:
☒ Clear and sand free
☐ Other, *specify*

If pumping discontinued, give reason: —

Pump intake set at (m/ft): 90

Pumping rate (l/min / GPM): 1.5

Duration of pumping: 1 hrs + 00 min

Final water level end of pumping (m/ft): 29.35

If flowing give rate (l/min / GPM): —

Recommended pump depth (m/ft): 95

Recommended pump rate (l/min / GPM): 1.5

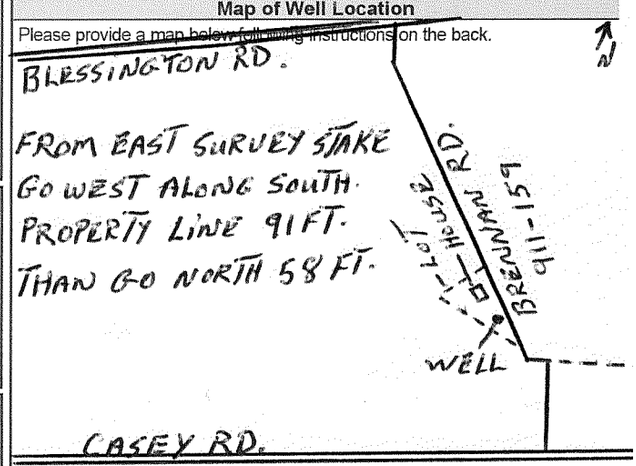
Well production (l/min / GPM): 1.5

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	7.22		29.35
1	7.70	1	28.67
2	8.33	2	28.02
3	8.89	3	27.39
4	9.41	4	26.83
5	9.89	5	26.22
10	11.75	10	23.50
15	13.04	15	20.91
20	13.34	20	18.45
25	13.39	25	16.00
30	13.47	30	13.82
40	18.76	40	13.37
50	24.17	50	12.95
60	29.35	60	11.47

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
MANSE DONALDSON WELL DRILLING	1805
Business Address (Street Number/Name)	**Municipality**
394 KETCHESON'S RD. RR #1	FOXBORO
Province	**Postal Code**	**Business E-mail Address**
ONT.	K0K2B0	—
Bus. Telephone No. (inc. area code)	**Name of Well Technician (Last Name, First Name)**	
6139689431	DONALDSON	KEN
Well Technician's Licence No.	**Signature of Technician and/or Contractor**	**Date Submitted**
T-19	Ken Donaldson	20120830

Well owner's information package delivered: ☒ Yes ☐ No

Date Package Delivered: 20120830

Date Work Completed: 20120629

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Ontario Ministry of the Environment 37

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 (1 2) 2919710

Municipality 29020 (10 14) Con. CON (15 22 23 24) 04

County or District: Hastings
Township/Borough/City/Town/Village: Thurlow
Con block tract survey, etc.: IV
Lot: 28 (25-27)
Address: Coby ville
Date completed: 17 day 10 month 02 year (48-53)

21 (1 2) T M (10) (12 17) Northing (18 24) RC (25) Elevation (26) RC (30) Basin Code (31) ii iii iv (47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	Soil	Stones		0	17
	Limestone			17	39

31 (10 14 15 21) 32 (32 43 54 65 75 80)

41 WATER RECORD

Water found at - feet	Kind of water
28 (10-13)	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
(15-18)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (19)
(20-23)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (24)
(25-28)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
(30-33)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34) (60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
(10-11)	1 ☑ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	20 (13-16)
(17-18)	1 ☐ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			(20-23)
(24-25)	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			(27-30)

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38) inches	Length (39-40) feet
Material and type	Depth at top of screen (41-44) feet	(30)

61 PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

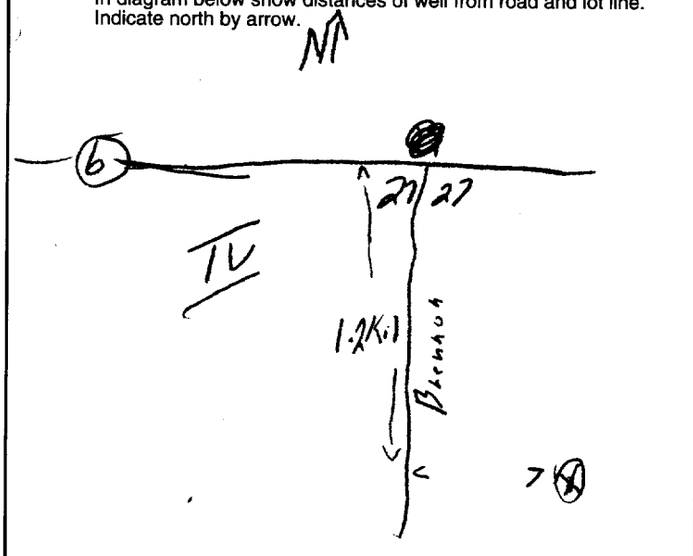
Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0 (10-13)	20 (14-17)	cement
18-21	22-25	Cuttings
26-29	30-33 (80)	

PUMPING TEST

71 Pumping test method: 1 ☐ Pump 2 ☑ Bailer (10)
Pumping rate: 9 GPM (11-14)
Duration of pumping: 1 Hours (15-16) 0 Mins (17-18)
Static level: 24 feet (19-21)
Water level end of pumping: 27 feet (22-24)
Water levels during: 1 ☑ Pumping 2 ☐ Recovery (25)
15 minutes: 27 feet (26-28)
30 minutes: 27 feet (29-31)
45 minutes: 27 feet (32-34)
60 minutes: 27 feet (35-37)
If flowing give rate: GPM (38-41)
Pump intake set at: feet
Water at end of test: ☐ Clear ☑ Cloudy (42)
Recommended pump type: ☐ Shallow ☑ Deep
Recommended pump setting: feet (43-45)
Recommended pump rate: GPM (46-49)
(50-53)

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.



238887

FINAL STATUS OF WELL (54)

1 ☑ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE (55-56)

1 ☑ Domestic
2 ☑ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not use
10 ☐ Other

METHOD OF CONSTRUCTION (57)

1 ☑ Cable tool
2 ☐ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☐ Rotary (air)
5 ☐ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor: Ed Campbell
Well Contractor's Licence No.: 1519
Address: Newburgh
Name of Well Technician: Ed Campbell
Well Technician's Licence No.: T0094
Signature of Technician/Contractor: Ed Campbell
Submission date: 17 day 10 mo 02 yr

MINISTRY USE ONLY

Data source (58)
Contractor: 1519 (59-62)
Date received: JAN 24 2003 (63-68) (80)
Date of inspection
Inspector
Remarks

CSS.ES3

2 - MINISTRY OF THE ENVIRONMENT COPY

0506 (07/00) Front Form 9

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*: A 148355 **Tag#: A148355**

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Brennan Side Road	Thurlow	27	IV

County/District/Municipality	City/Town/Village	Province	Postal Code
Hastings	Belleville	Ontario	K8N 4Z6

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	316220	4901910		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay Till		Packed	0	18
Grey	Clay Till		Packed	18	26'6"
Grey	Limestone		Hard	26'6"	41

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
26	0	Bentonite	10.5

Method of Construction

☐ Cable Tool ☐ Diamond
☒ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, *specify* _____

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6.25	Steel	.188	0	26'6"

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
34	☐ Fresh ☒ Untested	☐	
	☐ Fresh ☐ Untested	☐	
	☐ Fresh ☐ Untested	☐	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	26'6"	10"
26'6"	41	6"

Results of Well Yield Testing

After test of well yield, water was:
☒ Clear and sand free
☐ Other, *specify* _____

If pumping discontinued, give reason:

Pump intake set at (m/ft): 38

Pumping rate (l/min / GPM): 10 g.p.m.

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 15.1

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 38

Recommended pump rate (l/min / GPM): 10 g.p.m.

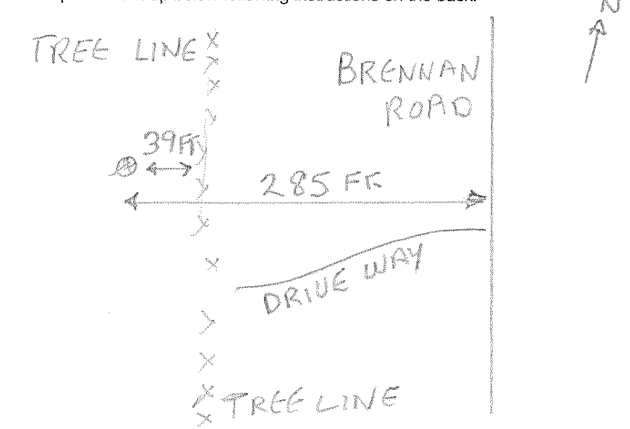
Well production (l/min / GPM): 25 g.p.m.

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	4.0		15.1
1	6.1	1	12.9
2	7.0	2	12.2
3	7.6	3	11.6
4	8.2	4	11.2
5	8.6	5	10.8
10	10.8	10	9.3
15	12.5	15	8.7
20	12.7	20	8.1
25	13.0	25	7.5
30	13.5	30	7.0
40	14.1	40	6.3
50	14.7	50	5.8
60	15.1	60	5.5

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Chalk Well Drilling Ltd.	1507

Business Address (Street Number/Name)	Municipality
31 Johnson's Side Road	Napanee

Province	Postal Code	Business E-mail Address
Ontario	K7R 3L1	chalkwel kos.net

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 388-2809	Chalk, Kevin

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0627	Kevin Chalk	2013 07 24

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2013 07 24	2013 07 24

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Audit No. Z 171886

Received JUL 31 2013

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APPENDIX D
Test Well Drawdown and Recovery Data

ASC Environmental Inc.
1305 Princess Street,
Kingston, ON K7M 3E3
Tel: (613) 634-5596

Table 1. Water Quality Field Measurements.

ASC ENVIRONMENTAL	**Field Water Quality Analysis**				**Test Well:**	**TW2**	
	Project No.:	ASC-1052			Date:	12-Aug-25	
	Client:	Andy Vos			Recorded By: T.C		
	Location:	202 Brennan Road, Belleville, ON					
	Started pumping 20 L/min at 9:30 am						
Pumping Test Elapsed Time (min)	Odour	Temperature (°C)	pH	Conductivity (µS)	Total Dissolved Solids (ppm)	Turbidity NTU	Chlorine (Total) (mg/L)
5	Chlorine	16.4	7.97	1168	582	539	200
30	None	14.0	6.86	625	312	8	1.40
60	None	14.5	6.98	659	318	2	0.08
90	None	14.6	6.97	614	307	0	0.00
120	None	14.5	6.97	617	309	0	0.00
150	None	15.7	7.12	630	315	0	0.00
180	None	15.9	7.15	635	317	0	0.00
210	None	15.0	7.09	605	302	0	0.00
240	None	15.3	7.07	644	323	0	0.00
270	None	15.3	7.06	640	321	0	0.00
300	None	15.0	7.02	600	300	0	0.00
330	None	15.8	7.04	622	312	0	0.00
360	None	PUMP OFF					
Notes	1. Test well water circulated at 250ppm chlorine residual for 30 minutes prior to pumping 2. Water was primarily clear with no odour						

Field Analysis Equipment	
Chlorine :	Hach DR 900 Colorimeter
Temp./pH/Cond./TDS :	Hanna Instruments HI98129
Turbidity :	Hach DR 900 Colorimeter

Table 2. Test Well drawdown during pumping test.

	Pumping Test - Drawdown		Test Well: TW2	
	Project No.:	ASC-1052	Date:	12-Aug-2025
	Client:	Andy Vos	Recorded By: T.C	
	Location:	202 Brennan Road, Belleville, Ontario		

Pumping Rate (Q) (L/min)	Elapsed Time (ET) (min)	Well Level (WL) (m)	Drawdown (DD) (m)
20	0	4.58	0.00
20	2	4.84	0.26
20	5	4.86	0.28
20	10	4.86	0.28
20	20	4.87	0.29
20	30	4.88	0.30
20	60	4.87	0.29
20	90	4.88	0.30
20	120	4.87	0.29
20	150	4.91	0.33
20	180	4.91	0.33
20	210	4.91	0.33
20	240	4.92	0.34
20	270	4.92	0.34
20	300	4.91	0.33
20	330	4.91	0.33
20	360	4.92	0.34

TW2	(m)		L/min	m^3/day
$\Delta s_{0\text{-}1min}$	4.71	$Q_{0\text{-}1min}$	20.00	28.8
$\Delta s_{1\text{-}10min}$	0.12	$Q_{1\text{-}10min}$	20.00	28.8
$\Delta s_{10\text{-}100min}$	0.45	$Q_{10\text{-}100min}$	20.00	28.8
$\Delta s_{100\text{-}1000min}$	0.09	$Q_{100\text{-}1000min}$	20.00	28.8

	m^2/day	m^2/s
$T_{0\text{-}1min}$	1.12	1.30E-05
$T_{1\text{-}10min}$	44.19	5.11E-04
$T_{10\text{-}100min}$	11.76	1.36E-04
$T_{100\text{-}1000min}$	56.80	6.57E-04

Notes			
1		Δs	Drawdown over one Log Cycle based on Trend Line
Q	Volumetric Flow Rate	L/min	Litres per Minute
T	Coefficient of Transmissivity	gpm	Gallon per Minute

ASC Environmental Inc.
ASC-1052, Andy Vos, 202 Brennan Road, Belleville, ON
Figure 1. TW2 Pumping Test Drawdown

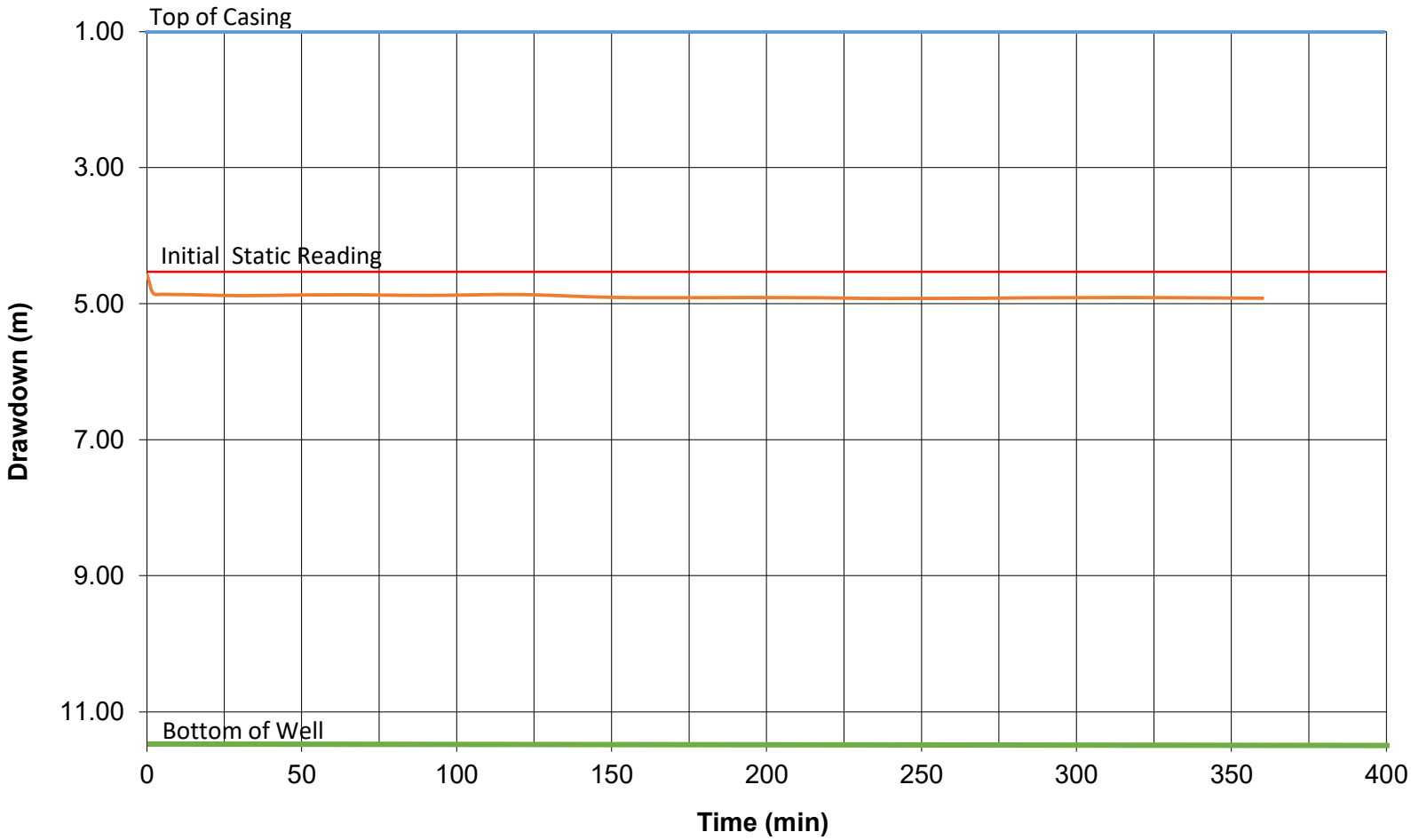


Table 3. Observation well drawdown during pumping test.

ASC ENVIRONMENTAL

Pumping Test - Drawdown		Test Well:	TW2
Project No.:	ASC-1052	Date:	12-Aug-2025
Client:	Andy Vos	Pumping start time	
Location:	202 Brennan Road, Belleville, ON	9 30	AM

Retained Parcel (OW1)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
24.738	7.540	0.000	9 9	0
24.738	7.540	0.000	10 40	70
24.738	7.540	0.000	11 35	125
24.738	7.540	0.000	12 35	185
24.738	7.540	0.000	13 39	249
24.738	7.540	0.000	14 35	305
24.738	7.540	0.000	15 54	384

197 Brennan Road (OW2)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
14.961	4.560	0.000	9 11	0
14.961	4.560	0.000	10 41	71
14.961	4.560	0.000	11 36	126
14.961	4.560	0.000	12 37	187
15.026	4.580	0.020	13 40	250
14.633	4.460	-0.100	14 37	307
14.764	4.500	-0.060	15 56	386

175 Brennan Road (OW3)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
13.255	4.040	0.000	9 12	0
13.287	4.050	0.010	10 43	73
13.320	4.060	0.020	11 39	129
13.353	4.070	0.030	12 39	189
13.353	4.070	0.030	13 42	252
13.386	4.080	0.040	14 38	308
13.386	4.080	0.040	15 58	388

159 Brennan Road (OW4)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
8.497	2.590	0.000	9 15	0
8.497	2.590	0.000	10 45	75
8.530	2.600	0.010	11 42	132
8.530	2.600	0.010	12 41	191
8.563	2.610	0.020	13 44	254
8.563	2.610	0.020	14 41	311
8.563	2.610	0.020	16 2	392

132 Brennan Road (OW5)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
12.238	3.730	0.000	9 17	0
12.270	3.740	0.010	10 47	77
12.270	3.740	0.010	11 44	134
12.270	3.740	0.010	12 43	193
12.270	3.740	0.010	13 45	255
12.270	3.740	0.010	14 43	313
12.336	3.760	0.030	16 5	395

159 Brennan Road (OW6)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
8.825	2.690	0.000	9 15	0
8.825	2.690	0.000	10 45	75
8.891	2.710	0.020	11 42	132
8.891	2.710	0.020	12 41	191
8.957	2.730	0.040	13 44	254
8.990	2.740	0.050	14 41	311
8.990	2.740	0.050	16 2	392

Severed Parcel "A" (TW1)

WL (ft)	WL (m)	DD (m)	Time H:Min	ET (min)
55.085	16.790	0.000	8 35	0
54.429	16.590	-0.200	10 38	68
53.642	16.350	-0.440	11 33	123
53.084	16.180	-0.610	12 45	195
52.657	16.050	-0.740	13 37	247
52.231	15.920	-0.870	14 33	303
51.673	15.750	-1.040	15 49	379

Distance to Observation Wells (metres)

Retained Parcel (OW1)	200
197 Brennan Road (OW2)	195
175 Brennan Road (OW3)	105
159 Brennan Road (OW4)	90
132 Brennan Road (OW5)	210
159 Brennan Road (OW6)	80
Severed Parcel "A" (TW1)	60

ASC Environmental Inc.
ASC-1052, Andy Vos, 202 Brennan Road, Belleville, ON
Figure 2. Pumping Test Influence on Neighbouring Wells
TW2 Pumping Test Zone of Influence

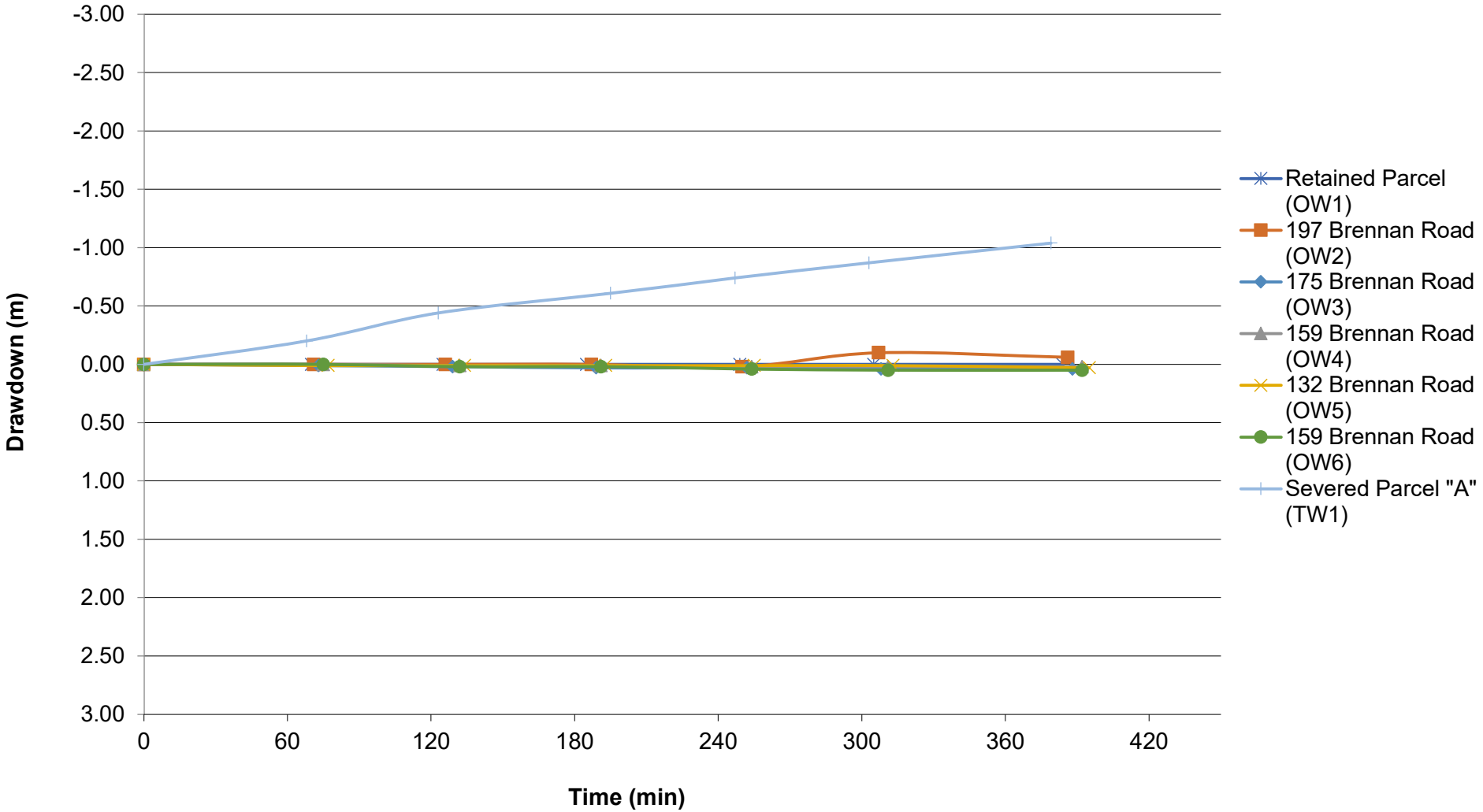
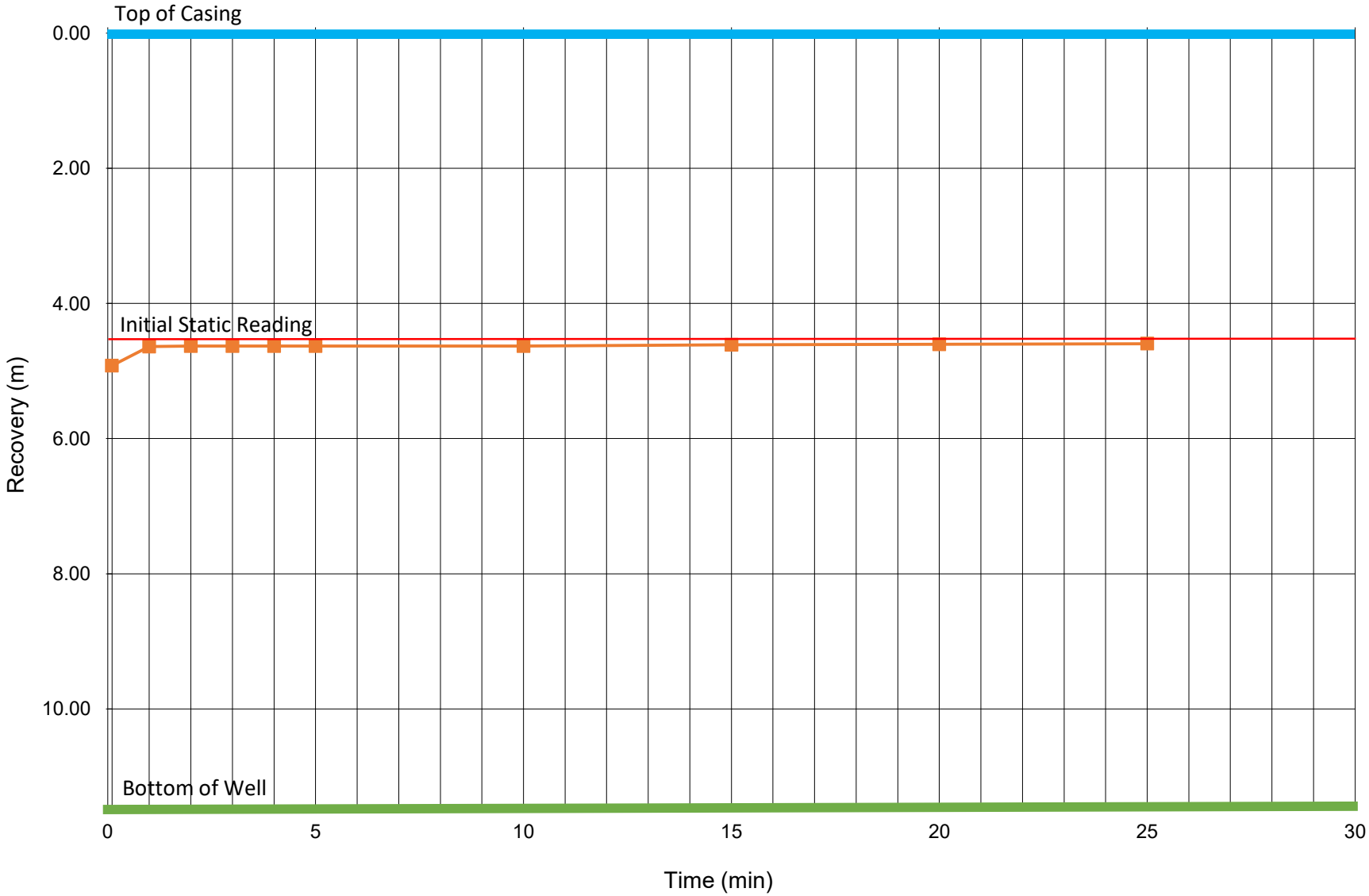


Table 4. Test well recovery after pumping test.

ASC ENVIRONMENTAL		**Pumping Test - Recovery**		**Test Well:**	**TW2**
		Project No.:	ASC-1052	Date:	12-Aug-25
		Client:	Andy Vos		Recorded By: T.C
		Location:	202 Brennan Road, Belleville, ON		
		Test Well			
Pumping	Elapsed Time (min)	Well Level (WL) (m)	Drawdown (m)		
0	0	4.92	0.34		
0	1	4.64	0.06		
0	2	4.63	0.05		
0	3	4.63	0.05		
0	4	4.63	0.05		
0	5	4.63	0.05		
0	10	4.63	0.05		
0	15	4.61	0.03		
0	20	4.60	0.02		
0	25	4.59	0.01		
WL at 95% Recovery =		4.59			

ASC Environmental Inc.
ASC-1052, Andy Vos, 202 Brennan Road, Belleville, ON
Figure 3. TW2 Recovery



APPENDIX E
Laboratory Analytical Certificates

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Proudly Canadian.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G113042 **REPORT No: 25-024354 - Rev. 0**

Report To:
ASC Environmental
1305 Princess St.
Kingston, ON K7M 3E3

CADUCEON Environmental Laboratories
285 Dalton Ave
Kingston, ON K7K 6Z1

Attention: Tanner Cook

DATE RECEIVED: 2025-Aug-13
DATE REPORTED: 2025-Aug-19
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: ASC-1052
P.O. NUMBER:

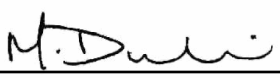
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Aug-15	A-IC-01	SM 4110B
Colour (Liquid)	1	OTTAWA	STAILLON	2025-Aug-14	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	AGRAF	2025-Aug-14	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Coliforms - DC Media (Liquid)	1	KINGSTON	BBURTCH	2025-Aug-13	ECTC-001	MECP E3407
DOC (Liquid)	1	OTTAWA	LMACGREGOR	2025-Aug-14	C-OC-01	EPA 415.2
Fecal Coliforms (Liquid)	1	KINGSTON	BBURTCH	2025-Aug-13	FC-001	SM 9222D
HPC MF (Liquid)	1	KINGSTON	BBURTCH	2025-Aug-13	HPC-001	SM 9215D
Ion Balance (Calc.)	1	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
ICP/OES (Liquid)	1	OTTAWA	SGORMAN	2025-Aug-18	D-ICP-01	SM 3120B
Ammonia (Liquid)	1	KINGSTON	VHAMMOND	2025-Aug-14	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	EHINCH	2025-Aug-15	PHEN-01	MECP E3179
Sulphide (Liquid)	1	KINGSTON	EHINCH	2025-Aug-15	H2S-001	SM 4500-S2
Tannins (Liquid)	1	KINGSTON	MWILSON	2025-Aug-18	TAN-001	SM 5550
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Aug-15	TPTKN-001	MECP E3516.2
Turbidity (Liquid)	1	OTTAWA	MMIRELLA	2025-Aug-14	A-TURB-01	SM 2130B

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

Michelle Dubien
Data Specialist

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

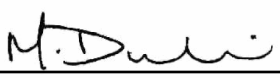
	Client I.D.		TW2
	Sample I.D.		25-024354-1
	Date Collected		2025-08-12
Parameter	**Units**	**R.L.**	-
Total Coliform (DC Media)	CFU/100mL	1	1
E coli (DC Media)	CFU/100mL	1	0
Background (DC Media)	CFU/100mL	1	20
Heterotrophic Plate Count	CFU/1mL	10	<10
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	325
TDS (Calc. from Cond.)	mg/L	3	342
Conductivity @25°C	uS/cm	1	658
pH @25°C	pH units	-	7.83
Colour	TCU	2	<2
Turbidity	NTU	0.1	0.5
Fluoride	mg/L	0.1	<0.1
Chloride	mg/L	0.5	8.2
Nitrate (N)	mg/L	0.05	0.50
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	31
Phosphorus (Total)	mg/L	0.01	0.13
Total Kjeldahl Nitrogen	mg/L	0.1	<1.0
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Dissolved Organic Carbon	mg/L	0.8	4.1
Tannin & Lignin	mg/L	0.5	<0.5



Michelle Dubien
Data Specialist

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	TW2
			Sample I.D.	25-024354-1
			Date Collected	2025-08-12
Parameter	**Units**	**R.L.**		-
Sulphide	mg/L	0.01		<0.01
Phenolics	mg/L	0.001		<0.001
Hardness (as CaCO3)	mg/L as CaCO3	0.02		308
Calcium	mg/L	0.02		103
Iron	mg/L	0.005		0.036
Magnesium	mg/L	0.02		12.4
Manganese	mg/L	0.001		0.008
Potassium	mg/L	0.1		1.5
Sodium	mg/L	0.2		5.3
Anion Sum	meq/L	-		7.42
Cation Sum	meq/L	-		6.43
% Difference	%	-		7.16
Ion Ratio	-	-		1.15
Sodium Adsorption Ratio	-	-		0.132
TDS (Ion Sum Calc)	mg/L	1		359
TDS(calc.)/EC(actual)	-	-		0.546
Conductivity Calc	µmho/cm	-		629
Conductivity Calc / Conductivity	-	-		0.956
Langelier Index(25°C)	-	-		0.903
Saturation pH (25°C)	-	-		6.93



Michelle Dubien
Data Specialist

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APPENDIX F
Precipitation Data

ASC Environmental Inc.
1305 Princess Street,
Kingston, ON K7M 3E3
Tel: (613) 634-5596

Daily Data Report for July 2025

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	26.6	15.4	21.0	0.0	3.0			1.2			
02	26.7	14.3	20.5	0.0	2.5			0.0		26	35
03	27.0	9.4	18.2	0.0	0.2			0.0		32	32
04	24.9	7.2	16.1	1.9	0.0			0.0		23	31
05	29.5	9.5	19.5	0.0	1.5			0.0			
06	31.8	18.8	25.3	0.0	7.3			0.0		24	41
07	29.8	19.0	24.4	0.0	6.4			0.3		26	41
08	26.2	14.6	20.4	0.0	2.4			0.0			
09	27.0	14.1	20.5	0.0	2.5			0.0			
10	29.0	15.1	22.0	0.0	4.0			0.0			
11	30.0	16.3	23.2	0.0	5.2			0.0			
12	31.7	15.8	23.8	0.0	5.8			0.0			
13	29.5	19.0	24.3	0.0	6.3			2.7		28	42
14	29.5	15.3	22.4	0.0	4.4			0.0			
15	30.9	13.6	22.2	0.0	4.2			0.0			
16	32.9	15.1	24.0	0.0	6.0			0.0			
17	29.2	14.5	21.8	0.0	3.8			0.0		32	54
18	24.7	7.6	16.1	1.9	0.0			0.0		24	31
19	27.5	7.5	17.5	0.5	0.0			0.0			
20	27.9	14.9	21.4	0.0	3.4			7.3			
21	24.2	10.8	17.5	0.5	0.0			0.0		34	36
22	24.8	7.3	16.0	2.0	0.0			0.0			
23	28.6	7.1	17.8	0.2	0.0			0.0			
24	31.4	11.6	21.5	0.0	3.5			0.0		25	43
25	29.9	15.6	22.7	0.0	4.7			3.0			
26	30.4	13.5	21.9	0.0	3.9			7.4			
27	31.3	18.6	24.9	0.0	6.9			2.4			
28	30.2	16.8	23.5	0.0	5.5			0.0		24	34
29	31.2	16.7	23.9	0.0	5.9			0.0			
30	30.8	15.0	22.9	0.0	4.9			0.0			
31	22.8	9.3	16.1	1.9	0.0			0.1			
Sum				8.9	104.2			24.4			
Avg	28.6	13.5	21.1								
Xtrm	32.9	7.1				M	M	7.4		32^	54^

Summary, average and extreme values are based on the data above.

Daily Data Report for August 2025

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	24.8	7.4	16.1	1.9	0.0			0.0			
02	25.9	5.9	15.9	2.1	0.0			0.0		27	36
03	25.9	10.4	18.1	0.0	0.1			0.0		24	31
04	29.8	10.5	20.2	0.0	2.2			0.0			
05	29.9	13.8	21.8	0.0	3.8			0.0			
06	30.5	13.6	22.0	0.0	4.0			0.0			
07	28.4	15.7	22.0	0.0	4.0			0.0			
08	29.7	13.1	21.4	0.0	3.4			0.0			
09	31.4	14.1	22.7	0.0	4.7			0.0			
10	32.5	15.5	24.0	0.0	6.0			0.0			
11	33.3	15.5	24.4	0.0	6.4			0.0			
12	32.8	15.3	24.0	0.0	6.0			0.0			
13	28.8	18.3	23.5	0.0	5.5			5.0			
14	30.2	12.6	21.4	0.0	3.4			0.0		5	34
15	30.0	10.8	20.4	0.0	2.4			0.0			
16	32.6	11.4	22.0	0.0	4.0			0.0			
17	25.1	13.2	19.1	0.0	1.1			0.6		7	33
18	23.4	10.4	16.9	1.1	0.0			0.0			
19	22.2	13.5	17.9	0.1	0.0			17.3			
20	19.9	10.1	15.0	3.0	0.0			4.5			
Sum				8.2^	57.0^	0.0^	0.0^	27.4^			
Avg	28.4^	12.6^	20.4^								
Xtrm	33.3^	5.9^				M	M	17.3^		27^	36^

Summary, average and extreme values are based on the data above.