



**Hydrogeological Assessment**  
2188 County Road 1,  
Prince Edward County, ON

**Prepared for:**

Mr. Chris Walcott  
2188 County Road 1,  
Prince Edward County, ON  
K0K 1G0

**Prepared by:**

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**File: ASC-1080 100r**  
**January 6, 2026**



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## 1.0 INTRODUCTION

### 1.1 Initiation and Objective

ASC Environmental Inc. (ASC) was retained by *Chris Walcott* (Client) to conduct a scoped hydrogeological assessment in support of a Zoning By-Law Amendment (ZBA) application to expand permitted uses to include a veterinary clinic which is to be confined to the principal building on-site at the subject property located at 2188 County Road 1, Prince Edward County, ON.

The subject property is located east of the intersection of Highway 62 and County Road 1 and encompasses an area of approximately 0.76 hectares with 140 metres of frontage along the north side of County Road 1. The property is currently improved with commercial operations consisting of Veenstra and Lloyds Plumbing Heating Cooling and Alota Tile (tiling sales), including associated storage buildings as shown on Drawing No. 1 in Appendix A.

The purpose of the scoped hydrogeological study was to assess the viability of one (1) existing dug well (TW1) to support the proposed Zoning By-Law Amendment application. The study evaluated whether groundwater quality and quantity are sufficient to support the development without adversely impacting upon existing neighbouring wells, and whether design flows would increase from the proposed veterinary clinic.

One (1) existing dug well (MECP Tag #A045715) was originally advanced on July 26, 2007, on the subject property by Drew Harrison Haulage Ltd. (Well Contractor's Licence # 7188). The existing dug well "TW1" was utilized in support of the proposed development.

### 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) pumping test (with recovery) on the existing dug well located on the subject property.
- Monitor water levels in available neighbouring adjacent wells during pumping.
- Collect a well water sample following zero chlorine residual and in the final hour of the pumping test.
- Submit well water samples to a certified laboratory for the required suite of parameters, as indicated in the MECP D-5-5 Procedure.
- Prepare a hydrogeological assessment, in reference with the MECP D-5-5 Guideline and The County of Prince Edward's Comprehensive Zoning By-law, as amended, including assessment of water quality, water quantity, and potential well interference in support of the proposed Zoning By-Law Amendment application.



## 2.0 BACKGROUND

### 2.1 Site Information

The subject property is an approximate 0.82-hectare parcel of land with approximately 166 metres of frontage along the north side of County Road 1 in Prince Edward County. The property is located approximately 5.0 kilometres northwest of the Village of Bloomfield. A site layout plan may be found in Drawing No. 2 in Appendix A.

The subject property is presently improved with the following buildings:

- 1.5 storey retail commercial building (ground floor - 402.7 square metres / second floor - 94.4 square metres). This building contains two (2) commercial businesses.
- Frame shed (25.6 square metres).
- 1 storey garage (145.2 square metres).

We understand for purposes of this scoped hydrogeological study that the Zoning By-Law application is for an amendment of the existing Special Highway Commercial (CH-50) zone on the 0.82 hectare parcel to permit an Animal Hospital as a permitted main use. The Animal Hospital would be located within the principal building on-site.

At present this principal building is being used as a Tile business (West unit) and an HVAC / Plumbing business (East unit). The tile store is vacating the building and the HVAC / Plumbing business will relocate to the West unit. The proposed Animal Hospital would move into the East unit. The HVAC / Plumbing business will continue to use the detached building.

The existing water treatment distribution system servicing the existing commercial on-site operations includes disinfection (UV), reverse osmosis and water softening. The sewage system presently consists of a septic tank and in ground leaching bed, located north of the existing on-site office building.

Ground cover generally consists of parking and drive space and manicured lawn with scattered trees / shrubs across the property. Surrounding land use within a 500-metre radius consists of a mixture of commercial, rural residential, and agricultural activity.

### 2.2 Surficial Soil Conditions

The physiographic area is described as Limestone plains. The surficial geology consists of Paleozoic bedrock. <sup>[1]</sup>

Review of local well records showed an overburden thickness of 0.9 to 3.0 m, overlying limestone bedrock. Records reported the local overburden consisted of topsoil, clay,

<sup>[1]</sup> Chapman, L.J. and Putnam, D.F. 1972. Physiography of Southern Ontario. Map 2227.



gravel, loam, and shale.

### **2.3 Background Geology**

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

### **2.4 Local Hydrogeology**

Fifteen (15) water well summary records of local wells (within a 500-metre radius of the subject property) were available for review from the MECP online database (see Appendix C). Review of the well records identified nine (9) abandoned drilled wells, five (5) drilled wells intended for domestic water supply, and one (1) drilled well intended for commercial water supply. Reported abandoned wells were due to insufficient water supply and poor quality. The completed drilled wells were advanced to depths of approximately 6.1 to 15.2 metres below ground surface (mbgs). Water was encountered at depths ranging from 3.0 to 10.7 mbgs. Copies of the well records identified in the MECP database can be seen in Appendix C.

Groundwater flow is typically through fractures and joints within the limestone bedrock. Water is typically encountered in fractures and bedding planes in the bedrock formation.

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<sup>[2]</sup> Ontario Geological Survey. 1991: Bedrock Geology of Ontario, Southern Sheet. Map. 2544.



### 3.0 WELL CONSTRUCTION

Drew Harrison Haulage Ltd. (Well Contractor's Licence # 7188) advanced TW1 on July 26, 2007. Through correspondence with the previous property owner, ASC understands TW1 was dug for the purpose of domestic water supply in support of a historic 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 TW1 does not include information regarding the annular space between the concrete casing and native materials. The well record for TW1 shows that the concrete casing extends to a depth of approximately 6.5 m. The well casing extends above ground surface approximately 0.54 m.

The well record for TW1 indicated topsoil from surface to 0.6 m, overlying limestone bedrock. The record further indicated TW1 was completed in the limestone bedrock at a depth of approximately 6.5 mbgs. Water was reportedly encountered at a depth of approximately 2 m in the limestone bedrock. The well record is in Appendix B.

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 either upgraded or existing submersible pump equipment. Pump installation shall be undertaken in accordance with RRO 903 (Section 17).

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



## 4.0 WATER QUANTITY

### 4.1 Background

ASC understands that, based on correspondence with the Client/Client representative, that for purpose of the Zoning By-Law Amendment application, that the anticipated daily flow requirements estimated using Section 8 of the Ontario Building Code (OBC) as shown in Table 1 are expected for the ZBA:

**Table 1 – OBC Design Flows**

Existing Building Uses	Capacity	Unit	OBC Reference	Flow Per Unit [L/day]	Total Flow per Unit (L/day)
Existing HVAC Shop and Tile Shop	4	N/A	Table 8.2.1.3.B(22)(b)	1230	4920
Existing 2 <sup>nd</sup> floor HVAC offices	10	9.3 m <sup>2</sup>	Table 8.2.1.3.B(15)(b)	75	750
Existing 1 storey storage building	1	N/A	Table 8.2.1.3.B(26)(a)	950	950
					<b>6,620 L/day</b>
Proposed Building Uses	Capacity	Unit	OBC Reference	Flow Per Unit [L/day]	Total Flow per Unit (L/day)
Proposed 1.5 storey Veterinary shop	2	N/A	Table 8.2.1.3.B(25)(a)	275	550
	6	N/A	Table 8.2.1.3.B(25)(b)	75	450
	20	N/A	Table 8.2.1.3.B(25)(c)	75	1500
Proposed 2 <sup>nd</sup> floor Vet offices	10	9.3 m <sup>2</sup>	Table 8.2.1.3.B(15)(b)	75	750
Existing 1 storey storage building	1	N/A	Table 8.2.1.3.B(26)(a)	950	950
HVAC shop moving to Tile shop (Tile shop vacating)	2	N/A	Table 8.2.1.3.B(22)(b)	1230	2460
					<b>6,660 L/day</b>

The quantity of groundwater available for the test well was investigated through one (1) scheduled pumping test with a target groundwater yield of approximately 16,885 Litres based on flows calculated from the proposed full commercial re-development as supplied by the Client. The pumping test was conducted in reference to MECP Procedure D-5-5 and The County of Prince Edward's Comprehensive Zoning By-law, as amended.

The pumping test for TW1 was conducted on December 9, 2025, and was undertaken for a total period of 360 minutes to assess long term well yield.

Referencing Government of Canada precipitation data (Belleville weather station), in the fourteen (14) days leading up to the pumping test, the area received approximately 16.8 mm of rainfall. On this basis, the pumping test was not undertaken during a period of heavy precipitation. Precipitation data can be found in Appendix F.

Referencing MECP D-5-5 guidelines, and the inferred design flow required for the ZBA commercial development, the test well was pumped at a stepped rate of approximately 46 lpm to 56 lpm for purposes of assessing peak demand and long term well yield.



Bedrock hydrogeological values of transmissivity were calculated from the pumping data by the Jacob method, which assumes the heterogeneous limestone bedrock aquifer is analogous to a homogeneous, confined, 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 TW1

Test well TW1 is approximately 7.09 metres deep (from top of casing). Prior to the initiation of pumping the static water level was manually measured to be approximately 2.06 metres from the top of the casing. The water in the well was pumped at a rate of 48 litres/min for a total of 90 minutes, yielding approximately 4,320 litres of water. An equipment malfunction occurred after approximately 90 minutes of continuous pumping. During equipment repair (approximately 115 minutes) well recovery of approximately 70% was noted. Following repairs, pumping was re-initiated at a rate of 56 L/min for 270 minutes, yielding approximately 15,120 litres of water. The total groundwater yield for TW1 over the duration of pumping was 19,440 litres.

Maximum drawdown was manually measured at approximately 0.66 metres over the duration of the test. At the completion of the pumping test, approximately 87% of the total well supply was remaining. Specific capacity calculated over the final 60 minutes of the pumping test was found to be approximately 466 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 manually measured at approximately 0.66 m. Maximum observed recovery within the 24-hour period following pump shutdown was 83%. The test well presently supplies water to the on-site commercial structure. Following completion of the pumping test, TW1 was in-use and skewed the recovery data. Based on the minimal measured drawdown (0.66 m), well supply remaining following pump shut down (87%), and TW1's ability to recover to 83% while in-use following pump shutdown, the well is determined to be sufficiently able to meet the peak usage periods, recover and meet the daily requirement design flows for the proposed Zoning By-Law Amendment application and proposed future commercial development.

The transmissivity (T) after approximately 100 minutes of pumping was calculated to be  $1.35 \times 10^{-4}$  m<sup>2</sup>/s. Hydraulic Conductivity (K = T/b), where b = 5.03 m (represents approximate aquifer thickness at time of pumping), was determined to be K =  $2.68 \times 10^{-5}$  m/s. The test well recovery and transmissivity data may be found in Appendix D.

Based on the observations from the drawdown versus time relationship, it is concluded that the long-term yield of TW1 is sufficient to meet the design flow requirements for the proposed Zoning By-Law Amendment application in reference with the MECP Procedure



D-5-5 and The County of Prince Edward's Comprehensive Zoning By-law, as amended.

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



## 5.0 INTERFERENCE

The effects of interference were monitored during pumping of test well TW1. Neighbouring observation wells were utilized during pumping to assess potential interference. Observation well locations are shown on Drawing No. 2.

### 5.1 Test Well TW1

Three (3) observation wells located at 1533 Highway 62 (OW1), 2149 County Road 1 (OW2), and 1540 Highway 62 (OW3), were utilized to assess potential interference during the TW1 pumping test. The observation wells were located approximately 170, 210, and 130 metres horizontal distance from the subject test well. See Table 2 below, for observation well information.

Water levels measured in the observation wells during the TW1 pumping test did not show a significant positive response during pumping of the test well on December 9, 2025.

Table 2. Test Well – TW1 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	1533 Highway 62	170
OW2	Drilled	2149 County Road 1	210
OW3	Dug (Stone)	1540 Highway 62	130

### 5.2 Discussion of Results

No positive response was observed in the observation wells. A maximum drawdown of 0.49 m was measured in observation well OW2, located approximately 210 metres horizontal distance from the test well. ASC field staff consistently measured water level fluctuations during pumping in OW2. On this basis, ASC attributes the drawdown and recovery to homeowner water usage during pumping and potential water quantity problems resulting from mutual well interference are not expected for the test well TW1.

ASC is of the opinion that the associated measured drawdown is an appropriate estimation of the influence. Based on the observation well measurements during pumping, the adjacent domestic water supply wells will not be significantly influenced by the proposed ZBA amendment application. 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 December 9, 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 (TW1) are presented in the following section.

### 6.1 Test Well TW1

Bacteriological parameter analyses exceeded the MECP Procedure D-5-5 and ODWO for Total Coliform (9 cfu/100ml) in the sample collected on December 9, 2025. ASC revisited the site on December 22, 2025, to resample TW1. Bacteriological parameters met the MECP Procedure D-5-5 and ODWO for Fecal coliform (0cfu/100ml), E. Coli (0 cfu/100ml), and Total Coliform (0 cfu/100ml) in the sample collected on December 22, 2025.

Elevated health parameter sodium was detected in the groundwater sample collected on December 9, 2025. The health-related limit for sodium is 20 mg/L and the aesthetic objective is 200 mg/L. The sample result for TW1 showed a sodium concentration of 172 mg/L. The health-related limit for sodium is a “warning level” and where this level is exceeded the local Medical Health Officer shall be notified in order to alert individuals with relevant medical conditions. The measured sodium concentration in the test well is within the aesthetic objective of 200 mg/L.

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

The operational guideline for hardness is 80-100 mg/L and the ODWO level is 500 mg/L. Sample analyses for TW1 identified hardness of 395 mg/L. The ODWO level for Total Dissolved Solids (TDS) is 500 mg/L. The level for TDS was measured at 923 mg/L. Hardness and TDS in water usually occur when elevated concentrations of calcium, magnesium, and chlorides are present in water. Elevated concentrations of hardness and TDS may result in scale build-up and mineral deposits on hot water heaters and plumbing fixtures, corrosion or encrustation of metal fixtures or appliances. Hard water can be readily treated through ion exchange water softening.

Elevated aesthetic parameter Chloride was detected in the original sample; 384 mg/L. ASC recognizes the limit considered reasonably treatable in the D-5-5 Guideline is 250 mg/L. However, ASC understands, based on correspondence with water treatment specialists, that chloride concentrations approaching 500 mg/L may be readily treated using modern reverse osmosis systems.



To ensure safe drinking water is maintained for the existing and proposed commercial development, we recommend contracting a professional water quality specialist to review the existing drinking water treatment system (UV, softener and reverse osmosis) to confirm performance regarding treatment of health related and aesthetic parameters.

Results of laboratory sample analyses are presented in Appendix E.



## 7.0 SEWAGE SYSTEM SERVICES

Referencing the letter provided by Ms. Overholt, MCIP, RPP (The County) dated November 10, 2025 indicating that if the scoped Hydrogeological Study indicates that the design flow will increase, a pump test should be completed to verify that the higher flow rate can be supported.

Based on the existing site operations, existing design flow was calculated to be 6,620 L/day. The proposed daily design flow for the proposed ZBA is calculated to be 6,660 L/day which is < 1% higher than the existing daily flow operations (see Table 1, Section 4.1). Therefore, on this basis, considering the minimal increase in design flow, nitrate attenuation calculation was not undertaken.



## 8.0 CONCLUSIONS AND RECOMMENDATIONS

- Based on the results of the pumping test the unconfined limestone bedrock aquifer is able to support a sustained pumping rate of 56 liters per minute. Pumping test results and favourable recovery time following pumping of 6 hours, indicated sufficient aquifer storage and demonstrated yield is available to supply the well to meet the demand for the proposed ZBA and potential future commercial development; without adversely impacting upon neighbouring resident water supply.
- Following additional well development, bacteriological parameter analyses met the MECP Procedure D-5-5 and ODWO for Fecal Coliform (0 cfu/100ml), E. Coli (0 cfu/100ml), and Total Coliform (4 cfu/100ml) in the sample collected on December 22, 2025.
- Elevated health parameter sodium was detected in the groundwater sample collected on December 9, 2025. The health-related limit for sodium is 20 mg/L and the aesthetic objective is 200 mg/L. The sample result for TW1 showed a sodium concentration of 172 mg/L. The health-related limit for sodium is a “warning level” and where this level is exceeded the local Medical Health Officer shall be notified in order to alert individuals with relevant medical conditions. The measured sodium concentration in the test well is within the aesthetic objective of 200 mg/L.
- Remaining health related parameters (nitrate, nitrite, and turbidity) met the MECP Procedure D-5-5 and ODWO.
- Results of the groundwater sample analyses identified elevated aesthetic parameter Total Dissolved Solids (TDS) concentration of 923 mg/L. TDS is readily treatable.
- To ensure safe drinking water is maintained for the ZBA development, we recommend contracting a professional water quality specialist to review the existing drinking water treatment system (UV, softener and reverse osmosis) to confirm performance regarding treatment of health related and aesthetic parameters
- 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.
- Based on field observation and visual inspection by ASC personnel, TW1 appears to meet the present requirements of O. Reg 903 in order to ensure continued good quality groundwater for consumption purposes.
- Surrounding land use within a 500-metre radius consists primarily of rural residential, agricultural, and commercial activity.



- Referencing the Prince Edward County Official Plan, Commercial uses shall be permitted subject to the following criteria - ***The activity is limited to low water and low effluent producing uses and the size is capable of accommodating the use on private water and on-site private sanitary sewage treatment systems and does not have an adverse effect on neighbouring private wells.***

Based on the minimal <1% increase in design total daily water taking, the existing well and septic system would be considered adequate to service the proposed ZBA to accommodate the proposed Animal Hospital (as a permitted use within the existing principal building) meeting the intent of the above statement .



## 9.0 LIMITATIONS

ASC Environmental (ASC) was retained by *Mr. Chris Walcott* (Client) to undertake a Hydrogeological Assessment in support of a Zoning By Law Amendment (ZBA) at the subject property, located at 2188 County Road 1, Prince Edward County, Ontario.

The scope of work for this hydrogeological assessment included:

- Undertaking a minimum six-hour pumping test, with recovery on the test well to assess potential long term water supply for the proposed commercial development.
- Monitoring adjacent neighbouring wells during pumping, to assess potential interference.
- Collection of well water sample, following field confirmation of zero residual chlorine and within the last hour of the pumping test.
- Submission of sample to a certified laboratory for the required suite of parameters.
- Additional well development and associated water sampling for bacteriological parameters.
- Preparation of a hydrogeological assessment report, assessing well construction, water quality and quantity, and potential interference for the proposed ZBA.

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 *Mr. Chris Walcott* 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.**

Reviewed by:



Tanner Cook, B.A.  
Environmental Technical Specialist



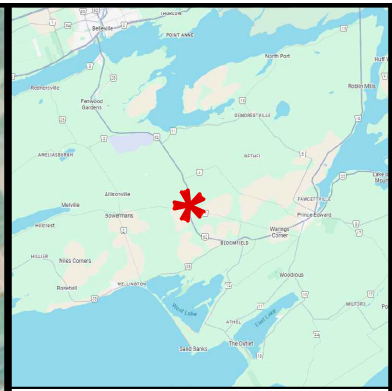
Paul Johnston, M.Sc., P. Eng. QP<sub>ESA</sub>  
Project Engineer





**APPENDIX A**  
**Drawing No. 1 - 3**



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



<b>LEGEND</b>	
	SUBJECT PROPERTY LOCATION
	APPROXIMATE LOCATION OF SUBJECT PROPERTY

**DRAWING TITLE**  
Site Location Plan

**FIGURE NO.**  
01

**DRAWN BY**  
T. Cook

**PROJECT**  
Hydrogeological Assessment

**CLIENT**  
Chris Walcott

**LOCATION**  
2188 County Road 1, Prince Edward County, ON

**PROJECT NO.**  
ASC-1080

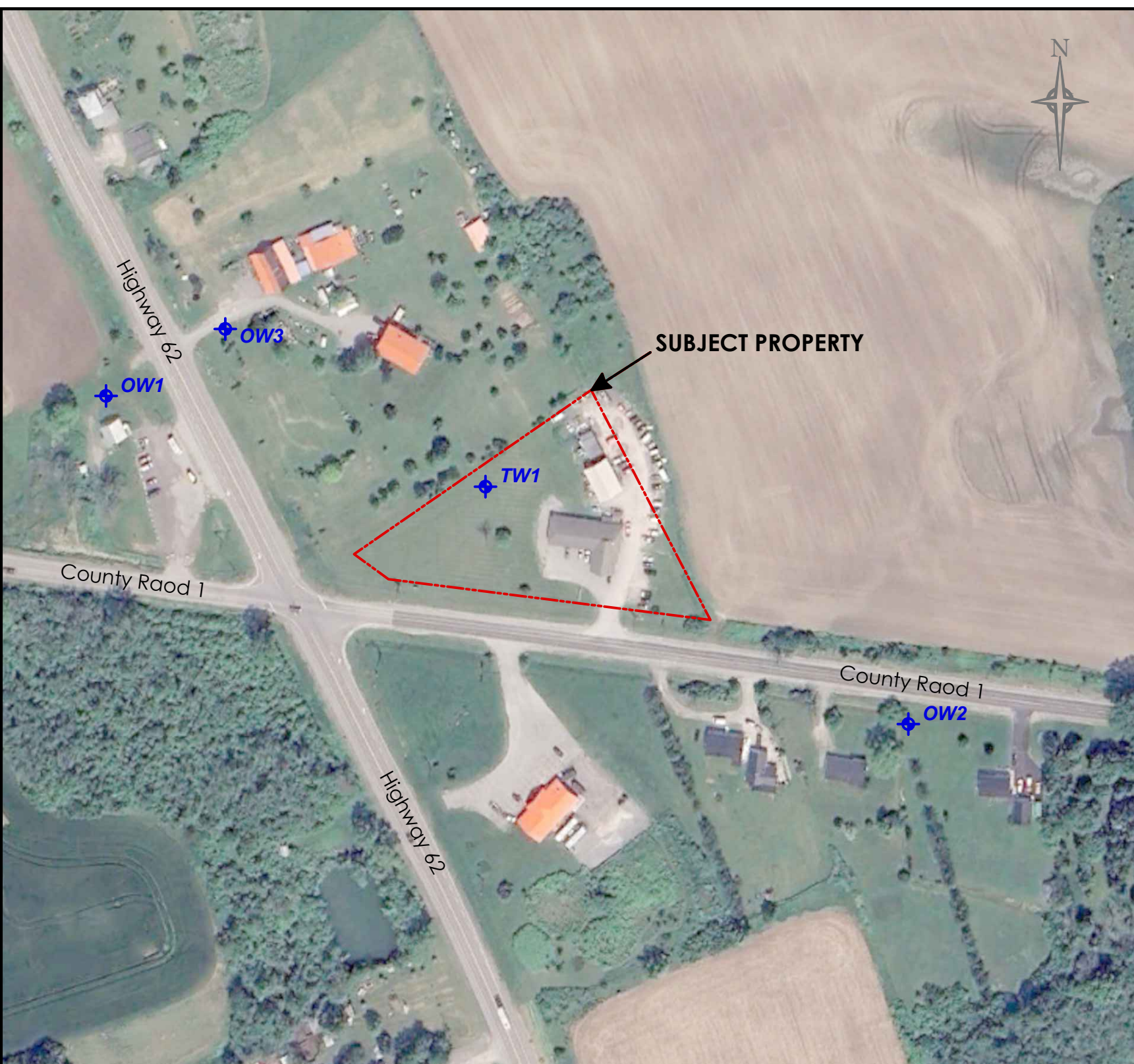
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**DATE**  
06-Jan-2026



1305 Princess St  
Kingston, ON, K7M 3E3

(613) 634-5596  
www.ascenvironmental.ca



LEGEND	
	APPROXIMATE LOCATION OF SUBJECT PROPERTY
	APPROXIMATE LOCATION OF TEST WELL
	APPROXIMATE LOCATION OF OBSERVATION WELL

**DRAWING TITLE**  
Site Layout Plan

<b>FIGURE NO.</b> 02	<b>DRAWN BY</b> T. Cook
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**PROJECT**  
Hydrogeological Assessment

**CLIENT**  
Chris Walcott

**LOCATION**  
2188 County Road 1, Prince Edward County, ON

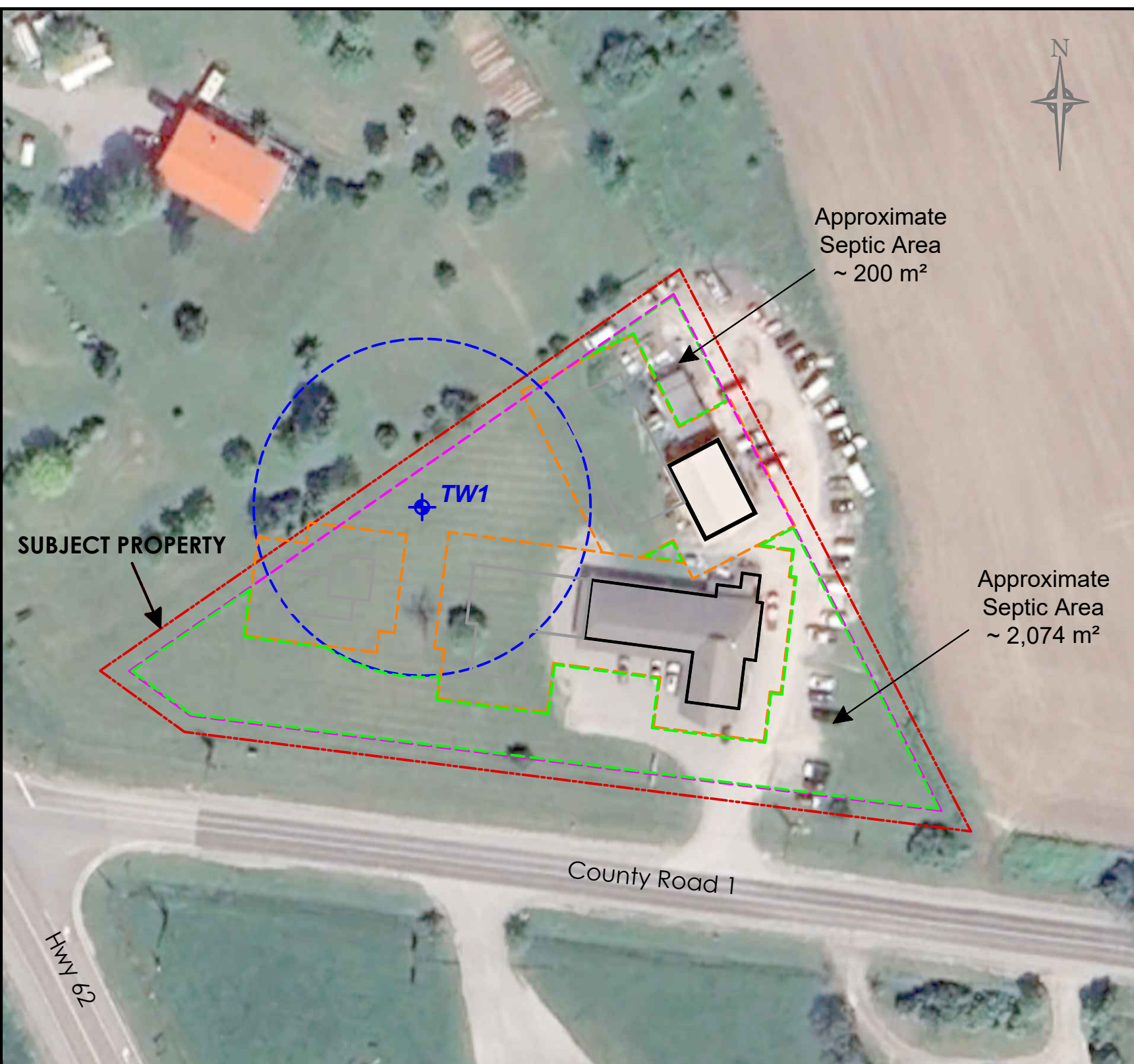
<b>PROJECT NO.</b> ASC-1080	<b>SCALE:</b> 
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**DATE**  
06-Jan-2026



1305 Princess St  
Kingston, ON, K7M 3E3

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LEGEND	
	APPROXIMATE SUBJECT PROPERTY BOUNDARY
	APPROXIMATE 3 METRE PROPERTY LINE SETBACK PER OBC
	APPROXIMATE 30 METRE DUG WELL SETBACK PER OBC
	APPROXIMATE 5 METRE STRUCTURE SETBACK PER OBC
	APPROXIMATE AREA AVAILABLE FOR CLASS 4 SEWAGE SYSTEM
	APPROXIMATE BUILDING FOOTPRINT
	APPROXIMATE PROPOSED BUILDING FOOTPRINT
	APPROXIMATE LOCATION OF TEST WELL

**DRAWING TITLE**  
Wastewater System Concept Plan

<b>FIGURE NO.</b> 03	<b>DRAWN BY</b> T. Cook
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**PROJECT**  
Hydrogeological Assessment

**CLIENT**  
Chris Walcott

**LOCATION**  
2188 County Road 1, Prince Edward County, ON

<b>PROJECT NO.</b> ASC-1080	<b>SCALE:</b> 
--------------------------------	-------------------

**DATE**  
06-Jan-2026



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**APPENDIX B**  
**Test Well Record**



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## Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- All metre measurements shall be reported to 1/10<sup>th</sup> of a metre.
- Please print clearly in blue or black ink only.

Ministry Use Only

Address of Well Location (County/District/Municipality) PRINCE EDWARD COUNTY			Township HALLOWELL		Lot PLOT 1	Concession LRCP 29
RR#/Street Number/Name 1540 HWY 62			City/Town/Village BLOOMFIELD		Site/Compartment/Block/Tract etc.	
GPS Reading	NAD 83	Zone 118	Easting 3116929	Northing 4875819	Unit Make/Model GARMIN	Mode of Operation: <input type="checkbox"/> Undifferentiated <input type="checkbox"/> Averaged <input type="checkbox"/> Differentiated, specify

## Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth Metres	
				From	To
BROWN	TOPSOIL		LOOSE	0	0.6
GREY	LIMESTONE		DENSE	0.6	6.5

Hole Diameter			Construction Record				Test of Well Yield					
Depth From	Metres To	Diameter Centimetres	Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	Pumping test method	Draw Down		Recovery	
0	6.5	400	91.44	<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	6.44	0.40	6.5	PUMP OUT	Time min	Water Level Metres	Time min	Water Level Metres
Water Record			Casing				Pumping rate - (litres/min)					
Water found at _____ Metres / Kind of Water			Screen				Duration of pumping					
<input checked="" type="checkbox"/> 2 m <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Gas <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/> Other:			Outside diam _____ Slot No. _____				Final water level end of pumping					
<input type="checkbox"/> m <input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Gas <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/> Other:			No Casing or Screen				Recommended pump type					
After test of well yield, water was			Open hole <input type="checkbox"/>				Recommended pump depth					
<input checked="" type="checkbox"/> Clear and sediment free <input type="checkbox"/> Other, specify _____							Recommended pump rate					
Chlorinated <input type="checkbox"/> Yes <input type="checkbox"/> No							If flowing give rate - (litres/min)					
							If pumping discontinued, give reason.					

Plugging and Sealing Record		
Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.

Method of Construction			
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Diamond	<input checked="" type="checkbox"/> Digging
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Jetting	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Boring	<input type="checkbox"/> Driving	
Water Use			
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Supply	<input type="checkbox"/> Other
<input type="checkbox"/> Stock	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used	
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Municipal	<input type="checkbox"/> Cooling & air conditioning	
Final Status of Well			
<input checked="" type="checkbox"/> Water Supply	<input type="checkbox"/> Recharge well	<input type="checkbox"/> Unfinished	<input type="checkbox"/> Abandoned, (Other)
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Dewatering	
<input type="checkbox"/> Test Hole	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well	

Well Contractor/Technician Information	
Name of Well Contractor DREW HARRISON HANLAGE LTD	Well Contractor's Licence No. 7188
Business Address (street name, number, city etc.) 74 CAPTAINS DRIVE, R24 PICTON ON K0K 2T0	
Name of Well Technician (last name, first name) DREW HARRISON	Well Technician's Licence No. T2968
Signature of Technician/Contractor X [Signature]	Date Submitted 2007 07 26

Location of Well	
In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.	
Audit No. Z 51312	Date Well Completed 2007 07 13
Was the well owner's information package delivered? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Delivered 2007 07 26

Ministry Use Only	
Data Source	Contractor 7188
Date Received AUG 13 2007	Date of Inspection
Remarks	Well Record Number

**APPENDIX C**  
**MECP Water Well Summary Records**



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



5304493

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11

MUNICIP. CON. 10 14 15 22 23 24

COUNTY OR DISTRICT: **Napanee** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **Hallowell** CON., BLOCK, TRACT, SURVEY, ETC.: **Irvine gore** LOT: **65**  
 R.R.# **1 Bloomfield** DATE COMPLETED: DAY **17** MO **4** YR **85**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
brown	topsoil		loose	0	1
brown	clay	shale	loose	1	5
grey	shale		loose	5	6
grey	limestone		hard	6	40

31 32

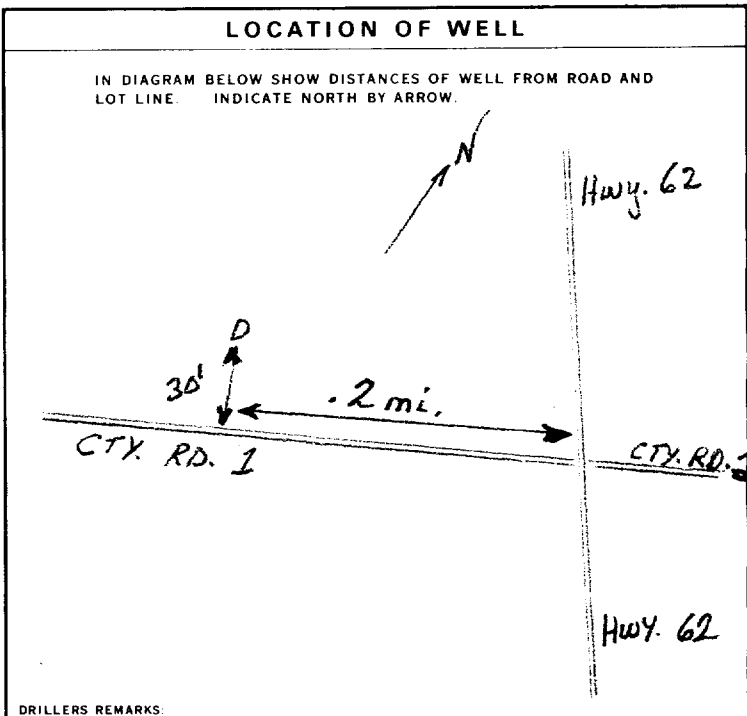
41 WATER RECORD			
WATER FOUND AT - FEET	KIND OF WATER		
23	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL
28	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL
33	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD				
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/4	1 <input checked="" type="checkbox"/> STEEL	.188	0	20'6"
6 1/4	1 <input type="checkbox"/> GALVANIZED 2 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		20'6"	40

SCREEN	SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
		INCHES	FEET

61 PLUGGING & SEALING RECORD		
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST	PUMPING TEST METHOD		PUMPING RATE	DURATION OF PUMPING	
	1 <input type="checkbox"/> PUMP	2 <input checked="" type="checkbox"/> BAILER	20 GPM	1	10
	STAT. LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING		
	22 FEET	25 FEET	15 MINUTES	30 MINUTES	45 MINUTES



FINAL STATUS OF WELL	1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
WATER USE	2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
METHOD OF DRILLING	3 <input checked="" type="checkbox"/> CABLE TOOL	4 <input type="checkbox"/> BORING

NAME OF WELL CONTRACTOR	LICENCE NUMBER
CHALK WELL DRILLING LTD.	1507
NAME OF DRILLER OR BORER	LICENCE NUMBER
R. Ian Chalk	1576
SIGNATURE OF CONTRACTOR	SUBMISSION DATE
CHALK WELL DRILLING LTD.	DAY 17 MO 4 YR 85

DATA SOURCE	CONTRACTOR	DATE
		220186
DATE OF INSPECTION	INSPECTOR	
REMARKS		























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

5307047

Municipality  
53003

Con. 10 14 15 22 23 24

11

County or District: PRINCE EDWARD  
Township/Borough/City/Town/Village: HALLOWELL  
Con block tract survey, etc.: IRVINE GORE  
Lot: 65  
Address: P.O. BOX 2000 TRENTON K8U 6G7  
Date completed: 22 day 09 month 02 year

21  
Northing: 10 12 17 18 24 25 26 30 31  
Elevation: RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BROWN	SANDY CLAM	CHAL STONES	SOFT	0	4
BROWN	SHALE		LOOSE	4	6
GREY	LIMESTONE		HARD	6	100

31  
32

41 WATER RECORD

Water found at - feet	Kind of water
10-13	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 14 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 15 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas 16
15-18	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 19 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 20 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas 21
20-23	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 24 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 25 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas 26
25-28	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 29 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 30 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas 31
30-33	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 34 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 35 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas 36

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6.8	1 <input type="checkbox"/> Steel 12 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		0	100
17-18	1 <input type="checkbox"/> Steel 19 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			20-23
24-25	1 <input type="checkbox"/> Steel 26 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
	inches	feet
Material and type		Depth at top of screen
		feet

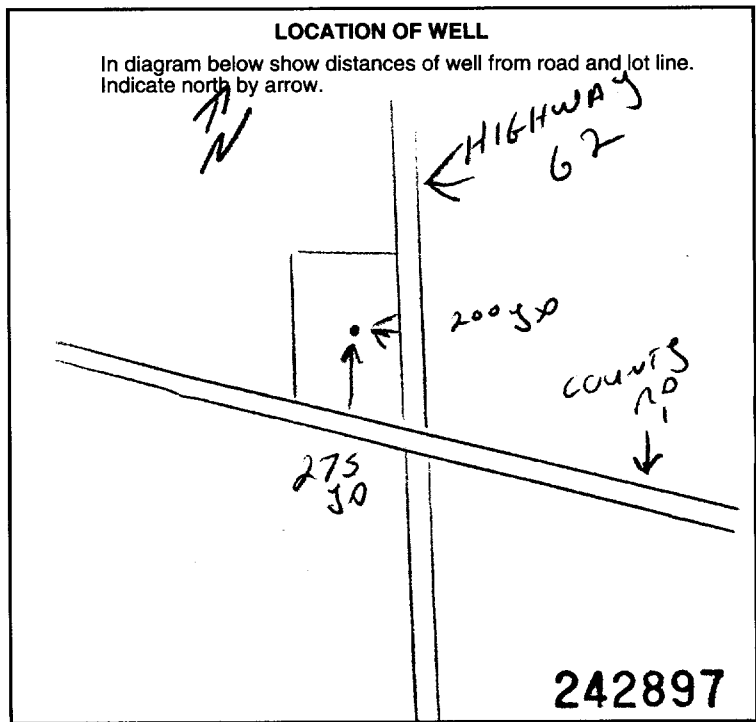
61 PLUGGING & SEALING RECORD

Annular space  Abandonment

Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
10-13	14-17	CEMENT, CONCRETE
100	0	
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST

Pumping test method	Pumping rate	Duration of pumping
1 <input type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer	GPM	Hours Mins
Static level	Water level end of pumping	Water levels during
19-21	22-24	1 <input type="checkbox"/> Pumping 2 <input type="checkbox"/> Recovery
feet	feet	15 minutes 26-28 30 minutes 29-31 45 minutes 32-34 60 minutes 35-37
feet	feet	feet
If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy
Recommended pump type	Recommended pump setting	Recommended pump rate
<input type="checkbox"/> Shallow <input type="checkbox"/> Deep	feet	GPM



FINAL STATUS OF WELL

1 <input type="checkbox"/> Water supply	5 <input checked="" type="checkbox"/> Abandoned, insufficient supply	9 <input type="checkbox"/> Unfinished
2 <input type="checkbox"/> Observation well	6 <input type="checkbox"/> Abandoned, poor quality	10 <input type="checkbox"/> Replacement well
3 <input type="checkbox"/> Test hole	7 <input type="checkbox"/> Abandoned (Other)	
4 <input type="checkbox"/> Recharge well	8 <input type="checkbox"/> Dewatering	

WATER USE

1 <input type="checkbox"/> Domestic	5 <input type="checkbox"/> Commercial	9 <input type="checkbox"/> Not use
2 <input type="checkbox"/> Stock	6 <input type="checkbox"/> Municipal	10 <input type="checkbox"/> Other
3 <input type="checkbox"/> Irrigation	7 <input type="checkbox"/> Public supply	
4 <input type="checkbox"/> Industrial	8 <input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION

1 <input checked="" type="checkbox"/> Cable tool	5 <input type="checkbox"/> Air percussion	9 <input type="checkbox"/> Driving
2 <input type="checkbox"/> Rotary (conventional)	6 <input type="checkbox"/> Boring	10 <input type="checkbox"/> Digging
3 <input type="checkbox"/> Rotary (reverse)	7 <input type="checkbox"/> Diamond	11 <input type="checkbox"/> Other
4 <input type="checkbox"/> Rotary (air)	8 <input type="checkbox"/> Jetting	

Name of Well Contractor: PRINCE EDWARD RAILERS  
Well Contractor's Licence No.: 6005  
Address: 1113 PICTON K0K 2T0  
Name of Well Technician: GLENDON MCKEE  
Well Technician's Licence No.: T2826  
Signature of Technician/Contractor: [Signature]  
Submission date: 22 mo 09 02

MINISTRY USE ONLY

Data source	Contractor	Date received
	6005	NOV 04 2002
Date of inspection	Inspector	
Remarks		CSS.ES2



Well T **A 042626** (number below)

**A042626**

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
- All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- All metre measurements shall be reported to 1/10<sup>th</sup> of a metre.
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN	CON	LOT
-----	-----	-----

Address of Well Location (County/District/Municipality) **PRINCE EDWARD** Township **HALLOWELL** Lot **PT 1** Concession **GERARD GORE**

RR#/Street Number/Name **1540 HIGHWAY 62** City/Town/Village **HALLOWELL** Site/Compartment/Block/Tract etc. **LRCP29**

GPS Reading NAD Zone Easting Northing Unit Make/Model Mode of Operation:  Undifferentiated  Averaged  Differentiated, specify

**813 18 316941 4875816 GARMIN NAVO**

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth Metres	
				From	To
BROWN	TOP-SOIL	STONES	SOFT	0	1.5
BROWN	SHALE		POROUS MOSS	1.5	2.30
GREY	LIMESTONE		HARD	2.30	18.50

Hole Diameter			Construction Record				Test of Well Yield					
Depth From	Metres To	Diameter Centimetres	Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	Pumping test method	Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
0	18.50	152.3	Casing									
Water Record			Screen				Pumping test method					
Water found at Metres / Kind of Water			No Casing or Screen				Pump intake set at - (metres)					
After test of well yield, water was			Open hole				Pumping rate - (litres/min)					
Chlorinated <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							Duration of pumping					
							Final water level end of pumping					
							Recommended pump type					
							Recommended pump depth					
							Recommended pump rate					
							If flowing give rate -					
							If pumping discontinued, give reason.					

**Plugging and Sealing Record**  Annular space  Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
18.50	1	CEMENT	1m
1	50m	BENTONITE CHIPS	~ 70 FT 3
50	0	SAND+GRAVEL	~ 70 FT 3

**Location of Well**

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

Audit No. **Z 43399** Date Well Completed **2007 02 21**

Was the well owner's information package delivered?  Yes  No Date Delivered **2007 02 18**

**Method of Construction**

Cable Tool  Rotary (air)  Diamond  Digging

Rotary (conventional)  Air percussion  Jetting  Other

Rotary (reverse)  Boring  Driving

**Water Use**

Domestic  Industrial  Public Supply  Other

Stock  Commercial  Not used

Irrigation  Municipal  Cooling & air conditioning

**Final Status of Well**

Water Supply  Recharge well  Unfinished  Abandoned, (Other)

Observation well  Abandoned, insufficient supply  Dewatering

Test Hole  Abandoned, poor quality  Replacement well

**Well Contractor/Technician Information**

Name of Well Contractor **WELL PRINCE EDWARD DAILERS** Well Contractor's Licence No. **6005**

Business Address (street name, number, city etc.) **R43 PICTON KOK 210**

Name of Well Technician (last name, first name) **McLee GLENDON** Well Technician's Licence No. **12826**

Signature of Technician/Contractor **Glendon McLee** Date Submitted **2007 12 17**

**Ministry Use Only**

Data Source **6005** Contractor **6005**

Date Received **MAR 28 2007** Date of Inspection **2007 02 21**


Remarks **6005** Well Record Number

**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.**

		Field Water Quality Analysis			Test Well:	TW1		
		Project No.:	ASC-1080	Date:	9-Dec-25			
Client:	Chris Walcott	Recorded By:	T.C					
Location:	2188 County Road 1, Prince Edward County, ON							
Started pumping 48 L/min at 8:05 am, increased to 56 L/min at 11:30am								
Pumping Test Elapsed Time (min)	Odour	Temperature (°C)	pH	Conductivity (µS)	Total Dissolved Solids (ppm)	Turbidity NTU	Chlorine (Total) (mg/L)	
5	Sl organic	10.3	7.27	2827	1414	8	N/A	
30	Sl organic	9.7	7.44	1472	735	5	N/A	
60	Sl organic	9.5	7.38	1526	763	9	N/A	
90	Sl organic	Pump malfunction					N/A	
205	Sl organic	Resume pumping					N/A	
210	Sl organic	9.2	7.57	1384	690	0	N/A	
240	Sl organic	9.1	7.29	1398	697	0	N/A	
270	Sl organic	9.1	7.34	1392	696	0	N/A	
300	Sl organic	9.1	7.37	1385	691	0	N/A	
330	Sl organic	9.2	7.43	1382	693	0	N/A	
360	Sl organic	9.2	7.46	1384	691	0	N/A	
390	Sl organic	9.3	7.34	1382	675	0	N/A	
420	Sl organic	9.2	7.29	1410	705	0	N/A	
450	Sl organic	9.0	7.36	1412	708	0	N/A	
475	Sl organic	PUMP OFF						
Notes	1. Well in-use at the time of test, no chlorination undertaken						2. Water was primarily clear	
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: TW1	
	Project No.:	ASC-1080		Date:	9-Dec-2025
	Client:	Chris Walcott		Recorded By:	T.C
	Location:	2188 County Road 1, Prince Edward County, Ontario			
Pumping Rate (Q) (L/min)	Elapsed Time (ET) (min)	Well Level (WL) (m)	Drawdown (DD) (m)		
48	0	2.06	0.00		
48	2	2.06	0.00		
48	4	2.07	0.01		
48	6	2.07	0.01		
48	8	2.09	0.03		
48	10	2.09	0.03		
48	15	2.11	0.05		
48	20	2.13	0.07		
48	25	2.15	0.09		
48	30	2.17	0.11		
48	40	2.20	0.14		
48	50	2.23	0.17		
48	60	2.27	0.21		
48	70	2.28	0.22		
48	80	2.30	0.24		
0	90	2.30	0.24		
0	100	2.29	0.23		
0	125	2.25	0.19		
0	150	2.21	0.15		
0	175	2.17	0.11		
56	205	2.13	0.07		
56	210	2.16	0.10		
56	220	2.19	0.13		
56	230	2.23	0.17		
56	250	2.28	0.22		
56	350	2.51	0.45		
56	475	2.77	0.71		
TW1	(m)		L/min	m <sup>3</sup> /day	
$\Delta S_{0-1min}$	2.06	$Q_{0-1min}$	48.00	69.1	
$\Delta S_{1-10min}$	0.03	$Q_{1-10min}$	48.00	69.1	
$\Delta S_{10-100min}$	0.24	$Q_{10-100min}$	43.00	61.9	
$\Delta S_{100-1000min}$	0.91	$Q_{100-1000min}$	40.00	57.6	
	m <sup>2</sup> /day	m <sup>2</sup> /s			
$T_{0-1min}$	6.14	7.11E-05			
$T_{1-10min}$	378.85	4.38E-03			
$T_{10-100min}$	46.96	5.43E-04			
$T_{100-1000min}$	11.63	1.35E-04			
Notes					
1			$\Delta s$	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-1080, Chris Walcott, 2188 County Road 1,  
Prince Edward County, ON  
Figure 1. TW1 Pumping Test Drawdown

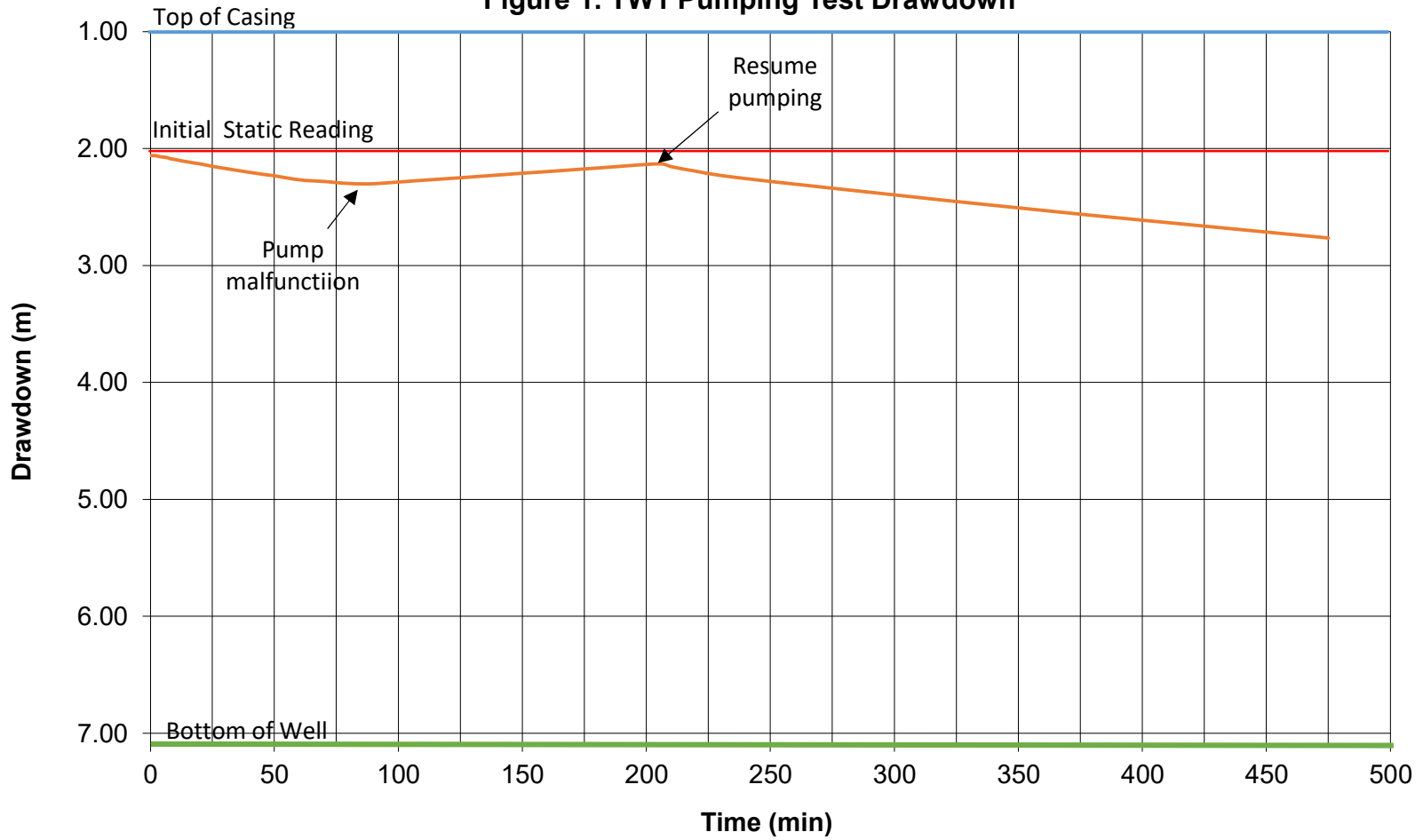

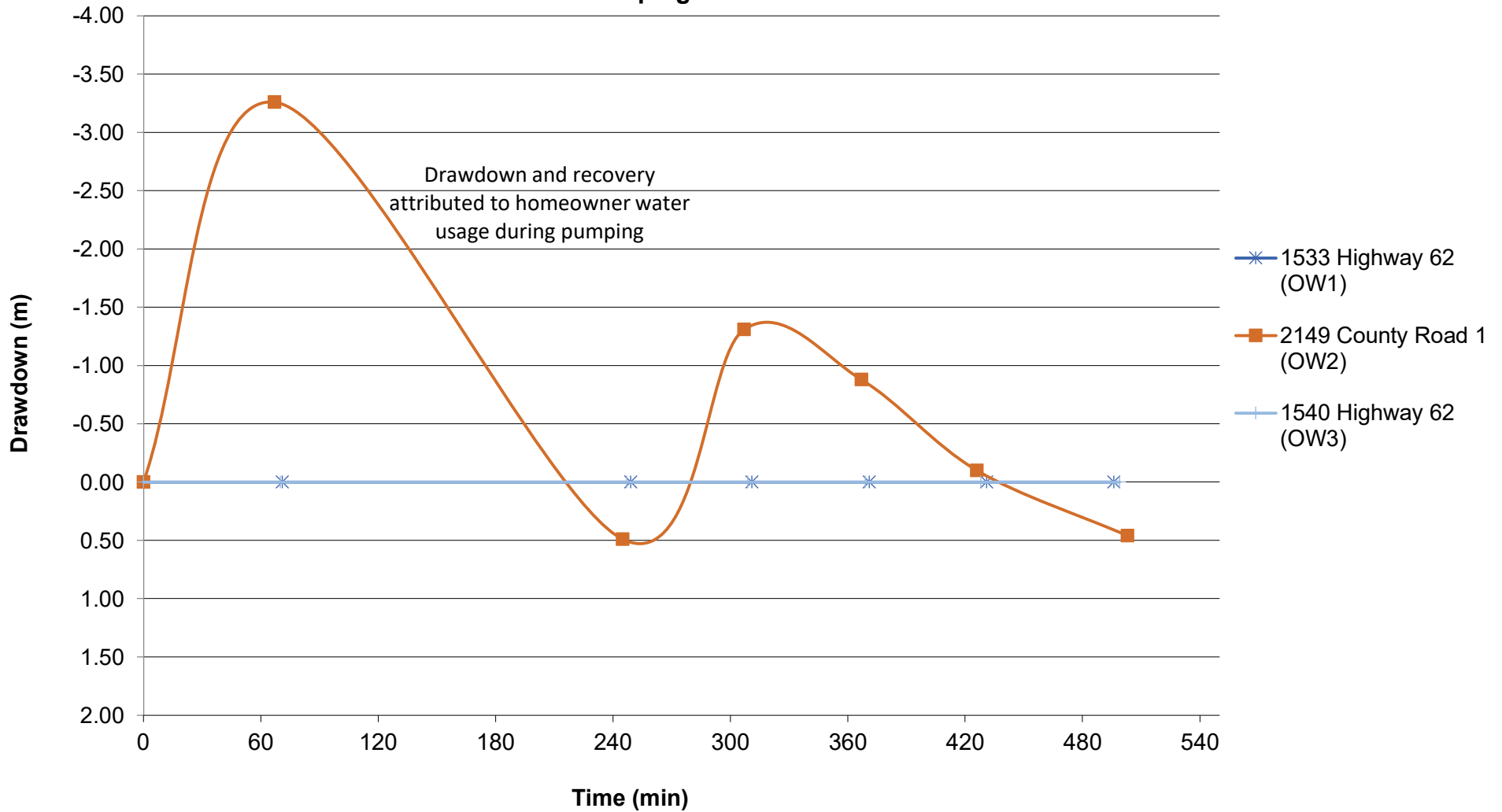



Table 3. Observation well drawdown during pumping test.											
		Pumping Test - Drawdown						Test Well:	TW1		
		Project No.:	ASC-1080				Date:	9-Dec-2025			
		Client:	Chris Walcott				Pumping start time				
		Location:	2188 County Road 1, Prince Edward County, ON				8	5	AM		
1533 Highway 62 (OW1)					2149 County Road 1 (OW2)						
WL	WL	DD	Time	ET	WL	WL	DD	Time	ET		
(ft)	(m)	(m)	H:Min	(min)	(ft)	(m)	(m)	H:Min	(min)		
8.136	2.480	0.000	7 16	0	22.835	6.960	0.000	7 22	0		
8.136	2.480	0.000	9 16	71	12.139	3.700	-3.260	9 12	67		
8.136	2.480	0.000	12 14	249	24.442	7.450	0.490	12 10	245		
8.136	2.480	0.000	13 16	311	18.537	5.650	-1.310	13 12	307		
8.136	2.480	0.000	14 16	371	19.948	6.080	-0.880	14 12	367		
8.136	2.480	0.000	15 16	431	22.507	6.860	-0.100	15 11	426		
8.136	2.480	0.000	16 21	496	24.344	7.420	0.460	16 28	503		
1540 Highway 62 (OW3)					Distance to Observation Wells (metres)						
WL	WL	DD	Time	ET	1533 Highway 62 (OW1)				170		
(ft)	(m)	(m)	H:Min	(min)	2149 County Road 1 (OW2)				210		
8.760	2.670	0.000	7 32	0	1540 Highway 62 (OW3)				130		
8.760	2.670	0.000	9 15	70							
8.760	2.670	0.000	12 12	247							
8.760	2.670	0.000	13 14	309							
8.760	2.670	0.000	14 14	369							
8.760	2.670	0.000	15 13	428							
8.760	2.670	0.000	16 24	499							

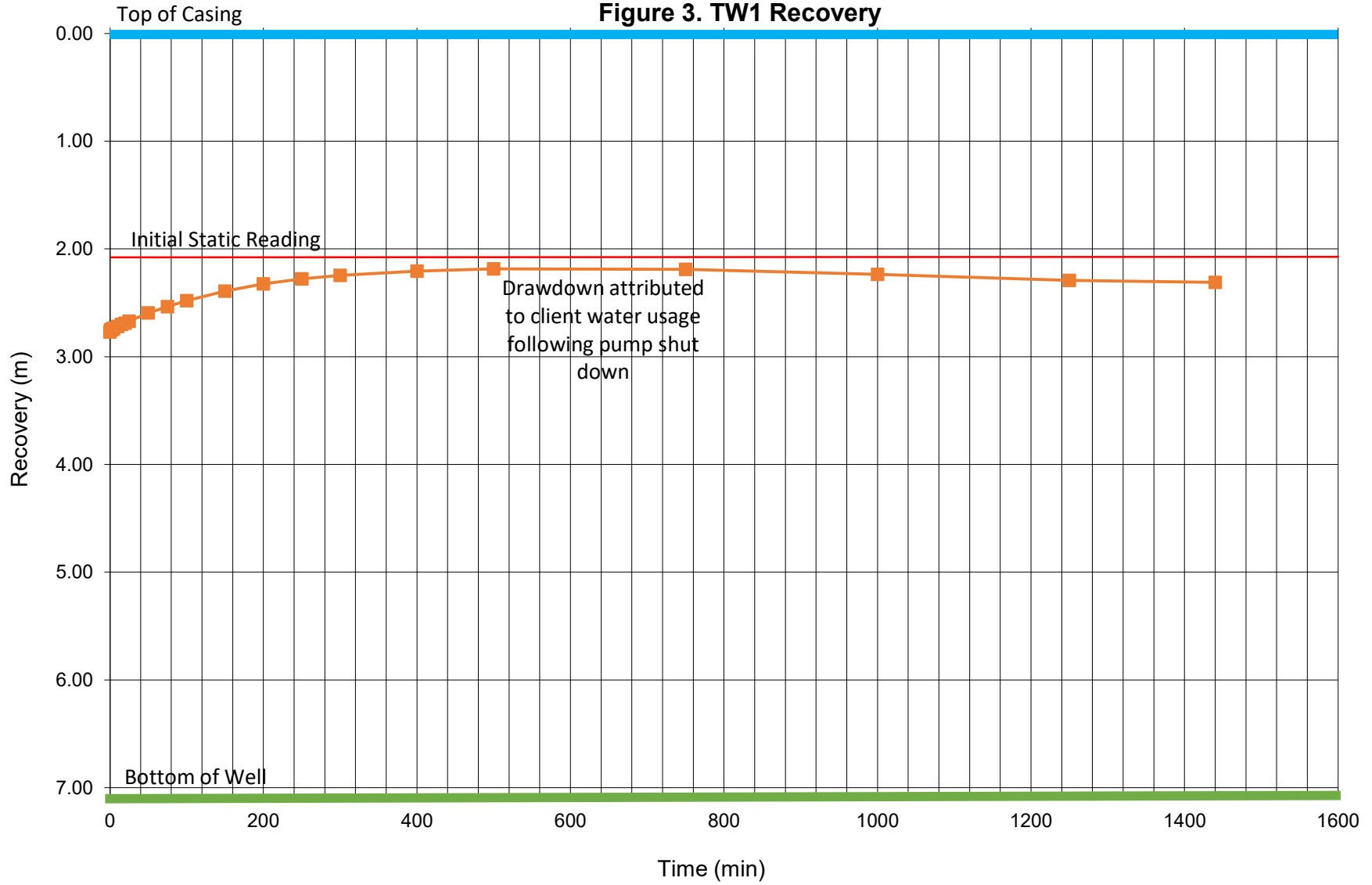
ASC Environmental Inc.  
ASC-1080, Chris Walcott, 2188 County Road 1,  
Prince Edward County, ON  
Figure 2. Pumping Test Influence on Neighbouring Wells  
TW1 Pumping Test Zone of Influence



**Table 4. Test well recovery after pumping test.**

	<b>Pumping Test - Recovery</b>		<b>Test Well:</b>	<b>TW1</b>
	Project No.:	ASC-1080	Date:	9-Dec-25
	Client:	Chris Walcott	Recorded By: T.C	
	Location:	2188 County Road 1, Prince Edward County, ON		
	Test Well			
Pumping	Elapsed Time (min)	Well Level (WL) (m)	Drawdown (m)	
0	0	2.77	0.71	
0	1	2.75	0.69	
0	2	2.75	0.69	
0	3	2.75	0.69	
0	4	2.74	0.68	
0	5	2.74	0.68	
0	10	2.72	0.66	
0	15	2.70	0.64	
0	20	2.69	0.63	
0	25	2.67	0.61	
0	50	2.60	0.54	
0	75	2.54	0.48	
0	100	2.48	0.42	
0	150	2.39	0.33	
0	200	2.32	0.26	
0	250	2.28	0.22	
0	300	2.25	0.19	
0	400	2.21	0.15	
0	500	2.18	0.12	
0	750	2.19	0.13	
0	1000	2.24	0.18	
0	1250	2.29	0.23	
0	1440	2.31	0.25	
WL at 95% Recovery =		2.09		
Notes		Well in-use following the completion of the pumping test, maximum observed recovery within 24 hrs (83%)		

ASC Environmental Inc.  
ASC-1080, Chris Walcott, 2188 County Road 1,  
Prince Edward County, ON  
Figure 3. TW1 Recovery



**APPENDIX E**  
**Laboratory Analytical Certificates**



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

**C.O.C.: G138567**

**REPORT No: 25-037861 - 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-Dec-10  
 DATE REPORTED: 2025-Dec-16  
 SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: ASC-1080  
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Dec-12	A-IC-01	SM 4110B
Colour (Liquid)	1	OTTAWA	STAILLON	2025-Dec-15	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	AGRAF	2025-Dec-11	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Coliforms - DC Media (Liquid)	1	KINGSTON	BBURTCH	2025-Dec-10	ECTC-001	MECP E3407
DOC (Liquid)	1	OTTAWA	MMACMILLAN	2025-Dec-11	C-OC-01	EPA 415.2
Fecal Coliforms (Liquid)	1	KINGSTON	BBURTCH	2025-Dec-10	FC-001	SM 9222D
HPC MF (Liquid)	1	KINGSTON	BBURTCH	2025-Dec-10	HPC-001	SM 9215D
Ion Balance (Calc.)	1	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
ICP/OES (Liquid)	1	OTTAWA	NSAUNDERS	2025-Dec-15	D-ICP-01	SM 3120B
Ammonia (Liquid)	1	KINGSTON	DCASSIDY	2025-Dec-11	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	EHINCH	2025-Dec-15	PHEN-01	MECP E3179
Sulphide (Liquid)	1	KINGSTON	MWILSON	2025-Dec-10	H2S-001	SM 4500-S2
Tannins (Liquid)	1	KINGSTON	MWILSON	2025-Dec-15	TAN-001	SM 5550
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Dec-12	TPTKN-001	MECP E3516.2
Turbidity (Liquid)	1	OTTAWA	ABAILEY	2025-Dec-11	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**

**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 25-037861 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			TW1
			Sample I.D.
			25-037861-1
			Date Collected
			2025-12-09
Total Coliform (DC Media)	CFU/100mL	1	9
E coli (DC Media)	CFU/100mL	1	0
Background (DC Media)	CFU/100mL	1	>200
Heterotrophic Plate Count	CFU/1mL	10	510
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	291
TDS (Calc. from Cond.) (Calculated)	mg/L	3	923
Conductivity @25°C	uS/cm	1	1690
pH @25°C	pH units	-	7.45
Colour	TCU	2	<2
Turbidity	NTU	0.1	0.5
Fluoride	mg/L	0.1	<0.1
Chloride	mg/L	0.5	384
Nitrate (N)	mg/L	0.05	6.29
Nitrite (N)	mg/L	0.05	0.21
Sulphate	mg/L	1	32
Phosphorus (Total)	mg/L	0.01	0.05
Total Kjeldahl Nitrogen	mg/L	0.1	0.3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Dissolved Organic Carbon	mg/L	0.8	3.4
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.

Parameter	Units	R.L.	Client I.D.
			TW1
			Sample I.D.
			25-037861-1
			Date Collected
			2025-12-09
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	395
Calcium	mg/L	0.02	139
Iron	mg/L	0.005	0.014
Magnesium	mg/L	0.02	11.6
Manganese	mg/L	0.001	0.002
Potassium	mg/L	0.1	7.9
Sodium	mg/L	0.2	172
Anion Sum (Calculated)	meq/L	-	17.8
Cation Sum (Calculated)	meq/L	-	15.6
% Difference (Calculated)	%	-	6.56
TDS (Ion Sum Calc) (Calculated)	mg/L	1	950
Conductivity Calc	µmho/cm	-	1700



**Michelle Dubien**  
**Data Specialist**

**C.O.C.: G113047**

**REPORT No: 25-039087 - 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-Dec-23  
 DATE REPORTED: 2025-Dec-29  
 SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: ASC-1080  
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Coliforms - DC Media (Liquid)	1	KINGSTON	BBURTCH	2025-Dec-23	ECTC-001	MECP E3407
Fecal Coliforms (Liquid)	1	KINGSTON	BBURTCH	2025-Dec-23	FC-001	SM 9222D

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*

Client I.D.	Sample I.D.	Date Collected	Parameter	Total Coliform (DC Media)	E coli (DC Media)	Fecal Coliform
			Units	CFU/100mL	CFU/100mL	CFU/100mL
R.L.				1	1	1
				-	-	-
TW1-2	25-039087-1	2025-Dec-22		0	0	0



**Brandon Burtch**  
**Microbiology Supervisor**

## **APPENDIX F Precipitation Data**



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



Government of Canada

Gouvernement du Canada

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Daily Data Report for December 2025

**BELLEVILLE  
ONTARIO**  
Current Station Operator: CCN

**Latitude:** 44°09'02.052" N  
**Longitude:** 77°23'41.046" W  
**Elevation:** 76.20 m  
**Climate ID:** 6150689  
**WMO ID:**  
**TC ID:**

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 †	-3.0	-7.0	-5.0	23.0	0.0	0.0	1.2	1.2	I		
02 †	0.0	-6.5	-3.3	21.3	0.0	0.0	0.0	0.0	1		
03 †	2.5	-10.0	-3.8	21.8	0.0	0.0	I	I	I		
04 †	0.0	-13.0	-6.5	24.5	0.0	0.0	0.2	0.2	I		
05 †	1.0	-16.0	-7.5	25.5	0.0	0.0	I	I	I		
06 †	2.5	-2.0	0.3	17.7	0.0	0.0	0.2	0.2	I		
07 †	-4.0	-12.5	-8.3	26.3	0.0	0.0	3.8	3.8	I		
08 †	-6.0	-18.0	-12.0	30.0	0.0	0.0	2.0	2.0	7		
09 †	0.5	-17.5	-8.5	26.5	0.0	0.0	5.2	5.2	M		
10 †	0.5	-2.0	-0.8	18.8	0.0	0.0	9.6	9.6	13		
11 †	-6.5	-14.0	-10.3	28.3	0.0	0.0	0.0	0.0	16		
12 †	-0.5	-13.0	-6.8	24.8	0.0	0.0	0.2	0.2	17		
13 †	0.5	-7.0	-3.3	21.3	0.0	0.0	I	I	18		
14 †	-4.5	-12.0	-8.3	26.3	0.0	0.0	0.0	0.0	21		
15 †	-3.0	-12.5	-7.8	25.8	0.0	0.0	I	I	21		
16 †	4.5	-6.0	-0.8	18.8	0.0	0.0	0.0	0.0	18		
17											
18 †	9.5	-1.5	4.0	14.0	0.0	12.4	0.0	12.4	0		
19 †	9.0	-4.0	2.5	15.5	0.0	1.0	2.0	3.0	0		
20 †	9.0	-9.0	0.0	18.0	0.0	0.4	0.0	0.4	0		
21 †	-1.5	-8.0	-4.8	22.8	0.0	0.0	0.2	0.2	0		
22 †	2.5	-9.0	-3.3	21.3	0.0	0.6	0.0	0.6	0		
23 †	3.5	0.0	1.8	16.2	0.0	1.6	0.0	1.6	0		
24 †	1.0	-2.5	-0.8	18.8	0.0	0.0	0.0	0.0	0		

DAY	<u>Max</u> <u>Temp</u> °C	<u>Min</u> <u>Temp</u> °C	<u>Mean</u> <u>Temp</u> °C	<u>Heat Deg</u> <u>Days</u>	<u>Cool Deg</u> <u>Days</u>	<u>Total</u> <u>Rain</u> mm	<u>Total</u> <u>Snow</u> cm	<u>Total</u> <u>Precip</u> mm	<u>Snow on</u> <u>Grnd</u> cm	<u>Dir of Max</u> <u>Gust</u> 10's deg	<u>Spd of Max</u> <u>Gust</u> km/h
25 †	1.0	-8.5	-3.8	21.8	0.0	0.0	0.0	0.0	0		
26											
27 †	-7.0	-13.0	-10.0	28.0	0.0	0.0	0.0	0.0	15		
28											
29											
30 †	-7.0	-12.0	-9.5	27.5	0.0	0.0	0.0	0.0	4		
31 †	-3.5	-11.0	-7.3	25.3	0.0	0.0	2.4	2.4	4		
<b>Sum</b>				609.9 <sup>^</sup>	0.0 <sup>^</sup>	16.0 <sup>^</sup>	27.0 <sup>^</sup>	43.0 <sup>^</sup>			
<b>Avg</b>	0.0 <sup>^</sup>	-9.2 <sup>^</sup>	-4.6 <sup>^</sup>								
<b>Xtrm</b>	9.5 <sup>^</sup>	-18.0 <sup>^</sup>				12.4 <sup>^</sup>	9.6 <sup>^</sup>	12.4 <sup>^</sup>		<u>M</u>	<u>M</u>
<b>Summary, average and extreme values are based on the data above.</b>											

**Legend**

- A = Accumulated
- C = Precipitation occurred, amount
- E = Estimated
- ~~U = Accumulated and estimated~~
- L = Precipitation may or may not
- M = Missing
- ~~N = Temperature missing but~~
- ~~have occurred~~
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but
- [empty] = Indicates an unobserved
- ~~known value displayed is based~~
- ~~value~~
- ~~↓ Data that is not subject to~~
- ~~on incomplete data~~
- ~~review by the National Climate~~

known to be > 0

Archives

**Date modified:**

2025-12-16