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REPORT ON

HYDROGEOLOGICAL AND TERRAIN STUDY
PROPOSED COMMERCIAL BUILDINGS
3904 MARCH ROAD
CITY OF OTTAWA
ONTARIO

Submitted to:

Dog World Kennel
3904 March Road
Carp, Ontario
K0A 1L0

DATE April 25, 2022

DISTRIBUTION

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April 25, 2022 190622

Dog World Bedrock Kennels
3904 March Road
Carp, Ontario
K0A 1L0

Attention: Ms. Tracy Kim Holden

RE: HYDROGEOLOGICAL AND TERRAIN STUDY
EXISTING SUPPLY WELL
PROPOSED COMMERCIAL BUILDINGS
3904 MARCH ROAD
WEST CARLETON-MARCH WARD
CITY OF OTTAWA, ONTARIO

Dear Madam:

This letter presents the results of an evaluation of the water quality and quantity for the well that will supply water for the above noted proposed expansion to an existing mixed used commercial and residential property at 3904 March Road, City of Ottawa, Ontario (see Key Plan, Figure 1). It is understood that the proposed development is to consist of an expansion of an existing dog kennel business on a property that also contains a single family dwelling.

The well in question was constructed by George H. Law and Son Ltd. of Calibogie, Ontario on September 24, 2000. A Ministry of the Environment, Conservation and Parks (MECP) Well Record for the subject well (TW1) and a Certificate of Well Compliance is provided as Attachment A.

This report consists of an evaluation of the water quality and quantity of an existing well on the subject property to ensure that the water quality and quantity of future wells drilled on the other proposed severed properties is acceptable using the following guidelines; Ministry of the Environment, Conservation and Parks (MECP) Guideline D-5-5 and the Ontario Drinking Water Standards, Objectives and Guidelines (ODWSOG). Consideration has also been given to the groundwater impact assessment guidelines under MECP D-5-4. A pumping test was carried out at the well, TW1, by a member of our engineering staff on October 7, 2020. The terrain study includes information from boreholes installed at the site to determine the soil and groundwater conditions with regards to sewage impact considerations.

Background

Based on a review of the surficial geology map for the site area, it is expected that the site is underlain by stone-poor sandy silt to silty sand-textured till on Paleozoic Terrain. Bedrock geology mapping indicates that the bedrock underlying the site consists of limestone, dolostone, shale and sandstone of the Ottawa Group, Simcoe Group and Shadow Lake Formation.

Based on a review of overburden thickness mapping for the site area, the overburden is estimated to be between about 0 to 10 metres in thickness above bedrock in the area. The three boreholes put down as part of a geotechnical investigation at the site indicates soil types of sand, silt and silty clay with overburden thicknesses of some 3.6 to 4.5 metres were encountered in boreholes put down at the site. The groundwater elevation was observed at 0.8 to 0.9 metres below existing ground surface on May 28, 2020.

GROUNDWATER SUPPLY INVESTIGATION

Water Demand

The water demand is calculated using the information from the sewage system daily design flow and the City of Ottawa Water Distribution Guidelines, 2010. The sewage design flows are provided below, based on the sewage design information (preliminary sewage design by Kollaard Associates Inc.). The calculations are as follows:

Commercial Daily sewage design flow:

- Existing (20 cages plus 6 employees) and Proposed Dog Kennel (plus additional 19 cages and 6 employees)
- 75 litres per cage x 39 cages = 2,925 L/day
- 75 litres per employee x 12 employees = 900 L/day
- Total Commercial design flow = 5,025 L/day

Existing Residential Water demand:

- 4 bedroom home, per person water demand based on 450 L/day per person = 2,250 L/day
- MHD = 5 x 3.75 L/min/person = 18.75 L/min

TOTAL WATER DEMAND = 7,275 Litres Per Day

Since sewage system design is based on the maximum expected daily use, it is equivalent to the Average Daily Demand (ADD). The ADD is based on an eight hour operation schedule (i.e. full day occurs over an eight hour period and not over 24 hours).

City of Ottawa calculates the Maximum Hour Demand (MHD) for a commercial or industrial demand to be 1.8 x MDD.

MDD = 5,025 litres / day x 1 day / 8 hours x 1 hour / 60 minutes
= 10.5 litres / minute

MHD = 1.8 x MDD
= 1.8 x 10.5 litres / minute
= 18.9 litres / minute

Alternatively, the City of Ottawa Water Distribution Guideline Section 4.2.8 indicates the average water demand for commercial usage is 28,000 L/gross ha/day. The gross area of the site is 9.6 hectares. However, this is not an appropriate way to calculate the commercial water demand on

the site as the site is very sparsely developed over its area. The total building footprint after development (based on the Stormwater Report) is 1,440 square metres, with some 2,640 square metres of gravel surfaced areas. As such, the total developed area (including parking) for the commercial use is 4,080 square metres (0.4 ha). This represents only 4% of the site area. That is the area used for the following calculation.

ADD = 0.4 ha x 28,000 L/gross ha/day
= 7.8 L/min
MDD = 1.5 x ADD
= 11.7 L/min
MHD = 11.7 L/min x 1.8 = 21.1 L/min

Using the more conservative figure for groundwater usage, the City of Ottawa predicated water usage for MDD and MHD of 11.7 L/min and 21.1 L/min, respectively, are used. As the well is also supplying water for residential demand, the peak residential demand rate is also considered as an additional water demand of 18.75 L/min. It should be noted that these peaks are unlikely to coincide as residential peaks occur usually early in the morning and in the early evening, whereas commercial water demand is typical throughout the daily operations between 8 am and 5 pm.

The Maximum Hourly Demand (MHD) for the site based on its proposed use is expected to be about ~39.9 litres/minute, compared to the pumping test rate which was 57 litres/minute.

Water Quantity

The well was pumped for six hours at a pumping rate of about 57 litres per minute. Over the course of the pumping test, the water level in the well dropped some ~0.4 metres. At the end of the pumping test, about 3 hours and 10 minutes was required for 100 percent recovery of the total drawdown in the static water level created during pumping.

The pumping test drawdown and recovery data and plots for TW1 are provided as Attachment B. The drawdown and recovery data provided were measured with reference to the top of the well casing at the test well location.

The pumping test data for the test well was analyzed using the method of Cooper and Jacob (1946). Although the assumptions on which these equations are based are not strictly met, this method provides a reasonable estimate of the aquifer transmissivity.
Transmissivity was calculated using the following relationship:

$$T = \frac{2.3Q}{4\pi ds}$$

where Q is the pump rate, m^3/day
ds is the change in drawdown over one time log cycle, m
T is the transmissivity, m^2/day

Specific Capacity = Q / TD
= 81.9 m^3/day / 0.41 m
= 199.7 m^3/day/m

where Q = test pumping rate (m^3/day)
TD = total drawdown (m)

Based on the pumping test drawdown data the transmissivity of the aquifer is estimated to be about 83 m^2/day. Based on the recovery data the aquifer transmissivity is estimated to be about 52 m^2/day. It should be noted that pumping tests should typically be carried out for a period of between 24 hours or greater to establish transmissivity for a confined aquifer in order to assess boundary conditions. Over the course of the six hour test, some ~20,450 litres of water was pumped from the well and only 3% of the available drawdown was used. The available drawdown at the well is about 12.9 metres (based on recommended pump intake and static water level at the time of the test). As the expected maximum daily water demand is about 7,275 litres per day, the expected drawdown at the well is well within the available drawdown for the well.

Water Quality

To determine the water quality of the groundwater supply, groundwater samples were obtained from the well during the pumping test and prepared/preserved in the field using appropriate techniques and submitted to Eurofins Environmental Testing in Ottawa, Ontario for the chemical, physical and bacteriological analyses listed in the MECP guideline entitled Procedure D-5-5, Technical Guideline for Private Wells: Water Supply Assessment, August 1996. The temperature, conductivity, pH, total dissolved solids, turbidity and residual chlorine levels of the groundwater were measured at periodic intervals during the pumping test. The results of the chemical, physical and bacteriological analyses of the water samples obtained from the test well and the field water quality are provided as Attachment C and in Table I, respectively.

The water quality as determined from the results of the analyses is acceptable. The water meets all the Ontario Drinking Water Standards (ODWS) health and aesthetic parameters tested for at the test well except for aesthetic objective for hardness, turbidity (lab based), iron and manganese.

Hardness
The water is considered to be hard by water treatment standards. Water with hardness above 80 to 100 milligrams per litre as $CaC0_3$ is often softened for domestic use. The hardness at the well is 253 to 271 milligrams per litre. Treatment consisting of water softening by conventional sodium ion exchange is effective to reduce scale formation associated with hardness. Ion exchange water softening may introduce relatively high concentrations of sodium into the drinking water. Treatment by water softening can also contribute a significant percentage to the daily sodium intake for a consumer on a sodium restricted diet. Where ion exchange water softeners are used, a separate unsoftened water supply could be used for drinking and culinary purposes. The untreated water had sodium levels that were less than the medical advisory level of 20 mg/l.

Turbidity (lab based)
The turbidity was measured hourly during the pumping test and the turbidity levels were below 5 NTU and were declining throughout pumping. However, the lab based turbidity levels were measured to be 7.3 NTU for the sample obtained after three hours and 5.5 NTU for the sample obtained after six hours. Turbidity (lab based) declined throughout pumping. It is considered that the turbidity level is due to the presence of iron and manganese, which were also present at or above their aesthetic objectives and contribute to turbidity. It is considered that with appropriate treatment to reduce iron and manganese, that turbidity is expected to be less than 5 NTU in treated water. There are concerns with regards to the level of turbidity measured in the lab sample as the field readings for turbidity are less than 5 NTU.

Iron
Iron was measured at a level of 0.68 after three hours and lowered to 0.52 mg/l after six hours, compared to the aesthetic objective of 0.3 mg/l. Excessive iron levels may cause brown or black discolouration of laundry and fixtures, affect the taste and colour of water, and iron precipitation in pipes and hot water tank can also promote the growth of iron bacteria. Iron can be effectively removed using conventional ion exchange water softeners. However, depending on the form that iron is in (reduced or oxidized) as well as the concentration levels and other factors, iron filters may be more effective in removing iron the water supply.

Manganese
The level of manganese was 0.05 mg/l and 0.06 mg/l after three and six hours, respectively. The aesthetic objective for manganese is 0.05 mg/l. Manganese can stain laundry and fixtures black. For a commercial usage, where domestic usages such as laundry are not anticipated, and the expected manganese concentration, which is elevated but did meet the aesthetic objective for one water sample, it may not be necessary to treat the water for this parameter. If desired, manganese can be effectively treated using a manganese greensand filter or some other proprietary filter for manganese removal.

Bacteria (Total Coliforms and E. Coli)
The initial testing encountered total coliform levels of 2-3 counts/100 ml and an absence of E. Coli. This was shortly after well construction and during well development. On September 29, 2021, the water was resampled once it had been connected to the existing kennel building. At that time, the total coliforms were measured to be 0 counts/100 ml. A free chlorine residual was measured to be 0.00 ppm prior to obtaining the water sample. It is considered by Kollaard Associates Inc. that the bacteriological water quality is acceptable for the supply well at the site.

Other Parameters
The investigation was carried out in 2020, prior to the City of Ottawa Hydrogeological and Terrain Analysis Guidelines, which were provided in March 2021. It is understood that the current requirements for Site Plan would include trace metals and VOCs. Other parameters may also be required, based on the land use and/or geological setting. It should be noted that the site is located in a very sparsely developed area and that previous Phase I Environmental Site Assessment did not encounter any industrial or commercial activity that would involve any handling of VOCs either at the site or within 250 metres of the site. As such, it is considered that there is no need to test for VOCs or other parameters that would represent any existing contamination. It is possible that natural strontium levels at the site may be present in relation to the water supply being limestone and sandstone which are sedimentary bedrock types in the Ottawa area which are associated with strontium. It will be noted that strontium levels could be present above the interim maximum allowable concentration (IMAC) and that water softening is an appropriate treatment to reduce strontium.

TERRAIN STUDY

Soils information was obtained from geotechnical boreholes put down at the subject site. The field work for this investigation was carried out on May 28, 2020, at which time three boreholes were put down at the site, identified as BH1, BH2 and BH3. The boreholes encountered about sand to depths of some 1.3 to 1.7 metres overlying silt followed by silty clay to depths of some 3.5 to 3.8 metres overlying silty sand and gravel. The boreholes were terminated at depths of 3.6 to 4.5

metres all with refusal to advance on either large boulders or bedrock. Water was observed at about 0.8 to 0.9 metres below the ground surface at all three boreholes.

The size of the septic envelopes are a function of the percolation time of the native soil in the vicinity of the septic envelope and/or the fill used for construction of a septic bed and the daily effluent loading to the septic bed. A preliminary sewage design was prepared by Kollaard Associates for the commercial building including the proposed expansion. The sewage system is indicated to consist of a conventional partially raised leaching bed with a contact area of 502.5 square metres. The design is based on the native silty sand soils contact area at the site having a percolation rate of about 15 min/cm. No imported mantle was needed for the sewage system design.

The sewage design is based on a daily design flow of 5,025 Litres per day on the design flow information. An existing sewage system design is in place already for the existing single family dwelling. The proposed commercial sewage system is to replace the holding tank that was previously used for the kennel which will be replaced by the proposed sewage system.

The sewage dilution calculations, provided as Attachment D, indicate that the impact is within 10 mg/l N-NO_3 for two sewage systems, including the existing sewage system for the single family dwelling and a separate sewage system for the commercial kennel.

Based on the terrain information provided, there is sufficient space at the site to accommodate the two sewage systems. They are both located along the east portion of the site with at least 30 metres of separation between the well and the sewage systems. It is considered that the operation of the sewage system at the site will not cause impact to the well on the existing site or surrounding properties. There are no other wells indicated to be within at least 100 metres or more of the proposed sewage system area at the site.

Animal Waste Disposal

An area was set aside on the property for disposal of dog waste. All solid waste from the kennels is placed at a solid manure storage location that is distant from sensitive receptors and that is not prone to significant runoff. The area is to be surrounded by a berm.

The proposed solid manure storage location is shown on Kollaard drawing 190622-SER (see attached). The manure storage location is surrounded by a berm which will prevent all stormwater originating on the area of the manure storage location from running off the site. The following Table provides a summary of the design conformance of the solid manure storage location to site requirements under the NMA regulations.

Table - Conformance of Solid Manure Storage to Regulations

Design Element	Design Objective	Minimum Criteria	Design Conformance
Minimum depth of Soil to Bedrock	minimum potential for runoff to reach bedrock	3.0 m of un-consolidated (not compacted) soil	3.6 m At least 1 m of silty clay above bedrock
Minimum depth to water table	minimum potential for runoff to reach water table	0.9 m	0.9 m to perched groundwater. Permanent ground water below surface

			of bedrock
Soil Type	minimize potential for nutrient flow into the bedrock	Cannot be Soil Group A	Soil Group B
Storage location	minimize potential for flooding	Cannot be in the floodplain	Is not in the floodplain.
Site slope	minimize runoff rate	< 3%	Relatively flat in proposed storage area <1%
Distance to Surface Water	minimize potential for surface water contamination	50 m	94 m to the regulation limit surrounding the adjacent wetland
Separations	minimize risk to drinking water and provide separation to the residence	45 m to drilled well	133
		90 m to dug well	N/A
		100 m to municipal well	N/A
		125 m to single residence	127 m

As shown in the above table, the solid waste from the facilities will be placed at a location in keeping with the requirements for the storage of solid manure. As such, the proposed practices with respect to the management of the canine feces will ensure that contamination from canine feces is not carried off of the site by stormwater runoff. There are no stormwater management ponds proposed on site.

Based on the above noted information, it is considered that the storage of dog waste at the site will be in keeping with Nutrient Management Act policies to prevent any detrimental impact on the surface water and groundwater in the area.

WELLHEAD PROTECTION / FLOODPLAIN CONSIDERATIONS

The supply well is located within the north portion of the site close to the dwelling, with the existing sewage system for the dwelling located on the east side of the site. The proposed location for the commercial sewage system is south of the existing sewage also on the east side of the property. The sewage systems are at least 30 metres or more from the existing wells. The well casing must extend to greater than 400 millimetres above grade at the time of construction. It should be verified that the top of the well casing is at least 400 millimetres above the finished grade at the well location.

Additionally, the ground surface shall be graded such that the well is the highest point on the ground surface within 3 metres radially from the exterior of the well casing and shall ensure that water does not collect or pond near the well head. The well has been grouted and cased to a depth of about 6.4 metres below the existing ground surface, according to information provided on the well record (Attachment A). The well is physically separated from the driveway by at least 3 metres. With these measures in place, it is considered that an adequate amount of wellhead protection is going to be in place to protect the water supply for the proposed commercial use of the property. The well location is also appropriate for access in case of repairs and well maintenance.

Recommendations for wellhead protection include ensuring that potential contaminant sources are at least 15 metres or more from the well. Possible contaminant sources that could be present at the site include; waste storage (dog feces), garage and related chemicals, such as antifreeze, gasoline,

oils, vehicle/boat/equipment storage, sewer lines, septic systems, animal enclosures, manure or compost piles. The sewage systems and dog waste storage area are greater than 30 metres or more from the well location.

Recommendations for well maintenance include; inspect wellhead annually to ensure that the casing is structurally sound, verify well cap is sealed and that surface water is not pooling around wellhead. The well is located such that it is easily accessible for maintenance/repairs.

Based on the results of this evaluation it is considered that the well in question should supply water of adequate quantity and quality for the proposed development with suitable treatment and wellhead protection as indicated above.

RECOMMENDATIONS

The following wellhead protection measures are required:

- Ensure that potential contaminant sources are at least 15 metres or more from the well. Possible contaminant sources that could be present at the site include; waste storage (dog feces), garage and related chemicals, such as antifreeze, gasoline, oils, vehicle/boat/equipment storage, sewer lines, septic systems, animal enclosures, manure or compost piles. The sewage systems and dog waste storage area are greater than 30 metres or more from the well location.
- Maintain well at least 3 metres from the edge of the driveway/laneway at the site to ensure adequate separation distance to prevent damage from vehicles and surface water drainage is away from the well.

The following should be considered for water quality considerations:

- Well water at the site has elevated hardness, iron, manganese and iron-related turbidity.

The following treatment considerations are recommended:

- Hardness: Water softening by conventional sodium ion exchange is recommended to reduce hardness. However, this is expected to introduce relatively high concentrations of sodium into the drinking water, which may contribute a significant percentage to the daily sodium intake for a consumer on a sodium restricted diet. The water may be scale forming if water softeners are not used.
- Iron, manganese and iron-related turbidity (inorganic): Water softening to reduce hardness should have a corresponding effect on iron, provided the water softener is designed and calibrated for iron removal. A manganese greensand filter or oxidation with filtration through a proprietary filter media may be more effective at removing iron and manganese. Treatment for iron is expected to have a corresponding effect on turbidity, which was elevated in samples that had been stored and tested at the laboratory. The field turbidity levels were less than 1 NTU.
- Trace Metals and VOCs testing was not carried out as the requirement for such testing has only been required after the field work for this project was carried out. It is considered that VOCs testing is not necessary for this property as it is in a rural residential setting rather than a typical commercial or industrial park setting. The Phase I ESA indicated there are no potential contaminant sources in the site vicinity. It should be noted that there is a potential for elevated strontium due to the sedimentary limestone and sandstone aquifer that is present at the site. If strontium is elevated, conventional water softening is appropriate to remove strontium from any drinking water. Strontium currently has a proposed Maximum Acceptable Concentration (MAC) by Health Canada of 7.0 mg/L. The proposed MAC is

established as there are a few studies that indicate a potential for adverse effects of strontium for humans. Since the highest sensitivity to adverse bone effects occurs in the first year of life, infants are the most sensitive to strontium toxicity. The level of strontium measured in the raw water supply at this site is 23.5 mg/L, which is above the acceptable proposed limit. Strontium may be reduced from water by the use of ion exchange water softeners or a point of use reverse osmosis treatment unit for any water used for drinking or culinary purposes.

We trust this letter provides sufficient information for your purposes. If you have any questions concerning this letter, please do not hesitate to contact our office.

Yours truly,
Kollaard Associates Inc.

Colleen Vermeersch, P. Eng.

Attachments:

Figure 1	- Key Plan
Site Servicing Plan	- Fig. 190622-SER
Table I	- Field Water Quality
Attachment A	- Well Record and Certificate of Well Compliance
Attachment B	- Pumping Test Data
Attachment C	- Well Water Laboratory Test Results
Attachment D	- Sewage Dilution Calculations

KEY PLAN

FIGURE 1

NOT TO SCALE

Kollaard Associates
Engineers

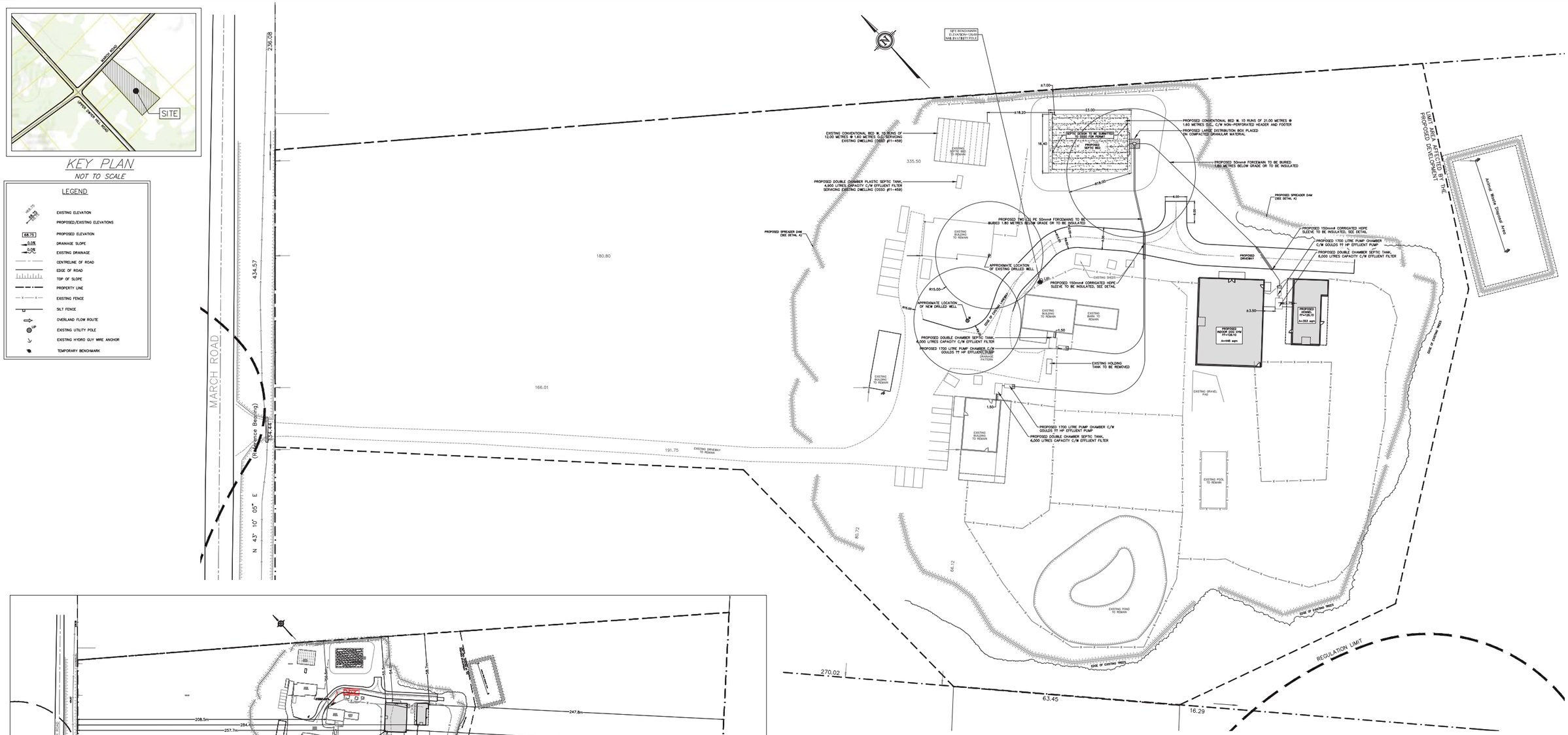
Project No. 190622

Date April 2022

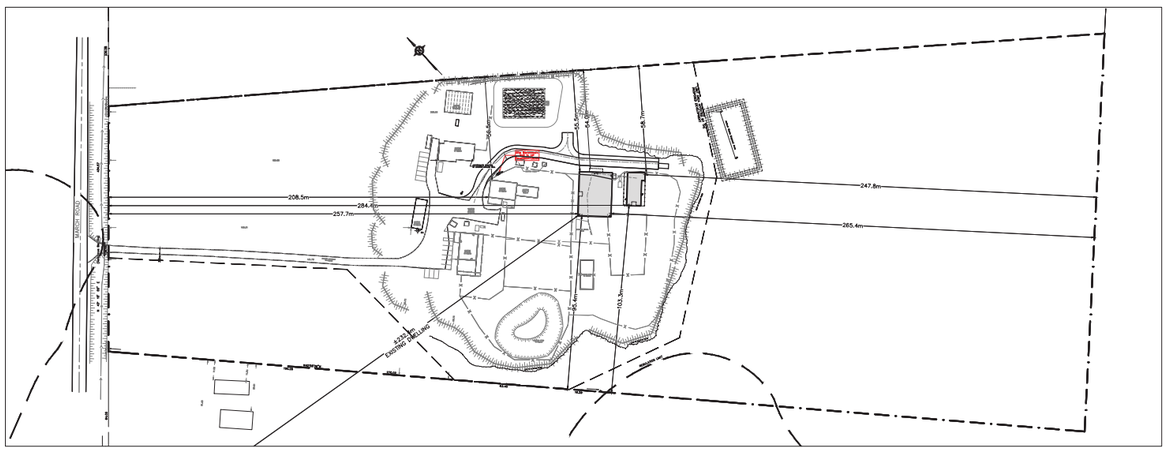
KEY PLAN
NOT TO SCALE

LEGEND

- EXISTING ELEVATION
- PROPOSED/EXISTING ELEVATIONS
- 68.75 PROPOSED ELEVATION
- 0.0% DRAINAGE SLOPE
- 0.0% EXISTING DRAINAGE
- CENTRELINE OF ROAD
- EDGE OF ROAD
- TOP OF SLOPE
- PROPERTY LINE
- EXISTING FENCE
- SILT FENCE
- OVERLAND FLOW ROUTE
- UP EXISTING UTILITY POLE
- EXISTING HYDRO GUY WIRE ANCHOR
- TEMPORARY BENCHMARK



SITE SERVICING PLAN
(DEVELOPMENT)
SCALE = 1:500



SITE PLAN (OVERALL)
SCALE = 1:1250

NOTES:

1. ALL DIMENSIONS ARE IN METRES, UNLESS OTHERWISE SPECIFIED; ALL ELEVATIONS ARE IN METRES AND ARE GEODETIC.
2. THIS IS NOT A LEGAL SURVEY.
3. BOUNDARY INFORMATION WAS DERIVED FROM ANNIS, O-SULLIVAN, VOLLEBEKK LTD. JOB NO. 20074-19
4. EXISTING SERVICES INFORMATION SHOWN ARE BASED ON BEST CURRENT INFORMATION. CONTRACTOR TO VERIFY EXACT LOCATION AND REPORT ANY DISCREPANCIES TO KOLLAARD ASSOCIATES INC.
5. CLIENT IS RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS.
6. CONTRACTOR TO VERIFY THAT APPROPRIATE PERMITS HAVE BEEN ACQUIRED PRIOR TO ANY CONSTRUCTION.
7. CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF UTILITIES.
8. ALL DIMENSIONS TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
8. THIS DRAWING IS NOT FOR CONSTRUCTION UNTIL ALL APPROVALS HAVE BEEN GRANTED.
9. INSPECTION OF ROUGH GRADE BY KOLLAARD ASSOCIATES INC. AND CITY OF OTTAWA MUST BE CONDUCTED PRIOR TO PLACEMENT OF TOPSOIL OR SOD.
10. HYDRO SERVICE TO BE INSTALLED ACCORDING TO THE SPECIFICATIONS OF SERVICE PROVIDER AND THE MECHANICAL ENGINEER.
11. ALL MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
12. ANY CHANGES MADE TO THIS PLAN MUST BE VERIFIED AND APPROVED BY KOLLAARD ASSOCIATES, INC.
13. THIS DRAWING IS PART OF KOLLAARD ASSOCIATES DESIGN REPORT # 190622.

No.	REVISION	DATE	BY
0	ISSUED FOR SITE PLAN CONTROL	APR.19.2022	ML

CONSULTANTS

Kollaard Associates Engineers
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210 PRESCOTT STREET
KEMPTVILLE, ONTARIO
K0G 1J0
FACSIMILE (613) 258-0475
(613) 860-0923

DESIGN	SD
DRAWN	ML
CHECKED	SD
APPROVED	SD

STAMP: LICENSED PROFESSIONAL ENGINEER — APRIL 19, 2022 — S.E. deWit — 100079612 — PROVINCE OF ONTARIO

CLIENT NAME	DOG WORLD (TRACY KIM HOLDEN) 3904 MARCH ROAD, CARP, ON K0A 1L0
PROJECT NAME	PROPOSED KENNEL ADDITION
PROJECT LOCATION	3904 MARCH ROAD, CARP, ON K0A 1L0
DRAWING	SITE SERVICING PLAN
PROJECT No.	190622
DATE	NOV. 19, 2019
SCALE	AS NOTED
DRAWING No.	190622-SER

TABLE I

FIELD WATER QUALITY MEASUREMENTS
FOR TEST WELL 1

Time Since Pumping Test Started (min)	**Temperature** (^{0}C)	**pH**	**Turbidity** (NTU)	**Total Dissolved Solids** (ppm)	**Conductivity** (µS)	**Free Chlorine** (ppm)
60	9.9	8.1	2.1	253	505	0.0
120	10.0	7.9	2.4	250	555	-
180	10.0	8.0	1.2	257	517	0.0
240	10.2	8.1	0.8	262	525	-
300	10.0	8.0	0.5	268	530	-
360	10.1	8.1	0.5	255	551	0.0

ATTACHMENT A

MOE WELL RECORD AND CERTIFICATE OF WELL COMPLIANCE FOR TW1
PROVIDED BY WELL DRILLER
AND AREA WELL RECORDS

Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Sticker Number under Plate 1 Below): Tag#:A305312

Well Record

Regulation 903 Ontario Water Resources Act

Page ___ of ___

Well Owner's Information

First Name: Tracy | Last Name / Organization: Holden | E-mail Address: | ☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name): 3904 March Rd | Municipality: Carp | Province: ON | Postal Code: K0A1Z0 | Telephone No. (inc. area code): 6132563649

Well Location

Address of Well Location (Street Number/Name): 3904 March Rd | Township: Huntley | Lot: Pt of 15 | Concession: 10

County/District/Municipality: Ottawa | City/Town/Village: Carp | Province: Ontario | Postal Code: K0A1Z0

UTM Coordinates: Zone: NAD 8 3 | Easting: 184120 | Northing: 5013471 | Municipal Plan and Subdot Number: | Other:

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	Sand			0	10'
grey	Clay			10'	14'
white/grey	limestone			14'	50'
brown	Sandstone			50'	52'
grey	limestone			52'	60'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20'	Neat Cement	6.40

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	0.188	+2'	20'
6	open hole		20'	60'

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

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): 50

Pumping rate (l/min / GPM): 12

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 9.5'

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

Recommended pump depth (m/ft): 30'

Recommended pump rate (l/min / GPM): 10

Well production (l/min / GPM): 15+

Disinfected? ☑ Yes ☐ No

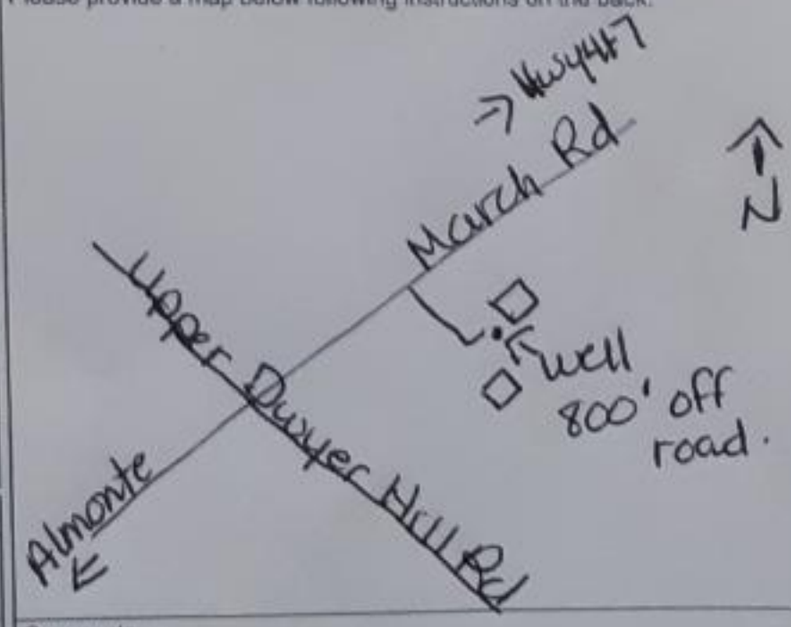
Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	9.0'		
1	9.3'	1	9.0'
2	9.4'	2	9.0'
3	9.4'	3	
4	9.4'	4	
5	9.5	5	
10	9.5	10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60	9.5	60	9.0'

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Hole Diameter Depth From (m/ft)	Depth To (m/ft)	Diameter (cm/in)
50'	☐	☐ Fresh ☑ Untested ☐ Other, specify	0	20'	10"
	☐	☐ Fresh ☐ Untested ☐ Other, specify	20'	60'	6"
	☐	☐ Fresh ☐ Untested ☐ Other, specify			

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: George H. Law + Son Ltd | Well Contractor's Licence No.: 3323

Business Address (Street Number/Name): 4848A Calabogie Rd, P.O Box 155 | Municipality: Calabogie | Province: ON | Postal Code: K0J1H0 | Business E-mail Address:

Bus. Telephone No. (inc. area code): 6137522080 | Name of Well Technician (Last Name, First Name): Law Alfred

Well Technician's Licence No.: 0433 | Signature of Technician and/or Contractor: Alfred Law | Date Submitted: 20201009

Well owner's information package delivered: ☑ Yes ☐ No | Date Package Delivered: 20201006 | Date Work Completed: 20200924

Ministry Use Only

Audit No. Z339783

Received

Ministry's Copy

0506E (2018/12)

CERTIFICATE OF WELL COMPLIANCE

I, Alfred Law do hereby certify that I am licensed to drill wells in the Province of Ontario, and that I have supervised the drilling of a well on the property of Tracy Holden (Name of Landowner), located at 3904 March Rd, Prt Lt 15, Con 10 (Legal Description, Lot/Plan No.) in the City of Ottawa.

I certify further that I am aware of the well drilling requirements, the guidelines, recommendations and regulations of the Ministry of the Environment governing well installations in the Province of Ontario, and the standards specified in any subdivision agreement and hydrogeological report applicable to the site and City standards.

I do hereby certify that the said well has been drilled, cased, grouted (cement or bentonite) as applicable, and constructed in strict conformity with the standards required.

Signed this 24 day of Sept, 2020.

George H. Law + Son Ltd
(Well Driller/ Company)

The Engineer, on behalf of the landowner set out above, certifies that he/she has inspected the well and it was constructed in accordance with the specifications in O. Reg. 903, this report and the Hydrogeological report (where applicable) with regards to casing length and grouting requirements.

Signed this 24 day of Sept 2020

(Engineer)

Green In-Tents Inc., 104 Country Meadow Drive, Carp, ON K0A 1L0
(613)839-5336 (ph); (613)978-5336 (cell); (613)839-0251 (fx)

The Ontario Water Resources Commission Act

WATER WELL RECORD

31F8a.

Water management in Ontario

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

11 (1 2) | 1511661 | MUNICIP. 1/5 0 0 ST (10 14) | CON. CON (15 22 23 24) | 10

COUNTY OR DISTRICT: [redacted]

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Hen Clar

CON., BLOCK, TRACT, SURVEY, ETC.: 10

LOT (25-27): 016

DATE COMPLETED (48-53): DAY 21 MO 08 YR 71

[redacted] R. # 2 Camp.

13520 (24) | RC. 4 (25) | ELEVATION 0420 (26) | RC. 4 (30) | BASIN CODE 56 25 (31 32) | I | 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
grey	limestone		hard	0	59

31 | 00592215

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0059 (10-13)	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (14)
(15-18)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (19)
(20-23)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (24)
(25-28)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (29)
(30-33)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (34) (80)

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
06 (10-11)	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE (12)	188	0	0022 (13-16)
14 (17-18)	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE (19)			0059 (20-23)
(24-25)	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE (26)			(27-30)

SCREEN

SIZE(S) OF OPENING (SLOT NO.) (31-33)	DIAMETER INCHES (34-38)	LENGTH FEET (39-40)
MATERIAL AND TYPE 1	DEPTH TO TOP OF SCREEN FEET (41-44)	(80)

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	DEPTH SET AT – FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
(10-13)	(14-17)	
(18-21)	(22-25)	
(26-29)	(30-33) (80)	

71 PUMPING TEST

PUMPING TEST METHOD (10): 1 ☒ PUMP 2 ☐ BAILER

PUMPING RATE (11-14): 0020 GPM

DURATION OF PUMPING (15-16 HOURS 17-18 MINS.): 01 HOURS 00 MINS.

WATER LEVELS DURING (25): 1 ☒ PUMPING 2 ☐ RECOVERY

STATIC LEVEL (19-21)	WATER LEVEL END OF PUMPING (22-24)	15 MINUTES (26-28)	30 MINUTES (29-31)	45 MINUTES (32-34)	60 MINUTES (35-37)
002 FEET	012 FEET	012 FEET	012 FEET	012 FEET	012 FEET

IF FLOWING, GIVE RATE (38-41): GPM.

PUMP INTAKE SET AT: FEET

WATER AT END OF TEST (42): 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP

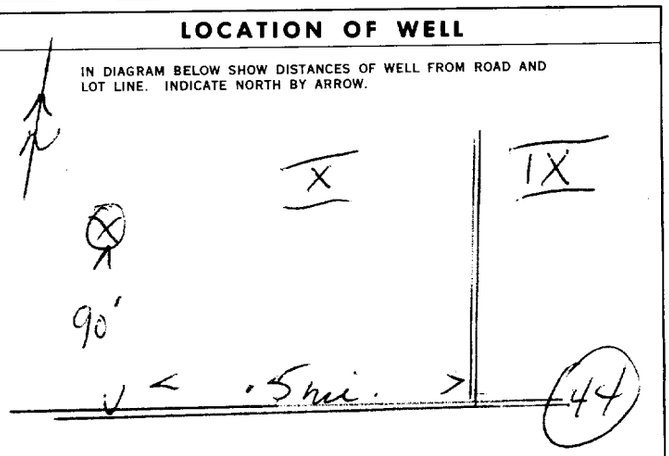
RECOMMENDED PUMP SETTING (43-45): 030 FEET

RECOMMENDED PUMPING RATE (46-49): 0020 GPM.

(50-53) 002.0 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

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 ☐ UNFINISHED

WATER USE (55-56) 12: 1 ☒ DOMESTIC 2 ☒ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING (57): 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Austin Stan. Young — LICENCE NUMBER: 4806

ADDRESS: Pakenham

NAME OF DRILLER OR BORER: Same — LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: Austin Young — SUBMISSION DATE: DAY 21 MO 3 YR 71

OFFICE USE ONLY

DATA SOURCE (58): 1 — CONTRACTOR (59-62): 4806 — DATE RECEIVED (63-68): 280172 (80)

DATE OF INSPECTION — INSPECTOR: K

REMARKS: PK WI

OWRC COPY

Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

31F8E

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

11 1517169 MUNICIP 15005 CON CON 10

COUNTY OR DISTRICT: HUNTLEY

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: WEST CARLETON

CON., BLOCK, TRACT, SURVEY, ETC.: 10 I PART 3

LOT: 016

[redacted] RP ONT RR 2

DATE COMPLETED: DAY 23 MO 10 YR 79

13299 5 0425 5 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	SAND-GRAVEL			0	11'
GRAY	LIMESTONE			11'	130'

31 0011628 11 0130215

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0105	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
06"	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	158	0	22'9 0023
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER

PUMPING RATE: 0010 GPM

DURATION OF PUMPING: 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
010 FEET	050 FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM

PUMP INTAKE SET AT: FEET

WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

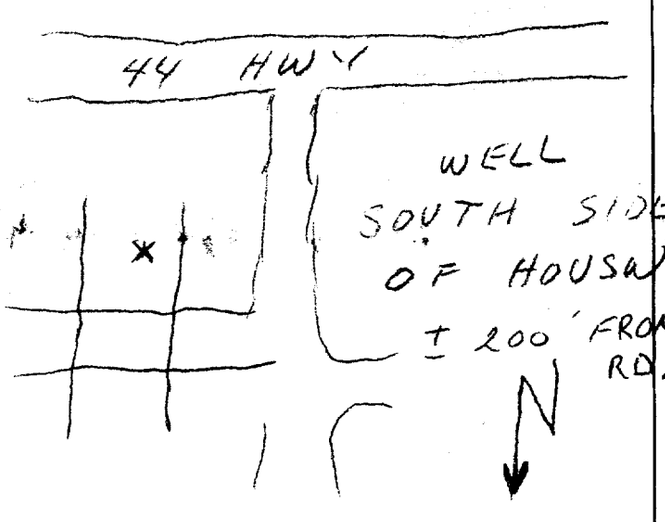
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP

RECOMMENDED PUMP SETTING: 100 FEET

RECOMMENDED PUMPING RATE: GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

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 ☐ UNFINISHED

WATER USE 55-56: 01 — 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING 57: 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: F FLEURY — LICENCE NUMBER: 2101

ADDRESS: 1171 MERIVALE RD OTTAWA

NAME OF DRILLER OR BORER — LICENCE NUMBER

SIGNATURE OF CONTRACTOR: F Fleury

SUBMISSION DATE: DAY 23 MO 10 YR 79

OFFICE USE ONLY

DATA SOURCE 58: 1 — CONTRACTOR 59-62: 2101 — DATE RECEIVED 63-66 80: 061179

DATE OF INSPECTION — INSPECTOR

REMARKS:

FORM NO. 0506-4-77

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

1520885

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	West / Carleton	Conc 10	15
	Styles Side Rd.	DATE COMPLETED DAY 25 MO 5 YR 85	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
~~Clay~~					
Blue	Clay		Plastic.	0	36
Red	Granite		Hard	36	75

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
68	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6¼	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	188	0	36
6⅜	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		36	75
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	6 GPM	1 HOURS ___ MINS

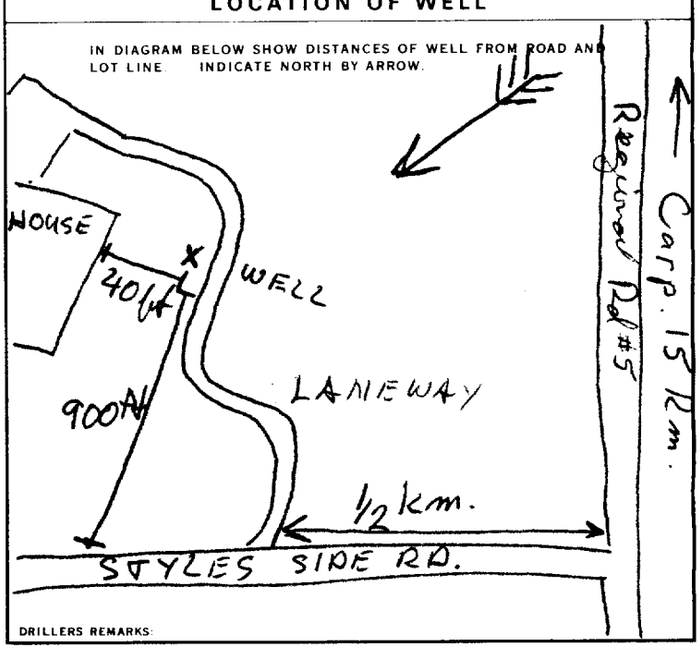
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY			
21 FEET	65 FEET	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
		1 FEET	1 FEET	47 FEET	1 FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	65 FEET	1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	65 FEET	5 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE

1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING

1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
Valley Drilling	5222
ADDRESS: P.O. Box 437 Carp Ont.	
NAME OF DRILLER OR BORER: S/SKUSE	LICENCE NUMBER: 5222
SIGNATURE OF CONTRACTOR: S. Skuse	SUBMISSION DATE: DAY 25 MO. 3 YR. 86

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
		020986
DATE OF INSPECTION	INSPECTOR	
REMARKS		

STYLES

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FORM NO. 0506—4—77 FORM 7

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 1529163 Municipality 15005 Con. CON 10

OTTAWA-CARLETON

[redacted]

Township/Borough/City/Town/Village: West Carleton. Con block tract survey, etc.: 10 Lot: 15

Address: RR.2 Carp 3904 Highway 17 Date completed: 12 day 9 month 96 year

Northing RC Code

21

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Brown	Sand		Packed	0	4
Brown	Silt	Clay	Packed	4	9
Brown	Limestone		Hard	9	70

31

32

41 WATER RECORD

Water found at – feet	Kind of water
43-64	1 ☒ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
6¼	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	0	21
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet

Material and type | Depth at top of screen feet

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	8	Rock Cuttings
8	21	TPC 10 Cement

71 PUMPING TEST

Pumping test method: 1 ☐ Pump 2 ☒ Bailer — Pumping rate: 4½ GPM — Duration of pumping: 1 Hours ..... Mins

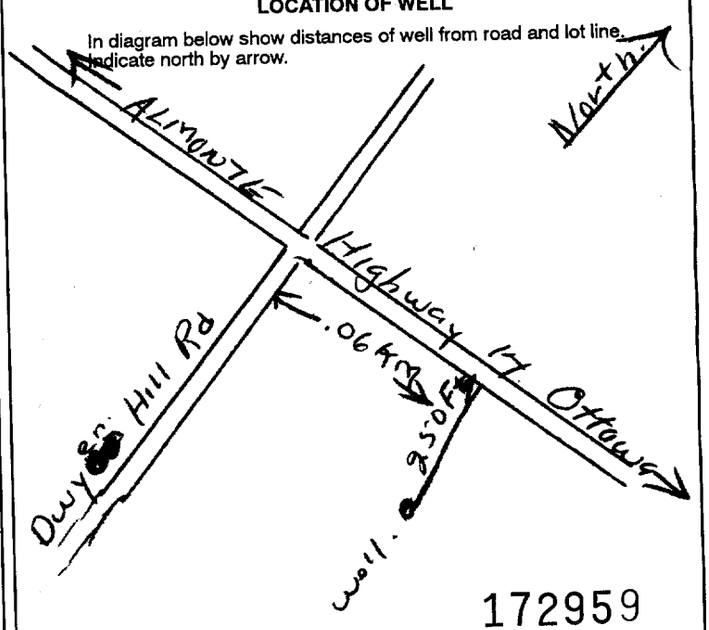
Static level	Water level end of pumping	Water levels during: 1 ☐ Pumping 2 ☒ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
1 feet	60 feet	26 feet	10 feet	7 feet	6 feet

If flowing give rate: GPM — Pump intake set at: feet — Water at end of test: ☐ Clear ☒ Cloudy

Recommended pump type: ☐ Shallow ☒ Deep — Recommended pump setting: 65 feet — Recommended pump rate: 4 GPM

LOCATION OF WELL

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



FINAL STATUS OF WELL

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

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

METHOD OF CONSTRUCTION

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: BOYD CAMERON — Well Contractor's Licence No.: 1567

Address: RR 2 Clayton Ont

Name of Well Technician: Boyd Cameron — Well Technician's Licence No.: T0089

Signature of Technician/Contractor: Boyd Cameron — Submission date: 31 day 9 mo 96 yr

MINISTRY USE ONLY

Data source — Contractor: 1567 — Date received: OCT 31 1996

Date of inspection — Inspector

Remarks: CSS.ES

0506 (07/94) Front Form 9

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Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 1529163 Municipality 15005 Con. CON 10

OTTAWA-CARLETON

[redacted]

Township/Borough/City/Town/Village: West Carleton. Con block tract survey, etc.: 10 Lot: 15

Address: RR.2 Carp 3904 Highway 17 Date completed: 12 day 9 month 96 year

Northing RC Code

21

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Brown	Sand		Packed	0	4
Brown	Silt	Clay	Packed	4	9
Brown	Limestone		Hard	9	70

31

32

41 WATER RECORD

Water found at – feet	Kind of water
43-64	1 ☒ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
6¼	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	0	21
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet

Material and type | Depth at top of screen feet

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	8	Rock Cuttings
8	21	TPC 10 Cement

71 PUMPING TEST

Pumping test method: 1 ☐ Pump 2 ☒ Bailer — Pumping rate: 4½ GPM — Duration of pumping: 1 Hours ..... Mins

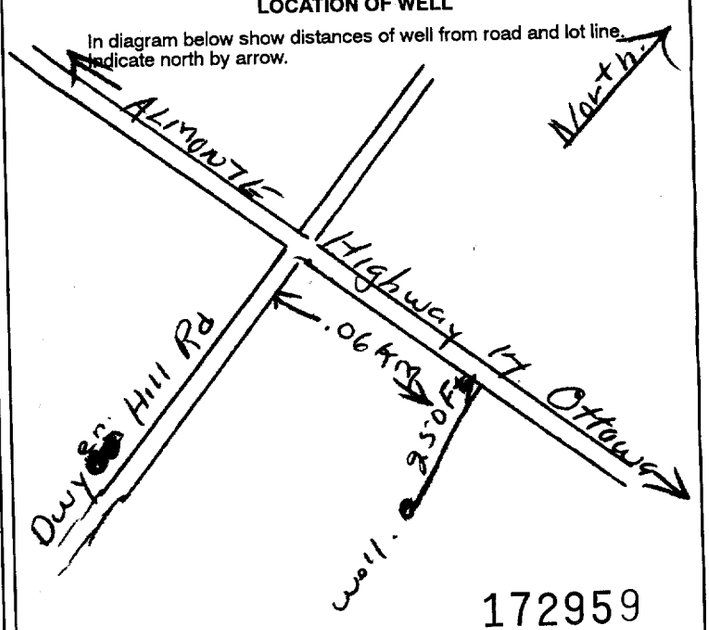
Static level	Water level end of pumping	Water levels during: 1 ☐ Pumping 2 ☒ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
1 feet	60 feet	26 feet	10 feet	7 feet	6 feet

If flowing give rate: GPM — Pump intake set at: feet — Water at end of test: ☐ Clear ☒ Cloudy

Recommended pump type: ☐ Shallow ☒ Deep — Recommended pump setting: 65 feet — Recommended pump rate: 4 GPM

LOCATION OF WELL

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



FINAL STATUS OF WELL

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

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

METHOD OF CONSTRUCTION

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: BOYD CAMERON — Well Contractor's Licence No.: 1567

Address: RR 2 Clayton Ont

Name of Well Technician: Boyd Cameron — Well Technician's Licence No.: T0089

Signature of Technician/Contractor: Boyd Cameron — Submission date: 31 day 9 mo 96 yr

MINISTRY USE ONLY

Data source — Contractor: 1567 — Date received: OCT 31 1996

Date of inspection — Inspector

Remarks: CSS.ES

0506 (07/94) Front Form 9

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Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11

1529993

Municipality 15005 Con CON 10 S Whalf Dart

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
[redacted]	West Carleton	10	14
	Address: Ottawa Ont	Date completed: 24 12 97 (day month year)	

21 M Northing RC 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	Depth – feet To
Grey	Sand			0	25
Grey	Sandstone			25	120

31
32

41 WATER RECORD

Water found at – feet	Kind of water
63	1 [X] Fresh 2 [ ] Salty
91	1 [X] Fresh 2 [ ] Salty
113	1 [X] Fresh 2 [ ] Salty
	1 [ ] Fresh 2 [ ] Salty
	1 [ ] Fresh 2 [ ] Salty

3 Sulphur 4 Minerals 6 Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
6¼	1 [X] Steel	188	0	31
8¾	4 [X] Open hole		0	29
6	4 [X] Open hole		29	120

1 Steel 2 Galvanized 3 Concrete 4 Open hole 5 Plastic

SCREEN

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

61 PLUGGING & SEALING RECORD

[X] Annular space [ ] Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
2	31	Cement grout

71 PUMPING TEST

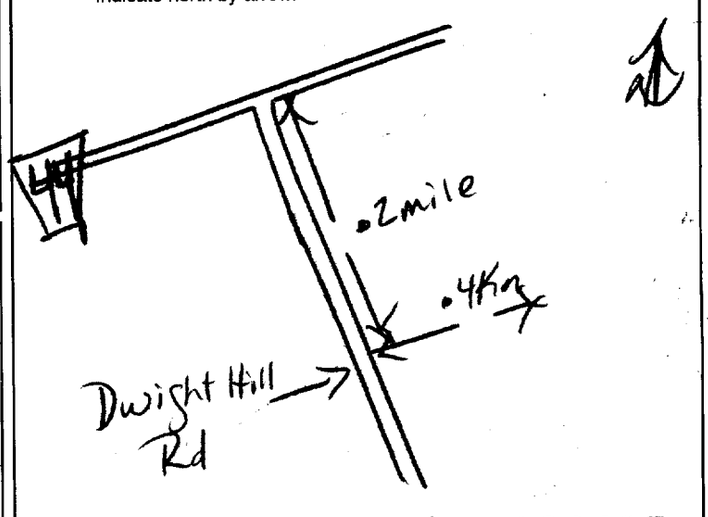
Pumping test method: 1 [X] Pump 2 [ ] Bailer
Pumping rate: 30 GPM
Duration of pumping: 1 Hours Mins

Static level	Water level end of pumping	Water levels during: 1 [ ] Pumping 2 [X] Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
10 feet	100 feet	10 feet	10 feet	10 feet	10 feet

If flowing give rate: GPM
Pump intake set at: feet
Water at end of test: [ ] Clear [X] Cloudy
Recommended pump type: [ ] Shallow [X] Deep
Recommended pump setting: 100 feet
Recommended pump rate: 30 GPM

LOCATION OF WELL

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



183465

FINAL STATUS OF WELL

1 [X] 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

1 [X] Domestic 2 [ ] Stock 3 [ ] Irrigation 4 [ ] Industrial
5 [ ] Commercial 6 [ ] Municipal 7 [ ] Public supply 8 [ ] Cooling & air conditioning
9 [ ] Not used 10 [ ] Other

METHOD OF CONSTRUCTION

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

Name of Well Contractor: Air Rock Drilling Co Ltd
Well Contractor's Licence No.: 1119
Address: RR #2 Jasper Ont
Name of Well Technician: Shannon Purcell
Well Technician's Licence No.: T2122
Signature of Technician/Contractor:
Submission date: 29 12 97 (day mo yr)

MINISTRY USE ONLY

Data source
Contractor: 1119
Date received: APR 0 8 1998
Date of inspection
Inspector
Remarks

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Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 1532850

Municipality 15005 Con. CON 10

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Ottawa Carleton	West Carleton - Huntley	10				15

[redacted]

Address: P O Box 942 Almonte,Ontario K0A 1A0

Date completed: 27 day 5 month 02 year

21 UTM Northing RC Elevation RC Basin Code i ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Sandy Clay			0	12
Gray	Clay			12	40
Gray & White	Sandstone			40	75
		Note Casing was left 1.5 feet above ground level			
		at time of drilling			

31

32

41 WATER RECORD

Water found at - feet	Kind of water
59	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
NOT TESTED	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	44.5
6	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		44.5	75
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet

Material and type | Depth at top of screen 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.)
43	0	Grouted - Cement (8)

71 PUMPING TEST

Pumping test method: 1 ☒ Pump 2 ☐ Bailer

Pumping rate: 50 GPM

Duration of pumping: 1 Hours Mins

Static level	Water level end of pumping	Water levels during: 1 ☒ Pumping 2 ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
6'1" feet	20 feet	70 feet	50 feet	30 feet	20 feet

If flowing give rate: GPM

Pump intake set at: feet

Water at end of test: ☐ Clear ☒ Cloudy

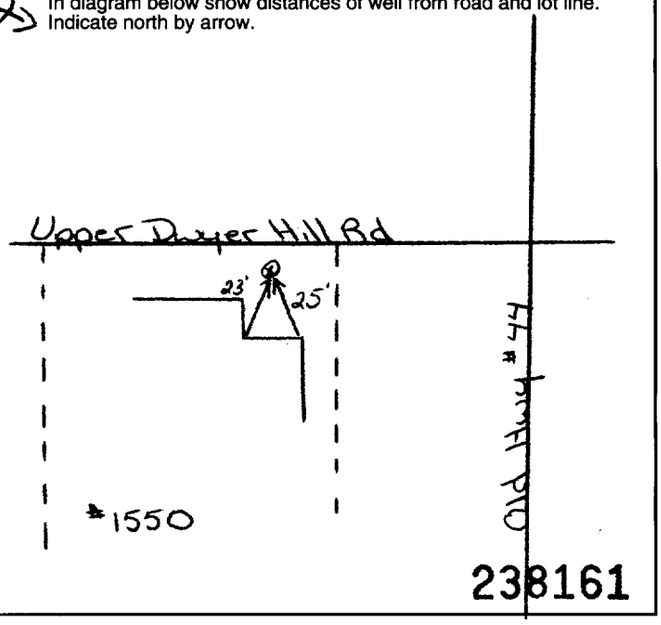
Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump setting: 35 feet

Recommended pump rate: 5 GPM

LOCATION OF WELL

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



238161

FINAL STATUS OF WELL

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

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

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	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Address: P.O. Box 490 Stittsville,Ontario K2S 1A6

Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097

Signature of Technician/Contractor

Submission date: day 28 mo 5 yr 02

MINISTRY USE ONLY

Data source | Contractor 1558 | Date received JUN 24 2002

Date of inspection | Inspector

Remarks: CSS.ES2

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Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 1532850

Municipality 15005 Con. CON 10

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Ottawa Carleton	West Carleton - Huntley	10				15

[redacted]

Address: P O Box 942 Almonte,Ontario K0A 1A0

Date completed: 27 day 5 month 02 year

21 UTM Northing RC Elevation RC Basin Code i ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Sandy Clay			0	12
Gray	Clay			12	40
Gray & White	Sandstone			40	75
		Note Casing was left 1.5 feet above ground level			
		at time of drilling			

31

32

41 WATER RECORD

Water found at - feet	Kind of water
59	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
NOT TESTED	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	44.5
6	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		44.5	75
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet

Material and type | Depth at top of screen 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.)
43	0	Grouted - Cement (8)

71 PUMPING TEST

Pumping test method: 1 ☒ Pump 2 ☐ Bailer

Pumping rate: 50 GPM

Duration of pumping: 1 Hours Mins

Static level	Water level end of pumping	Water levels during: 1 ☒ Pumping 2 ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
6'1" feet	20 feet	70 feet	50 feet	30 feet	20 feet

If flowing give rate: GPM

Pump intake set at: feet

Water at end of test: ☐ Clear ☒ Cloudy

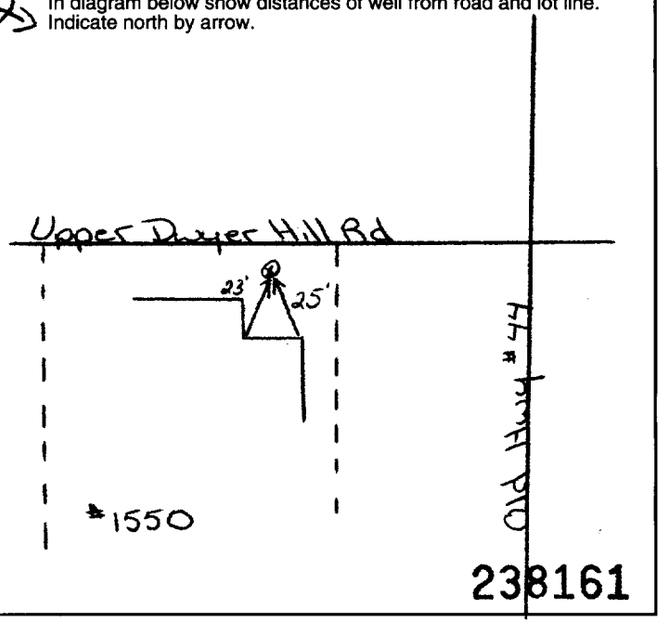
Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump setting: 35 feet

Recommended pump rate: 5 GPM

LOCATION OF WELL

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



238161

FINAL STATUS OF WELL

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

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

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	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Address: P.O. Box 490 Stittsville,Ontario K2S 1A6

Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097

Signature of Technician/Contractor

Submission date: day 28 mo 5 yr 02

MINISTRY USE ONLY

Data source | Contractor 1558 | Date received JUN 24 2002

Date of inspection | Inspector

Remarks: CSS.ES2

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Ontario **Ministry of Environment and Energy**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1 2) **1533879**

Municipality (10 14) 15005 Con. (15) CON (22 23 24) 10

County or District	Township/Borough/City/Town/Village	Con. block tract survey, etc.	Lot (25-27)
[redacted]	West Carleton.	Con 10	Pt of 15

Address of Well Location: March Rd. RR#2 Carp, Ont K0A-1L0

Date completed: 15 07 2003 (day month year) 03

21 (1 2) UTM: Zone (10) Easting (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
brown	Sand			0	2'
White	Sand Stone			2'	60'

31

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

41 WATER RECORD

Water found at - feet	Kind of water
55 (10-13)	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (14)
(15-18)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (19)
(20-23)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (24)
(25-28)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (29)
(30-33)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (34) (60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
(10-11) 6 1/4	1 ☑ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	22' (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 inches (34-38)	Length feet (39-40)
Material and type	Depth at top of screen feet (41-44)	(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.)
22 (11-13)	0 (14-17)	Quick Grout
(18-21)	(22-25)	
(26-29)	(30-33) (80)	

71 PUMPING TEST

Pumping test method (10): 1 ☑ Pump 2 ☐ Bailer

Pumping rate (11-14): 15 GPM

Duration of pumping (15-16) Hours (17-18) Mins

25 Water levels during: 1 ☐ Pumping 2 ☑ Recovery

Static level (19-21)	Water level end of pumping (22-24)	15 minutes (26-28)	30 minutes (29-31)	45 minutes (32-34)	60 minutes (35-37)
8 feet	60 feet	14 feet	9 feet	8 feet	8 feet

If flowing give rate (38-41): GPM

Pump intake set at: feet

Water at end of test (42): ☑ Clear ☐ Cloudy

Recommended pump type: ☐ Shallow ☑ Deep

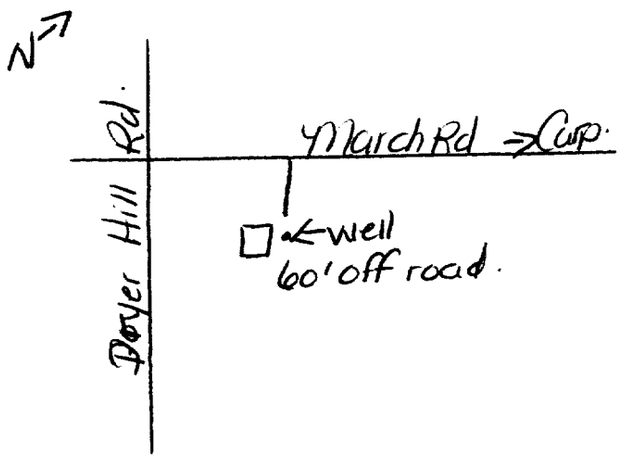
Recommended pump setting (43-45): 40 feet

Recommended pump rate (46-49): 15 GPM

(50-53)

LOCATION OF WELL

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



264015

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	Well Contractor's Licence No.
George H. Law & Son Ltd	3323
Address: Box 155 Calabogie Ont K0J-1H0	
Name of Well Technician: Allan Fougere	Well Technician's Licence No. T-0432
Signature of Technician/Contractor: Alfred Law	Submission date: 15 07 2003 (day mo yr)

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68) (80)
	3323	JUL 28 2003
Date of inspection	Inspector	
Remarks: CSS.ES3		

0506 (06/02) Front Form 9

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Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) A041911

A 041911

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a pe... 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 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

Ottawa Carleton | West Carleton- Huntley | 15 | 11

RR#/Street Number/Name: Dwyer Hill Rd.

City/Town/Village: Almonte

Site/Compartment/Block/Tract etc.

GPS Reading: NAD 83 | Zone 18 | Easting 411646 | Northing 5013248

Unit Make/Model: Garmin

Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
Brown	soil	busted rock	loose	0	1.21
grey	sand		wet	1.21	2.74
grey	clay			2.74	9.75
rey grey & whitw	sandston		med	9.75	18.28

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	10.36	22.75
10.36	18.28	15.25

Water Record

Water found at ___ Metres / Kind of Water

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was ☐ Clear and sediment free ☐ Other, specify

Chlorinated ☒ Yes ☐ No

Construction Record

Casing

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
15.86	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.48	+1.06	10.36
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			

Screen

Outside diam	Material	Slot No.		
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			

No Casing or Screen

15.23	☐ Open hole	10.36	18.28

Test of Well Yield

Pumping test method	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at - (metres)	Static Level			
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs +___min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres	NOT TESTED		5	
Recommended pump rate. (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
If pumping discontinued, give reason.	20		20	
	25		25	
	30		30	
	40		40	
	50		50	
	60		60	

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)
1.21	0	Crushed Stone	.42m3
10.36	1.21	Bentonite Slurry	

Method of Construction

☐ Cable Tool ☒ Rotary (air) Mud ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☐ Domestic ☐ Industrial ☐ Public Supply ☒ Other Test hole
☐ 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: Capital Water Supply Ltd | Well Contractor's Licence No.: 1558

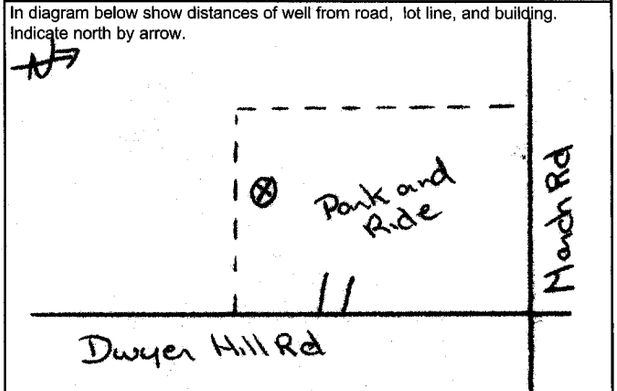
Business Address (street name, number, city etc.): Box 490 Stittsville Ontario K2S 1A6

Name of Well Technician (last name, first name): Miller Stephen | Well Technician's Licence No.: T0097

Signature of Technician/Contractor: X [signature] | Date Submitted YYYY MM DD: 2006 7 12

Location of Well

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



Audit No. z 47011

Date Well Completed YYYY MM DD: 2006 7 12

Was the well owner's information package delivered? ☐ Yes ☐ No

Date Delivered YYYY MM DD: 2006 7 12

Ministry Use Only

Data Source | Contractor: 1558

Date Received YYYY MM DD: AUG 25 2006 | Date of Inspection YYYY MM DD

Remarks | Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐ *Cette formule est disponible en français*

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) A 041911

Well Record

Regulation 903 Ontario Water Resources Act

page 1 of 1

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 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

Ottawa Carleton | West Carleton | 15 | 11

RR#/Street Number/Name: Dwyer Hill Rd

City/Town/Village: Almonte

Site/Compartment/Block/Tract etc.

GPS Reading: NAD 83 | Zone 18 | Easting 411646 | Northing 5013248

Unit Make/Model: Garmin

Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
Brown	soil	bustedrock	loose	0	1.21
grey	Sand		wet	1.21	2.74
grey	clay			2.74	9.75
grey white	sandstone		med	9.75	18.28

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	10.36	22.75
10.36	18.28	15.25

Water Record

Water found at ___ Metres / Kind of Water

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was ☐ Clear and sediment free ☐ Other, specify

Chlorinated ☒ Yes ☐ No

Construction Record

Casing

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
15.86	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	+1.06	10.36
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			

Screen

Outside diam	Material	Slot No.		
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			

No Casing or Screen

15.27	☒ Open hole	10.36	18.28

Test of Well Yield

Pumping test method	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at - (metres)	Static Level			
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs +___ min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres			5	
Recommended pump rate. (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
If pumping discontinued, give reason.	20		20	
	25		25	
	30		30	
	40		40	
	50		50	
	60		60	

Not tested

Plugging and Sealing Record

☐ Annular space ☐ Abandonment

Depth set at - Metres From	Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
1.21	0	Crushed stone	
10.36	1.21	Bentonite Slurry	142 m³

Method of Construction

☐ Cable Tool ☒ Rotary (~~air~~) mud ☐ 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: GAIA | Well Contractor's Licence No.: 7148

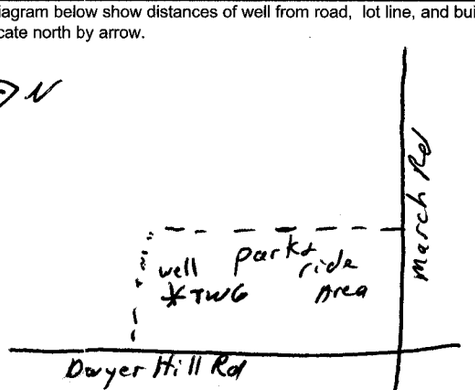
Business Address (street name, number, city etc.): 32 Stacie Dr. Kanata ON.

Name of Well Technician (last name, first name): Albert Charles | Well Technician's Licence No.: T-3275

Signature of Technician/Contractor | Date Submitted YYYY MM DD: 2006 08 31

Location of Well

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



Audit No. Z 54870

Date Well Completed YYYY MM DD: 2006 7 12

Was the well owner's information package delivered? ☐ Yes ☒ No

Date Delivered YYYY MM DD: 2006 7 12

Ministry Use Only

Data Source | Contractor: 7148

Date Received YYYY MM DD: SEP 21 2006 | Date of Inspection YYYY MM DD

Remarks | Well Record Number

(09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐ *Cette formule est disponible en français*

PROJECT: 05-1120-993-3000

RECORD OF TEST WELL: TW-6

SHEET 1 OF 2

LOCATION: See Site Plan

BORING DATE: July 12, 2006

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Air Rotary	GROUND SURFACE		128.24							
		Loose brown TOPSOIL		0.00							
1				125.03							
		Grey SAND		1.21							
2											
				123.50							
3		Grey CLAY		2.74							Silica Sand
4											
5											
6											
7											
8											
9											Bentonite Seal
				116.49							
10		Medium grey and white SANDSTONE BEDROCK		9.75							
11											
12											
13											Silica Sand
14											32mm Diam. PVC #10 Slot Screen (6.1m)
15		*CONTINUED NEXT PAGE*									

DEPTH SCALE
1 : 75

Golder Associates

LOGGED: S.M.
CHECKED: C.A.M.C.

MIS-BHS 001 05-1120-993-3000.GPJ GLDR_CAN.GDT 8/30/06 JM

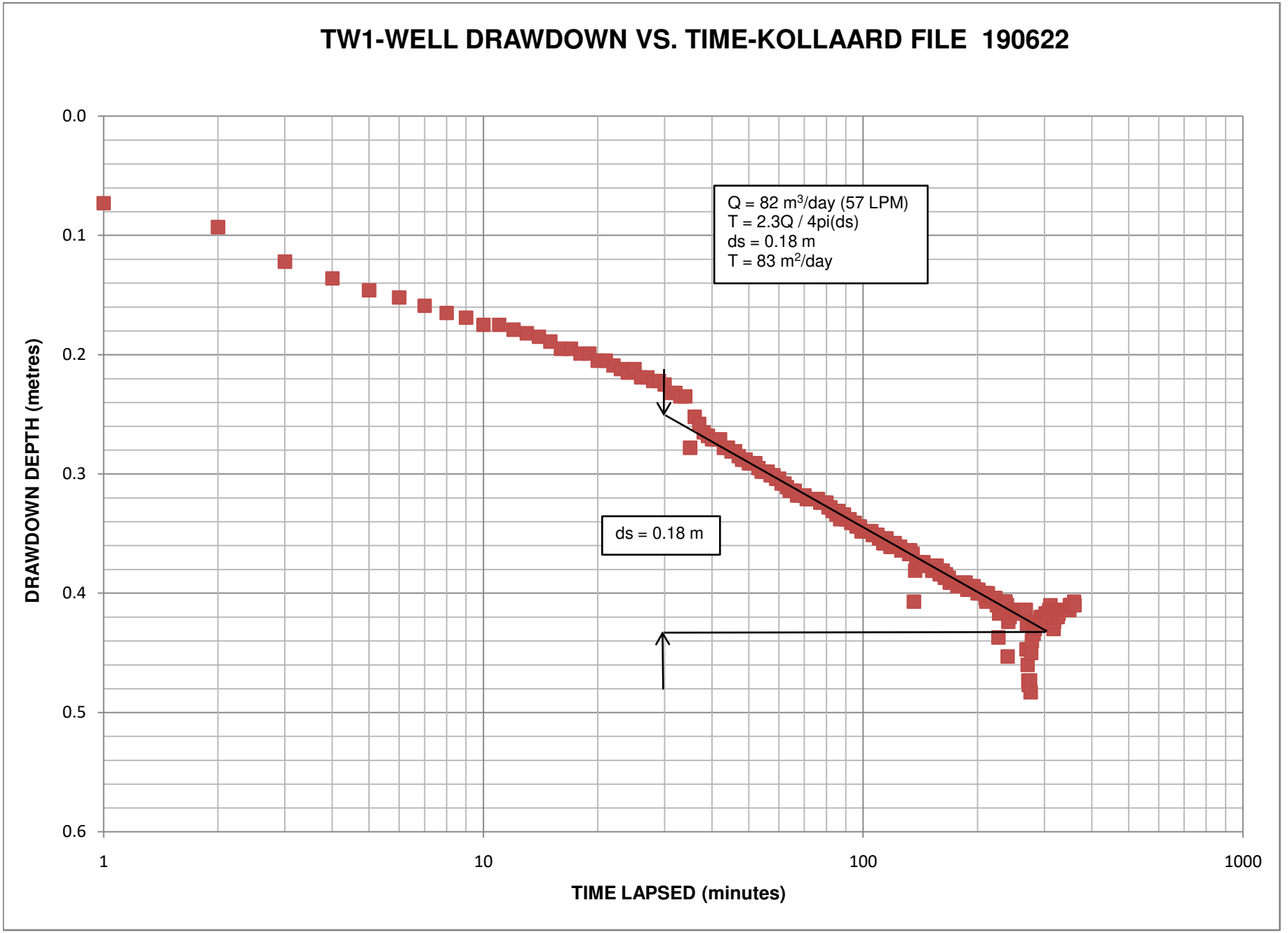
7148

Z 54870

SEP 2 1 2006

ATTACHMENT B

PUMPING TEST DATA FOR TW1


TW1-WELL DRAWDOWN VS. TIME-KOLLAARD FILE 190622
DRAWDOWN DEPTH (metres)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
1
10
100
1000
TIME LAPSED (minutes)
Q = 82 m3/day (57 LPM)
T = 2.3Q / 4pi(ds)
ds = 0.18 m
T = 83 m2/day
ds = 0.18 m

Kollaard File 190622 Pump Rate 56.8 litres/minute

DRAWDOWN DATA TW1

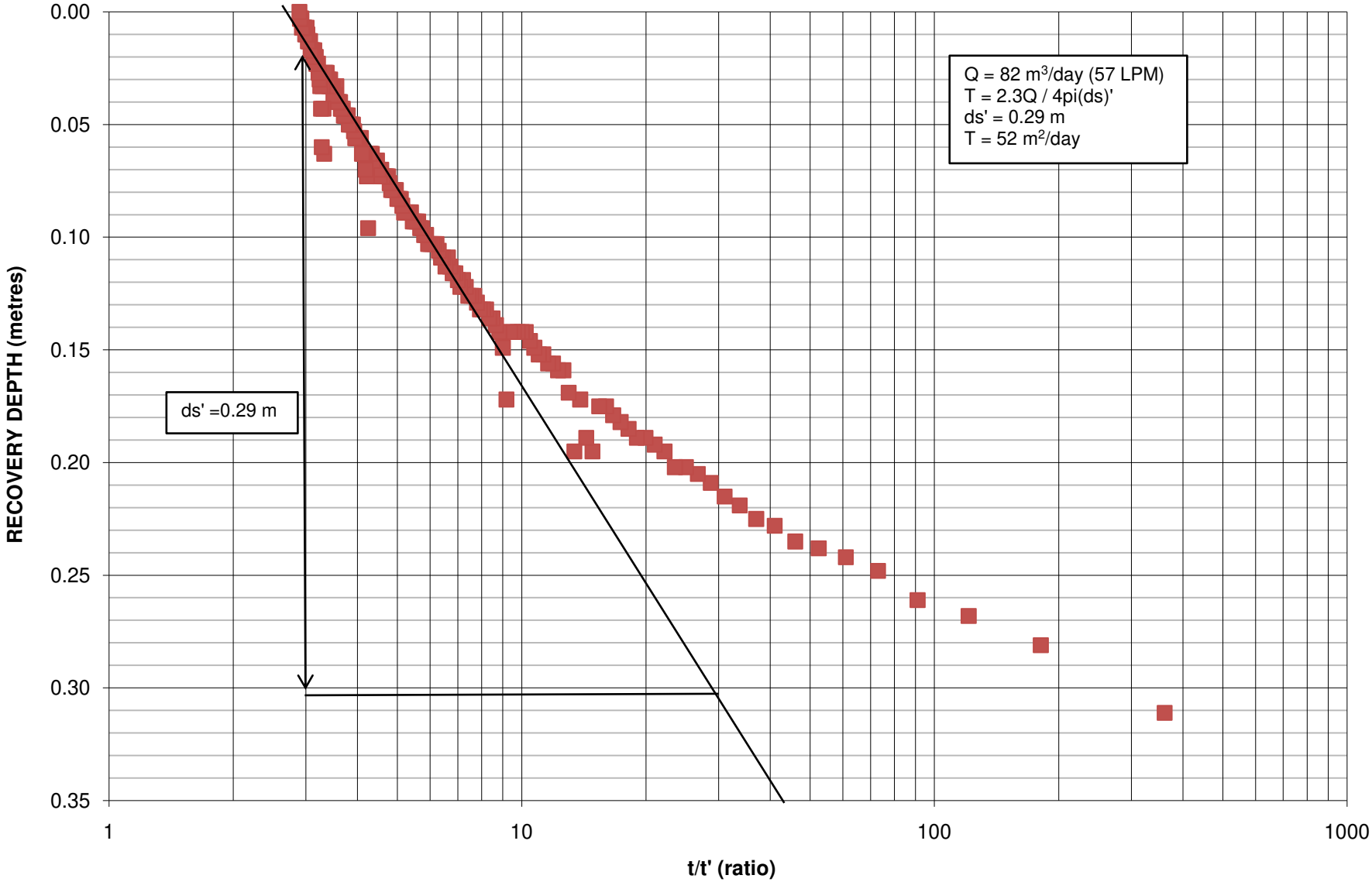
Time Lapsed (minutes)	Abs Pres (kPa)	Temp (°C)	Water Level (m)	Drawdown (m)
0	252.955	8.68	-2.3	0.00
1	252.24	8.68	-2.373	0.07
2	252.046	8.68	-2.393	0.09
3	251.754	8.68	-2.422	0.12
4	251.624	8.68	-2.436	0.14
5	251.526	8.68	-2.446	0.15
6	251.461	8.68	-2.452	0.15
7	251.397	8.68	-2.459	0.16
8	251.332	8.68	-2.465	0.17
9	251.299	8.68	-2.469	0.17
10	251.234	8.68	-2.475	0.18
11	251.234	8.68	-2.475	0.18
12	251.202	8.68	-2.479	0.18
13	251.169	8.68	-2.482	0.18
14	251.137	8.68	-2.485	0.19
15	251.104	8.68	-2.489	0.19
16	251.04	8.68	-2.495	0.20
17	251.04	8.68	-2.495	0.20
18	251.007	8.68	-2.499	0.20
19	251.007	8.68	-2.499	0.20
20	250.942	8.68	-2.505	0.21
21	250.942	8.68	-2.505	0.21
22	250.91	8.68	-2.509	0.21
23	250.877	8.68	-2.512	0.21
24	250.845	8.68	-2.515	0.22
25	250.877	8.68	-2.512	0.21
26	250.812	8.68	-2.519	0.22
27	250.812	8.68	-2.519	0.22
28	250.78	8.68	-2.522	0.22
29	250.78	8.68	-2.522	0.22
30	250.747	8.68	-2.525	0.23
31	250.683	8.68	-2.532	0.23
32	250.683	8.68	-2.532	0.23
33	250.65	8.68	-2.535	0.24
34	250.65	8.68	-2.535	0.24
35	250.228	8.68	-2.578	0.28
36	250.488	8.68	-2.552	0.25
37	250.423	8.68	-2.558	0.26
38	250.358	8.68	-2.565	0.27
39	250.326	8.68	-2.568	0.27
40	250.293	8.68	-2.571	0.27
41	250.293	8.68	-2.571	0.27
42	250.293	8.68	-2.571	0.27
43	250.228	8.68	-2.578	0.28
44	250.228	8.68	-2.578	0.28
45	250.196	8.68	-2.581	0.28
46	250.196	8.68	-2.581	0.28
47	250.163	8.68	-2.585	0.29
48	250.131	8.68	-2.588	0.29
49	250.131	8.68	-2.588	0.29
50	250.098	8.68	-2.591	0.29
51	250.098	8.68	-2.591	0.29
52	250.098	8.68	-2.591	0.29
53	250.066	8.68	-2.595	0.30
54	250.034	8.68	-2.598	0.30
55	250.034	8.68	-2.598	0.30
56	250.034	8.68	-2.598	0.30
57	250.001	8.68	-2.601	0.30
58	250.001	8.68	-2.601	0.30
59	249.969	8.68	-2.604	0.30
60	249.969	8.68	-2.604	0.30
61	249.936	8.68	-2.608	0.31
62	249.936	8.68	-2.608	0.31
63	249.904	8.68	-2.611	0.31
64	249.871	8.68	-2.614	0.31
65	249.871	8.68	-2.614	0.31
66	249.871	8.68	-2.614	0.31
67	249.839	8.68	-2.618	0.32
68	249.839	8.68	-2.618	0.32
69	249.839	8.68	-2.618	0.32
70	249.839	8.68	-2.618	0.32
71	249.806	8.68	-2.621	0.32
72	249.806	8.68	-2.621	0.32
73	249.806	8.68	-2.621	0.32
74	249.806	8.68	-2.621	0.32
75	249.806	8.68	-2.621	0.32
76	249.806	8.68	-2.621	0.32
77	249.774	8.68	-2.624	0.32
78	249.774	8.68	-2.624	0.32
79	249.774	8.68	-2.624	0.32
80	249.774	8.68	-2.624	0.32
81	249.741	8.68	-2.628	0.33
82	249.741	8.68	-2.628	0.33
83	249.709	8.68	-2.631	0.33
84	249.709	8.68	-2.631	0.33
85	249.677	8.68	-2.634	0.33
86	249.709	8.68	-2.631	0.33

87	249.644	8.68	-2.638	0.34
88	249.677	8.68	-2.634	0.33
89	249.677	8.68	-2.634	0.33
90	249.644	8.68	-2.638	0.34
91	249.644	8.68	-2.638	0.34
92	249.644	8.68	-2.638	0.34
93	249.612	8.68	-2.641	0.34
94	249.612	8.68	-2.641	0.34
95	249.612	8.68	-2.641	0.34
96	249.579	8.68	-2.644	0.34
97	249.579	8.68	-2.644	0.34
98	249.579	8.68	-2.644	0.34
99	249.547	8.68	-2.648	0.35
100	249.547	8.68	-2.648	0.35
101	249.547	8.68	-2.648	0.35
102	249.547	8.68	-2.648	0.35
103	249.547	8.68	-2.648	0.35
104	249.547	8.68	-2.648	0.35
105	249.547	8.68	-2.648	0.35
106	249.514	8.68	-2.651	0.35
107	249.514	8.68	-2.651	0.35
108	249.514	8.68	-2.651	0.35
109	249.514	8.68	-2.651	0.35
110	249.482	8.68	-2.654	0.35
111	249.482	8.68	-2.654	0.35
112	249.482	8.68	-2.654	0.35
113	249.449	8.68	-2.658	0.36
114	249.449	8.68	-2.658	0.36
115	249.482	8.68	-2.654	0.35
116	249.449	8.68	-2.658	0.36
117	249.449	8.68	-2.658	0.36
118	249.417	8.68	-2.661	0.36
119	249.417	8.68	-2.661	0.36
120	249.417	8.68	-2.661	0.36
121	249.449	8.68	-2.658	0.36
122	249.417	8.68	-2.661	0.36
123	249.417	8.68	-2.661	0.36
124	249.417	8.68	-2.661	0.36
125	249.417	8.68	-2.661	0.36
126	249.385	8.68	-2.664	0.36
127	249.385	8.68	-2.664	0.36
128	249.385	8.68	-2.664	0.36
129	249.385	8.68	-2.664	0.36
130	249.385	8.68	-2.664	0.36
131	249.385	8.68	-2.664	0.36
132	249.352	8.68	-2.667	0.37
133	249.385	8.68	-2.664	0.36
134	249.352	8.68	-2.667	0.37
135	249.352	8.68	-2.667	0.37
136	248.963	8.68	-2.707	0.41
137	249.222	8.68	-2.681	0.38
138	249.287	8.68	-2.674	0.37
139	249.255	8.68	-2.677	0.38
140	249.287	8.68	-2.674	0.37
141	249.255	8.68	-2.677	0.38
142	249.287	8.68	-2.674	0.37
143	249.255	8.68	-2.677	0.38
144	249.287	8.68	-2.674	0.37
145	249.255	8.68	-2.677	0.38
146	249.255	8.68	-2.677	0.38
147	249.255	8.68	-2.677	0.38
148	249.255	8.68	-2.677	0.38
149	249.255	8.68	-2.677	0.38
150	249.255	8.68	-2.677	0.38
151	249.255	8.68	-2.677	0.38
152	249.222	8.68	-2.681	0.38
153	249.222	8.68	-2.681	0.38
154	249.222	8.68	-2.681	0.38
155	249.255	8.68	-2.677	0.38
156	249.255	8.68	-2.677	0.38
157	249.222	8.68	-2.681	0.38
158	249.222	8.68	-2.681	0.38
159	249.19	8.68	-2.684	0.38
160	249.222	8.68	-2.681	0.38
161	249.19	8.68	-2.684	0.38
162	249.222	8.68	-2.681	0.38
163	249.19	8.68	-2.684	0.38
164	249.157	8.68	-2.687	0.39
165	249.19	8.68	-2.684	0.38
166	249.157	8.68	-2.687	0.39
167	249.157	8.68	-2.687	0.39
168	249.157	8.68	-2.687	0.39
169	249.125	8.68	-2.691	0.39
170	249.125	8.68	-2.691	0.39
171	249.125	8.68	-2.691	0.39
172	249.125	8.68	-2.691	0.39
173	249.125	8.68	-2.691	0.39
174	249.125	8.68	-2.691	0.39
175	249.125	8.68	-2.691	0.39
176	249.125	8.68	-2.691	0.39
177	249.092	8.68	-2.694	0.39
178	249.125	8.68	-2.691	0.39
179	249.125	8.68	-2.691	0.39

180	249.092	8.68	-2.694	0.39
181	249.125	8.68	-2.691	0.39
182	249.092	8.68	-2.694	0.39
183	249.125	8.68	-2.691	0.39
184	249.125	8.68	-2.691	0.39
185	249.092	8.68	-2.694	0.39
186	249.125	8.68	-2.691	0.39
187	249.092	8.68	-2.694	0.39
188	249.06	8.68	-2.697	0.40
189	249.092	8.68	-2.694	0.39
190	249.092	8.68	-2.694	0.39
191	249.06	8.68	-2.697	0.40
192	249.092	8.68	-2.694	0.39
193	249.06	8.68	-2.697	0.40
194	249.06	8.68	-2.697	0.40
195	249.092	8.68	-2.694	0.39
196	249.06	8.68	-2.697	0.40
197	249.06	8.68	-2.697	0.40
198	249.06	8.68	-2.697	0.40
199	249.06	8.68	-2.697	0.40
200	249.028	8.68	-2.7	0.40
201	249.06	8.68	-2.697	0.40
202	249.028	8.68	-2.7	0.40
203	249.028	8.68	-2.7	0.40
204	249.028	8.68	-2.7	0.40
205	249.028	8.68	-2.7	0.40
206	249.028	8.68	-2.7	0.40
207	249.028	8.68	-2.7	0.40
208	249.028	8.68	-2.7	0.40
209	249.028	8.68	-2.7	0.40
210	248.995	8.68	-2.704	0.40
211	248.963	8.68	-2.707	0.41
212	249.028	8.68	-2.7	0.40
213	249.028	8.68	-2.7	0.40
214	248.995	8.68	-2.704	0.40
215	248.995	8.68	-2.704	0.40
216	248.995	8.68	-2.704	0.40
217	248.995	8.68	-2.704	0.40
218	248.995	8.68	-2.704	0.40
219	248.995	8.68	-2.704	0.40
220	248.995	8.68	-2.704	0.40
221	248.963	8.68	-2.707	0.41
222	248.995	8.68	-2.704	0.40
223	248.995	8.68	-2.704	0.40
224	248.963	8.68	-2.707	0.41
225	248.93	8.68	-2.71	0.41
226	248.963	8.68	-2.707	0.41
227	248.671	8.68	-2.737	0.44
228	248.865	8.68	-2.717	0.42
229	248.93	8.68	-2.71	0.41
230	248.93	8.68	-2.71	0.41
231	248.898	8.68	-2.714	0.41
232	248.93	8.68	-2.71	0.41
233	248.93	8.68	-2.71	0.41
234	248.963	8.68	-2.707	0.41
235	248.963	8.68	-2.707	0.41
236	248.93	8.68	-2.71	0.41
237	248.963	8.68	-2.707	0.41
238	248.93	8.68	-2.71	0.41
239	248.93	8.68	-2.71	0.41
240	248.508	8.68	-2.753	0.45
241	248.8	8.68	-2.724	0.42
242	248.865	8.68	-2.717	0.42
243	248.833	8.68	-2.72	0.42
244	248.865	8.68	-2.717	0.42
245	248.865	8.68	-2.717	0.42
246	248.898	8.68	-2.714	0.41
247	248.865	8.68	-2.717	0.42
248	248.865	8.68	-2.717	0.42
249	248.865	8.68	-2.717	0.42
250	248.865	8.68	-2.717	0.42
251	248.898	8.68	-2.714	0.41
252	248.865	8.68	-2.717	0.42
253	248.898	8.68	-2.714	0.41
254	248.865	8.68	-2.717	0.42
255	248.898	8.68	-2.714	0.41
256	248.865	8.68	-2.717	0.42
257	248.898	8.68	-2.714	0.41
258	248.865	8.68	-2.717	0.42
259	248.865	8.68	-2.717	0.42
260	248.865	8.68	-2.717	0.42
261	248.898	8.68	-2.714	0.41
262	248.865	8.68	-2.717	0.42
263	248.865	8.68	-2.717	0.42
264	248.865	8.68	-2.717	0.42
265	248.898	8.68	-2.714	0.41
266	248.898	8.68	-2.714	0.41
267	248.898	8.68	-2.714	0.41
268	248.898	8.68	-2.714	0.41
269	248.573	8.68	-2.747	0.45
270	248.768	8.68	-2.727	0.43
271	248.444	8.68	-2.76	0.46
272	248.314	8.68	-2.773	0.47

273	248.281	8.68	-2.777	0.48
274	248.573	8.68	-2.747	0.45
275	248.314	8.68	-2.773	0.47
276	248.216	8.68	-2.783	0.48
277	248.541	8.68	-2.75	0.45
278	248.638	8.68	-2.74	0.44
279	248.703	8.68	-2.734	0.43
280	248.768	8.68	-2.727	0.43
281	248.703	8.68	-2.734	0.43
282	248.736	8.68	-2.73	0.43
283	248.736	8.68	-2.73	0.43
284	248.768	8.68	-2.727	0.43
285	248.8	8.68	-2.724	0.42
286	248.768	8.68	-2.727	0.43
287	248.768	8.68	-2.727	0.43
288	248.8	8.68	-2.724	0.42
289	248.8	8.68	-2.724	0.42
290	248.8	8.68	-2.724	0.42
291	248.8	8.68	-2.724	0.42
292	248.768	8.68	-2.727	0.43
293	248.833	8.68	-2.72	0.42
294	248.8	8.68	-2.724	0.42
295	248.833	8.68	-2.72	0.42
296	248.833	8.68	-2.72	0.42
297	248.833	8.68	-2.72	0.42
298	248.833	8.68	-2.72	0.42
299	248.833	8.68	-2.72	0.42
300	248.833	8.68	-2.72	0.42
301	248.833	8.68	-2.72	0.42
302	248.865	8.68	-2.717	0.42
303	248.865	8.68	-2.717	0.42
304	248.865	8.68	-2.717	0.42
305	248.865	8.68	-2.717	0.42
306	248.865	8.68	-2.717	0.42
307	248.865	8.68	-2.717	0.42
308	248.865	8.68	-2.717	0.42
309	248.898	8.68	-2.714	0.41
310	248.898	8.68	-2.714	0.41
311	248.93	8.68	-2.71	0.41
312	248.898	8.68	-2.714	0.41
313	248.898	8.68	-2.714	0.41
314	248.898	8.68	-2.714	0.41
315	248.898	8.68	-2.714	0.41
316	248.898	8.68	-2.714	0.41
317	248.736	8.68	-2.73	0.43
318	248.8	8.68	-2.724	0.42
319	248.865	8.68	-2.717	0.42
320	248.865	8.68	-2.717	0.42
321	248.865	8.68	-2.717	0.42
322	248.865	8.68	-2.717	0.42
323	248.833	8.68	-2.72	0.42
324	248.898	8.68	-2.714	0.41
325	248.833	8.68	-2.72	0.42
326	248.865	8.68	-2.717	0.42
327	248.865	8.68	-2.717	0.42
328	248.898	8.68	-2.714	0.41
329	248.898	8.68	-2.714	0.41
330	248.898	8.68	-2.714	0.41
331	248.898	8.68	-2.714	0.41
332	248.898	8.68	-2.714	0.41
333	248.898	8.68	-2.714	0.41
334	248.898	8.68	-2.714	0.41
335	248.898	8.68	-2.714	0.41
336	248.898	8.68	-2.714	0.41
337	248.898	8.68	-2.714	0.41
338	248.898	8.68	-2.714	0.41
339	248.898	8.68	-2.714	0.41
340	248.898	8.68	-2.714	0.41
341	248.898	8.68	-2.714	0.41
342	248.898	8.68	-2.714	0.41
343	248.898	8.68	-2.714	0.41
344	248.898	8.68	-2.714	0.41
345	248.898	8.68	-2.714	0.41
346	248.898	8.68	-2.714	0.41
347	248.898	8.68	-2.714	0.41
348	248.898	8.68	-2.714	0.41
349	248.898	8.68	-2.714	0.41
350	248.93	8.68	-2.71	0.41
351	248.93	8.68	-2.71	0.41
352	248.93	8.68	-2.71	0.41
353	248.93	8.68	-2.71	0.41
354	248.93	8.68	-2.71	0.41
355	248.93	8.68	-2.71	0.41
356	248.93	8.68	-2.71	0.41
357	248.93	8.68	-2.71	0.41
358	248.93	8.68	-2.71	0.41
359	248.963	8.68	-2.707	0.41
360	248.93	8.68	-2.71	0.41

TW1- WELL RECOVERY VS. TIME - KOLLAARD FILE 190622



Kollaard File190622

RECOVERY DATA TW-1

t'	t / t'	Abs Pres (kPa)	Temp (°C)	Water Level (m)	Drawdown (m)	Recovery (%)
1	361	249.904	8.68	-2.611	0.31	24%
2	181.0	250.196	8.68	-2.581	0.28	31%
3	121.0	250.326	8.68	-2.568	0.27	34%
4	91.0	250.391	8.68	-2.561	0.26	36%
5	73.0	250.52	8.68	-2.548	0.25	39%
6	61.0	250.585	8.68	-2.542	0.24	41%
7	52.4	250.618	8.68	-2.538	0.24	42%
8	46.0	250.65	8.68	-2.535	0.24	42%
9	41.0	250.715	8.68	-2.528	0.23	44%
10	37.0	250.747	8.68	-2.525	0.23	45%
11	33.7	250.812	8.68	-2.519	0.22	46%
12	31.0	250.845	8.68	-2.515	0.22	47%
13	28.7	250.91	8.68	-2.509	0.21	49%
14	26.7	250.942	8.68	-2.505	0.21	50%
15	25.0	250.975	8.68	-2.502	0.20	50%
16	23.5	250.975	8.68	-2.502	0.20	50%
17	22.2	251.04	8.68	-2.495	0.20	52%
18	21.0	251.072	8.68	-2.492	0.19	53%
19	19.9	251.104	8.68	-2.489	0.19	54%
20	19.0	251.104	8.68	-2.489	0.19	54%
21	18.1	251.137	8.68	-2.485	0.19	55%
22	17.4	251.169	8.68	-2.482	0.18	55%
23	16.7	251.202	8.68	-2.479	0.18	56%
24	16.0	251.234	8.68	-2.475	0.18	57%
25	15.4	251.234	8.68	-2.475	0.18	57%
26	14.8	251.04	8.68	-2.495	0.20	52%
27	14.3	251.104	8.68	-2.489	0.19	54%
28	13.9	251.267	8.68	-2.472	0.17	58%
29	13.4	251.04	8.68	-2.495	0.20	52%
30	13.0	251.299	8.68	-2.469	0.17	58%
31	12.6	251.397	8.68	-2.459	0.16	61%
32	12.3	251.397	8.68	-2.459	0.16	61%
33	11.9	251.429	8.68	-2.456	0.16	62%
34	11.6	251.429	8.68	-2.456	0.16	62%
35	11.3	251.461	8.68	-2.452	0.15	63%
36	11.0	251.461	8.68	-2.452	0.15	63%
37	10.7	251.494	8.68	-2.449	0.15	63%
38	10.5	251.526	8.68	-2.446	0.15	64%
39	10.2	251.559	8.68	-2.442	0.14	65%
40	10.0	251.559	8.68	-2.442	0.14	65%
41	9.8	251.559	8.68	-2.442	0.14	65%
42	9.6	251.559	8.68	-2.442	0.14	65%
43	9.4	251.559	8.68	-2.442	0.14	65%
44	9.2	251.267	8.68	-2.472	0.17	58%
45	9.0	251.494	8.68	-2.449	0.15	63%
46	8.8	251.559	8.68	-2.442	0.14	65%

47	8.7	251.591	8.68	-2.439	0.14	66%
48	8.5	251.624	8.68	-2.436	0.14	67%
49	8.3	251.624	8.68	-2.436	0.14	67%
50	8.2	251.656	8.68	-2.432	0.13	68%
51	8.1	251.656	8.68	-2.432	0.13	68%
52	7.9	251.656	8.68	-2.432	0.13	68%
53	7.8	251.689	8.68	-2.429	0.13	68%
54	7.7	251.721	8.68	-2.426	0.13	69%
55	7.5	251.721	8.68	-2.426	0.13	69%
56	7.4	251.721	8.68	-2.426	0.13	69%
57	7.3	251.754	8.68	-2.422	0.12	70%
58	7.2	251.786	8.68	-2.419	0.12	71%
59	7.1	251.754	8.68	-2.422	0.12	70%
60	7.0	251.786	8.68	-2.419	0.12	71%
61	6.9	251.819	8.68	-2.416	0.12	71%
62	6.8	251.819	8.68	-2.416	0.12	71%
63	6.7	251.851	8.68	-2.413	0.11	72%
64	6.6	251.883	8.68	-2.409	0.11	73%
65	6.5	251.851	8.68	-2.413	0.11	72%
66	6.5	251.883	8.68	-2.409	0.11	73%
67	6.4	251.883	8.68	-2.409	0.11	73%
68	6.3	251.916	8.68	-2.406	0.11	74%
69	6.2	251.948	8.68	-2.403	0.10	75%
70	6.1	251.948	8.68	-2.403	0.10	75%
71	6.1	251.948	8.68	-2.403	0.10	75%
72	6.0	251.948	8.68	-2.403	0.10	75%
73	5.9	251.948	8.68	-2.403	0.10	75%
74	5.9	251.981	8.68	-2.399	0.10	76%
75	5.8	251.981	8.68	-2.399	0.10	76%
76	5.7	252.013	8.68	-2.396	0.10	76%
77	5.7	252.013	8.68	-2.396	0.10	76%
78	5.6	252.046	8.68	-2.393	0.09	77%
79	5.6	252.046	8.68	-2.393	0.09	77%
80	5.5	252.046	8.68	-2.393	0.09	77%
81	5.4	252.046	8.68	-2.393	0.09	77%
82	5.4	252.078	8.68	-2.389	0.09	78%
83	5.3	252.078	8.68	-2.389	0.09	78%
84	5.3	252.078	8.68	-2.389	0.09	78%
85	5.2	252.078	8.68	-2.389	0.09	78%
86	5.2	252.078	8.68	-2.389	0.09	78%
87	5.1	252.111	8.68	-2.386	0.09	79%
88	5.1	252.143	8.68	-2.383	0.08	80%
89	5.0	252.143	8.68	-2.383	0.08	80%
90	5.0	252.143	8.68	-2.383	0.08	80%
91	5.0	252.176	8.68	-2.379	0.08	81%
92	4.9	252.176	8.68	-2.379	0.08	81%
93	4.9	252.176	8.68	-2.379	0.08	81%
94	4.8	252.176	8.68	-2.379	0.08	81%
95	4.8	252.208	8.68	-2.376	0.08	81%
96	4.8	252.24	8.68	-2.373	0.07	82%

97	4.7	252.24	8.68	-2.373	0.07	82%
98	4.7	252.24	8.68	-2.373	0.07	82%
99	4.6	252.24	8.68	-2.373	0.07	82%
100	4.6	252.24	8.68	-2.373	0.07	82%
101	4.6	252.273	8.68	-2.37	0.07	83%
102	4.5	252.24	8.68	-2.373	0.07	82%
103	4.5	252.273	8.68	-2.37	0.07	83%
104	4.5	252.305	8.68	-2.366	0.07	84%
105	4.4	252.305	8.68	-2.366	0.07	84%
106	4.4	252.305	8.68	-2.366	0.07	84%
107	4.4	252.305	8.68	-2.366	0.07	84%
108	4.3	252.338	8.68	-2.363	0.06	85%
109	4.3	252.338	8.68	-2.363	0.06	85%
110	4.3	252.338	8.68	-2.363	0.06	85%
111	4.2	252.013	8.68	-2.396	0.10	76%
112	4.2	252.24	8.68	-2.373	0.07	82%
113	4.2	252.273	8.68	-2.37	0.07	83%
114	4.2	252.338	8.68	-2.363	0.06	85%
115	4.1	252.338	8.68	-2.363	0.06	85%
116	4.1	252.338	8.68	-2.363	0.06	85%
117	4.1	252.403	8.68	-2.356	0.06	86%
118	4.1	252.403	8.68	-2.356	0.06	86%
119	4.0	252.403	8.68	-2.356	0.06	86%
120	4.0	252.403	8.68	-2.356	0.06	86%
121	4.0	252.403	8.68	-2.356	0.06	86%
122	4.0	252.403	8.68	-2.356	0.06	86%
123	3.9	252.435	8.68	-2.353	0.05	87%
124	3.9	252.468	8.68	-2.35	0.05	88%
125	3.9	252.468	8.68	-2.35	0.05	88%
126	3.9	252.468	8.68	-2.35	0.05	88%
127	3.8	252.468	8.68	-2.35	0.05	88%
128	3.8	252.468	8.68	-2.35	0.05	88%
129	3.8	252.5	8.68	-2.346	0.05	89%
130	3.8	252.5	8.68	-2.346	0.05	89%
131	3.7	252.5	8.68	-2.346	0.05	89%
132	3.7	252.5	8.68	-2.346	0.05	89%
133	3.7	252.5	8.68	-2.346	0.05	89%
134	3.7	252.533	8.68	-2.343	0.04	89%
135	3.7	252.533	8.68	-2.343	0.04	89%
136	3.6	252.533	8.68	-2.343	0.04	89%
137	3.6	252.565	8.68	-2.34	0.04	90%
138	3.6	252.565	8.68	-2.34	0.04	90%
139	3.6	252.565	8.68	-2.34	0.04	90%
140	3.6	252.565	8.68	-2.34	0.04	90%
141	3.6	252.63	8.68	-2.333	0.03	92%
142	3.5	252.597	8.68	-2.337	0.04	91%
143	3.5	252.597	8.68	-2.337	0.04	91%
144	3.5	252.597	8.68	-2.337	0.04	91%
145	3.5	252.63	8.68	-2.333	0.03	92%
146	3.5	252.63	8.68	-2.333	0.03	92%

147	3.4	252.63	8.68	-2.333	0.03	92%
148	3.4	252.662	8.68	-2.33	0.03	93%
149	3.4	252.63	8.68	-2.333	0.03	92%
150	3.4	252.662	8.68	-2.33	0.03	93%
151	3.4	252.662	8.68	-2.33	0.03	93%
152	3.4	252.695	8.68	-2.327	0.03	93%
153	3.4	252.695	8.68	-2.327	0.03	93%
154	3.3	252.695	8.68	-2.327	0.03	93%
155	3.3	252.338	8.68	-2.363	0.06	85%
156	3.3	252.533	8.68	-2.343	0.04	89%
157	3.3	252.63	8.68	-2.333	0.03	92%
158	3.3	252.37	8.68	-2.36	0.06	85%
159	3.3	252.533	8.68	-2.343	0.04	89%
160	3.3	252.63	8.68	-2.333	0.03	92%
161	3.2	252.662	8.68	-2.33	0.03	93%
162	3.2	252.695	8.68	-2.327	0.03	93%
163	3.2	252.727	8.68	-2.323	0.02	94%
164	3.2	252.727	8.68	-2.323	0.02	94%
165	3.2	252.727	8.68	-2.323	0.02	94%
166	3.2	252.76	8.68	-2.32	0.02	95%
167	3.2	252.76	8.68	-2.32	0.02	95%
168	3.1	252.792	8.68	-2.317	0.02	96%
169	3.1	252.76	8.68	-2.32	0.02	95%
170	3.1	252.792	8.68	-2.317	0.02	96%
171	3.1	252.792	8.68	-2.317	0.02	96%
172	3.1	252.792	8.68	-2.317	0.02	96%
173	3.1	252.792	8.68	-2.317	0.02	96%
174	3.1	252.825	8.68	-2.313	0.01	97%
175	3.1	252.825	8.68	-2.313	0.01	97%
176	3.0	252.825	8.68	-2.313	0.01	97%
177	3.0	252.825	8.68	-2.313	0.01	97%
178	3.0	252.857	8.68	-2.31	0.01	98%
179	3.0	252.89	8.68	-2.307	0.01	98%
180	3.0	252.857	8.68	-2.31	0.01	98%
181	3.0	252.857	8.68	-2.31	0.01	98%
182	3.0	252.89	8.68	-2.307	0.01	98%
183	3.0	252.89	8.68	-2.307	0.01	98%
184	3.0	252.89	8.68	-2.307	0.01	98%
185	2.9	252.89	8.68	-2.307	0.01	98%
186	2.9	252.89	8.68	-2.307	0.01	98%
187	2.9	252.922	8.68	-2.303	0.00	99%
188	2.9	252.922	8.68	-2.303	0.00	99%
189	2.9	252.922	8.68	-2.303	0.00	99%
190	2.9	252.955	8.68	-2.3	0.00	100%

ATTACHMENT C

RESULTS OF LABORATORY TESTING OF WELL WATER SAMPLES

Certificate of Analysis

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#: 190622
Invoice to: Kollaard Associates Inc.

Report Number: 1940492
Date Submitted: 2020-10-08
Date Reported: 2020-10-20
Project: 190622
COC #: 198013

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: Addrine Thomas 2020.10.20 09:54:00 -04'00'

Addrine Thomas, Inorganics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: http://www.cala.ca/scopes/2602.pdf.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

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Certificate of Analysis

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#: 190622
Invoice to: Kollaard Associates Inc.

Report Number: 1940492
Date Submitted: 2020-10-08
Date Reported: 2020-10-20
Project: 190622
COC #: 198013

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.	
					1521365 GW 2020-10-07 3904 March Rd - 3hr	1521366 GW 2020-10-07 3904 March Rd - 6hr
Anions	Cl	1	mg/L	AO 250	23	24
	F	0.10	mg/L	MAC 1.5	0.20	<0.10
	N-NO2	0.10	mg/L	MAC 1.0	<0.10	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	0.21	1.54
	SO4	1	mg/L	AO 500	39	44
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 500	247	240
	Colour	2	TCU		<2	<2
	Conductivity	5	uS/cm		578	611
	DOC	0.5	mg/L	AO 5	1.2	1.4
	pH	1.00		6.5-8.5	8.12	8.14
	S2-	0.01	mg/L	AO 0.05	<0.01	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500	376	397
	Turbidity	0.1	NTU	AO 5.0	7.3*	5.5*
Hardness	Hardness as CaCO3	1	mg/L	OG 100	253*	271*
Indices/Calc	Ion Balance	0.01			0.92	0.99
Metals	Ca	1	mg/L		70	74
	Fe	0.03	mg/L	AO 0.3	0.68*	0.52*
	K	1	mg/L		5	8
	Mg	1	mg/L		19	21
	Mn	0.01	mg/L	AO 0.05	0.05	0.06*
	Na	2	mg/L	AO 200	17	18
Subcontract-Inorg	N-NH3	0.01	mg/L		0.17	0.22
	Phenols	0.001	mg/L		<0.001	<0.001
	Tannin & Lignin	0.1	mg/L		<0.1	<0.1
	Total Kjeldahl Nitrogen	0.1	mg/L		0.2	0.3

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 390581 **Analysis/Extraction Date** 2020-10-08 **Analyst** AG **Method** C SM2130B			
Turbidity	<0.1 NTU	100	70-130
Run No 390585 **Analysis/Extraction Date** 2020-10-08 **Analyst** AET **Method** C SM4500-S2-D			
S2-	<0.01 mg/L	105	80-120
Run No 390720 **Analysis/Extraction Date** 2020-10-13 **Analyst** H D **Method** EPA 200.8			
Iron	<0.03 mg/L	92	80-120
Manganese	<0.01 mg/L	98	80-120
Run No 390727 **Analysis/Extraction Date** 2020-10-13 **Analyst** Z S **Method** M SM3120B-3500C			
Calcium	<1 mg/L	104	90-110
Potassium	<1 mg/L	95	87-113
Magnesium	<1 mg/L	112	76-124
Sodium	<2 mg/L	97	82-118
Run No 390755 **Analysis/Extraction Date** 2020-10-14 **Analyst** QT **Method** C SM2120C			
Colour	<2 TCU	101	90-110

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Project: 190622
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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 390759 **Analysis/Extraction Date** 2020-10-14 **Analyst** QT **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	102	90-110
Conductivity	<5 uS/cm	99	90-110
F	<0.10 mg/L	102	90-110
pH		99	90-110
Run No 390799 **Analysis/Extraction Date** 2020-10-09 **Analyst** AET **Method** SUBCONTRACT P-INORG			
Phenols	<0.001 mg/L	100	69-132
Tannin & Lignin	<0.1 mg/L	80	
Run No 390857 **Analysis/Extraction Date** 2020-10-15 **Analyst** AG **Method** SM 5310B			
DOC	<0.5 mg/L	102	80-120
Run No 390921 **Analysis/Extraction Date** 2020-10-17 **Analyst** SKH **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO2	<0.10 mg/L	107	90-110
N-NO3	<0.10 mg/L	107	90-110
SO4	<1 mg/L	100	90-110

Guideline = ODWSOG *** = Guideline Exceedence**

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Report Number: 1940492
Date Submitted: 2020-10-08
Date Reported: 2020-10-20
Project: 190622
COC #: 198013

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 391015 **Analysis/Extraction Date** 2020-10-19 **Analyst** AET **Method** SUBCONTRACT P-INORG			
N-NH3	<0.01 mg/L	88	
Total Kjeldahl Nitrogen	<0.1 mg/L	101	81-126
Run No 391018 **Analysis/Extraction Date** 2020-10-20 **Analyst** AET **Method** C SM2340B			
Hardness as CaCO3			
Ion Balance			
TDS (COND - CALC)			

Guideline = ODWSOG *** = Guideline Exceedence**

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210 Prescott St., Box 189
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Attention: Ms. Colleen Vermeersch
PO#: 190622
Invoice to: Kollaard Associates Inc.

Report Number: 1940498
Date Submitted: 2020-10-08
Date Reported: 2020-10-11
Project: 190622
COC #: 198013

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: Dragana Dzeletovic 2020.10.11 13:01:36 -04'00'

Dragana Dzeletovic-Andric, Microbiology Team Lead

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: http://www.cala.ca/scopes/2602.pdf.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

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Certificate of Analysis

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Attention: Ms. Colleen Vermeersch
PO#: 190622
Invoice to: Kollaard Associates Inc.

Report Number: 1940498
Date Submitted: 2020-10-08
Date Reported: 2020-10-11
Project: 190622
COC #: 198013

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	
					1521376 GW 2020-10-07 3904 March Rd - 3hr	1521377 GW 2020-10-07 3904 March Rd - 6hr
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0	0
	Faecal Coliforms	0	ct/100mL		0	0
	Heterotrophic Plate Count	0	ct/1mL		34	6
	Total Coliforms	0	ct/100mL	MAC 0	3*	2*

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

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Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1963628
Date Submitted: 2021-09-29
Date Reported: 2021-09-30
Project: 3904 March Rd
COC #: 880746

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: Dragana Dzeletovic 2021.09.30 16:31:12 -04'00'

Dragana Dzeletovic-Andric, Microbiology Team Lead

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Report Number: 1963628
Date Submitted: 2021-09-29
Date Reported: 2021-09-30
Project: 3904 March Rd
COC #: 880746

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1586042 Water 2021-09-29 3904 March Rd
Microbiology	Total Coliforms	0	ct/100mL	MAC 0	0

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

ATTACHMENT D

SEWAGE EFFLUENT DILUTION CALCULATIONS

April 2022 190622

SEPTIC EFFLUENT DILUTION CALCULATIONS

Sewage Effluent for single family dwelling	365	m^3/year
Sewage Effluent for commercial use	1834.13	m^3/year
Total sewage design	2199.13	m^3/year
Gross Site Area	95,800	m^2
Env. Can. Water Surplus (NPI)	372.2	mm

Hard Surface Area (Post-Development)

Roofs	1440	
gravel area	2640	
Total	4080	m^2

Net Infiltration Area = Gross Site Area - Hard Surface Area (Post-Development)

91,720 m^2

Infiltration Reduction Factor:

Topography (rolling)	0.30
Soil (open sandy loam)	0.40
Cover (cultivated/orchard)	0.15
Total IRF	0.85

Septic Dilution For the combined effluent for the site:

$$\frac{\text{Volume Effluent Per Year} \times 40 \text{ mg/L } NO_3}{\text{Volume Effluent Per Year} + (\text{Net Infiltration Area} \times \text{NPI} \times \text{IRF})} = 2.8 \text{ mg/L } NO_3\text{-N}$$