6460 MAIN STREET STOUFFVILLE
WATER BALANCE
TOWN OF WHITCHURCH-STOUFFVILLE
YORK REGION

Prepared for:

2426009 Ontario Ltd.

April 2023

File 22002.00

Distribution:
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GAMAN CONSULTANTS INC.
Barrie, Ont.
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April 23, 2023

2426009 Ontario Ltd.
100 Harrison Blvd., Unit 515
Toronto, Ontario
M2N 0C5

Attention: Mr. Terry Shim

Dear Sirs:

Re: 6460 Main Street Stouffville Water Balance
Town of Whitchurch-Stouffville, York Region
Our File 22002.00

GAMAN Consultants Inc. is pleased to submit this hydrogeological report undertaken to address Town of Whitchurch-Stouffville (TWS) Peer Review Comment 1.12 by Burnside Associates dated March 4, 2021. The results of the water balance evaluation show a deficit in infiltration after development, and this is common with developments. However, this area of Stouffville is situated within a groundwater discharge area and this should preclude the need to mitigate infiltration. In our opinion, recharge mitigation is not required for the site.

Yours truly,
GAMAN Consultants Inc.

Gary R. Hendy, P.Eng.
Consulting Engineer

TABLE OF CONTENTS

Letter of Transmittal

PAGE

TABLE OF CONTENTS (Cont'd)

PAGE

APPENDICES

FIGURES

TABLES

1.0 INTRODUCTION

1.1 BACKGROUND

GAMAN Consultants Inc. was retained by the 2426009 Ontario Ltd. to complete a water balance evaluation. The evaluation was undertaken to address Town of Whitchurch-Stouffville (TWS) Peer Review Comment 1.12 by Burnside Associates dated March 4, 2021 to complete a water balance for the site.

By way of background, Soil-Engineers completed a geotechnical investigation of the site and documented the results in a report dated June 2017. The report was peer reviewed by Burnside Associates on behalf of the TWS. Groundwater levels in the original boreholes provided mixed results and Burnside requested additional groundwater monitoring be undertaken to address anomalies in groundwater levels. This issue was addressed in a separate letter report by GAMAN Consultants on the groundwater monitoring dated April 19, 2023.

This report evaluates the pre-development and post-development runoff and infiltration rates to determine the changes in runoff and recharge before and after development. The deficit in recharge from this evaluation is then integrated with stormwater management systems of the site to maintain recharge to the groundwater table, where feasible.

The site is located at 6460 Main Street Figures 1 and 2 in the Town of Whitchurch-Stouffville.

1.2 STUDY OBJECTIVES & SCOPE

The Conservation Authorities Geoscience Group developed guidelines for hydrogeological assessment submissions related to water balances. The document provides information for consultants to consider and address in technical submissions for a development site. The

purpose of this evaluation was to assess the changes in recharge to the site for input into appropriate mitigation methods to be implemented to maintain groundwater recharge.

The tasks required to complete the work program included:

- Background review of the physical setting of the site including physiography, surficial geology and groundwater.
- A site inspection of the site and surrounding area.
- Groundwater monitoring using boreholes installed by other project team members.
- A review of local water well records and existing services around the site.
- Preparation of a hydrogeological report to address Conservation Authority Guidelines for a water balance.

This report documents the study findings of these investigations.

2.0 PHYSICAL SETTING

2.1 PHYSIOGRAPHY, SURFICIAL GEOLOGY AND DRAINAGE

The site is situated within the Oak Ridges Moraine (ORM) and South Slope Physiographic Regions as described by Chapman and Putnam (1984). The ORM is a hummocky ridge of stratified drift. This ridge was deposited between the Ontario and Simcoe Lobes of the retreating Wisconsinan ice sheet thousands of years ago. The kame moraines associated with the ORM are illustrated at the north side of the study area, see Figure 3. The ORM forms a drainage basin divide between Georgian Bay and Lake Ontario.

The South Slope Physiographic Region consists of a broad, gently sloping plain of finer grained sediments deposited by the Ontario Lobe of the receding Wisconsinan Glacier.

The drumlinized till plain is associated with the Halton Till that caps the ORM within the vicinity of the site. The till is commonly comprised of clayey silt to silt.

Drainage is towards Stouffville Creek which conveys surface water south to southeast and eventually discharges into Reesor Creek near Markham.

2.2 HYDROGEOLOGY

Aquifers are sources of groundwater yielding enough water to supply a well. Aquifers are commonly derived from saturated sand and/or gravel deposits within overburden and also from fractured bedrock. Aquitards are barriers to groundwater movement and can provide protection to aquifers from sources of contamination. Aquitards are commonly comprised of silt, clay, till or bedrock. Figure 4 is a stratigraphic cross section from west to east through the site. The section was created from the Oak Ridges Moraine Groundwater Program (ORMGP) site and extends from just west of Woodbine Avenue to Warden Avenue.

The upper four stratigraphic (hydrogeologic) units include:

- The Halton Till or equivalent (aquitard)
- The Oak Ridges Moraine (aquifer)
- The Newmarket Till (aquitard)
- The Thorncliffe Formation (aquifer).

The Oak Ridges Moraine is a source of groundwater for municipal, communal and individual wells and is referred to as the Oak Ridges Aquifer Complex (ORAC). It is a major recharge area for deeper aquifers and a source of recharge for the headwaters to many streams originating on or down hill of the Moraine. The ORAC is exposed at surface north of the site as shown in Figure 4.

The Newmarket (Till) Aquitard protects or buffers deeper sources of groundwater from contamination. The aquitard separates the ORAC from deeper aquifers. Figure 4 shows different parts of the Newmarket Till; however, they collectively behave as an aquitard.

The Thorncliffe Formation is an aquifer where its composition is comprised of coarser deposits of saturated sand and/or gravel. Locally, the Thorncliffe Aquifer Complex (TAC) is a source of groundwater to municipal, communal and individual wells in the vicinity of Aurora, Newmarket and the Town of Whitchurch-Stouffville. The aquifer is not shown in the cross-section, but it would appear immediately below the Newmarket Aquitard.

2.3 LOCAL WATER SUPPLIES

Figure 5 illustrates the location of water wells in the vicinity of the site. There are no known domestic wells within 500 metres of the site. The wells appearing on Figure 5 within 500 metres of the site are commonly geotechnical boreholes less than six (6) metres deep or test holes likely from municipal groundwater exploration programs given the references to test holes (TH). Wells extending to bedrock are documented with the total well depth in metres.

The absence of domestic wells near the site was expected because Stouffville is serviced with municipal wells. In this regard, the proposed development site is located outside the well head protection area.

3.0 SITE INVESTIGATIONS

3.1 SHALLOW SUBSURFACE SOILS

Soil Engineers monitored the drilling and installation of geotechnical boreholes at the site. The boreholes logs are included in Appendix B.

Shallows soils are comprised mostly of clayey-silt and silt down to about six (6) metres below grade. The locations of the boreholes appear in Figure 2.

3.2 SHALLOW GROUNDWATER MOVEMENT

Shallow groundwater movement is a reflection of local topography and drainage. The overall direction of shallow groundwater movement is southward through the site at a regional scale. This is reasonably consistent with local topography and drainage at the site that is generally northward.

The three boreholes are shown on Figure 2 and designated BH22-1, BH22-2 and BH22-3.

Groundwater level monitoring began in early March 2022 and continued to June 2022. The groundwater monitor construction details and water level results are documented in Tables B-1 and B-2, Appendix B respectively. Figure 2 illustrates the interpreted direction of shallow groundwater movement from north to south beneath the site.

Monitor BH22-3 shows deeper groundwater levels in the range of 1.5 to 1.7 metres below grade. It is assumed the deeper groundwater levels at this location may be influenced by underground services along Main Street that drain the groundwater table, creating a local cone of depression perpendicular to the service trench beneath the road. The effects of high groundwater levels on construction were addressed by the Soil-Engineers 2017 Geotechnical Investigations. These supplemental groundwater levels should be incorporated into the design of structures at the site.

4.0 WATER BUDGET

4.1 CLIMATIC DATA

As precipitation falls to the ground in the form of rainfall or snow, it is subject to components of the hydrological cycle. Water will generally runoff, infiltrate, evaporate or be subject to transpiration from plant uptake. Evaporation and transpiration are commonly grouped together as evapotranspiration while runoff and infiltration are grouped together as water surplus. The water budget is represented in a simple form as follows:

Water In = water Out

P + EI = ET + IR + RO + EO

Where:

P = Precipitation

EI = External Inputs (Run-on, irrigation and vertical/lateral transfers)

ET = Evapotranspiration from plant uptake and evaporation.

IR = Infiltration Recharge

RO = Run-off

EO = External Outputs (water taking and vertical/lateral transfers)

Thornthwaite (1948) developed a mathematical method for analyzing precipitation data and calculating evapotranspiration and water surplus. The method was modified by Thornthwaite-Mather in 1957 and was used to evaluate water surplus. Average monthly temperature and precipitation data were analyzed using this method and the results are presented in Table C-1. The 30-year normal annual precipitation for Buttonville Airport is 821.5 mm/yr. with a resultant moisture surplus of 207.9 m/yr.

4.2 GROUNDWATER RECHARGE ESTIMATES

4.2.1 MECP Recharge Rates

The MOEE Hydrogeological Technical Information Requirements for Land Development Applications (1995) includes Table 2 derived from hydrologic analysis for assessing peak runoff for storm water management. The method considers topography, soil type and vegetation cover at a site. Table C-2 documents the infiltration factors for pre-development and post-development at the site.

Topography was evaluated using topographic information from the site with an average slope of about 2.2% or 22 metres per kilometre. The site reflects steep slopes with a topographic factor of 0.1 for pre-development as shown in Table C-2. Site grading usually makes the slopes gentler than the original topography. The gentler the slope, the higher the infiltration factor and higher the recharge rate post-development. Grading is unlikely to change the overall slope factor; therefore, we assumed the topographic infiltration factor remains at 0.1 and continues to reflect steep slopes after grading.

Cover reflects the presence or absence of a canopy that can shade parts of the site and reduce evaporation. The site in its pre-development state is a mixture of trees and shrubs consistent with a cover factor of 0.15. Much of the site may be cleared post development and we have assumed a value of 0.1 for post development.

The pre-development total infiltration factor presented in Table C-2 is 0.4. Pre-development recharge rate for the site is the product of the infiltration factor (0.4) times the water surplus (208 mm/year) and results in an annual recharge rate of 73 mm/year. This seems reasonable for a site comprised of silt/clay deposits.

4.2.2 ORMGP Recharge Rates

The Oak Ridges Moraine Groundwater Program was used as a guide for evaluating recharge rates. We reviewed the recharge model for the area and presented the information

in Figure 6. The recharge rates within various blocks (or cells) in the figure show wide ranging recharge rates ranging from about 4 to 68 mm/yr. The site recharge rate presented in Section 4.2.1 was calculated at 73 mm/year is higher than the regional scale model of recharge rates in the ORMGP.

In summary the pre-development recharge rate was calculated at 73 mm/year, and this is conservative compared with the recharge rates documented in the ORMGP.

4.3 PRE-DEVELOPMENT & POST-DEVELOPMENT WATER BUDGETS

The existing lands are open space. There are no impermeable surfaces at the site and the soils have been shown to be comprised of silty-clayey deposits. We have examined runoff and infiltration for the pre-development conditions of the site based on water budget information presented in previous sections. Table C-3 documents the runoff and recharge rates for the pre-development and post-development scenarios.

The pre-development recharge rate for the undeveloped lands was calculated at 179 m^3/year based on a recharge rate of 73 mm/year. Runoff is much higher at 333 m^3/year.

Sources of recharge for post-development include natural infiltration on landscaped areas of the site. The permeable areas of the site are small and comprise 911m^2. The total infiltration post-development is estimated at 66 m^3/year. Table C-3 documents a recharge deficit of 113 m^3/year for the site.

4.4 MITIGATION

Low impact development (LID) systems are used to capture runoff and promote infiltration as a means of restoring recharge. LID provides a wide range of practices that off-set the negative impacts of urban stormwater runoff including the reduction of groundwater

recharge. Geology and water levels are two of the most important factors used to assess the suitability of a site for LID measures.

The site is overlain with fine-textured silty to clayey (till-like) soils that correspond with Medium Suitability for LID systems based on geology.

The 2012 TRCA Guideline Stormwater Management Criteria notes a preference for at least 1 metre of separation between the seasonal high groundwater table and the base of an infiltration facility. Locations with less than one metre separation are considered low suitability, moderate suitability for one to two metres of separation and high suitability for more than two metres of separation to the water table. Groundwater levels (Table B-2) at the site between March and June 2022 show the depths to shallow groundwater as follows at three monitors:

- BH22-1 water levels less than 0.4 mbgl.
- BH22-2 water levels less than 0.74 mbgl.
- BH22-3 water levels from 1.5 to 1.7 mbgl.

Groundwater monitor BH22-3 is located near Main Street. Though we cannot confirm the reasons for deeper groundwater levels at this location, storm sewers along Main Street could be a conduit for transmitting groundwater and creating a narrow cone of depression parallel to the sewers.

The geology and groundwater information available to date suggests the site has low to medium suitability for LID measures.

4.5 GROUNDWATER DISCHARGE AREAS

The previous sections of this report document groundwater levels, soils and climatic data to address groundwater recharge before and after development. The high groundwater levels at the site, low recharge rates shown in the ORMPG model, and the physical setting of the South Slope with a till cap over the Oak Ridges Moraine gave cause for further evaluation of groundwater. Figure 6 was prepared using the Oak Ridges Moraine Groundwater Program (ORMPG) to identify areas of groundwater discharge. This area of Stouffville is situated within a groundwater discharge area and essentially means groundwater recharge beneath the site does not occur or very little occurs. This seems to be consistent with the low recharge rates appearing in Figure 5.

Though the water balance evaluation shows a deficit in groundwater recharge, this is likely a mathematical result that does not address the physical setting and limitations on recharge in a discharge area. Low Impact Development measures are unlikely to be effective in adding infiltration to this physical setting and in our opinion, recharge mitigation is not required for this site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations presented below are based upon the data collected and reviewed as part of these investigations:

- The study area and site are located within the South Slope Physiographic Region. This physiographic region has a clayey-silty (till-like) soil matrix at the site that caps Oak Ridges Moraine sediments.
- Drainage is south to southeast along Stouffville Creek.
- Three boreholes drilled at the site confirm the presence of mostly clayey-silt to silt within the upper 6 metres of ground surface.

- The depth to groundwater ranges from about ground surface at the north end of the site to about 1.7 metres below grade near Main Street. The lower water levels near Main Street might be caused by local dewatering from existing buried infrastructure.
- The recharge rate for this site was estimated at 73 mm/year. This is within the upper range for values obtained from the Oak Ridges Moraine Groundwater Program.
- There are no known water wells within 500 metres of the site.
- The site is located outside the wellhead protection area for the Stouffville wells.
- The recharge deficit caused by hard covered surfaces post-development for this site is calculated at 113 m^3/year.
- Further review of the study area reveals the site is within a groundwater discharge area. The presence of a groundwater discharge area should preclude the need for low impact development measures for a balanced water budget at this site.
- In our opinion, there is no need for LID systems within this hydrogeologic setting.

Respectfully Submitted,
GAMAN CONSULTANTS INC.

Gary R. Hendy, P.Eng.
Consulting Engineer

6.0 LIMITATIONS AND USE

This report has been prepared for the exclusive use of 2426009 Ontario Ltd.. for the exclusive use in the evaluation of the area for the proposed development. GAMAN Consultants Inc. accepts no responsibility for any damages incurred by any third party as a result of decisions made, or actions taken based upon the information contained within this report.

All background information used in the preparation of this report has been relied upon in good faith, and GAMAN does not accept any responsibility for any mis-statements, inaccuracies, or deficiencies contained in those documents or records. The information contained in this report should be evaluated, interpreted and implemented only in the context of the assignment.

The findings and conclusions included in this report reflect our best judgement in light of the information available at the time of report preparation and site inspection and are valid only at the date of issuance. If additional information is provided in the future, such as the results of additional site-specific assessments or monitoring, GAMAN will be pleased to re-evaluate our conclusions contained within this report, and issue amendments, as required.

7.0 REFERENCES

Chapman L.J. and Putnam, D.F., 1984

The Physiography of Southern Ontario, 3rd edition;

Ontario Geological Survey Special Volume 2; Ministry of Natural Resources.

Government of Canada

Canadian Climatic Normals 1981-2010

Lake Simcoe Region Conservation Authority, June 2013

Hydrogeological Assessment Submissions, Conservation Authority Guidelines for Development Applications

Ministry of Environment Conservation & Parks

Water Well Records

Ministry of Environment and Energy, 1995

MOEE Hydrogeological Technical Information Requirements for Land Development Applications, ISBN 0-7778-4340-4, April, Queen's Printer.

Oak Ridges Moraine Groundwater Program

FIGURES

NOTES

Site Location

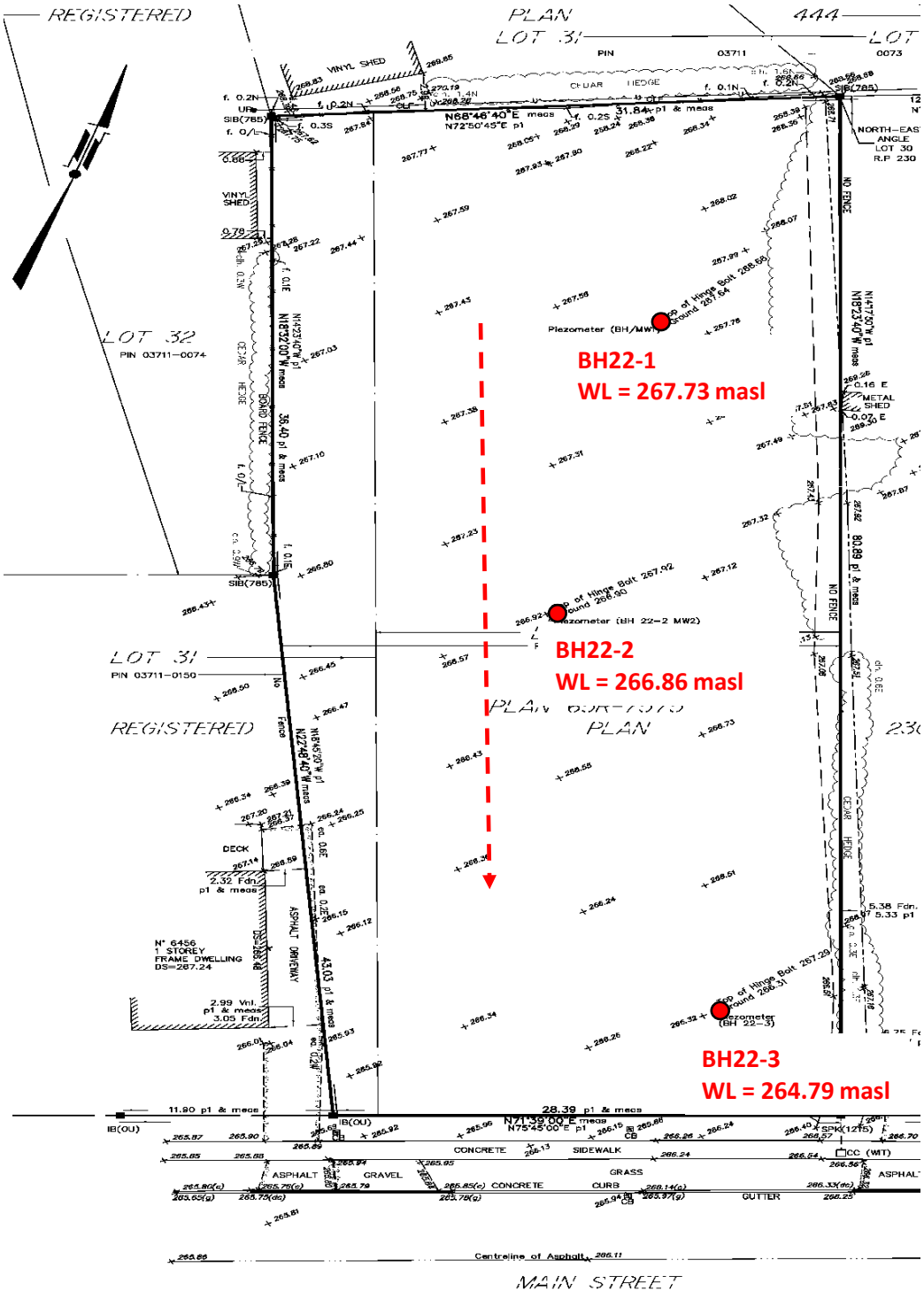
6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	as shown
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 1



NOTES

- Inferred Groundwater Flow Direction
- Borehole Location
- **BH22-3** Borehole Designation
- **264.79** Water Table Elevation (masl)

SITE PLAN PRE-DEVELOPMENT

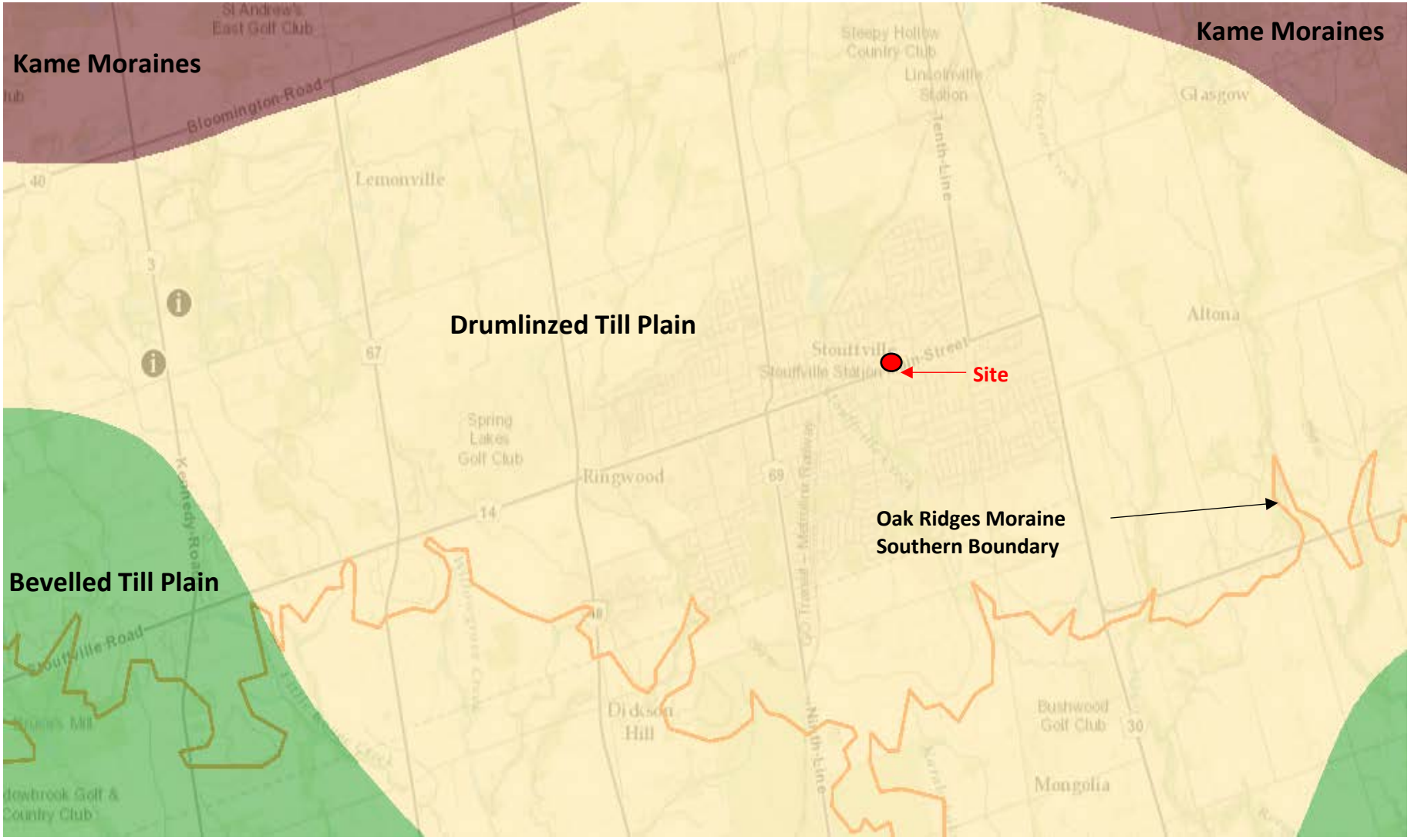
6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	as shown
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 2



NOTES

Physiography

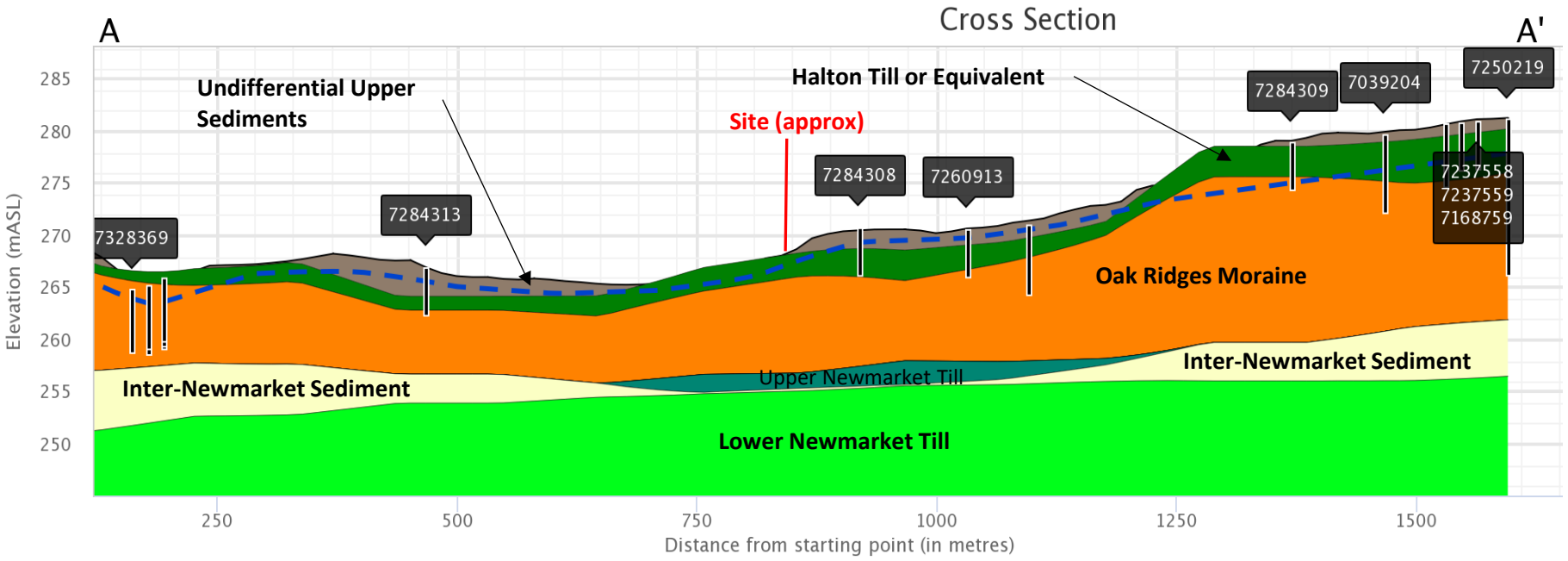
6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	nts
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 3



NOTES

Section A-A' Stratigraphy

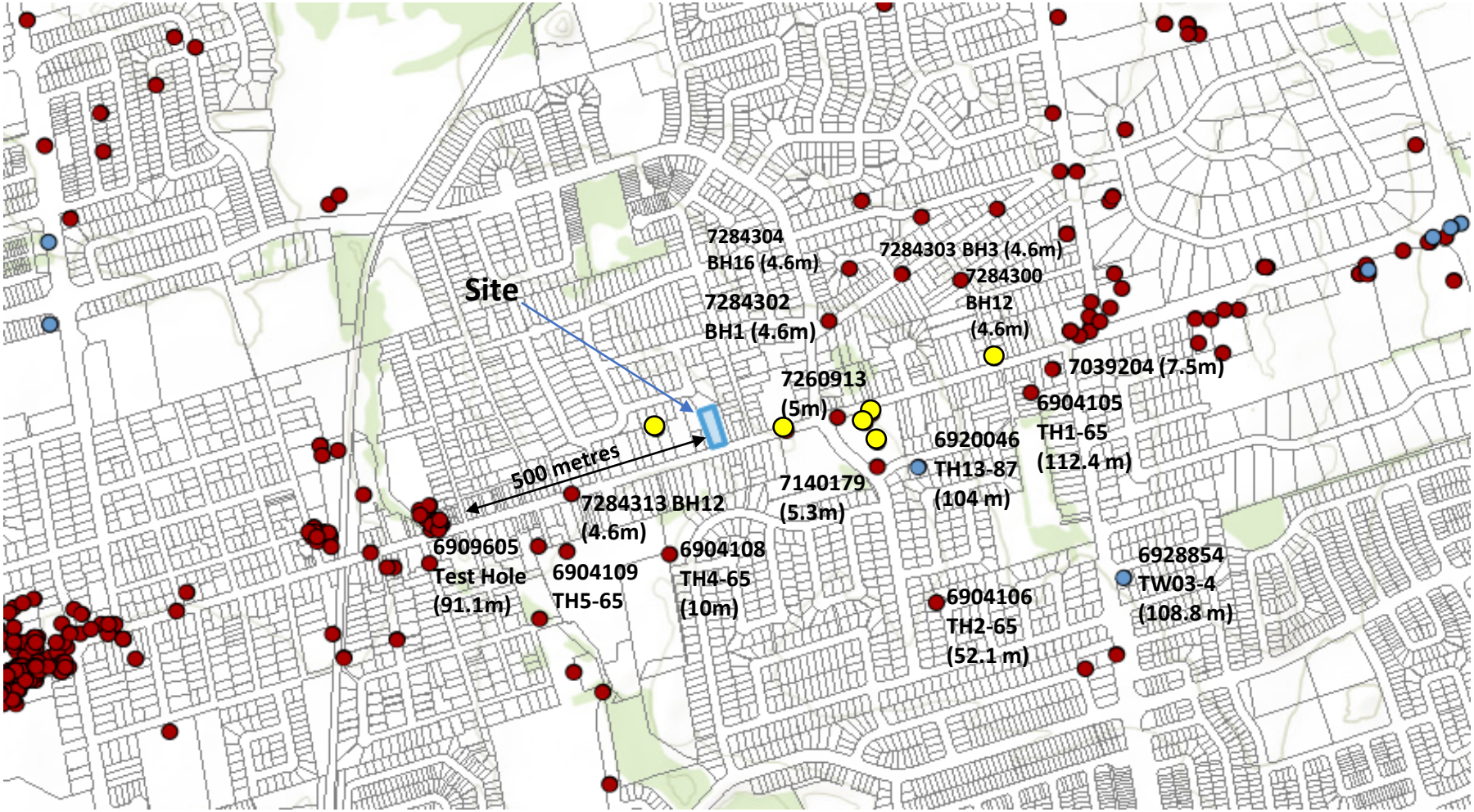
6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	as shown
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 4



NOTES

- Bedrock Wells
- 7286775 Overburden Well and depth (metres)
  TH4-68 Overburden Well, test hole and depth (metres)
- Boreholes with no reported data.

MECP Wells

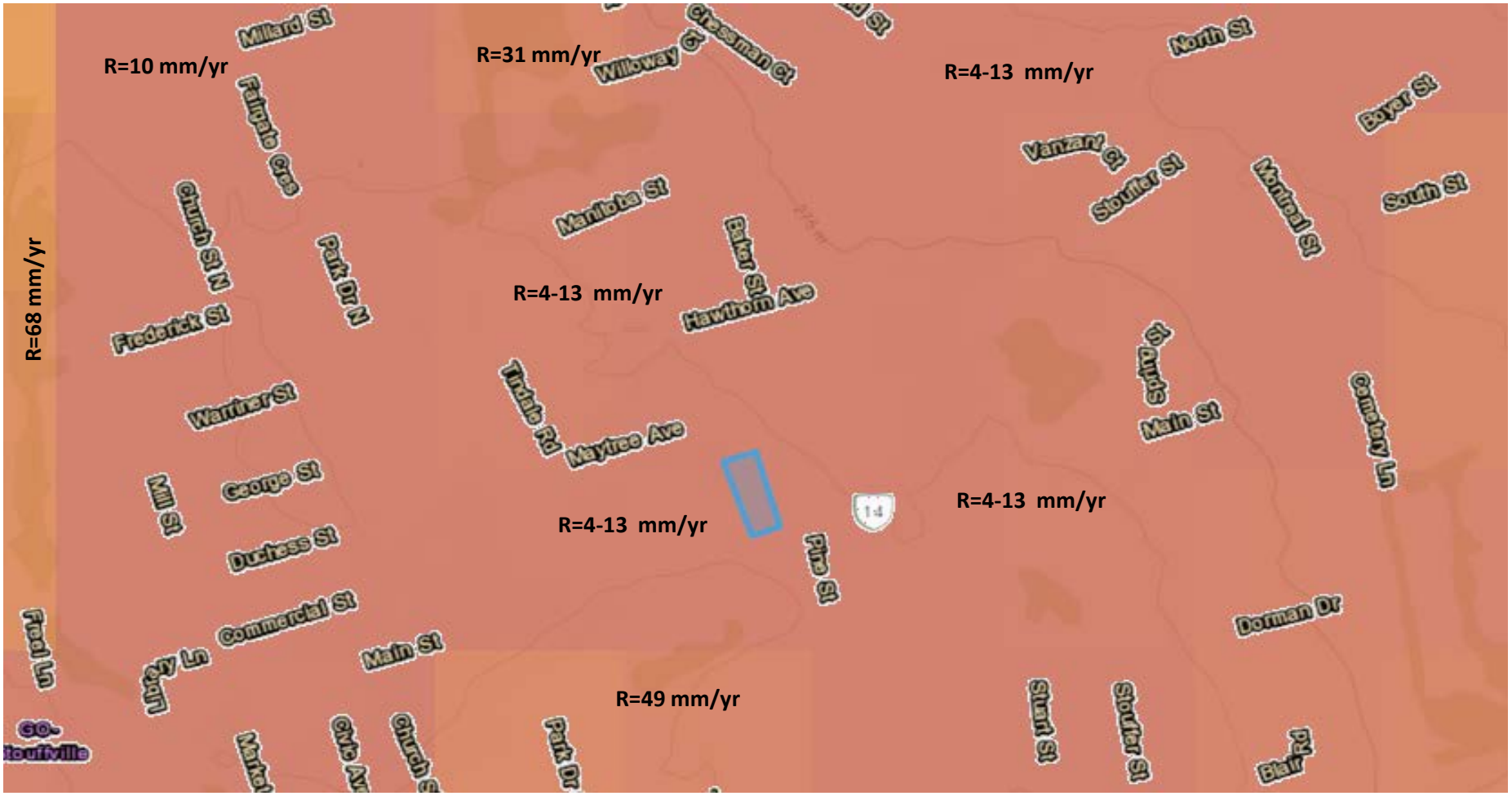
6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	as shown
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 5



NOTES

ORMGP Recharge Estimates

6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	as shown
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 6

NOTES

Potential Groundwater Discharge Areas (ORMGP)

ORMGP Groundwater Discharge Areas

6460 Main Street Stouffville Water Balance

For 2426009 Ontario Ltd.

Date:	Aug-22	Scale:	as shown
Project:	22002.00	Ref No:	

GAMAN Consultants Inc.

Figure 7

APPENDICES

APPENDIX A

WELL RECORDS

NW

TEST HOLE #1

not plotted-

UTM 17 Z 6[illegible]MARKHAM E

[illegible] R [illegible]8746853 N

Elev. [illegible] R [illegible]809/15

Basin 9 4

30M149

WATER RESOURCES DIVISION
APR 2 1965
ONTARIO WATER RESOURCES COMMISSION

69 No. 4105

WHITCHURCH-STOUFFVILLE

The Ontario Water Resources Commission Act

WATER WELL RECORD

County ~~or District~~ York

Township, Village, Town or ~~City~~ Whitchurch (Unorganized) Stouffville

Con. 9 PT. 35 Lot 27 PLAN 1155

Date completed 3 (day) Mar. (month) 1965 (year)

Owner [redacted] (Print in block letters)

Address Town of Stouffville

Casing and Screen Record

Inside diameter of casing 6"

Total length of casing 255'

Type of screen none

Length of screen —

Depth to top of screen —

Diameter of finished hole Pipe pulled out & filled in

Pumping Test

Static level 140'

Test-pumping rate 5 G.P.M.

Pumping level 254'

Duration of test pumping 2 hrs

Water clear or cloudy at end of test clear

Recommended pumping rate Nil G.P.M.

with pump setting of — feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top soil	0	1		
Brown clay & stones	1	10		
" sandy gravel	10	27		
grey cemented gravel	27	75	(74'-75' 2 G.P.M. STATIC LEVEL)	fresh
" clay & "	75	253		
" sand & wat.	253	254	253'-254'	untested
" clay	254	290		
" gumbo clay	290	323		

For what purpose(s) is the water to be used?

Town T.H

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm L. L. Faulkner

Address 687 Water St. Peterboro

Licence Number 1689

Name of Driller or Borer M. Dunlop

Address 229 King St. Peterboro

Date Mar. 31/65

L. L. Faulkner Per Opt.

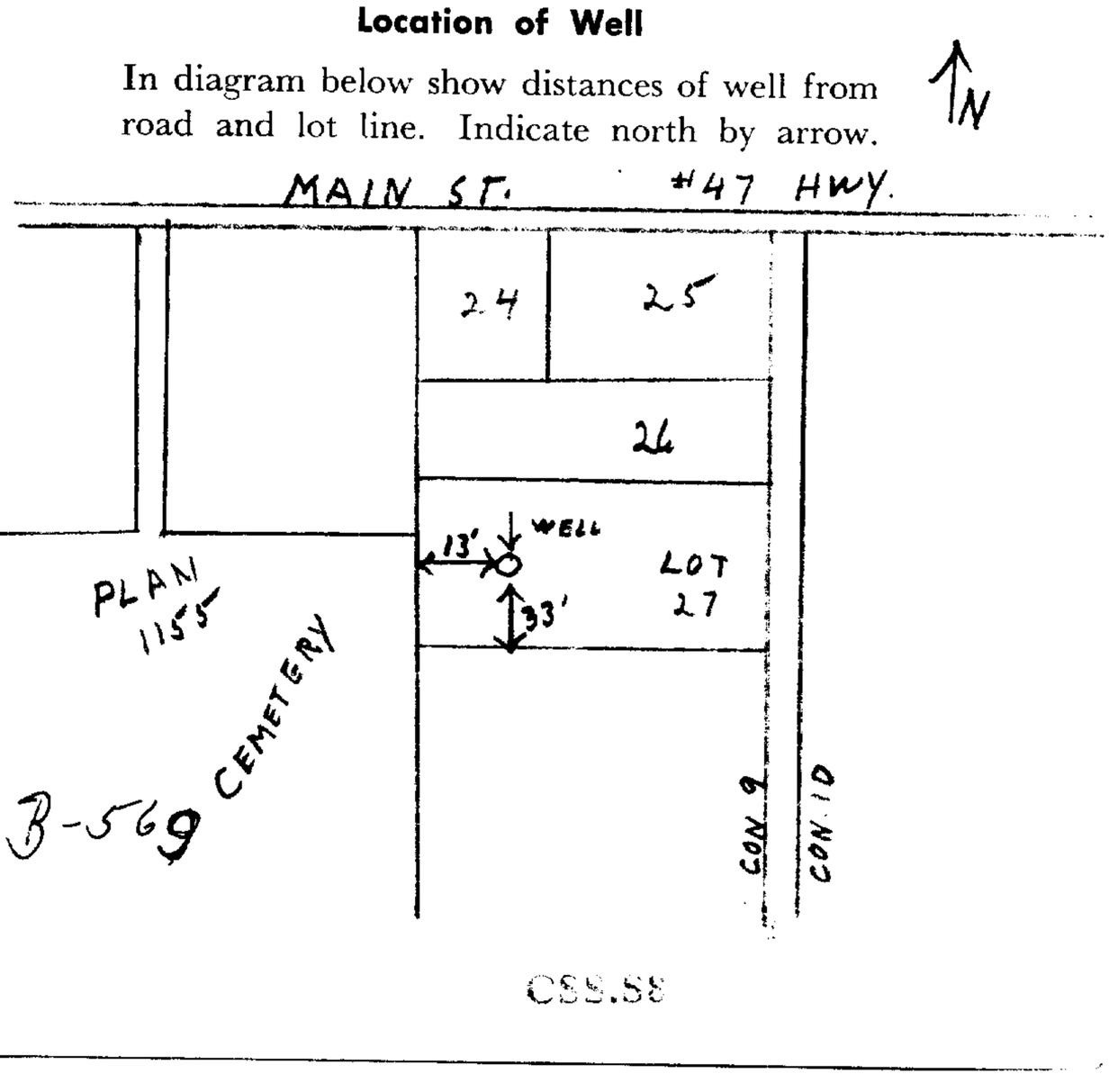
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



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TN TEST HOLE #2

UTM 17 Z 641542 E
MARKHAM
Con 5 R IX 4869813 N
Elev. 5 R 34895 LCB
Basin 94 ... County or District York

30M149

The Ontario Water Resources Commission Act

WATER WELL RECORD

WATER RESOURCES DIVISION 69 Nº 4106 C
APR 8 1965
ONTARIO WATER RESOURCES COMMISSION

WHITCHURCH-STOUFFVILLE

~~Markham~~ ~~Whitchurch~~ Township, Village, Town or City (Stouffville)

Con. 9 PT Lot 34

Date completed 9 (day) Mar. (month) 1965 (year)

Owner [redacted]

Address Stouffville

Casing and Screen Record

Inside diameter of casing 6¼"

Total length of casing 76'

Type of screen 6¼" slotted casing

Length of screen 6'

Depth to top of screen 70'

Diameter of finished hole Pulled casing out + filled in hole

Pumping Test

Static level 10'

Test-pumping rate 5 G.P.M.

Pumping level 75'

Duration of test pumping 2 hrs.

Water clear or cloudy at end of test clear

Recommended pumping rate Nil G.P.M.

with pump setting of ~~5~~ feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Top soil	0	1		
brown clay + stones	1	12		
" sandy gravel + stones	12	34		
grey clay + " + "	34	70		
brown sandy gravel	70	75	70-75'	fresh
grey clay + boulders	75	171		untested

For what purpose(s) is the water to be used? Town

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm L. L. Faulkner

Address 687 Water St. Peterboro

Licence Number 1689

Name of Driller or Borer M. Dunlop

Address 229 King St. Peterboro

Date Mar 31/65

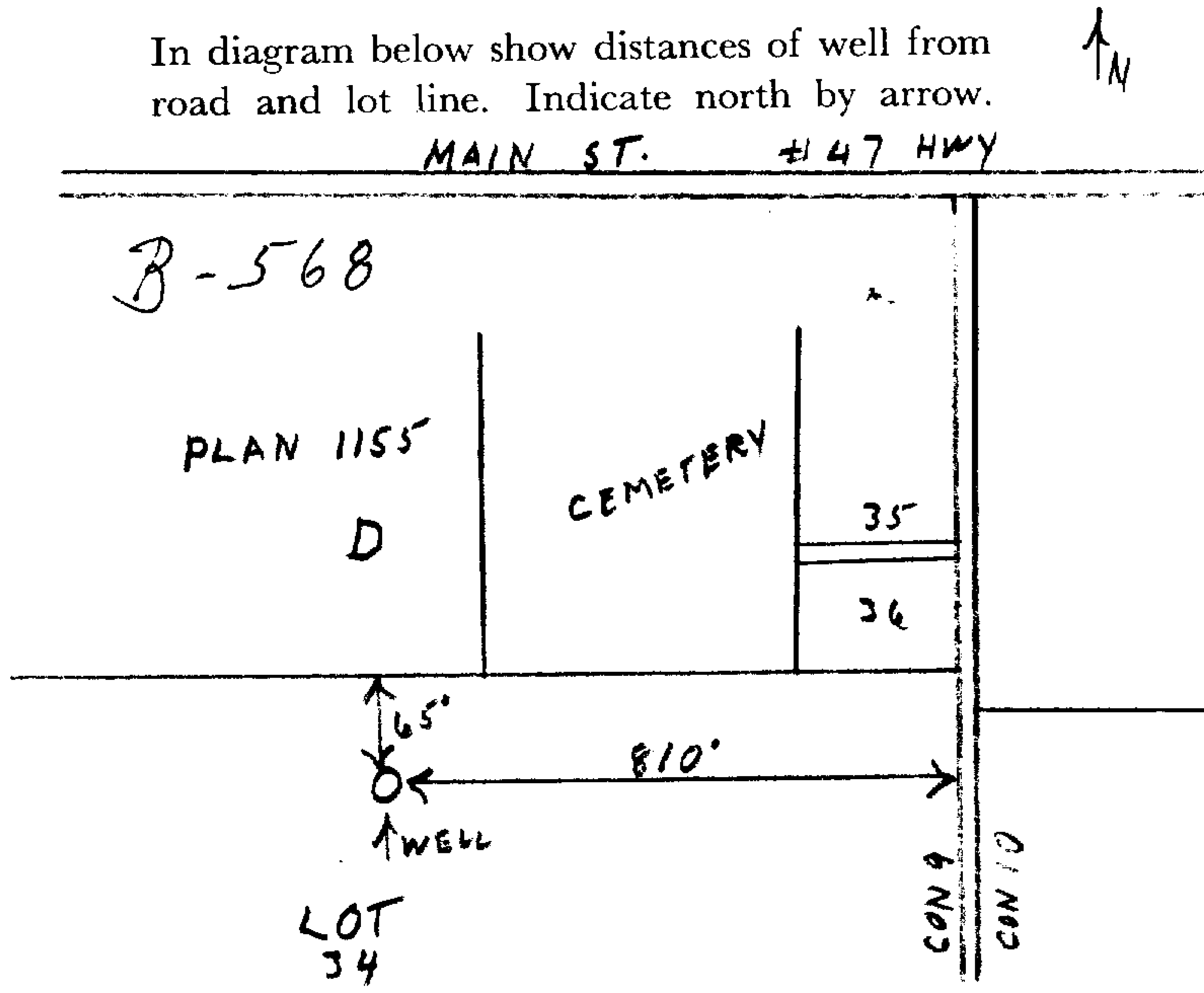
L. L. Faulkner Per Mt.
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



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TEST HOLE # 4

UTM | 17 | Z | 640913 | E LGB 30M14?

Geo 9 IX 8 ... 8 N

Elev. 0861 T

Basin 24

NOT PLOTTED

WATER RESOURCES DIVISION APR 8 1965 ONTARIO WATER RESOURCES COMMISSION

69 № 4108

The Ontario Water Resources Commission Act

WATER WELL RECORD

WHITCHURCH-STOUFFVILLE

County or District York ... Township, Village, Town or City ~~Markham~~ (Whitchurch) (Stouffville)

Con. 9 PT. 35 ... Lot G PLAN 1155 ... Date completed 16 (day) Jan (month) 1965 (year)

Owner STOUFFVILLE (print in block letters) ... Address Stouffville

Casing and Screen Record	
Inside diameter of casing	8"
Total length of casing	33'
Type of screen	none
Length of screen	—
Depth to top of screen	-
Diameter of finished hole	Pulled casing out & hole filled in.

Pumping Test	
Static level	nil
Test-pumping rate ... G.P.M.	—
Pumping level	—
Duration of test pumping	—
Water clear or cloudy at end of test	—
Recommended pumping rate ... G.P.M.	—
with pump setting of ... feet below ground surface	—

Well Log: Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Brown clay	0	8		
" sandy clay & stones	8	20		
grey fine sandy clay & "	20	33	nil	—

For what purpose(s) is the water to be used? Town

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm L. L. Faulkner

Address 687 Water St. Peterboro

Licence Number 1689

Name of Driller or Borer N. Dunlop

Address 229 King St. Peterboro

Date Jan. 31/65

L. L. Faulkner Per. Ont.

(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

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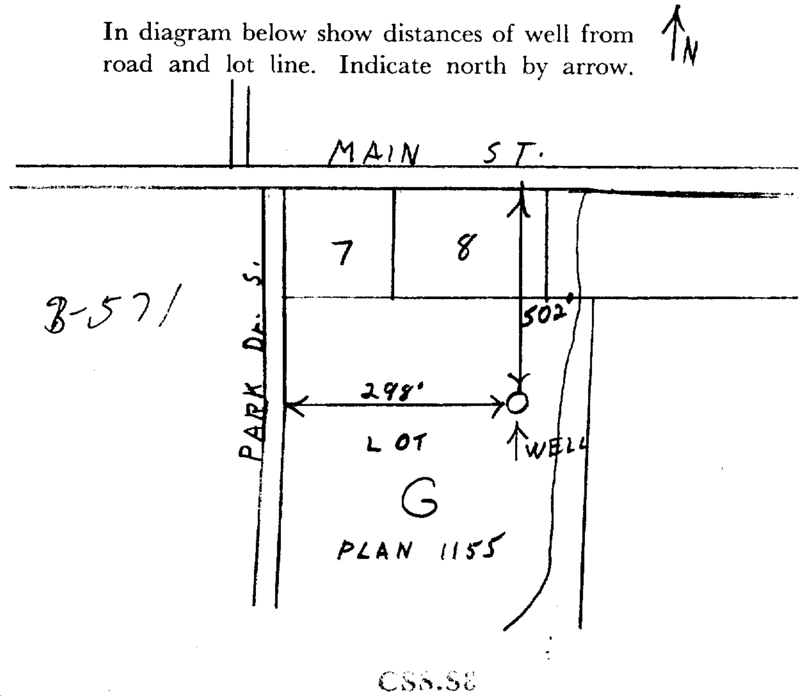


B-571

CSS.SS

TEST HOLE #5

UTM | 17 | Z | 640923 | E LGB- 304149

MAKKHAM

Cost. IX | 4867883 | N

Elev. 4 | 35 | 0865 |

Basin 24

The Ontario Water Resources Commission Act

WATER WELL RECORD

~~Not Plotted~~

WATER RESOURCES DIVISION 69 № 4109 APR 6 1965 ONTARIO WATER RESOURCES COMMISSION

WHITCHURCH-STOUFFVILLE

County or District York Township, Village, Town or City ~~Markham~~ (Whitchurch) Stouffville

Con. 9 PT. 35 Lot G PLAN 1155 Date completed 18 (day) Mar (month) 1965 (year)

Owner STOUFFVILLE (print in block letters) Address Stouffville

Casing and Screen Record

Inside diameter of casing 8"

Total length of casing 40'

Type of screen none

Length of screen —

Depth to top of screen —

Diameter of finished hole Pulled casing out & hole filled in

Pumping Test

Static level nil

Test-pumping rate — G.P.M.

Pumping level —

Duration of test pumping —

Water clear or cloudy at end of test —

Recommended pumping rate — G.P.M.

with pump setting of — feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Brown clay	0	8		
brown sandy clay + stones	8	20		
grey fine " " + "	20	177	nil	—

For what purpose(s) is the water to be used? Town

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm L. L. Faulkner

Address 687 Water St. Peterboro

Licence Number 1689

Name of Driller or Borer L. Dunlop

Address 229 King St. Peterboro

Date Mar. 31/65

L. L. Faulkner Per. CNF.

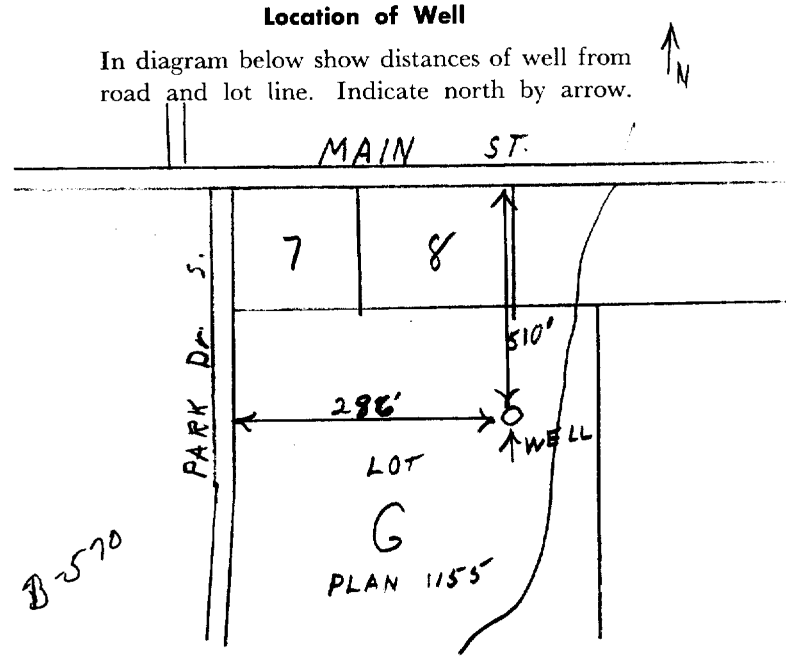
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



B 570

TM 17 640740 Con IX Lot 35

4R 489920

Rev. 5R 9870

Basin 24

CODED

6909605

30M14

J.B.

Water management in Ontario

The Ontario Water Resources Commission Act

WATER WELL RECORD

WHITCHURCH - STOUFFVILLE

County or District YORK

Township, Village, Town or City (STOUFFVILLE)

Con. 8 IX Lot 35

Date completed 6 (day) OCT. (month) 1969 (year)

[redacted]

Address 34 CIVIC

Casing and Screen Record

Inside diameter of casing 6 in

Total length of casing 300'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 6 in.

ABANDED

Pumping Test

Static level 40'

Test-pumping rate nil G.P.M.

Pumping level

Duration of test pumping Hole abandoned.

Water clear or cloudy at end of test

Recommended pumping rate G.P.M.

with pump setting of feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
till	0	2		
blue clay	2	8		
blue clay, sand & stone	8	20		
hardpan and clay	20	300'		

For what purpose(s) is the water to be used?

Is well on upland, in valley, or on hillside? UPLAND

Drilling or Boring Firm NORTHERN WELL DRILLING

Address ARMITAGE, ONT.

Licence Number 3466

Name of Driller or Borer J. RENWICK

Address R.R. 1 GORMLEY

Date Jan. 5/70

Jean W. Renwick

(Signature of Licensed Drilling or Boring Contractor)

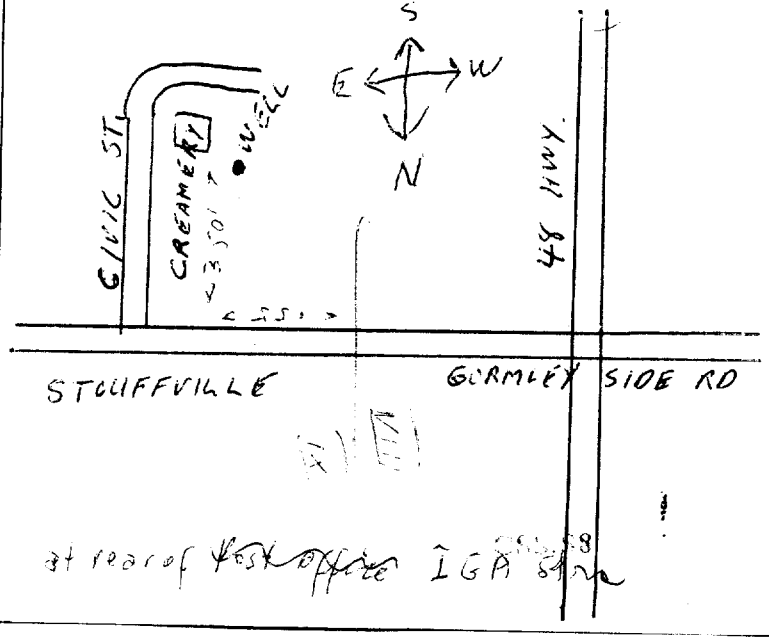
Form 7

OWRC COPY

2

Location of Well

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



Ministry of the Environment
Ontario

SSR

The Ontario Water Resources Act

WATER WELL RECORD

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

11

6920046

MUNICIP. 69015 CON. KON 09

COUNTY OR DISTRICT York	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE formerly Whitchurch (Markham Twp.)	[✓ CON] BLOCK, TRACT, SURVEY, ETC ~~[illegible]~~ 9	LOT 25-27 35	
OWNER (SURNAME FIRST) 28-47 Region of York	ADDRESS Box 296 Newmarket		DATE COMPLETED 48-53 DAY 14 MO Sept YR. 87	

21 UTM ZONE | EASTING | 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	clay	some gravel		0	18
	gravel	sand boulders		18	25
	sand	gravel & silt	✓	25	41
	gravel	clay		41	203
	clay	gravel.		203	290
	clay	gravel	hard	290	324
	shale.			324	342

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
15-18	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
20-23	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
25-28	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
30-33	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
2	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.154	0	192
1¼	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.145	0	195
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 20 slot	DIAMETER 2 1¼ INCHES	LENGTH 15 5 FEET
MATERIAL AND TYPE SS wire wrapped	DEPTH TO TOP OF SCREEN 2-192 1¼-195 FEET	

61 PLUGGING & SEALING RECORD

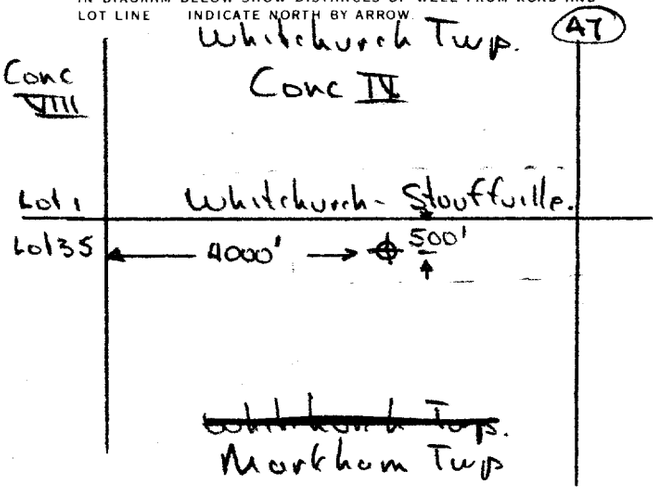
DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD air 1 ☐ PUMP 2 ☐ BAILER	PUMPING RATE 5 GPM		DURATION OF PUMPING 2 HOURS ___ MINS	
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING 1 ☑ PUMPING 2 ☐ RECOVERY		
85 FEET	88.5 FEET	15 MINUTES 88 FEET	30 MINUTES 88.4 FEET	45 MINUTES 88.4 FEET
				60 MINUTES 88.5 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 FEET	RECOMMENDED PUMPING RATE GPM		

LOCATION OF WELL 13/87

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



23797

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
- 9 ☐ DEWATERING

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 CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: International Water Supply
WELL CONTRACTOR'S LICENCE NUMBER: 2801
ADDRESS: P.O. Box 310 Barrie Ont.
NAME OF WELL TECHNICIAN: J. Augustine
WELL TECHNICIAN'S LICENCE NUMBER: T-0429
SIGNATURE OF TECHNICIAN/CONTRACTOR:
SUBMISSION DATE DAY 14 MO. 12 YR. 88

OFFICE USE ONLY

DATA SOURCE:
CONTRACTOR: 2801
DATE RECEIVED: DEC 21 1988
DATE OF INSPECTION:
INSPECTOR:
REMARKS:

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

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 (1 2) SHEET 1 of 2

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

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot (25-27)
York Region	Markham (TW 3-4)	9		(10th Line)		33

Owner's surname (28-47)	First Name	Address	Date completed (day / month / year (53))
Region of York		17250 Yonge St.,Newmarket L3Y 6Z1	04 / 09 / 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
Black	Topsoil			0	2
Brown	Sandy clay & gravel			2	13
Gray	Sandy clay & gravel	cobbles & boulders		13	50
Gray	Silty sand		water bearing	50	52
Gray	Sandy clay & gravel			52	60
Gray	Sandy clay & gravel	some silty sand lenses,& cobbles		60	120
Gray	Sandy clay	some gravel		120	170
Gray	Sandy clay & gravel	some cobbles		170	251
Gray	Clay	some sand	sticky	251	326
Gray	Sandy clay & gravel			326	328
Gray(dark)	Silty sand	some gravel & wood	water bearing (dirty)	328	331

31 (10 14 15 21) ** Cont'd. Page 2

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

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
10-11	1 ☒ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.280	+9"	13-16 20
17-18 6¼	1 ☒ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.280	+4	20-23 336½
24-25 6	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		336½	27-30 357

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38) inches	Length (39-40) feet

Material and type	Depth at top of screen (41-44) feet	(30)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
0 (13)	20	Cement (10"pipe)
18-21	22-25	Quik Gel
26-29	30-33 (60)	

71 PUMPING TEST

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

Pumping rate (11-14): GPM

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

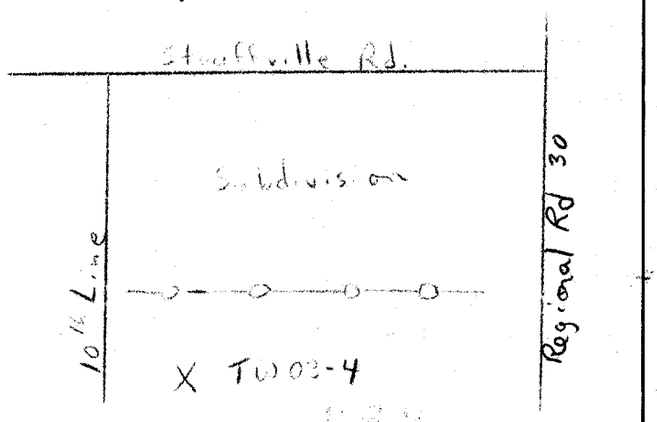
Static level (19-21) feet	Water level end of pumping (22-24) feet	Water levels during (25): 1 ☐ Pumping 2 ☐ Recovery			
		15 minutes (26-28) feet	30 minutes (29-31) feet	45 minutes (32-34) feet	60 minutes (35-37) feet

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) feet	Recommended pump rate (46-49) GPM

(50-53)

LOCATION OF WELL

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



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

* Abandonment Rec'd # Z 06193

252545

Name of Well Contractor	Well Contractor's Licence No.
G.Hart & Sons Well Drilling Ltd.	2662

Address	
Box 850, Fenelon Falls, ON	

Name of Well Technician	Well Technician's Licence No.
Bryan Watson	T-2441

Signature of Technician/Contractor	Submission date (day mo yr)
Clark Watson	

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68) (80)
	2662	APR 20 2005

Date of inspection	Inspector

Remarks

2 - MINISTRY OF THE ENVIRONMENT COPY

0506 (07/00) Front Form 9

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.

SHEET 2 of 2

County or District		Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
York Region		Markham (TW03-4)	9 (10th Line)	33
Owner's surname	**First Name**	**Address**	**Date completed**	
Region of York		17250 Yonge St., Newmarket L3Y 6Z1	04 day 09 month 03 year	

Zone | Easting | Northing

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
		* Page#2			
Gray(dark)	Silty sand & gravel	wood	water bearing (dirty)	331	333
Gray	Sandy clya & gravel	some wood		333	335
Gray	Sandy clay & gravel	some broken rock		335	351
Black	Shale			351	357

252545 2662

APR 20 2005

Canadian Tire 0611121
Dec 6/06

Ontario Ministry of the Environment

Well A053540 (number below)

~~A053540~~ A053540

Well Record

Regulation 903 Ontario Water Resources Act

[redacted]

page ___ of ___

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 Help Desk (Toll Free) at 1-888-396-9355.
- **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

First Name	Last Name	Mailing Address (Street Number/Name, RR, Lot, Concession)
CANADIAN	TIRE	2180 Yonge St.

County/District/Municipality	Township/City/Town/Village	Province	Postal Code	Telephone Number (include area code)
Toronto		Ontario	M4P 2V8	416-480-3000

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
Whitchurch Stouffville.			

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
5945 STOUFFVILLE (MAIN ST)	STOUFFVILLE	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation
	83	17	641780	4870530	Magellan.	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth Metres To
BROWN	SAND	SILT	DENSE DRY	0	4.5
GREY	SAND	SILT	DENSE MOIST	4.5	5.0
GREY	SAND		SATURATED	5.0	7.5

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)
0	7.5	36

Water Record

Water found at ___ Metres / Kind of Water

- 5 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

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth Metres To
Casing				
15.2	☐ Steel ☐ Fibreglass ☑ Plastic ☐ Concrete ☐ Galvanized	.8	0	4.5
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam 16	☐ Steel ☐ Fibreglass ☑ Plastic ☐ Concrete ☐ Galvanized	Slot No. .020	4.5	7.5
No Casing or Screen				
	☐ Open hole			

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				
Final water level end of pumping				
Recommended type. ☐ Sha				
Recommended depth.				
Recommended 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)
0	.3	CONCRETE	
.3	4.2	BENTONITE	

Method of Construction

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

Water Use

☐ Domestic ☐ Industrial ☐ Public Supply ☑ Other PUMP
☐ 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

Location of Well

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

SEE MAP

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
GEO-ENVIRONMENTAL DRILLING	6607

Business Address (street name, number, city etc.)
340 MARKET DR. MILTON ON

Name of Well Technician (last name, first name)	Well Technician's Licence No.
BAILEY, RYAN	T-3111

Signature of Technician/Contractor	Date Submitted YYYY MM DD
X	06 12 06

Audit No.	Date Well Completed YYYY MM DD
Z 59632	2006 12 06
Was the well owner's information package delivered? ☐ Yes ☐ No	Date Delivered YYYY MM DD

Ministry Use Only

Data Source	Contractor
	6607
Date Received YYYY MM DD: JAN 16 2007	Date of Inspection YYYY MM DD
Remarks	Well Record Number

0506E (08/2006)

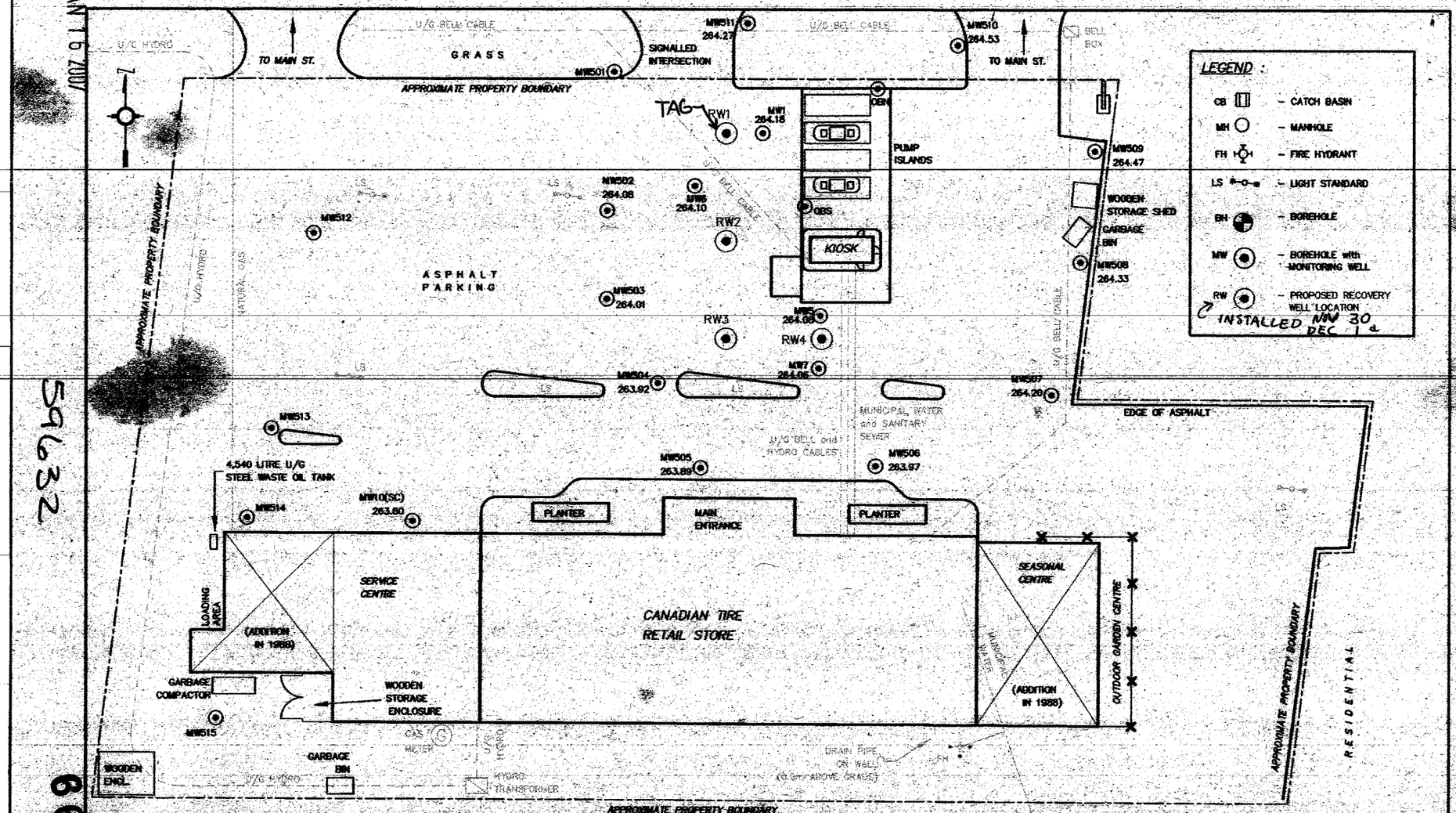
Ministry's Copy

Cette formule est disponible en français

JAN 16 2007

59632

6605



WINCHURCH ENVIRONMENTAL INC.

Environmental Engineers/Regulatory Compliance Consultants

P.O. Box 71612, Aurora, Ontario L4G 6S9
Phone: (905) 841-5074 Fax: (905) 841-5494

NOTES:

- ALL SERVICE AND PROPERTY BOUNDARY LOCATIONS ARE APPROXIMATE ONLY.
- GROUNDWATER ELEVATIONS APPEAR BELOW MONITORING WELL DESIGNATIONS

LATEST REVISION	PESD	JUL 24/08
PREVIOUS REVISION	PESD	MAY 23/08
CHECKED BY	PESD	FEB 14/08
DRAWN BY	JM	FEB 13/07
	NAME	DATE

TITLE: SITE PLAN
CTP Gas Bar No. 1713
5945 Main Street
Stouffville, Ontario

SCALE: 1:350
JOB No. W1187
FIGURE: 1

Ontario — Ministry of the Environment

Well Tag No. (Below) **A 093010**

A 0 9 3 0 1 0

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	BERNPAUL ENTERPRISES LTD.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
6601 MAIN STREET	YORK	ONTARIO	L4A6A9	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
6601 MAIN STREET	MARKHAM	35	9

County/District/Municipality	City/Town/Village	Province	Postal Code
YORK.	STOUFFVILLE	Ontario	L4A6A9

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	641433	4870322		

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
GRAY	CONCRETE			0.0	0.3
BROWN	SILT CLAY			0.3	1.7
"	SILT SAND		SAND IS FINE	1.7	5.3
	EOH			5.3	
		- INTERIOR INSTALLATION			
		- TEMPORARY INSTALLATION			
		- FLUSHMOUNT PROTECTIVE CASING.			

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.0	0.3	CONCRETE	
0.3	2.0	BENTONITE	
2.0	5.3	SAND	
	5.3	EOH	

Method of Construction

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

Well Use

[ ] Public [ ] Commercial [X] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [X] 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
3.2	PVC		0.0	2.1

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
4.3	PVC		2.1	5.1

Status of Well

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
2.9	[ ]	[X] Fresh [ ] Untested	
	[ ]	[ ] Fresh [ ] Untested	
	[ ]	[ ] Fresh [ ] Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0.0	5.1	5.0

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)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? [ ] Yes [ ] No

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

Map of Well Location

Please provide a map below following instructions on the back.

Comments: MAP ATTACHED.

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
SONIC SOIL SAMPLING INC.	7147

Business Address (Street Number/Name)	Municipality
685 MILLWAY AVENUE	YORK

Province	Postal Code	Business E-mail Address
ONTARIO	L4K 3V2	sonic@sonicsoil.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
9056600501	ARCHIBALD, ALAN

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2881	per Sonic	2010/02/18

Well owner's information package delivered: [ ] Yes [X] No

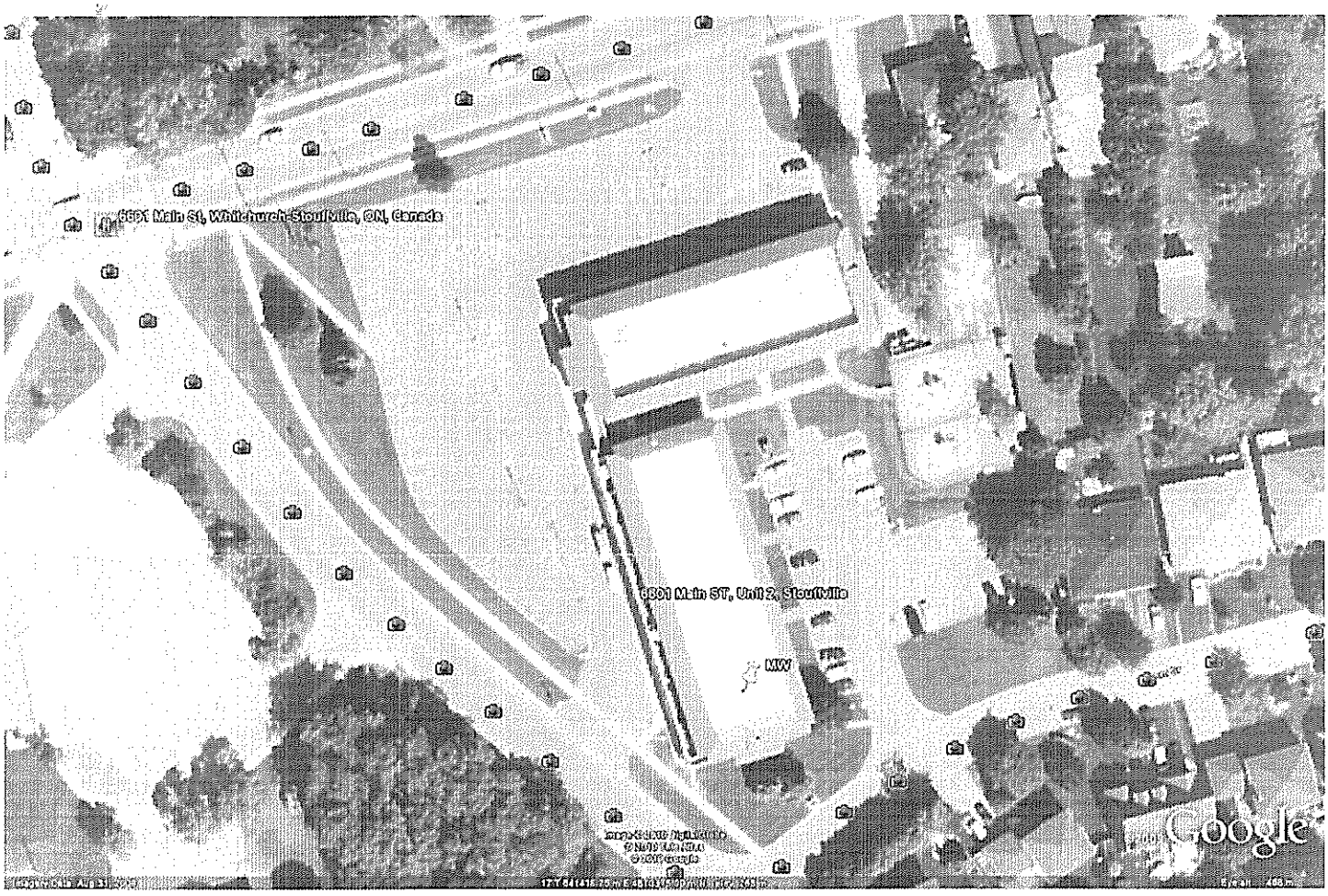
Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: 2010/02/11

Ministry Use Only

Audit No. Z112343

Received FEB 22 2010



C-7147
2112343

FEB 22 2010

Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☑ Metric ☑ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A182289

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Town of Stouffville		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
111 Sandiford Drive		ON		9056401910

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Main & Stouffes st			

County/District/Municipality	City/Town/Village	Province	Postal Code
	Stouffville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	641350	4870424		

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
	Asphalt			0	6"
	Fill			6"	12"
	Silty Sand till			1'	15'

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	1'	Flushmount / Cement	
1'	4'	3/8" Bentonite chips	50 lbs
4'	15'	#2 Well Sand	100 lbs

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
2"	PVC	3/16"	0	5'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2 3/8"	PVC	10	5'	15'

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	15'	4.5"

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)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

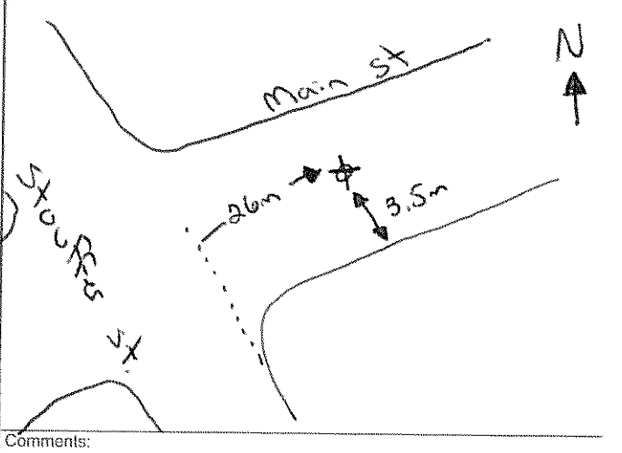
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Pontil Drilling LTD	7383

Business Address (Street Number/Name)	Municipality
11 Water Street	MT. ALBERT

Province	Postal Code	Business E-mail Address
ON.	L0G1M0	info@pontildrilling.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
2899338 1938	Mike Henson

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3762		2015 06 02

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☑ No		2015 06 02

Ministry Use Only

Audit No Z222037

Received

0506E (2014/11)

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Ontario

Ministry of the Environment and Climate Change

BH12

Well Tag No. *(Place Sticker and/or Print Below)* A212236

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Measurements recorded in: ☐ Metric ☐ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Town of Whitchurch Stouffville		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
111 Sandiford Drive	Stouffville	ON	L4A 0Z8	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Montreal Street			

County/District/Municipality	City/Town/Village	Province	Postal Code
	Stouffville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	614159	4857107		

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
	Silty Sand			0	15'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	1	Flushmount / Concrete	.6
1	9	Bentonite 100LBS	1.4
9	15'	Well Sand 100LBS	1.2

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
2"	PVC	3/16	0	10

Construction Record - Screen

Outside Diameter *(cm/in)*	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2 3/16	PVC	10	10	15'

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter *(cm/in)*
0	15	6"

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

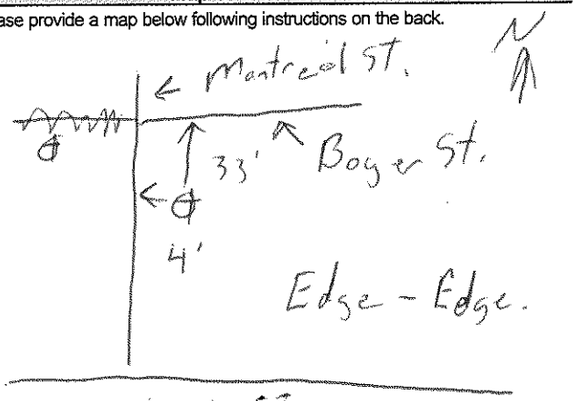
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Pentil Drilling LTD	7130

Business Address (Street Number/Name)	Municipality
11 Water Street	MT. ALBERT

Province	Postal Code	Business E-mail Address
ON	L0A 1M0	info@pentildrilling.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
2156133581563	Hepburn, Mike

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
31612		APR 06 2017

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☑ No		2017/03/20

Ministry Use Only

Audit No. Z232042

APR 05 2017 Received

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Ministry of the Environment and Climate Change

B1+1

Well Tag No. *(Place Sticker and/or Print Below)* AZ12292

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Measurements recorded in: ☐ Metric ☑ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Town of Whitchurch Stouffville		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
111 Sandiford Drive	Stouffville	ON		

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Stouffer			

County/District/Municipality	City/Town/Village	Province	Postal Code
	Stouffville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	6141328	4851016		

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
	Silty Sand			0	15'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	1	Flush mount/concrete	.6
1	9	Bentonite 100LBS	1.4
9	14	well Sand 100LBS	1.2

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
2"	PVC	3/16	0	9

Construction Record - Screen

Outside Diameter *(cm/in)*	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
23/4	PVC	10	9	14

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter *(cm/in)*
0	14	6"

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

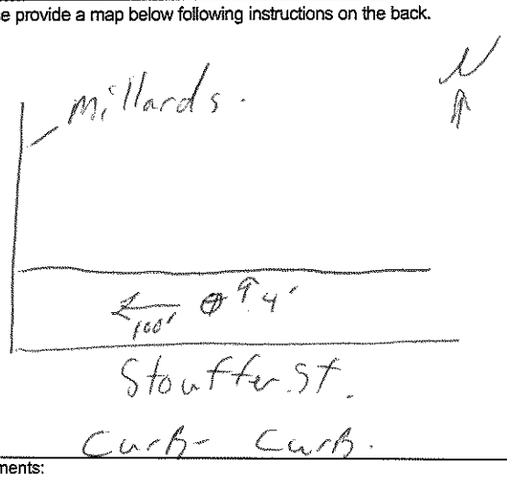
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Pantil Drilling LTD	7150

Business Address (Street Number/Name)	Municipality
11 Water Street	MT. ALBERT

Province	Postal Code	Business E-mail Address
ON	L0G1M0	info@pantildrilling.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
7058133501	Hendren Mike

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3716		Y 17 M 06 D 05

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☑ No	Y ~~17~~ M ~~06~~ D ~~05~~	Y 17 M 06 D 05

Ministry Use Only

Audit No. Z232045

APR 05 2017 Received

BH-3

Ontario — Ministry of the Environment and Climate Change

Well Tag No. *(Place Sticker and/or Print Below)* A212293

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☑ Imperial

Page 1 of

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Town of Whitchurch Stouffville		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
111 Sandiford Drive				

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
~~Stouffer~~ 5T Stouffer			

County/District/Municipality	City/Town/Village	Province	Postal Code
	Stouffville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	644147	4857011		

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
	Silty Sand			0	15'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	1	Flushmount/concrete	.6
1	9	Bentonite 50LBS	.7
9	15	Well Sand 100LBS	1.2

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
2"	PVC	3/16"	0	10

Construction Record - Screen

Outside Diameter *(cm/in)*	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2 3/8"			10	15

Status of Well

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

Water Details

Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*
12		

Hole Diameter

Depth (m/ft) From	To	Diameter *(cm/in)*
0	15	6"

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

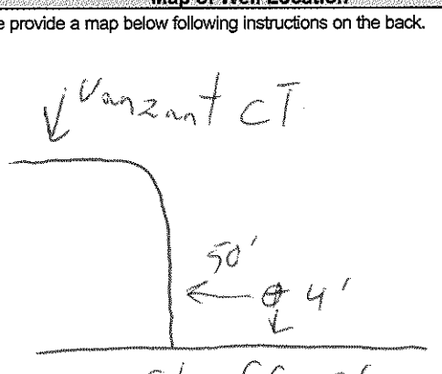
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☑ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Pontil Drilling LTD	7138 13

Business Address (Street Number/Name)	Municipality
11 Water Street	MT. ALBERT

Province	Postal Code	Business E-mail Address
ON	L0G 1M0	info@pontildrilling.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
2893368	Hepburn, Mike

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
31602		2017/MM/DD

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
☐ Yes ☑ No	YYYY/MM/DD	Audit No. Z232046
	Date Work Completed	APR 05 2017 Received
	2016/11/30	

0506E (2014/11) Ministry's Copy

Ontario

Ministry of the Environment and Climate Change

BH16

Well Tag No. *(Place Sticker and/or Print Below)* AZ122414

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☒ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Town of Whitchurch Stouffville		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
111 Sandiford Drive	Stouffville	ON		

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Vanzant. Ct.			

County/District/Municipality	City/Town/Village	Province	Postal Code
	Stouffville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	17	6H1136	4851707		

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
	Silty Sand			0	15

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	1	Flush mount/concrete	.6
1	9	Bentonite 100LBS	1.4
9	15	well Sand 100LBS	1.2

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
2"	PVC	3/16	0	10

Construction Record - Screen

Outside Diameter *(cm/in)*	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2 3/4	PVC	10	10	15

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter *(cm/in)*
0	15	6"

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

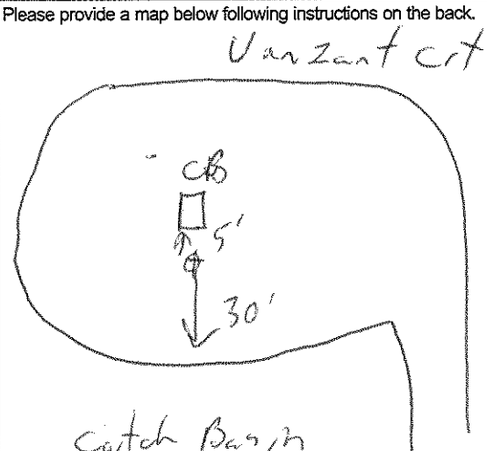
Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Curb

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Pontil Drilling LTD	7130

Business Address (Street Number/Name)	Municipality
11 Water Street	MT. ALBERT

Province	Postal Code	Business E-mail Address
ON	L0H1M0	info@pontildrilling.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
2899 3398 / 905 38	Hepburn Mike

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
31716		2017/04/06

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No	~~Y Y Y Y~~ M M D D	2017/04/03

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BH12

Well Tag No. *(Place Sticker and/or Print Below)* A212290

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Measurements recorded in: ☐ Metric ☑ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Town of Whitchurch Stouffville		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
111 Sandiford Drive,	Stouffville	ON	L4A 0Z8	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Main St.			

County/District/Municipality	City/Town/Village	Province	Postal Code
	Stouffville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	640581	9487 0RH5		

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	To
	Silty Sand			0	15'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	1	Flushmount/concrete	.6
		Bentonite 100	1.4
		Well Sand 150LBS	1.5

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)

Pumping rate (l/min / GPM)

Duration of pumping ___ hrs + ___ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

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

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
2"	PVC	3/16	0	10

Status of Well

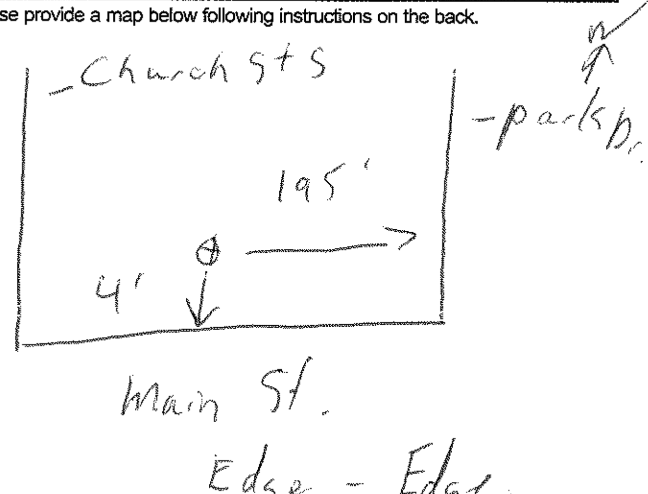
☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
2 3/8	PVC	10	10	15

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	15'	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Pontil Drilling LTD	7365B

Business Address (Street Number/Name)	Municipality
11 Water Street	MT. ALBERT

Province	Postal Code	Business E-mail Address
ON	L0G 1M0	info@pontildrilling.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
4059 35116 3 5	HepBurn, Mike

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3 1 6 2	[signature]	2017

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

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

Date Work Completed: 2016 11 24

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APPENDIX B

BOREHOLE LOGS

JOB NO.: 2203-S017

LOG OF BOREHOLE NO.: 1

FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Flight Auger (Solid Stem)

PROJECT LOCATION: 6460 Main Street, Town of Whitchurch-Stoufville

DRILLING DATE: March 16, 2022

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
267.6	Ground Surface							
0.0	**20 cm TOPSOIL**	1	DO	13	0		36	
	Stiff to hard **SILTY CLAY TILL** a trace of gravel occ. sand seams and layers, cobbles and boulders	2	DO	17	1		15	
		3	DO	21	2		14	
		4	DO	33			12	
	brown grey	5	DO	33	3		12	
		6	DO	19	4 5		9	
		7	DO	31	6		7	
261.0					7			
6.6	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 6.1 m completed with 3.1 m screen Sand backfill from 2.4 to 6.1 m Bentonite seal from 0.0 m to 2.4 m Provided with a monument steel casing				8			W.L. @ El. 264.0 m upon completion Cave-in @ El. 263.0 m upon completion

Soil Engineers Ltd.

JOB NO.: 2203-S017

LOG OF BOREHOLE NO.: 2

FIGURE NO.: 2

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Flight Auger (Solid Stem)

PROJECT LOCATION: 6460 Main Street, Town of Whitchurch-Stoufville

DRILLING DATE: March 16, 2022

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
266.7	Ground Surface							
0.0	**20 cm TOPSOIL**	1	DO	0	0		56	
	Very soft to hard — weathered **SILTY CLAY TILL** a trace of gravel occ. sand seams and layers, cobbles and boulders	2	DO	11	1		15	
		3	DO	21	2		12	
		4	DO	20			18	
	— brown grey silt layer	5	DO	22	3		20	
	— sand layer	6	DO	33	4 5		12	
		7	DO	35	6		8	
260.1					7			
6.6	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 6.1 m completed with 3.1 m screen Sand backfill from 2.4 to 6.1 m Bentonite seal from 0.0 m to 2.4 m Provided with a monument steel casing				8			

W.L. @ El. 263.7 m upon completion

Cave-in @ El. 261.2 m upon completion

Soil Engineers Ltd.

JOB NO.: 2203-S017

LOG OF BOREHOLE NO.: 3

FIGURE NO.: 3

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Flight Auger (Solid Stem)

PROJECT LOCATION: 6460 Main Street, Town of Whitchurch-Stoufville

DRILLING DATE: March 16, 2022

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
266.4	Ground Surface							
0.0	**31 cm TOPSOIL**	1	DO	8	0		34	
	Brown, loose **SANDY SILT TILL** some clay	2	DO	6	1		24	
265.2								
1.2	Brown, very firm to hard **SILTY CLAY TILL** sandy, a trace of gravel occ. cobbles and boulders	3	DO	19	2		12	
	silt layer	4	DO	19			16	
		5	DO	38	3		16	
261.8					4			
4.6	Grey, loose to compact **SANDY SILT TILL** some clay	6	DO	6	5		20	
	sand layer	7	DO	25	6		13	
259.8					7			
6.6	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 6.1 m completed with 3.1 m screen Sand backfill from 2.4 to 6.1 m Bentonite seal from 0.0 m to 2.4 m Provided with a monument steel casing				8			

W.L. @ El. 264.0 m upon completion

Cave-in @ El. 262.7 m upon completion

Soil Engineers Ltd.

TABLE B-1 GROUNDWATER MONITOR DETAILS

Project: 6460 Main St. Stouffvile Water Balance (22002.00)

Monitor	BH22-1	BH22-2	BH22-3
Well Depth (mbgl)	6.10	6.10	6.10
Ground Elev (masl)	267.640	266.900	266.310
Steel Hinge Elev (masl)	268.660	267.920	267.290
Top of PVC casing (masl)	268.640	267.910	267.295
Screen Length (m)	3.100	3.100	3.100
Monitor Base Elev (masl)	261.540	260.800	260.210
PVC Casing Stickup	1.00	1.01	0.99

TABLE B-2 GROUNDWATER LEVELS

Project: 6460 Main St. Stouffvile Water Balance (22002.00)

Date	BH22-1			BH22-2			BH22-3		
	WL Depth (mbtoc)	WL Depth (mbgl)	WL Depth (masl)	Water level (mbtoc)	Water level (mbgl)	WL Depth (masl)	Water level Elev (masl)	Water level (mbgl)	WL Depth (masl)
17-Mar-22	0.90	-0.10	267.74	1.02	0.00	266.90	2.66	1.67	264.64
22-Mar-22	0.91	-0.09	267.73	1.05	0.04	266.86	2.51	1.52	264.79
3-Apr-22	1.00	0.00	267.64	1.14	0.13	266.77	2.62	1.63	264.68
5-May-22	0.96	-0.04	267.68	1.14	0.13	266.77	2.61	1.62	264.69
15-Jun-22	1.40	0.40	267.24	1.74	0.74	266.90	2.70	1.70	265.94

APPENDIX C

CLIMATIC DATA

TABLE C-1
CLIMATIC WATER BUDGET: CLIMATE NORMAL 1981-2010 (Buttonville Airport "A" ID 615HMAK)
Potential Evapotranspiration
Project: 6460 Main Street, Stouffville Water Balance (22002.00)

	Thornthwaite (1948)							
Month	Mean Temperature (^{o}C)	Heat Index	Potential Evapo-transpiration (mm)	Daylight Correction Value	Adjusted Potential Evapo-transpiration (mm)	Total Precipitation (mm)	Surplus (mm)	Deficit (mm)
January	-5.8	0.0	0.0	0.81	0.0	62.1	62.1	0.0
February	-5.6	0.0	0.0	0.81	0.0	50.5	50.5	0.0
March	-0.4	0.0	0.0	1.02	0.0	53.2	53.2	0.0
April	6.7	1.6	29.6	1.12	33.1	74.1	41.0	0.0
May	13	4.2	61.5	1.27	78.1	79.6	1.5	0.0
June	18.6	7.3	91.3	1.29	117.8	82.8	0.0	35.0
July	21.2	8.9	105.5	1.30	137.2	79.0	0.0	58.2
August	20.2	8.3	100.0	1.20	120.0	76.2	0.0	43.8
September	15.7	5.7	75.7	1.04	78.8	81.8	3.0	0.0
October	8.9	2.4	40.5	0.95	38.4	68.0	29.6	0.0
November	3.1	0.5	12.6	0.80	10.1	80.0	69.9	0.0
December	-2.9	0.0	0.0	0.74	0.0	34.2	34.2	0.0
TOTALS		38.8			613.6	821.5	345.0	137.0

TOTAL WATER SURPLUS 207.9 mm

NOTES:
1) Water budget adjusted for latitude and daylight.
2) (°C) - Represents calculated mean of daily temperatures for the month.
3) Precipitation and Temperature data from Buttonville Airport Latitude 43°51'44.00" N, Longitude 79°22'12.00" W, elevation 198 masl
4) Total Water Surplus (Thornthwaite, 1948) is calculated as total precipitation minus adjusted potential evapotranspiration.

TABLE C-2: INFILTRATION FACTORS

Project: 6460 Main Street, Stouffville Water Balance (22002.00)

MOECC 1995 Hydrogeological Technical Information Requirements (page 4-62)

Desription of Area/Development Site		Pre-development		Post-development		
TOPOGRAPHY	**Factor**	Description	Factor	Description		Factor
Flat lying, average slope < 0.6m/km	0.3	Slopes = 22m/km to 33m/km	0.1	Between Flat and Rolling		0.1
Rolling land average slope of 2.8-3.8m	0.2					
Hilly land, average slopes of 28-47 metres	0.1					
SOILS						
Tight impervious Clay	0.1	Clay and loam	0.15	Clay and loam		0.15
Medium combinations of clay and loam	0.2			Impermeable Surfaces		0
open sandy loam	0.4					
COVER						
Cultivated land	0.1	Agricultural land	0.1	Open space		0.1
Woodland	0.2					
Total Infiltration factor for pervious areas with medium combinations of clay and loam pre-development and post-development.			**0.35**	Clay and Loam		**0.35**
Total Infiltration factor for impermeable surfaces			**Not applicable**	Crushed Limestone/equiv.		**0.2**

TABLE C-3: PRE-DEVELOPMENT AND POST-DEVELOPMENT WATER BUDGETS

Project: 6460 Main Street, Stouffville Water Balance (22002.00)

PRE-DEVELOPMENT WATER BUDGET	
Water Surplus (mm/yr)	207.8
Infiltration Areas (m2)	2,468
Pre-Development Infiltration Factor	0.35
Total Recharge m3/yr	179
Total Recharge mm/yr	73
Runoff m3/year	333

POST-DEVELOPMENT RECHARGE RATES	Landscape areas	Roof top Areas	Hard cover Areas		Impervious Areas*	Totals
90% Total Precipication (mm/yr)					739	
Water Surplus (mm/yr)	207.8	207.8	207.8			
Infiltration Areas (m2)	911.0		1557		-	2468
Infiltration Factor	0.35	0.2	0.2		0	
Recharge from precipitation m3/yr	66	-	-		-	66
Runoff m3/year	123	-	2,588,357		-	2,588,480
Recharge Deficit (A-B) m3/year						113

Assumptions:

*Impervious areas include: Apartment buildings and parking areas