



**D-5-4 Assessment
of the Armstrong Development
in the Community of Mansfield**

Prepared for:
1000062217 Ontario Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

March 2023

AEC 21-158



Environmental Assessments & Approvals

March 6, 2023

AEC 21-158

1000062217 Ontario Inc.
12 Trotter Court
Barrie, ON
L4N 5S4

Attention: Mr. David Seaman
Project Manager

**Re: D-5-4 Guideline Assessment
Proposed Housing Development (Armstrong Estates)
937045 Airport Road, Mansfield, ON
Lot 11, Concession 7, Township of Mulmur, County of Dufferin**

Dear Mr. Seaman:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to submit a Ministry of the Environment, Conservation and Parks (MECP's) D-5-4 Guideline assessment for the above-noted property. This work supports a proposed Draft Plan of Subdivision located on Lot 11, Concession 7 (Mansfield), in the Township of Mulmur, County of Dufferin. This report has been compiled to address comments provided by R.J. Burnside & Associates Limited (Burnside). Burnside has been retained by the Township of Mulmur (the "Township") to provide technical review comments for environmental issues related to planning submissions on behalf of the Township. Burnside has advocated that a formal D-5-4 Guideline study be completed for the proposed development site.

Based on the results of this study, it is concluded that the environmental conditions at the Site will allow for 67 residential dwellings to be developed in compliance with the MECP's D-5-4 Guideline document without adversely impacting viable ground water resources within this Community.



If you have any questions or require additional information, feel free to contact the undersigned.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Jackie Coughlin, B.A.Sc., P.Eng.
Senior Environmental Engineer



David Ketcheson, M.A.Sc., P.Eng.
Senior Environmental Engineer

Attach:

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1.0 INTRODUCTION

Azimuth Environmental Consulting (Azimuth) was retained by 1000062217 Ontario Inc. (the "Client") to provide a sewage impact evaluation to support the creation of 67 new residential dwellings. The property on which the development is proposed is located at 937045 Airport Road in the Settlement of Mansfield, ON (the "Site") (Figures A and B¹). The Site exists on Part of Lot 11, Concession 7, Township of Mulmur, County of Dufferin.

Several documents have been provided in the past; but the Township's consultant has advocated that a formal MECP D-5-4 Guideline² assessment is required in order to substantiate the proposed development. The Ministry of the Environment, Conservation and Parks (MECP) states that the D-5-4 Guideline evaluates the potential impact on ground water caused by a proposed development on individual on-Site sewage systems (*i.e.*, sub-surface sewage systems).

The remainder of this report presents the background information and provides the results of our evaluation and associated conclusions and recommendations.

1.1 Background

The Site consists of a 24.5 ha parcel of land and is located in the northeast quadrant of the County Road 17 and Airport Road intersection in Mansfield. The Site is currently being utilized for agricultural purposes and is surrounding by residential, commercial and agricultural land uses.

1.2 Regulatory Process

The D-5-4 Guidance document lays out a three-step process. For clarity, it will be briefly overviewed below.

The first step is considered to be a minimum lot size assessment. The MECP suggests that if the development has lots which on average are greater than 1 hectare (ha) in size³; then there should be sufficient attenuative processes such that a formal hydrogeologic assessment is not required. The Armstrong Development has lot sizes smaller than 1 ha in size on average.

¹ Some figures and drawings are contained within Appendix A

² <https://www.ontario.ca/page/d-5-4-individual-site-sewage-systems-water-quality-impact-risk-assessment>

³ Subject to several other requirements.



The second step addresses whether the development is "isolated". Specifically, the MECP states that where it can be demonstrated that the sewage effluent is hydrogeologically isolated from the existing or potential supply aquifer(s); then risk from the septic impacts for the development would be deemed low.

The D-5-4 Guidance document goes on to state that the consultant must "... *evaluate the most probable groundwater receiver for sewage effluent ...*". The local and regional geologic setting will be presented below. The geologic setting establishes the framework for the hydrogeologic setting which will also be presented below. Finally, a discussion on the hydrogeologic isolation evident at the Site will be presented.

The D-5-4 Guidance document also indicates that the consultant must "... *define the most probable lower hydraulic or physical boundary of the groundwater receiving the sewage effluent ...*". The origins of a continuous clay till aquitard beneath the Site and regionally beyond will be described here which separates the infiltrating treated effluent from the deeper aquifer resources below this clay till feature. The D-5-4 Guidance provides some supplemental discussion about this situation which will be discussed in this study.

According to the D-5-4 Guidance document "... *[w]here it cannot be demonstrated that the sewage effluent is hydrogeologically isolated from all existing or potential supply aquifers, a hydrogeologic study is required to assess the risk that the development's individual on-site systems will cause concentrations of nitrate-nitrogen in groundwater to exceed 10 mg/L, at the downgradient property boundary ...*", (i.e., the third step).

2.0 GEOLOGIC SETTING

The hydrogeologic setting for the proposed development is founded on the regional geology. By establishing the geologic setting, it will be possible to assess the hydrostratigraphic units present. The regional geology of the Nottawasaga watershed has been recently studied by the Ontario Geological Survey (OGS) and summarized in published literature including Mulligan *et al.* (2018). Mulligan *et al.* (2018) in their article indicate that "... detailed sedimentological analysis of these glaciolacustrine deposits will enhance understanding of the three-dimensional (3D) distribution and character of sediments within the shallow subsurface, ... information that is essential for future hydrogeological investigations in the region ...".

2.1 Regional Geology

2.1.1 Regional Geologic Overview

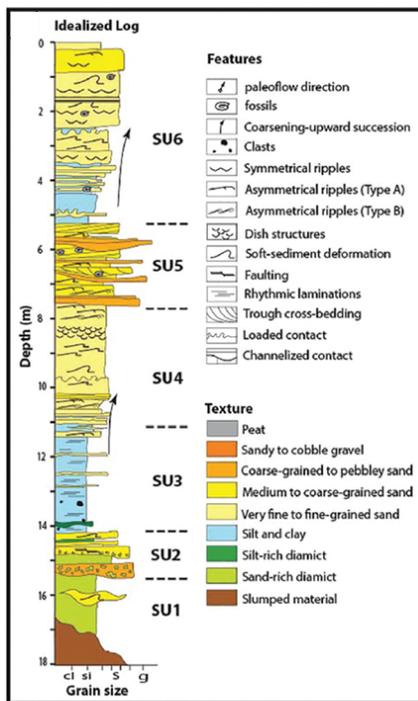
Much of the regional geology discussion will make reference to this recent OGS research initiative within the Nottawasaga River basin. However, the geologic profile beneath the



Site and beyond, (as it pertains to the D-5-4 Guidance); consists of an upper sediment package overlying a regionally continuous aquitard layer called the Newmarket Till. Below this aquitard and to the east of the Site are deeper sediments which provide a potable water supply for residential purposes. This deeper sediment package overlies a shale bedrock which is also extensively used for potable water supplies. The majority of the upper sediment package at the Site is unsaturated. A glaciolacustrine silt layer which lies immediately over the Newmarket Till is saturated; but does not provide an adequate resource for potable supply.

2.1.2 Detailed Regional Geology

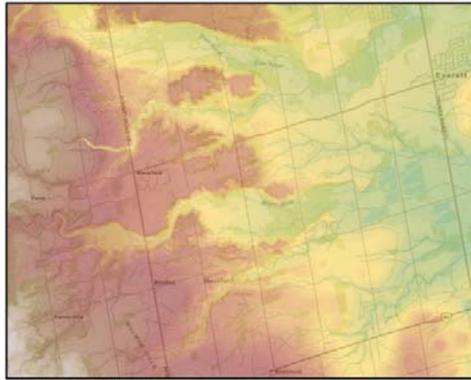
According to Mulligan *et al.* (2018), "... eight stratigraphic units ... represent a record of changing environmental conditions during deglaciation and exhibit strong controls on shallow groundwater flow in the region ...". The stratigraphic succession presented by Mulligan *et al.* (2018) begins with the Newmarket Till as a base unit which is identified as stratigraphic unit 1 (SU1). The Newmarket Till was "... locally overlain by ice-proximal debris flow deposits (SU2). These glacial sediments are overlain by glaciolacustrine silt rhythmites (SU3) that pass upwards into deltaic sand (SU4) and channelized fluviodeltaic sand and gravel (SU5). Lying above the fluvial deposits is widespread interbedded glaciolacustrine sands and silt (SU6), which coarsen up-section toward the ground surface. The succession is locally capped by glaciofluvio-deltaic (SU7) and younger fluvial (SU8) deposits ...", (Mulligan *et al.*, 2018). The idealized stratigraphic log presented in Mulligan *et al.* (2018) is depicted to the left (Figure 1).



from Mulligan (2018)
Figure 1 - Idealized Borehole Log

Not all of these stratigraphic units are present in the Mansfield area. At the Site, SU1, SU3 and SU4 are present. Mansfield exists on the flank of the Niagara Escarpment and the extreme western extent of the Mulligan *et al.* (2018) study area. However, the Mulligan *et al.* (2018) paper illustrates the interpreted glacial progression over a larger scale than their identified study area which incorporates the Mansfield area.

The Niagara Escarpment was created by differential erosion of thick successions of soft shales underlying more resist dolostones. The Niagara Escarpment is punctured by a series of northeast trending re-entrant valleys that were incised by fluvial and glacial

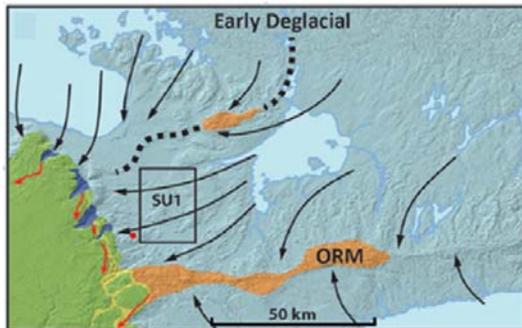


from ORMGP (2023)

Figure 2 - Digital Elevation Map of the Mansfield Area

erosion (Straw 1968). The Mansfield area is situated between two of these more significant features that contribute to Boyne and Pine River valleys. These incised stream corridors are evident on the adjacent DEM mapping (Figure 2). However, the stream corridor south and within the Site boundary represents one of these more minor erosional features which also can be seen in the adjacent DEM mapping.

The Paleozoic bedrock surface is overlain by Quaternary sediments. These deposits across Southern Ontario are attributed primarily to the Wisconsin Episode. The early- to mid-Wisconsin Episode deposited the deeper sediment layers. During the late Wisconsin Episode, the Laurentide Ice Sheet advanced into the Mansfield area (see red dot on Figure 3) from the north and northeast and deposited the Newmarket Till. In fact, the Newmarket Till was deposited over most of Southern Ontario and measures over 60 m in thickness at some locations (Gerber, 1999).

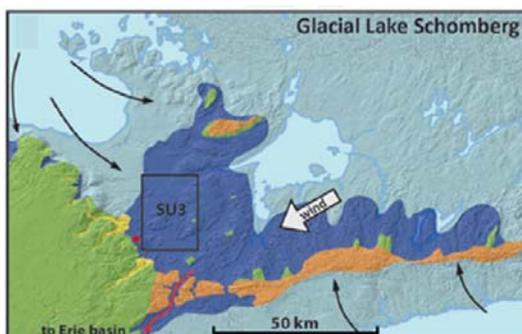


from Mulligan et al (2018)

Figure 3 - Laurentide Ice Sheet (~16 kyrs)

During the early stages of ice recession, the margin of the Laurentide Ice Sheet thinned and became lobate (see Figure 3). Interlobate deposition allowed for thick accumulations of glaciofluvial and glaciolacustrine sediments forming the Oak Ridges Moraine (ORM) to the south of the Site between the Simcoe ice lobe and the Ontario ice lobe. However, a succession of shoreline features and associated glaciolacustrine and lacustrine

deposits occurred in a series of lakes in the Nottawasaga watershed during the later phases of deglaciation.



from Mulligan et al (2018)

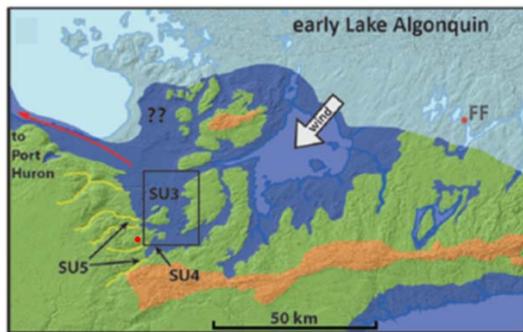
Figure 4 - Laurentide Ice Sheet (~15.6 kyrs)

The first of these lakes to develop north of the ORM was Glacial Lake Schomberg as meltwaters were dammed between the Niagara Escarpment to the west, the Simcoe ice lobe to the north and the ORM to the south (see Figure 4). Mulligan *et al.* (2018) assert "... [t]he overall fine-grained texture of SU3 suggests a low-energy, subaqueous (glaciolacustrine) depositional environment,



consistent with an ice-marginal lake ...". Unit thicknesses logged along the Nottawasaga River were locally exceeding 12 m thick. The rhythmites were felt to record annual deposition cycles, although other factors were also identified. Silt and clay couplets ranged from a few millimeters up to 4 cm thick. Near the top of the SU3, coarser-grained sediments are more abundant. Mulligan *et al.* (2018) explains that the "... gradational up-section textural changes combined with the consistency of northward paleocurrent directional indicators in sands within SU3 suggest continuous sedimentation patterns, consistent with gradual ice retreat from the Nottawasaga watershed.

There is a gradual transition from the silt and clay rhythmites with sand interbeds of SU3 into a thick unit of rippled, cross stratified, very fine- to fine-grained sand with silt interbeds comprising SU4.



from Mulligan et al (2018)

Figure 5 - Laurentide Ice Sheet (~15 kyrs)

The "... [s]ubsequent retreat of the Simcoe ice lobe from the Niagara Escarpment in the north allowed waters of Lake Schomberg to partially drain and coalesce with those occupying the Lake Huron basin forming Lake Algonquin (see Figure 5). The expectation is that the Mansfield area was above the estimated ~260 masl shoreline elevation for the early Lake Algonquin water level. Over time this water elevation decreased to ~200 masl during the Kirkfield low; but then rebounded slowly to ~240 masl during the main Lake Algonquin period. In all cases, the reported surface water elevation of Lake Algonquin never approached the Mansfield topographic elevation.

2.2 Local Geologic Setting

The regional geologic interpretation provides for a sound understanding of the depositional processes that have resulted in the local geologic setting. The information presented below is intended to focus on the local interpretation and reconcile the Site specific drilling information with that presented in the regional interpretation.

2.2.1 Local Geologic Database Source

The evaluation of the local geologic setting will rely on a sub-provincial database called the Oak Ridges Moraine Groundwater Program (ORMGP, 2023). The development of this database began with a coalition of 14 government agencies in southern Ontario. More recently local consulting companies are working collaboratively to better understand and manage water resources. With the Oak Ridges Moraine (ORM) as a



central landscape feature, the program's database and interpretations stretch from the Halton and Nottawasaga Watersheds in the west to the Trent River in the east and reach from the shores of Lake Ontario northwards to beyond Lake Simcoe and the Kawartha Lakes.

The ORMGP has built upon an original geological interpretation of the Oak Ridges Moraine sediments undertaken during the 1990s by the Geological Survey of Canada (GSC). Between 2001 and 2010, five key phases of renewed geological interpretation have led to the development of interpreted digital geological layers across different parts of the ORMGP area. The focus has been on the unconsolidated glacial sediments that, in places, can extend around 200 m in thickness. In all cases, geological layers were developed using visual interpretation of well records on three dimensional dynamic cross-sections.

For all of the phases of the geological interpretation, key aspects of the work included expert interpretation of geologic data and data integration across the ORMGP study area. Geological 'picks' of the main regional geological layers are made at boreholes on cross sections. These are stored in the ORMGP database and used as the main input in the kriging or interpolation of the geological surfaces. Higher quality PQ cored wells, as well as consultant logged wells are evaluated first, followed by lower quality water wells from the provincial database. Three-dimensional digital geological contact lines are also used to constrain the interpolation of layers between boreholes. Geological contact lines are used to define layer pinch-outs, subglacial erosion on top of and through confining aquitards (*e.g.* tunnel channels), and to reflect conditions where a well drilled into a layer provides evidence that the bottom of the layer exists at some depth below the well bottom ("pushdown").

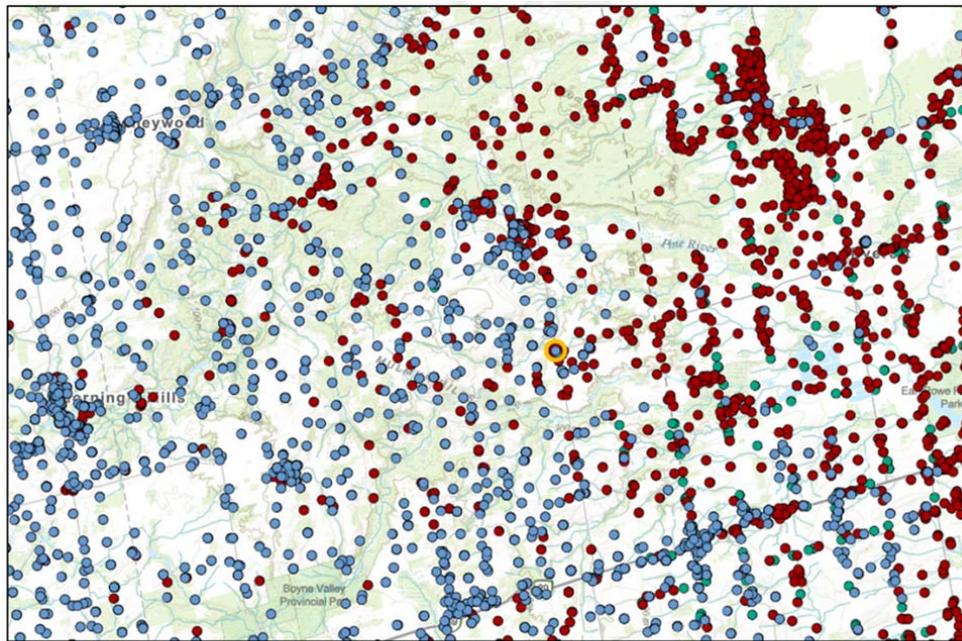
The ORMGP database for the Mansfield area is illustrated below (Figure 6 - overleaf). Each of the dots represents a borehole log contained within the database. The orange circle near the central of the figure depicts the Mansfield crossroad. It is important to appreciate the size of the database being used for the geologic interpretation rendered by the ORMGP consortium.

The blue dots represent bedrock wells. The dark red dots represent overburden wells. Scattered within this database are other borehole logs (*ex.* MTO holes, *etc.*) that are presented as green dots on the figure.

The geological interpretation illustrates the importance of integrating all data types in the geologic/ hydrostratigraphic interpretation process. Effective database querying allows for the identification of complex patterns and correlations between the lithology and other



hydrogeologic indicators (*e.g.*, well screen placement) helping to at least partly overcome data quality deficiencies in driller's logs.



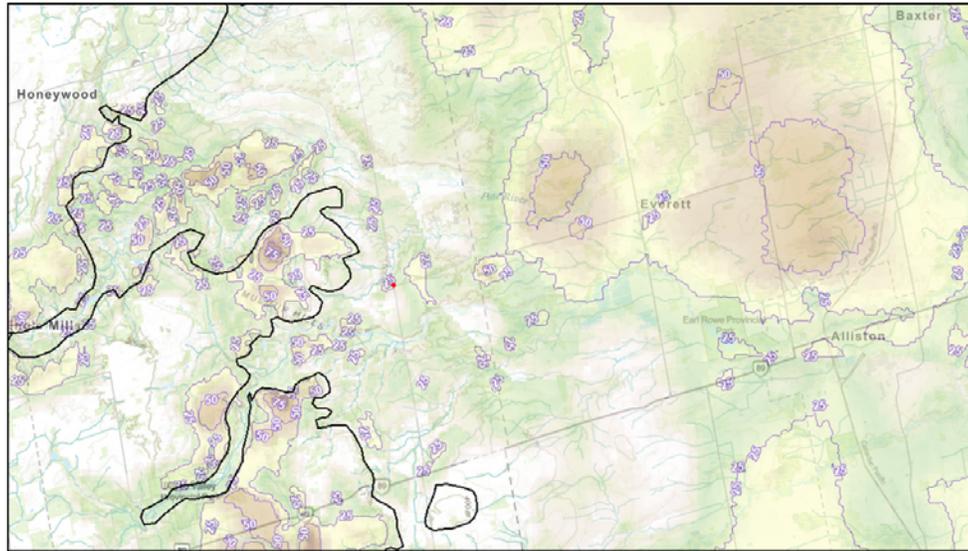
from ORMGP (2023)

Figure 6 - Geologic borehole database

Since 2010, several Source Water Protection studies have also seen consultants incorporate changes/ refinements to the ORMGP digital geological surfaces. Where appropriate, these changes are now being incorporated into an updated geological framework. In addition to the above, the geological interpretation is continually evolving. With the addition of new wells (both from the MECP as well as other consultant BHs) to the database, geological interpretations can subtly change as new wells are reviewed and additional geological picks are incorporated into the database and used in re-interpretations.

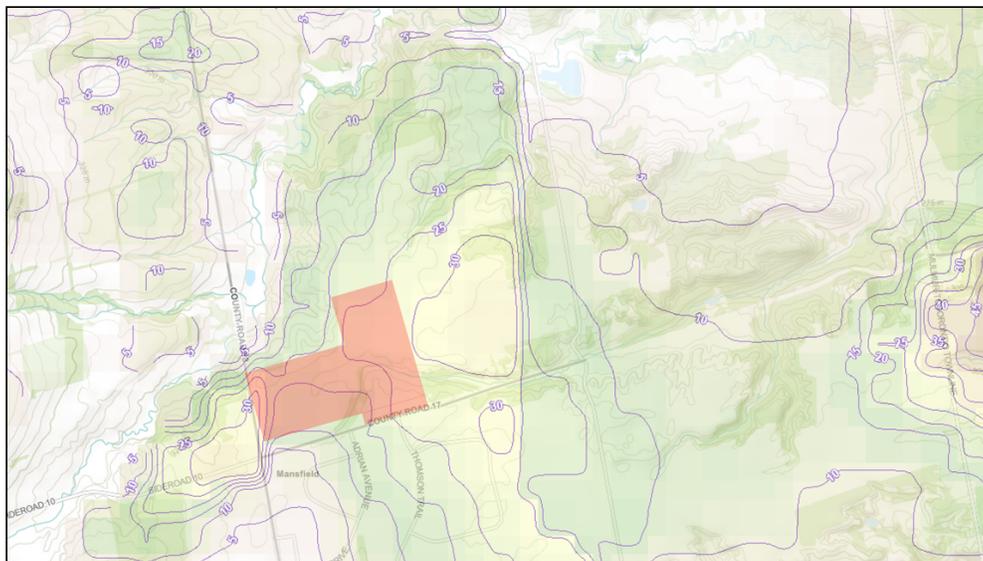
2.2.2 Extent of the Newmarket Till (Deepest Aquitard Unit - SU1)

The first stratigraphic unit discussed by Mulligan *et al.* (2018) was the Newmarket Till. This regionally extensive aquitard separates the upper sediment package from the deeper sediment package which lies above the shale bedrock. An isopach map of this unit from the ORMGP database in the Nottawasaga watershed is shown below (Figure 7 - overleaf). The values on the map represent metres of formation thickness. The red dot on this map reflects the location of Mansfield. The black line represents the edge of the Niagara Escarpment.



from ORMGP (2023)
Figure 7 - Newmarket Till Isopach

This isopach map illustrates the stratigraphic thickness of the Newmarket Till formation. A more regional representation is being provided before a more local segment is presented so that a better sense of the information at a local level can be construed. The same isopach of the Newmarket Till is presented below for the Mansfield area along with a map of the topographic surface of the Newmarket Till (Figures 8 [below] and 9 [overleaf], respectively). Once again the values on the map represent metres of formation thickness. The isopach mapping indicates that there is a considerable thickness of the Newmarket Till in the general vicinity of the Site.

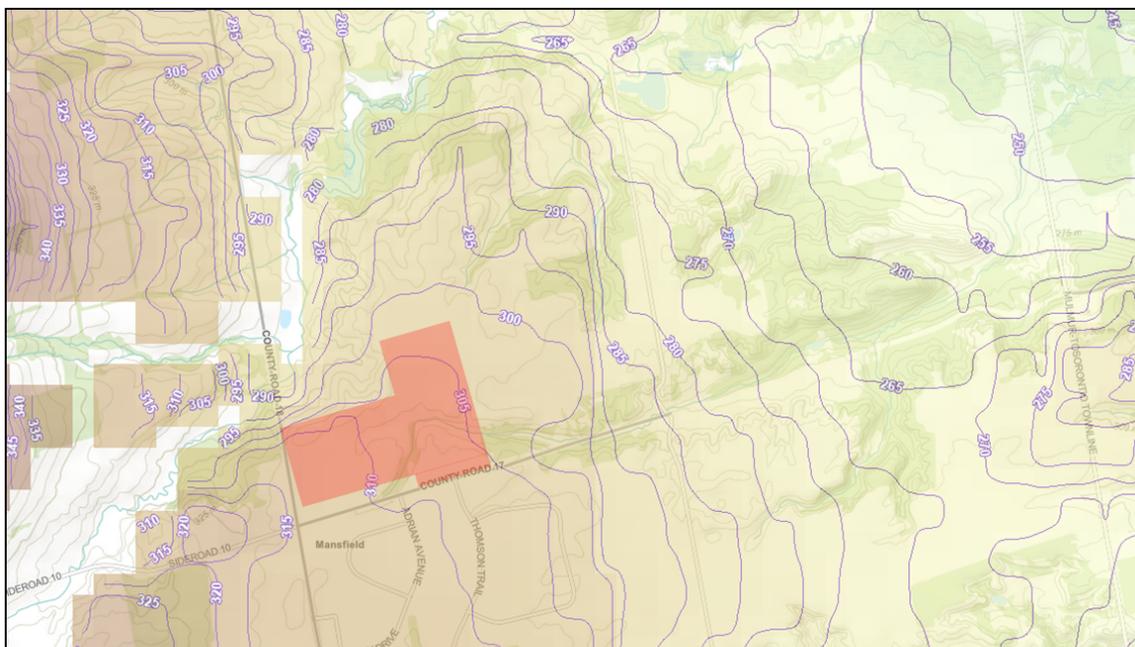


from ORMGP (2023)
Figure 8 - Newmarket Till Isopach in Mansfield Area



To the west of the Site, this reach of the Pine River valley has cut through the overburden deposition down to the bedrock contact as it flows northeast (see Figures 14 and 15). This is one of the numerous re-entrant valleys cut into the Niagara Escarpment. Mulligan *et al.* (2018) indicated that these stream corridors continued to provide fluvial sediments into the Nottawasaga River basin once the glacial lake levels had declined to the Lake Algonquin levels. The same is evident for the Boyne River valley south of Mansfield. Northeast of the Site in the next concession, the Newmarket Till locally thins east of the 7th Line. However, a more apt description would be to suggest that this thinning of the isopach is correlated to this reach of the Pine River valley.

The contour map of the Newmarket Till surface shows the surface topography in metres above mean sea level (masl - Figure 9). The till contact map shows that this regional aquitard unit continues to the east throughout the study area. As noted above, the unit is absent within the Pine River corridor located west of the Site and traversing to the northeast. However, this absence to the west is inconsequential to the integrity of the till unit beneath the Site and further east (*i.e.*, down gradient of the Site). The contoured surface contact of the Newmarket Till is sloped to the east (*i.e.*, ENE). Therefore, ground water percolating vertically down in the upper sediment package to this aquitard would coalesce at the till contact and then flow laterally along the surface to the ENE.



from ORMGP (2023)

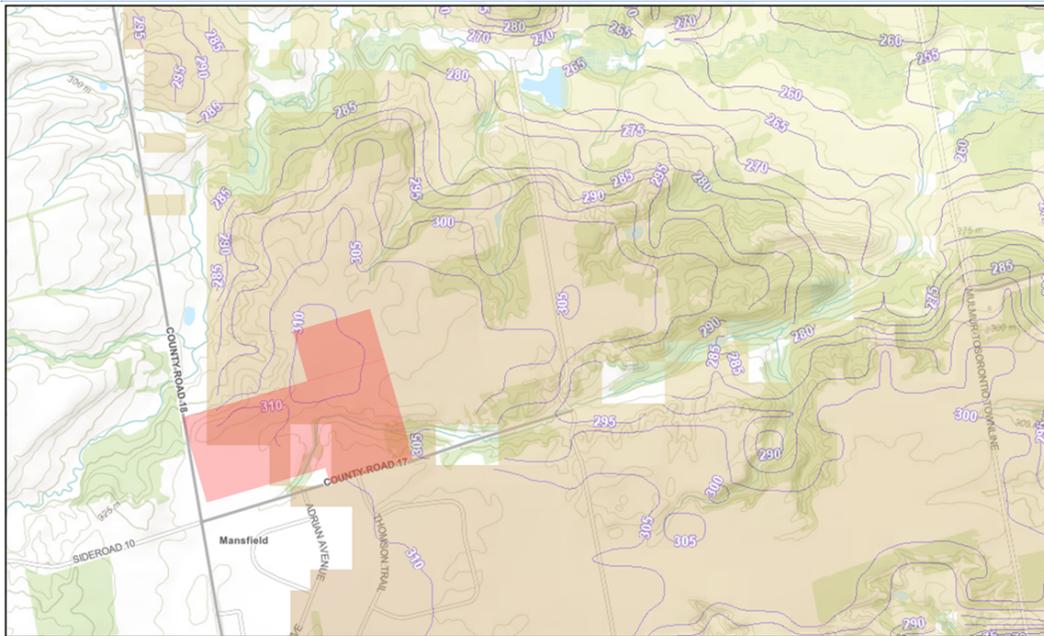
Figure 9 - Newmarket Till Surface Elevation



The loss of the entire overburden thickness to the west in the Pine River valley creates a sub-watershed boundary which is discussed in greater detail below (Section 3.2).

2.2.3 Extent of Glacial Lake Schomberg Unit (Upper Sediment Package - SU3)

Overlying the Newmarket Till is the glacial Lake Schomberg deposition (Stratigraphic Unit 3 [SU3 - Mulligan *et al.*, 2018]). The surface contact of the glacial Lake Schomberg sediments is provided in Figure 10. The surface elevation is shown in masl and reflects the surface topography.



from ORMGP (2023)

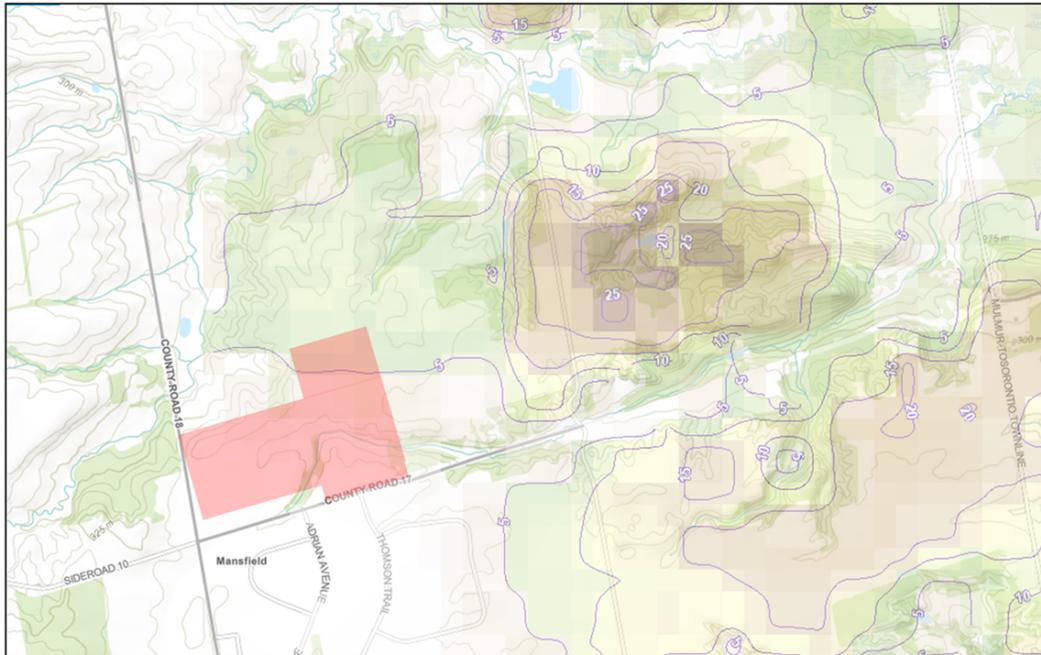
Figure 10 - Glacial Lake Schomberg Surface Elevation

The ORMGP isopach of this sediment package shows that the surface "lows" in the Newmarket Till contact were filled by this glacial lake deposition and accounts in part for the isopach thicknesses where the Newmarket Till was thinned in the past (Figure 11 [overleaf]). The Newmarket Till is known to have been eroded/ scoured elsewhere in the province. Much more significant erosional features in the Newmarket Till contact are described by the Geological Survey of Canada (GSC) in their multi-year investigation into the origins of the ORM (Russell *et al.*, 2002; Russell *et al.*, 2000; Pugin *et al.*, 1996; Sharpe *et al.*, 1996).

According to Mulligan *et al.* (2018) there is no evidence of unconformities that could be attributed to rapid changes in water level in the SU3 deposition (*i.e.*, glacial Lake Schomberg). This has also prevented the identification of depositional differences



between glacial Lake Schomberg sediments (SU3) and the early Lake Algonquin sediments (SU4).



from ORMGP (2023)

Figure 11 - Glacial Lake Schomberg Isopach Thickness in Mansfield Area

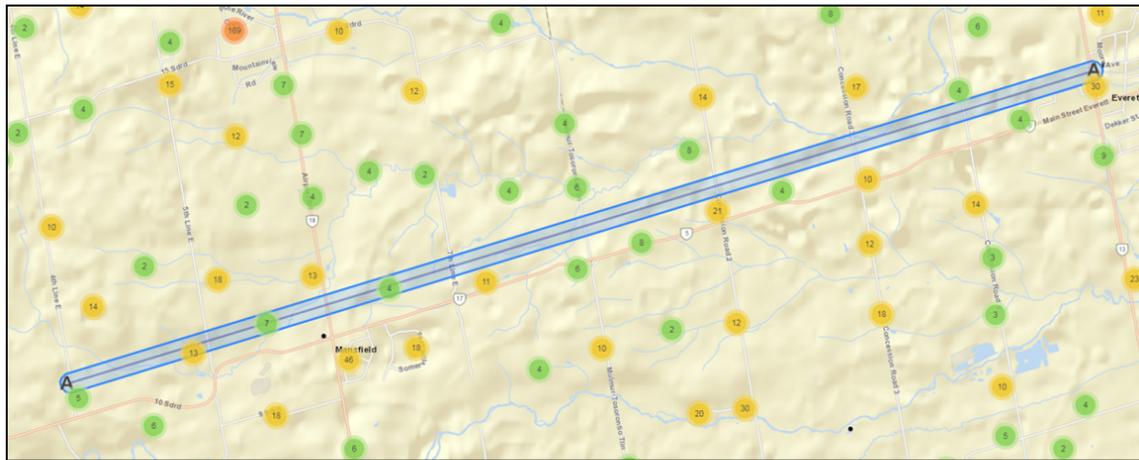
Mulligan *et al.* (2018) do note that there was up-section increase in sand within SU3. This was attributed to the declining water level and/ or increasing influence of fluviodeltaic systems during gradual or stepwise water level fall from 300 masl (glacial Lake Schomberg) to below 250 masl (early Lake Algonquin) as ice withdrew from the Nottawasaga area. This upward coarsening was seen in the on-site boreholes drilled to the Till surface.

The geologic descriptions provided from this literature review appear to accurately match the depositional environment that was encountered during the Peto McCallum Limited (PML) field exploration program (2021). According to the PML (2021) report, "... [b]elow the topsoil and/ or fill, a sand/silty sand/ sand and gravel unit was encountered in all boreholes ...", (page 6, Section 4.2.1, 3rd paragraph). The PML (2021) report goes on to state "... [b]elow the upper sand/silty sand/sand and gravel unit ... a sandy/silt/silt unit was encountered ..." (page 6, Section 4.2.1, 4th paragraph). An even finer soil was encountered below the silt unit being a sandy clayey silt/clayey silt/clay silt till unit which represents the Newmarket Till (page 7, Section 4.2.1, 1st paragraph). Thus, the vertical soil profile is considered to be downward fining as has been described above.



2.2.4 Geologic Cross Sections

The ORMGP database permits the construction of representative cross-sections. A long west to east cross section through the Site was constructed from 4th Line E through to Regional Road 13 and running parallel to the 10th Sideroad⁴ (see Figure 12). The numbers shown on the graphic are the geologic data points in the vicinity of the cross section line. Similarly, a long north to south cross section through the Site was constructed from the 5th Sideroad through to 15th Sideroad and running parallel to Airport Road (see Figure 13 - overleaf).



from ORMGP (2023)

Figure 12 - West-East Cross Section Alignment

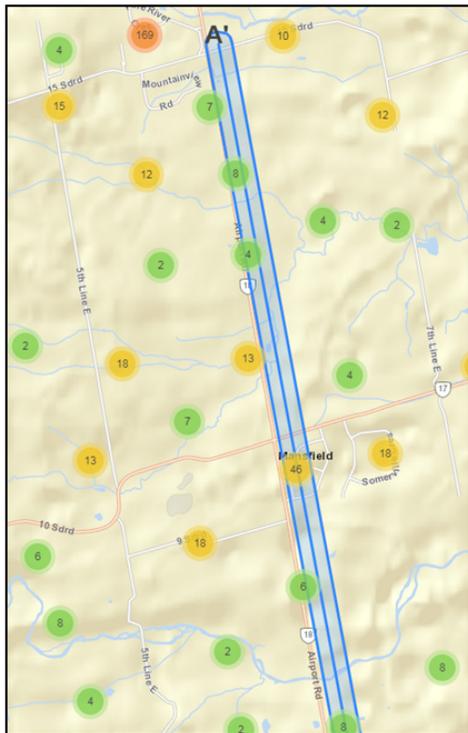
The resulting W-E and S-N cross sections (Figures 14 & 15 - overleaf) are illustrated below and are based on the geological surfaces that have been interpolated from the borehole logs present throughout the Mansfield area. Considerable expertise has gone into the selection of these geologic surfaces (Kassenaar *et al.*, 2003) and as highlighted previously. Thus the geologic information being presented is considered representative of the geologic setting.

The ORMGP utilizes a standard naming convention which needs to be described for the Site setting and geologic presentation provided above. For the west-east cross-section, the bedrock contact is the basal layer shaded red (Figure 14 [overleaf]). It represents the Paleozoic strata associated with the Niagara Escarpment. The cross section displays a dark green strata being described as the upper Newmarket Till. This is equivalent to the first stratigraphic unit described by Mulligan *et al.* (2018) or the SU1. Overlying this is an olive green layer described as the Halton Till (or equivalent upper till unit). In this case, it is the glacial Lake Schomberg deposition or the SU3 (Mulligan *et al.*, 2018).

⁴ 10th Sideroad is also referred to as Regional Road 17



The upper granular portion to this unit deposition as described by Mulligan *et al.* (2108)



from ORMGP (2023)

Figure 13 - South-North Cross Section Alignment

is represented by an orange seam described as the Oak Ridges Moraine (or equivalent upper aquifer). The ORMGP geologic model also presents the upper sediment or surface soil strata as a brown shaded surficial unit which represents the topsoil horizon.

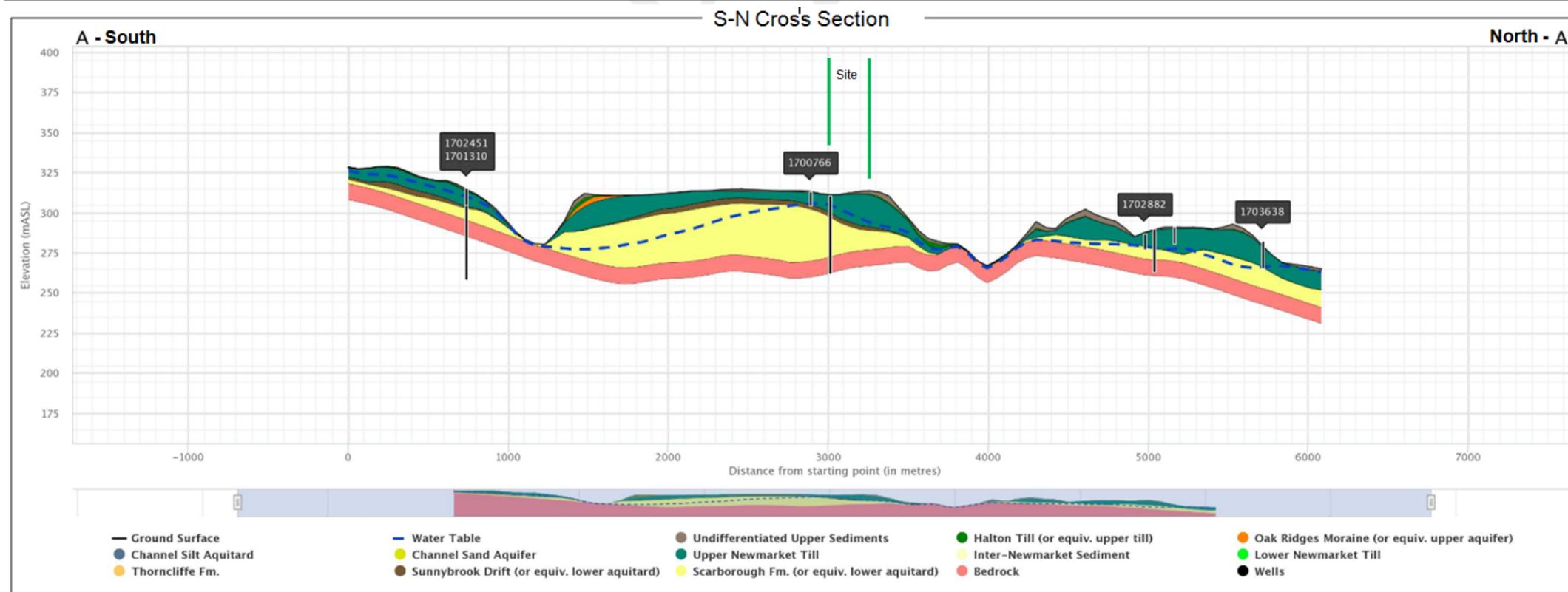
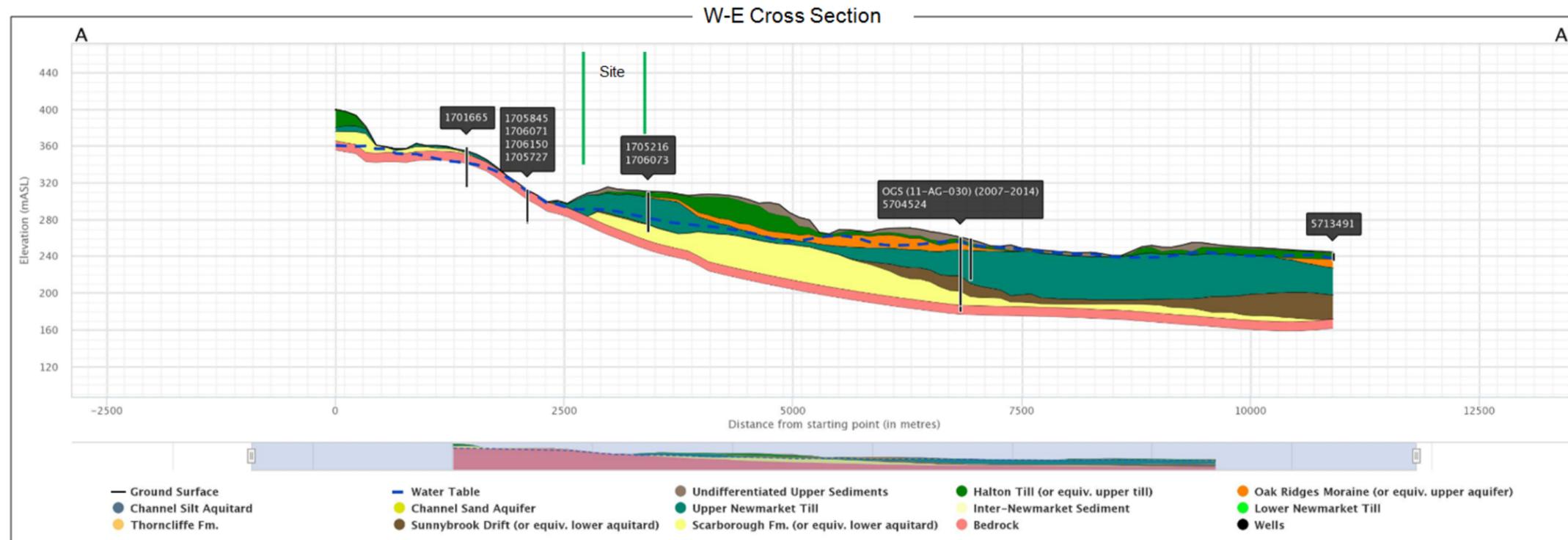
The geologic model must retain all identified strata and therefore when specific units appear absent they are assigned an inconsequential thickness (*i.e.*, >0.1 m) which will not show up in the interpreted surfaces; but preserves the continuity of the geologic model.

A basal Quaternary unit is shown in the cross section illustrations and named the Scarborough Formation. This may represent the "slumped material" layer described by Mulligan *et al.* (2018) in the first stratigraphic unit or it could also represent the remnants of older sediments deposited during the early- and mid-Wisconsin glaciation. Intuitively, the same geologic

sequencing is present in the south-north cross section (Figure 15 [above]).

Returning to the west-east cross section through the Site and paralleling the 10th Sideroad, there are several key findings presented in these illustrations. As indicated previously, the Pine River exists just west of the Site and Airport Road and this reach stretches south to the 10th Sideroad and beyond. The elevation drop into this feature in proximity to the Airport Road is shown to be more than 20 m. The cross section representation indicates that the Quaternary sediments have been removed in the river valley (Figure 14 [below]).

This is consistent with the fluvial/deltaic contribution indicated by Mulligan *et al.* (2018) during the latter depositional stage of the SU3 and into SU4. Sediment laden flow into the Nottawasaga watershed was occurring as the glacial lake elevation declined from 300 masl to the early Algonquin Lake elevation below 250 masl. Mulligan *et al.* (2018) indicates that this fluvial contribution continues throughout the Late Wisconsin retreat as the waters drained to the Kirkfield low and later to the Stanley low.





As noted these re-entrant valley features were incised during and prior to the Quaternary (Staw, 1968; Kor and Cowell, 1998; Eyles, 2012); but served as fluvial corridors during the final glacial retreat. As such, the overburden sediments have been scoured from these Escarpment drainage features. In terms of the Site condition, it represents a flow divide between up gradient lands and those down gradient of the river valley. As a result, the Site is at a sub-watershed boundary location. The Site receives no up gradient ground water contribution in the upper sediment package/ units. This accounts for the absence of a water table condition or the minimal saturated soil condition reported by PML while monitoring the upper sediment sequence (PML, 2022).

The west to east cross section also shows a relatively thick Newmarket Till aquitard lying beneath the Site and extending to the east. As shown above with the isopach mapping, this sequence thins to the east; but then thickens further east. The aquitard feature is regionally continuous to the east of the Site. The Site drilling shows the till sequence is ~9 m below ground surface (mbgl) and that the deep sediment package is likely a bit thicker than estimated in other boreholes along this alignment.

The same general condition appears to exist at the Boyne River as depicted in the south to north cross section. The overburden soils appear to have been scoured from the stream alignment. The sequence generally shows a till cap (*i.e.*, Newmarket Till - SU1 - Mulligan *et al.* [2018]) that overlies a deep sediment package deposition from the early- to mid-Wisconsin glaciation. This basal unit marginally thickens to the south.

Beyond the Site to the north, the Pine River valley is encountered and illustrates the same general profile. The river appears to have scoured out the overburden sediment in this depiction and also suggests that a portion of the bedrock was plucked or scoured. The Newmarket Till is draped into the river valley from both directions; but pinches out at the base of the river valley. This occurs because the till overrode the re-entrant valleys when deposited; but then was scoured during the glacial retreat.

3.0 HYDROGEOLOGIC SETTING

3.1 Regional Hydrogeologic Setting

The regional hydrogeologic setting is controlled in a large part by the Niagara Escarpment. The Niagara Escarpment is a layered limestone feature with ground water flow primarily through laterally continuous bedding plane fractures. The ground water being discharged from the Niagara Escarpment via these conductive bedding plane fractures is typically masked at the face where a weathered/ eroded/ stress relieved talus feature facilitates vertical interconnection and discharge from the base of the feature. Where conductive overburden soils exist immediately adjacent to the escarpment, the

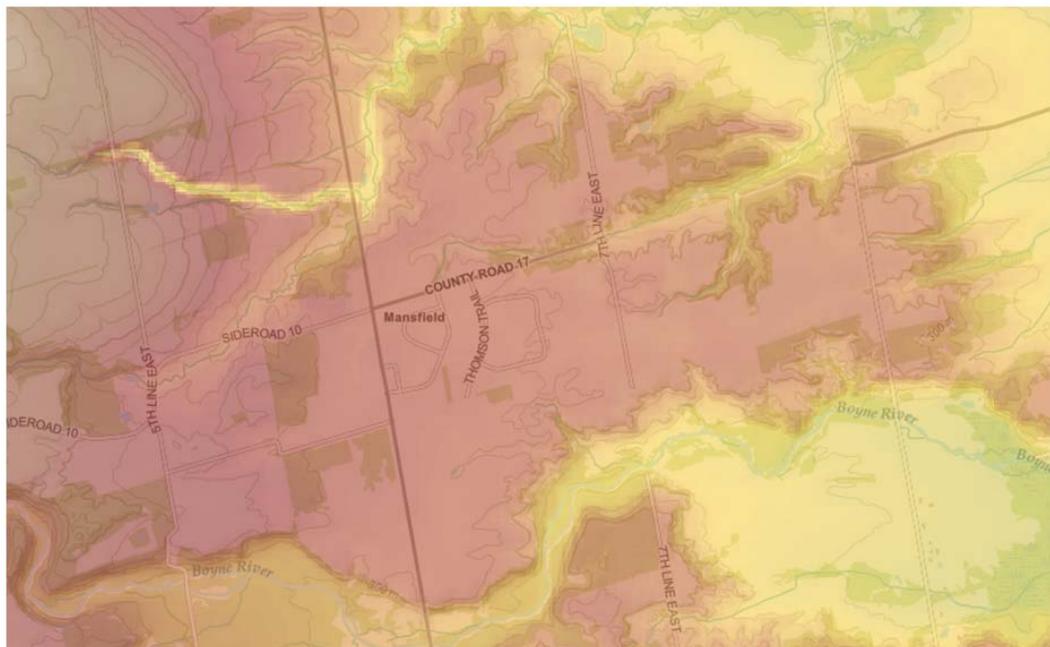


ground water discharge from the bedrock feature will flow into these units. Where the soil permeability is insufficient to convey the waters, a head water stream will exist.

Flow from the Niagara Escarpment is not uniformly consistent along its lateral face. This accounts for the sporadic nature of the headwater streams associated with this contribution. Since the ground water is conveyed along various lateral bedding plane fractures, it will emerge at different horizons from the Niagara Escarpment. As such, bedrock contributions can also occur away from the upper edge of the escarpment owing to the presence of layered limestone as it exits into the Nottawasaga watershed.

3.2 Local Hydrogeologic Setting

The Site is situated immediately down gradient of the Pine River valley as depicted in the west to east cross section above and presented in the digital elevation map below (Figure 16).



from ORMGP (2023)

Figure 16 - Digital Elevation Map - 10 m contour interval

Two critical elements occur in the Mansfield area. First, the Pine River valley effectively intercepts any up gradient ground water flow in the overburden sediments, especially the upper sediment package. The western edge of the Site therefore exists at a sub-watershed boundary. In fact, the Boyne River valley to the south and the Pine River valley to the north pinch together west of the 5th Line which limits any ability of ground water flow in the upper reaches of the overburden profile to be conveyed eastward.



As indicated above, the Site is believed to exist in proximity to the shoreline of glacial Lake Schomberg. Mulligan *et al.* (2018) indicated that the water surface was believed to exist at ~300 masl. The Site drilling program reported an upper sediment package of ~9 m thick for a Site with a surface elevation of ~310 masl. West of Airport Road, the ground elevation rises to ~315 masl and halfway through the 6th Concession to the west, the ground elevation is ~320 masl. Thus, the expectation is that upper granular package could be lost to the west with increasing elevation.

Another related factor to the Site condition (and the Pine River valley intercept), is that bedrock outcropping does not connect to the upper sediment package. The Newmarket Till separates the upper sediment package from the lower sediment package and the lower sediment package is connected to the bedrock. Thus, base flow from the escarpment discharge is routed to the deep sediment package below the Newmarket Till.

At the Site, infiltrating precipitation will percolate vertical down to the first impervious boundary which is considered to be the Newmarket Till and coalesce in the unit immediately above this barrier. At some distance down gradient of the Pine River valley, a permanent water table condition may develop in this upper sediment package; but it would exist down gradient of the Site. In short, the Site area is insufficient to generate a significant permanent water table condition. This was illustrated in the ground water monitoring data collected at the Site.

3.2.1 Ground Water Elevation Data

The PML (2021) report provided information on the ground water regime encountered at the Site during and following the field investigations. In their report, PML provides a summary table which is presented below (Table A - overleaf) with some supplemental information. The Site data indicated that there were a couple of dry wells higher in the upper sediment profile. The Site data also indicates that the ground water encountered was below the more granular materials in all but one borehole (*i.e.*, MW-5). The water elevation for MW-7 is taken in the till unit and thus represents a potentiometric value as opposed to the overlying water table condition.

The data indicates that the water table condition lies within the basal silty unit of the upper sediment package. As anticipated, the overlying and conductive sand unit is unsaturated. PML have also conducted monthly water level monitoring on the ground water wells that they installed in 2021. In their letter report entitled "Ground Water Level Monitoring - Proposed Residential Development - 937045 Airport Road, Mansfield, Ontario" and dated July 18, 2022; monthly ground water measurements from May 2021 to May 2022 were provided as summarized in Table B (overleaf).



Table A: Ground Water Monitoring Data

Borehole ID	Elevation of sandy unit base (mASL)	Elevation of silty unit base (mASL)	First Strike during drilling (mASL)	Upon completion of augering (mASL)	Elevation of monitoring well base (mASL)	Water Level Elevation	
						20-May-21 (mASL)	11-Jun-21 (mASL)
1	310.3	<306.7	No water	No water	307.2	<307.2	<307.2
2	309.9	<306.3	No water	No water	306.8	<306.8	<306.8
3	<305.6		No water	No water		--	--
4	307.2	<304.3	307.8	No water		--	--
5	303.7	<302.7	304.6	304.9	303.1	305.0	304.9
6	304.3	301.4	303.7	303.3		--	--
7	302.7	302.7	303.3	307.2	300.4	303.1	302.8
8	304.4	300.9	303.5	305.3	302.4	302.7	302.7
9	309.3	<306.4	308.3	No water		--	--
10	307.6	<304.0	307.4	306.2	304.4	306.3	306.2
11	307.0	<302.6	304.5	303.6	303.0	304.5	304.3
12	305.1	299.0	305.7	No water	301.3	302.3	302.2



Table B1: Ground Water Monitoring Data

Borehole ID	Ground Elevation (mASL)	Elevation of monitoring well base (mASL)	Water Level Elevation												
			May-21 (mASL)	Jun-21 (mASL)	Jul-21 (mASL)	Aug-21 (mASL)	Sep-21 (mASL)	Oct-21 (mASL)	Nov-21 (mASL)	Dec-21 (mASL)	Jan-22 (mASL)	Feb-22 (mASL)	Mar-22 (mASL)	Apr-22 (mASL)	May-22 (mASL)
1	313.20	307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2
2	312.80	306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8
5	309.20	303.1	305.0	304.9	304.7	304.2	304.7	304.7	304.8	305.1	305.0	304.8	305.0	305.2	305.0
7	304.05	300.4	303.1	302.8	303.3	302.8	302.8	302.9	303.0	303.1	303.1	302.9	302.9	303.1	303.1
8	309.85	302.4	302.7	302.7	302.6	302.5	302.4	302.5	302.5	302.5	302.5	302.6	302.5	302.5	303.8
10	310.50	304.4	306.3	306.2	306.0	306.0	306.1	305.8	305.6	305.2	305.6	305.9	305.9	306.1	306.2
11	309.05	303.0	304.5	304.3	304.1	304.3	304.0	304.1	304.3	304.1	304.3	304.3	304.4	304.5	304.5
12	308.00	301.3	302.3	302.2	302.0	301.9	301.8	301.8	301.9	301.8	302.0	302.4	302.3	302.4	302.2

Table B2: Ground Water Monitoring Data

Borehole ID	Ground Elevation (mASL)	Depth of monitoring well base (mbgl)	Water Level Depth												
			May-21 (mbgl)	Jun-21 (mbgl)	Jul-21 (mbgl)	Aug-21 (mbgl)	Sep-21 (mbgl)	Oct-21 (mbgl)	Nov-21 (mbgl)	Dec-21 (mbgl)	Jan-22 (mbgl)	Feb-22 (mbgl)	Mar-22 (mbgl)	Apr-22 (mbgl)	May-22 (mbgl)
1	313.20	6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0
2	312.80	6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0
5	309.20	6.1	4.2	4.3	4.5	5.0	4.5	4.5	4.4	4.1	4.2	4.4	4.2	4.0	4.2
7	304.05	3.7	1.0	1.3	0.8	1.3	1.2	1.1	1.0	1.0	1.0	1.2	1.2	1.0	1.0
8	309.85	7.5	7.2	7.2	7.3	7.4	7.5	7.4	7.4	7.4	7.3	7.4	7.4	6.1	7.2
10	310.50	6.1	4.2	4.3	4.5	4.5	4.4	4.7	4.9	5.3	4.9	4.6	4.6	4.4	4.3
11	309.05	6.1	4.6	4.8	5.0	4.8	5.1	5.0	4.8	5.0	4.8	4.8	4.7	4.6	4.6
12	308.00	6.7	5.7	5.8	6.0	6.1	6.2	6.2	6.1	6.2	6.0	5.6	5.7	5.6	5.8



The underlying till unit "perches" the water table condition in the silt unit of the upper sediment package. However, the limited infiltration at this headwater location results in a minimal saturated soil condition.

In lower permeability units, the topography of the soils dictates the water table setting and it is anticipated that this would be true for this Site. Infiltrating ground waters following the path of least resistance will drain vertically down through the granular materials and into the basal silt unit (above the Newmarket Till). The till unit limits further vertical percolation and "perches" the water in the basal silt unit which then drains according to the topographic relief of the till contact which slopes to the northeast (see Figure 9 - above).

The ground water monitoring data reinforces the hydrogeologic model presented above. The infiltrating precipitation percolates to depth and wets the basal silt unit. This wetted condition does not change substantially throughout the year. Thus, no seasonality was observed in the collected data. This likely occurs because the depth of the basal silt unit is sufficiently deep enough to mitigate evapotranspiration influences and there is no substantial lateral recharge from up gradient source(s). At the up gradient sub-watershed boundary the wetted condition is limited.

3.2.2 Ground Water Flow

The PML (2021) report estimated the lateral hydraulic conductivity of the three soil units which were described in the soil profile at the Site (Table C - below). These estimates were based on grain size analyses; but should provide a "ball park" estimate of the unit properties. Any in-situ testing of the unsaturated soils would tend to over-estimate the bulk hydraulic properties since it would be more representative of a wetting curve situation.

Table C: Permeability Estimate

Soil Description	Estimated Hydraulic Conductivity (m/s)	"T" - Time (min/cm)
Sand Unit	10^{-6} to 10^{-7}	12 to 20
Silt Unit	10^{-7} to 10^{-8}	20 to 50
Till Unit	10^{-9} to 10^{-10}	>50

The slope of the Newmarket Till surface provides the lateral hydraulic gradient for the ground water movement. The relative slope of the till surface as kriged from the borehole data should be reasonably accurate for these purposes. Using the elevation data



presented in Figure 9 yields a surface slope of ~ 0.15 m/m and translates to average linear velocity of 1.5×10^{-8} m/s or ~ 0.5 m/a. At this estimated rate, the ground water movement is limited and accounts for the basal saturation since the soils are not rapidly draining in the direction of flow.

The low ground water flow rate is also reflected in the seasonal flow of the adjacent creek which cuts through the Site. The creek's base elevation at the outflow location from the Site is reported to be ~ 297 masl. If the ground surface at the Site in the vicinity of MW-12 (*i.e.*, adjacent to the creek corridor) is ~ 308 masl; then the till contact will be about ~ 299 masl based on the borehole log provided in the PML (2021) report. This till surface elevation is equal to or above the creek's base elevation at the outflow from the Site.

The Site monitoring data suggests that the saturated condition persists year round in the silt unit (PML, 2022). Thus, flow into the creek from the adjacent silt soils should occur year round given the elevation data; but the creek is deemed to be dry over the majority of the year. In reality, seepage into the stream corridor is likely occurring; but at a very low rate which does not support a "flowing" condition as inferred in the above-noted flow calculation.

An interpreted water table map is illustrated below (Figure 17 - overleaf). This kriged surface is based on the boreholes showed in Figure 17 and larger stream corridors present/ mapped on the landscape. The borehole database is selected by using borehole information from locations that are less than 20 m in depth. As can be seen, two shallow water wells are denoted near the Airport Road and 10th Sideroad intersection which will be discussed in greater detail in Section 3.3 (below).

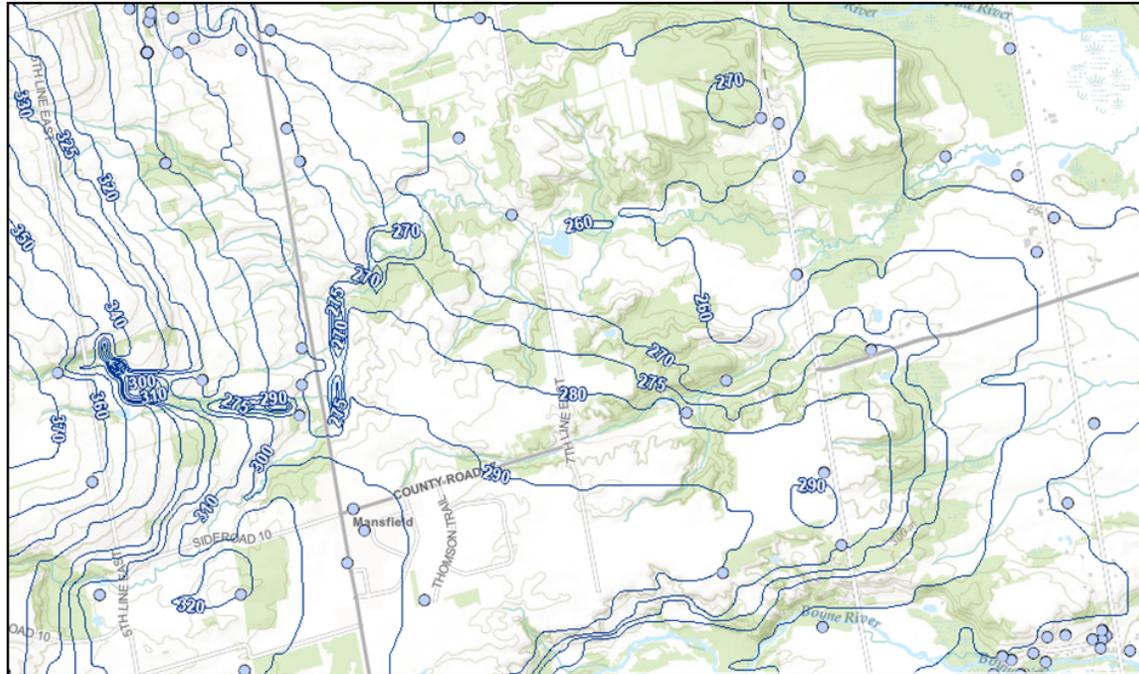
The topography of the Pine River valley has been imposed on this water table interpretation and this influence is seen in the contouring immediately northwest of the Site. This makes sense from a hydrogeologic perspective and depresses the water table condition owing to this sub-watershed divide.

The interpreted water table surface elevation beneath the Site resides between ~ 290 masl and 300 masl. The Site ground water readings (Section 3.2.1) match reasonably well with the interpreted surface above, albeit slightly higher than the illustration. This is probably due to the low permeability of the silt unit which will "mound" the water table.

The ground water flow is shown to be northeast of the Site. The water table elevation reflects the Newmarket Till topography (Figure 9) which controls the shallow ground water at the Site and beyond. As is illustrated on Figure 17, there are no shallow



boreholes down gradient of the Site for an appreciable distance. This does not mean that there are no boreholes. As illustrated on Figure 6, there are many boreholes; but few that are shallow in nature due to the limited ground water resource.



from ORMGP (2023)

Figure 17 - Water Table Contour Map

3.3 MECP Water Wells

The known MECP water wells for the Mansfield area were evaluated to assess the potential to influence down gradient wells as a result of the Site development. Our evaluation found 72 water wells in the nine Township lots surrounding the Site location (Figure 18 - overleaf). The MECP water wells existing in Lots 10, 11 and 12 within Concessions 6, 7 and 8 were compiled. This collection of water wells extend well beyond the 500 m radius that had been advocated for the assessment.

Of the 72 water wells compiled (Appendix B), 14 well records were identified as abandoned wells and have a gray colouring on Figure 18. Of the remaining 58 water wells, 23 were identified as bedrock wells and have an orange colouring on Figure 18. The remaining 35 water wells were constructed in the overburden.

As highlighted above, a disproportionate number of these bedrock wells were found to the west of the Site where the overburden sediments thin toward the brow of the Niagara Escarpment. Only two bedrock wells exist to the east (*i.e.*, Concession 8) and four were



located to the south (*i.e.*, Lot 10, Concession 7). The remaining 17 bedrock water wells exist to the west in Concession 6. These water wells were not considered to be significant for the water table discussion at the Site.



from WWIS database (2023)

Figure 18 - MECP Water Wells

Finally of the 35 overburden water wells identified within the search area, it is noted that 27 wells had a depth greater than 20 m and have a yellow colouring on Figure 18. These wells were considered to collect a potable supply within a deeper confined aquifer system which lies beneath the Newmarket Till. Eight overburden wells were reported to have been constructed shallower than 20 m depth and have a light blue colouring on Figure 18. These wells are tabulated below.

Table D: Shallow Water Well Records

Well ID	Distance from Site centroid (m)	Direction from Site centroid	Water Bearing Zone (mbgl)	Pumping Rate (L/min)	Drilling Date
17-00766	399	SW	3.7	4.5	Oct-61
17-02588	656	NW	6.4	1.1	Aug-79
17-00767	326	SW	8.7	0.5	Nov-61
17-02494	1,915	E	9.1	9.1	Aug-78
17-00739	598	SW	13.4	2.3	Jan-64
17-03120	1,665	SE	14.0	9.1	Aug-84
17-05058	2,477	E	18.6	31.8	Aug-97
17-02015	2,404	SE	18.7	9.1	Nov-75



Four of these eight shallow wells exist a significant distance east of the Site and would not be influenced by the Site development in any significant manner. Similarly, two of these shallow wells (*e.g.*, 17-02588 & 17-00739) are considered to be offset from the Site and tangential to the shallow ground water flow at the Site. These wells would not be influenced by the Site development (Figure 18).

The remaining two wells are considered to be situated on the historical lots existing along 10th Sideroad east of Airport Road. The sketches on the water well records would suggest these wells are within a couple of residential lots of the intersection on either side of the road.

Given the construction dates in 1961, these wells are relatively old and were used prior to the municipal servicing of the Community. The water well record (WRR) No.: 17-00766 was drilled in 1961 to increase the depth of an existing well from 3.7 mbgl to 4.5 mbgl. However, a sandy clay unit was encountered at the base of the existing well and therefore the operation only created a reservoir for the existing well. With a till contact at 3.7 mbgl, any effluent discharge from the proposed development would vertically percolate to a greater depth. Ground water movement upslope to this well location is not anticipated.

In contrast and as presented above, WRR No.: 17-00767 encountered a downward fining stratigraphy. A sandy clay unit was encountered from 4.9 mbgl to the well base at 8.7 mbgl. Water was encountered in the sandy clay unit starting at 7.0 mbgl. The results mirror the findings from the PML (2021) field investigation and attest to the consistency of the hydrogeologic setting over decades.

The reader is also cautioned in reviewing this water well record to correctly interpret the information presented (Appendix B). It is known that only a limited pumping rate can be sustained from the upper sediment package in a "sandy clay" unit. Thus, it is our opinion that the information presented should be interpreted to mean that 50 gallons were extracted from the well over an 8 hour test period which translates to a pumping rate of 0.5 L/min. This rate is in keeping with the other hydrogeologic data presented.

Finally, the inability to collect ground water from the silt unit in the upper sediment package was also observed when attempting to capture water quality samples from the existing Site monitoring well network (see Section 3.4).

The residences along the 10th Sideroad are considered to be up gradient of the Site given the surface slope of the Newmarket Till unit (Figure 9). Ground water flow in the



saturated silt unit is limited. This is substantiated by the dry creek conditions present throughout the majority of the year as highlighted above. The potential for influence while possible is unlikely to be probable given the environmental setting.

The MECP literature recommends that a potable water well yield should be 13.7 L/min at a minimum to be considered a viable potable water supply (MECP, 2016⁵). As presented in Table D (above), only one of the eight shallow overburden wells meets this standard. Furthermore, most of these reported well yields are significantly under this water quantity threshold. This data attests to the inadequacy of the upper sediment package providing a viable residential water supply in the vicinity of the Mansfield community. In fact, the absence of a viable water supply in the upper sediment package accounts for the fact that most water wells within the provincial database have been constructed into the deeper overburden sediments below the Newmarket Till or the underlying shale bedrock.

According to the Township, all residences along the 10th Sideroad are connected to the municipal supply. This makes sense; especially if the residence had originally relied upon the shallow water table condition. The shallow water table condition does not provide a viable water resource for potable supply given its orientation at the edge of the Pine River valley and the loss of the upper permeable horizon to the west owing to the depositional circumstances affecting the Mansfield area as highlighted by Mulligan *et al.* (2018).

The geologic and hydrogeologic information presented above illustrate that the upper sediment package (*i.e.*, silt unit) is not a viable ground water supply for potable use in the Community of Mansfield as defined by MECP guidance (*i.e.*, D-5-5 Guideline).

3.4 Ground Water Chemistry Data

Two wells were sampled during the PML (2021) Site investigation because an insufficient quantity of water existed in most of the monitoring wells at the Site. This outcome of the water quality sampling program is significant. What it shows is that the ground water in the monitoring wells once evacuated/ purged did not readily flow back into the well screens such that a sample could be collected. Recently, after purging the monitoring wells for sampling, Azimuth found that the wells did not recover for several days. Furthermore, the water samples contain a considerable quantity of suspended solids which further impair the potable water quality. A sample from MW-10 which was allowed to sit; resulted in half the water volume collected in a bottle being sediment

⁵ D-5-5 Guideline - Section 4.3.2
<https://www.ontario.ca/page/d-5-5-private-wells-water-supply-assessment>



"fines". Thus, the saturated condition in the silt unit is considered to be impractical from the perspective of a viable ground water supply.

MW-7 was sampled; but it represents the ground water in the Newmarket Till unit. Even then, the elevated iron concentration reported by PML (2021) would suggest that the sample was likely turbid. The nitrate concentration was 1.58 mg/L, which is assumed to be indicative of the concentration in the Newmarket Till unit. The other sample collected was from MW-10 on June 11, 2021. The nitrate concentration was reported to be 13.6 mg/L. No nitrite was detected in either ground water sample. The iron concentration in the MW-10 sample was reported to be 44.7 mg/L. This value suggests the water sample was quite turbid since it suggests the iron concentration is well above the saturation limit for ground water alone.

The point being made is that the water quality samples do not reflect a shallow aquifer because a sufficient quantity of ground water cannot be obtained from the monitoring wells. Subsequent sampling by Azimuth in October 2022 has resulted in similar measurements. The MW-10 sample measured a nitrate concentration of 14.6 mg/L. A nitrate sample collected from MW-5 measured 18.0 mg/L. Finally, a second MW-7 sample reported a nitrate concentration at 2.3 mg/L. The samples were quite turbid and it was difficult to obtain a sufficient liquid volume for testing purposes. The final water quality sample was collected in November 2022 at MW-5 and MW-10. The nitrate concentration was reported to be 17.2 and 11.1 mg/L, respectively.

The water quality results are important to the evaluation of the hydrogeologic setting. The water quality in the Newmarket Till unit does not appear to be experiencing downward percolation of the elevated nitrate waters. The consistent sample results of the nitrate concentration at ~2 mg/L-N are much lower than those concentrations reported in the overlying silt unit of the upper sediment package. Agricultural pursuits and the presence of existing residential housing in the Mansfield vicinity near the Site have been present for over a century. This time should be more than sufficient to permit percolation of the elevated nitrate waters vertically down into the Newmarket Till unit even with a low hydraulic conductivity value. The absence of the elevated nitrate concentration in the Newmarket Till unit indicates that other factors are in play with this environmental setting. Denitrification is most likely occurring in the till since anaerobic conditions could exist in this aquitard, along with access to labile organic carbon (Robertson *et al.*, 1996; Rodvang & Simpkins, 2001).

According to Rudolph (1997) "... [n]itrate is usually limited to the upper portion of the aquifer and concentrations tend to diminish with depth (Trudell *et al.*, 1986; Geyer *et al.*, 1992; Starr and Gilham, 1993). This layering of nitrate can be referred to as stratified



contamination (Akindunni *et al.*, 1995) ...". While this process is dependent on specific aquifer properties, it is reasonable to suggest that most Southern Ontario aquifers/aquitards possess these characteristics.

In the absence of vertical nitrate migration due to denitrification, the lateral migration becomes the main migration pathway along the surface contact of the Till (or in proximity to this feature), albeit at the diminished flow rate highlighted above.

4.0 D-5-4 GUIDELINE REQUIREMENTS

4.1 Step Two Assessment - Isolated Setting

At the present time, it would be reasonable to conclude that the hydrogeologic environment at the Armstrong Development meets the description of the hydrogeologic isolated setting noted above in the D-5-4 Guidance document. The geologic attributes of the Site presented above will not be re-iterated here; other than to state that the Armstrong Development meets the MECP requirements.

The D-5-4 Guidance states that the following two key issues need to be resolved:

- a) evaluate the most probable ground water receiver for sewage effluent: its definition must be defended by hydrogeological data and information obtained through a test pit, auger hole and/or test drilling program; and
- b) define the most probable lower hydraulic or physical boundary of the ground water receiving the sewage effluent.

The ground water percolation into the basal silt unit of the upper sediment package is considered the receiving formation for the treated effluent from the proposed Armstrong development. As noted above, this basal silt unit lies directly above the regional aquitard (*i.e.*, the Newmarket Till). The geologic and hydrogeologic information presented above have substantiated this conceptual understanding. The underlying Newmarket Till will effectively isolate shallow ground water flow in the upper sediment package.

Similarly, the information presented shows that the treated effluent would reside in the basal silt unit; not unlike the agricultural fertilizers that have been applied to these lands for decades. As shown, the underlying Newmarket Till unit would minimize further vertical percolation from occurring. Minor vertical percolation into the underlying Newmarket Till will not pose a significant threat to underlying ground water resources. Furthermore, research has shown that aquitard systems effectively mitigate nitrate migration (Robertson *et al.*, 1996; Rodvang & Simpkins, 2001). The fertilizer



applications that have historically occurred on these lands provide a precedent to understand the nitrate movement in this system.

Lateral migration of the ground water in the silt unit of the upper sediment package becomes the critical pathway for nitrate migration. Within the silt unit, lateral migration is effectively negated since the estimated rate of flow is inconsequential. Even if a worst case approach were employed, where the rate of flow was increased tenfold; the net overall effect would not be significant.

All of the evidence presented attests to the fact that the receiving formation is not a viable potable water supply. The geologic setting indicates that a finer grained material was deposited in the Nottawasaga watershed by the glacial Lake Schomberg. The geologic research also indicates that the deposition was found to be downward fining as revealed in the Site drilling program and in various water well records. Finally, the presence of the Pine River valley a short distance up gradient of the Site also plays a pivotal role in the hydrogeologic setting by having eroded the overburden cover and preventing any up gradient flow from occurring in the shallow sediment package. This re-entrant stream course creates a sub-watershed boundary condition which contributes to the minimal saturated condition at the Site and beyond.

The historic water well database reveals virtually no use of this silt unit in the upper sediment package as a viable potable supply within the Mansfield Community. Reported well yields from the documented shallow wells confirm the inability of the upper sediment package to provide a viable potable supply as defined by MECP literature (*i.e.*, D-5-5 Guideline). The water well database also confirmed that there are no shallow well users down gradient of the Site for distances greater than 500 m.

It is also reasonable to presume that when presented with a more reliable water supply via a municipal system that the sporadic users of this shallow unit would opt for this alternative. Municipal records confirm that all residences in proximity to the 10th Sideroad and Airport Road intersection are connected to the municipal supply. The net result is that the geologic setting and hydrogeologic environment create a shallow system which is impractical for domestic supply or agricultural use. The shallow system is effectively isolated from deeper ground water resources and the nitrate migration is limited to the shallow system. In other words this isolated system meets the MECP's definition for the Step Two in the D-5-4 Guidance assessment.

4.1.1 Surface Water Resource and Discharge

The on-Site creek channel is considered to be a remnant of the deglaciation processes from the late-Wisconsin retreat. The creek channel is deeply incised from past glacial



flow and subsequently vegetated. Site evaluation confirmed the watercourse on the Site receives flow from the south through a 1.7 m wide by 0.9 m high corrugated steel pipe (CSP) culvert at the 10th Sideroad. This culvert accepts a combination of roadside ditch drainage, and drainage from the adjacent residential neighbourhood.

Although sections of the Pine River are classified as coldwater, temperature monitoring by NVCA summarized in the Integrated Watershed Management Plan resulted in 'cool' classifications in the southern portion of the subwatershed by Airport Road (in proximity to the Site), and 'cool/warm' classifications just downstream (NVCA, 2018). On the Site, conditions in the tributary on the property are considered marginal and unsuitable for most fish species including salmonids (Azimuth, 2021). Given the small size of the channel and muck, and densely vegetated channel conditions with limited flow, the creek presents more as a warmwater system. Given Site conditions and lack of any notable barriers to fish movement (aside from lack of flow and seasonal inundation), the creek is conservatively considered to provide seasonal, direct fish habitat; however, the habitat quality is considered low (Azimuth, 2021). The report also described the creek channel substrate consisted of muck/organic soils with sparse gravel.

The Site study did comment that "... visible minimal spring flows were noted, while the channel was mainly dry (with no visible flow) by the summer ...", (Azimuth, 2021). Based on field observations, the wetland area within the creek channel was generally dry by August, and no evening calling amphibians were found during the field program. Based on these feature attributes, unique ecological functions would not be attributed to the wetland on the Site.

The creek was not considered significant or sensitive; but the findings do provide a few important points from a hydrogeologic perspective. Baseflow from the silt unit into the creek is considered to be present; but insignificant to the feature. Seepage occurs; but is inconsequently by the summer when the channel is described as "dry". The other notable point made is that the creek channel substrate is mucky and organic rich. This substrate condition is anticipated to mitigate any nitrate migration to the creek. Robertson *et al.* (1999) documented that vigorous denitrification occurred in the riverbed sediment as a result of the development of anaerobic conditions. In this environment, nitrate can be converted to nitrogen gas by a reaction involving organic matter. The nitrate concentration decreased from about 20 mg/L to less than 0.5 mg/L in the last meter of the flow path before discharging into a river. The process was attributed to the increased availability of organic carbon in the riverbed sediments. The substrate conditions described by Robertson *et al.* (1999) replicate those described at the on-Site creek. Puckett *et al.* (2008) indicated that sites having longer residence times through the streambed sediments provided a greater opportunity for biogeochemical reactions such as



denitification to occur. The slow ground flow/ seepage from the silt unit would cater to a longer residence time which is anticipated to address the nitrate issue in terms of the river channel.

4.2 Proposed Septic Servicing Strategy

The following discussion has been submitted previously (Azimuth, 2022); but is included for thoroughness.

4.2.1 Individual Septic Systems with Tertiary Treatment

The intent of this section is to provide the preliminary sewage system design concepts for an individual residential lot. The conceptual design of the proposed sewage system assumes a conventional filter bed with tertiary treatment technology and use a percolation rate of ≤ 12 min/cm, based on the grain size analyses (PML, 2021).

4.2.1.1 Sewage Volumes

The sewage system design flow for a single residential lot is estimated to be 3,500 litres per day (Lpd) and is based on Ontario Building Code (O.Reg. 332/12 [as amended]) for a dwelling that is ≤ 350 m² with up to four bedrooms and up to 40 fixture units. Assumptions used in the calculation are provided in Table E.

Table E: Sewage System Design Volume (Individual Septic System)

Facility	No. of Units	OBC Sewage Volumes (L/day)		Total Sewage Volume (L/day)
A. Dwelling:				
No of new bedrooms	4	2000	L/4-bedroom unit	2,000
A. Sewage Volume (5-bedroom dwelling)				2,000
B) Additional Sewage Volume for¹:				
i) Additional bedrooms each bedroom over 5	0	total No. of bedrooms 500 L/ bedrooms over 5		0
or				
i) Sewage Volume (bedrooms over 5)				0
ii) Finished Floor Area	350	sqft		0
Remaining area >200m ²	150	m ²		
each 10m ² >200-400m ²	150	100	L/ 10m ² >200m ²	1,500
each 10m ² >400-600m ²	0	75	L/ 10m ² >400m ²	0
each 10m ² >600m ²	0	50	L/ 10m ² >600m ²	0
or				
ii) Sewage Volume (finished floor area)				1,500
iii) Fixture Units	40	total units		
No. of fixture units >20	20	50	L/ per fixture >20	1,000
iii) Sewage Volume (fixture counts > 20)				1,000
B. Additional Sewage Volume¹				1,500
Total Daily Design Sewage Volume (A+B)				3,500
¹ Calculation resulting in the highest flow shall be used in determining the additional sewage volume				
² Total finished area, excluding the area of the finished basement (OBC)				



4.2.1.2 Sewage Treatment and Disposal

For the purposes of this evaluation, the proposed septic system will consist of a tertiary treatment unit (*e.g.*, Norweco, Waterloo Biofilter or approved equivalent) with discharge to an in-ground filter bed designed with an estimated percolation rate (T-time) of 12 min/cm. A standard septic system utilizes a septic tank with a minimum volume of 3,600 litres (L) or two times the design volume for residential use. In this case, the minimum volume of the septic tank is estimate to be 7,000 L (*i.e.*, 2x the estimated design volume).

The filter bed will be constructed in a manner consistent with that stipulated in OBC Section 8.7.5.2(5). The filter bed system requires even distribution of the treated effluent over an adsorption system consisting of a 300 mm stone layer overlying 750 mm of an unsaturated sand layer (filter medium). The contact area between the filter medium and the native soil is sized so that its area is equivalent to the product of the peak flow and native soil percolation rate divided by 850 (*i.e.*, $A = QT/850$). The overlying stone layer is designed to provide an area equal to 100 L of treated water per square meter of stone ($A = Q/100$) when using tertiary treatment.

The preliminary design details for a typical filter bed and a sewage layout plan (*e.g.*, Lot 34) and are provided on Drawings No.: 2 and 4, respectively. The example calculations are provided below:

Stone Area (loading on the sand filter medium)

The calculation for the loading on the surface of the filter media (stone area) is based on the following OBC formula:

$$A = \frac{Q}{100}, \text{ where,}$$

A = filter media surface area (m²);

Q = peak daily septic discharge = 3,500 L/day (Table 2); and

Loading rate with tertiary treatment = 100 L/m²/day

Therefore,

$$A = \frac{3500}{100} = 35 \text{ m}^2 \text{ (effective area illustrated is } 35 \text{ m}^2\text{)}$$



Since the maximum area of the filter surface is less than 50 m², one filter bed encompassing an area of 35 m² is proposed (e.g., 5 pipes @ 7 m long).

Sand Layer Filter Medium (Contact Area)

The calculation for the sand filter medium is based on the following OBC formula:

$$A = \frac{Q \times T}{850}, \text{ where,}$$

Q = peak daily septic discharge = 3,500 L/day (Table 2);

T = infiltration rate for underlying soils = 12 min/cm (PML, 2021)

$$A = \frac{3,500 \times 15}{850} = 50 \text{ m}^2 \text{ (effective area illustrated is } 100 \text{ m}^2)$$

Based on the above, the minimum required area of the sand filter medium is 50 m². The filter medium material must meet the grading requirements as per Section 8.7.5.3 of the OBC. The area of the filter bed along with a reserve bed area is illustrated on Drawing No.: 4 (Appendix A).

4.2.2 Shared Tertiary Treatment Systems

4.2.2.1 Sewage Volumes

The peak daily design volume for a shared tertiary treatment system will be ≤10,000 Lpd and is based on the OBC for a unit that is ≤111.5 m² with two or three bedrooms and / or a den. Assumptions used in the calculation are provided in Table F.

Table F: Sewage Daily Design Volume (Shared tertiary treatment system)

Dwelling Type	Communal Bed Location	No. of Units	No. of Bedroom	Total no. of Bedrooms/Block	OBC Sewage Volumes	Total Sewage Volume (L/day)
Semi Detached	Block 53	6	2	12	1,100	6,600
Semi Detached		2	3	6	1,600	3,200
				18		9,800
Semi Detached	Block 52	2	3	6	1,600	3,200
Townhomes		6	2	12	1,100	6,600
				18		9,800
Townhomes	Block 50	9	2	18	1,100	9,900
		25		54		9,900

Table F has been updated to specify the maximum number of bedrooms (i.e., 54 bedrooms) which would be allowed to keep the total design volume under 10,000 Lpd.



Sewage volumes that are $\leq 10,000$ Lpd do not require approval from the MECP. Rather the approval process is governed under the OBC and through the Township.

4.2.2.2 Sewage Treatment and Disposal

For the purposes of this evaluation, the proposed septic system will consist of a tertiary treatment unit (*e.g.*, Norweco, Waterloo Biofilter or approved equivalent) with discharge to an in-ground Type A Dispersal Bed designed with an estimated percolation rate (T-time) of ≤ 12 to 15 min/cm. The minimum volume of the septic tank is estimated to be $\leq 20,000$ L (2x the estimated design volume).

The Type A Dispersal Bed will be constructed in a manner consistent with that stipulated in OBC Section 8.7.7.1. The Dispersal bed system requires even distribution of the treated effluent over an adsorption system consisting of a 300 mm stone layer overlying 300 mm of an unsaturated sand layer. The sand layer is sized so that its area is equivalent to the product of the peak flow and the native soil percolation rate divided by 850 (*i.e.*, $A = QT/850$ for $t \leq 15$ min/cm). The overlying stone layer is designed to provide an area equal to 50 L of treated water per square meter of stone ($A = Q/50$ for $Q > 3,000$ Lpd).

The preliminary design details for a dispersal bed and a sewage layout plan for each block is provided on Drawing No.: 3 and 5, respectively and the example calculations are provided below:

Stone Layer

The calculation for the stone area layer is based on the following OBC formula:

$$A = \frac{Q}{50}, \text{ where,}$$

A = area of the stone layer (m^2);

Q = peak daily septic discharge = 9,900 L/day (Table 2);

$$\text{Loading rate} = 50 \text{ L/m}^2/\text{day for } Q > 3,000 \text{ Lpd}$$

Therefore,

$$A = \frac{9900}{50} = 198 \text{ m}^2 \text{ (effective area illustrated is } 200 \text{ m}^2\text{)}$$

Sand Layer

The calculation for the sand layer is based on the following OBC formula:



$$A = \frac{Q \times T}{850}, \text{ where,}$$

Q = peak daily septic discharge = 9,900 L/day (Table 2);

T = infiltration rate for underlying soils = ≤ 15 min/cm (PML, 2021)

$$A = \frac{9900 \times 15}{850} = 174.7 \text{ m}^2 \text{ (effective area illustrated is } 200 \text{ m}^2\text{)}$$

Based on the above, the minimum required area of the stone layer is 200 m^2 and the minimum required area of sand filter medium is 200 m^2 .

4.2.3 OBC Setbacks

With the above, the OBC requires specific minimum spacing requirements for both the treatment unit (includes septic tanks), as well as the distribution piping of the tile field from structure, property line and/ or surface water features. A summary of the OBC minimum spacing requirements is provided in Table G.

Table G: OBC Setback Requirements

Site Feature	Treatment Unit (m)	Distribution Piping (m)
Structure	1.5	5
Well (watertight casing >6 m)	15	15
Any other well (dug well)	15	30
Lake	15	15
Pond	15	15
Reservoir	15	15
River	15	15
Spring not used as a source of potable water	15	15
Stream	15	15
Property Line	3	3

4.2.4 Sewage System Controls

Any concerns associated with the use of tertiary treatment systems can be addressed through one or more of the various types of agreements (*e.g.*, occupancy permit, subdivision agreement, purchase and sale agreement, registration on the deed, and/ or septic maintenance agreement) as is typically used for other municipalities.

Any future well construction on the Site should occur below the Newmarket Till aquitard and into the deep sediment package or underlying shale bedrock. Proper well construction as per O.Reg. 903/00 would be required.



4.2.5 Sewage Impact Study

4.2.5.1 Nitrate Effluent Criteria

Nitrate (as nitrogen) is the main contaminant of concern for sewage works that discharge effluent to the ground water regime due to the potential for health related impacts in drinking water supplies. As highlighted above, the nitrate rich effluent from the proposed septic system will not migrate below the Newmarket Till. Percolation through the Newmarket Till provides a denitrifying mechanism such that the effluent (like the current agricultural fertilizer) will not have an adverse impact on the deep ground water resource.

4.2.5.2 Infiltration Rates

In 2008, the MECP modified septic impact assessments and have incorporated a constant quantity of dilution in the calculation (MECP, 2008). The quantity is 250 mm of water per year (mm/a) over the area of the contaminant plume. In contrast, an infiltration rate that is more representative of Site specific conditions can be used to estimate the diluting volume. For the purposes of this discussion an infiltration rate of 235.8 mm/a is used and is based on the water budget analysis described in Section 4.2.5.3.

4.2.5.3 Water Budget

As part of this evaluation, a water budget was prepared using the Thornthwaite and Mather (1957) method. This method evaluates evapotranspiration based on monthly precipitation and temperature data. Residual soil saturation is a function of topography and soil type. Values were determined on a monthly basis, compiled from daily Environment Canada meteorological data at the Orangeville/ Mono Station between 1969 and 2019. The water budget calculates the effect of evapotranspiration and provides an estimated net monthly surplus or deficit. The surplus reflects the water available to runoff or infiltrate to the ground water regime.

The average annual water surplus is 393 mm representing the amount of water available annually to infiltrate into the ground water or run off as surface water. During this period, the average annual precipitation was 895 mm, the average annual rainfall was 671 mm, and the average annual evapotranspiration was 502 mm.

Infiltration factors for the Site were estimated based on the underlying soil, local topography, and ground cover as per Table 2 of the Ministry of Environment and Energy (MOEE) Hydrogeological Technical Information Requirements for Land Development Applications (1995). Considering the surficial geology (*i.e.*, sand/silt with a percolation rate of between 8 and 12 min/cm) within the study area, the majority of the Site being cultivated and having a rolling topography, it was determined that 60% of the water surplus will infiltrate across the Site. For the period of record, by multiplying the annual



average precipitation surplus amount (393 mm/a) by the average soil infiltration rate (60%), infiltration is estimated to be approximately 235.8 mm/a for the Site.

4.2.5.4 Treated Effluent Nitrate Concentration

Typical nitrate ($\text{NO}_3\text{-N}$) values for weak to medium domestic sewage for a standard Class IV system range between 20 and 60 mg/L (Metcalf & Eddy, 1972) with an average concentration of 40 mg/L ($\text{NO}_3\text{-N}$). Depending on the tertiary treatment technology used, nitrates can be reduced on average by at least 50% (*i.e.*, Waterloo Biofilter system). For the purposes of the D-5-4 assessment, a $\text{NO}_3\text{-N}$ concentration of 20 mg/L is used; however it is recognized that there are other technologies that can reach more than 67% removal of nitrate (*i.e.*, Norweco's Hydro-Kinetic FEU system).

4.2.5.5 Dilution Area

The D-5-4 Guidance assessment considers dilution only, and therefore it is highly conservative. Based on a review of the pervious areas illustrated on the Draft Plan of Subdivision (IPS, 2021), infiltration from approximately 80% of the property or 17.69 ha contributes to dilution. Notwithstanding, runoff from rooftops (typically 75%) from each of the dwellings would be available for infiltration over lawns area, thus our evaluation is conservative since all impervious area (*e.g.*, dwelling, driveways, walkways, internal roadways) have been excluded from the dilution calculation.

4.2.5.6 Annual Sewage Volume

The average daily volume for a single residential home is typically between 800 and 1,000 Lpd. As described in the MECF guidance document, the volume of sewage should not exceed 1,000 Lpd when evaluating contaminant attenuation for residential development. For the purposes of the analysis a value of 1,000 Lpd is used.

4.2.5.7 Nitrate Dilution Calculation

The MOE (2008) also states "*... where it can be shown that the uppermost subsurface unit(s) at an infiltration facility have a vertical hydraulic conductivity of 10^{-5} cm/sec or less, is at least 10 m (33 feet) thick and extends at least 100 m (330 ft) downgradient of the infiltration area, attenuation calculations may not be required ...*". The lower silt unit in the upper sediment package meets the permeability requirements (see Table C); but is not 10 m thick. It is the only saturated unit in the upper sediment package and the glacial Lake Schomberg deposition of the silt unit is known to have occurred in much of the Nottawasaga basin Mulligan *et al.* (2018) (Figure 4).

The point being made by the MECF is that slow moving formations pose minimal environmental concern. This occurs because the mass flux of the source in a low permeability unit becomes insignificant for the ground water migration. Thus if



conditions similar to that identified above exist; then this should factor into the overall assessment. This occurs in the underlying dilution calculation as shown below.

Assumptions utilized in this dilution evaluation for the severed parcel are as follows:

- the area contributing to ground water flow is based on the size of the property (exclusive of hard surfaces);
- annual dilution infiltration rate of 235.8 mm/a;
- septic effluent average concentration of 40 mg/L (conventional treatment) 20 mg/L (tertiary treatment); and
- average daily flow of 1,000 Lpd (average flow per dwelling, MECP, 1996).

The standard mass balance calculation is outlined below:

$$C_T = \frac{Q_1 C_1 + Q_2 C_2}{Q_T}, \text{ where}$$

Q_1 = (contribution from property) = total area (m^2) x infiltration (m/a)
(17.69 ha * 235.8 mm/a infiltration = 41,715 m^3/a);

C_1 = (background nitrate concentration from precipitation) ~0.2 mg/L;

Q_2 = (contribution from the disposal bed) = 1,000 Lpd per dwelling = 67,000 Lpd;

C_2 = (septic effluent nitrate concentration)
= 40 mg/L (conventional treatment) and 20 mg/L (tertiary treatment);

Q_T = (total off-Site discharge) = $Q_1 + Q_2$; and

C_T = nitrate criteria at down gradient evaluation point.

The predicted concentration in the shallow ground water regime at the down gradient property boundary using conventional treatment is ~15.0 mg/L (as NO_3-N). Using tertiary treatment, the predicted concentration in the shallow ground water at the down gradient property boundary is reduced to 7.8 mg/L (as NO_3-N). The calculations are provided in Appendix C. A key aspect to this estimate is that the base flow in the silt unit in the upper sediment package is inconsequential to the evaluation. As a result, the mass flux of the base flow is also inconsequential to the assessment.

The expectation is that the treated effluent from the proposed development will dilute the current nitrate concentrations in the subsurface. The expectation is that the background nitrate concentration detected in the silt unit of the upper sediment package is due in part to the agricultural fertilizers applied onto the Site since it is being actively cultivated.



However, a portion of the nitrate detected could also be attributable to the up gradient residential septic systems. Regardless, the development's nitrate input at 7.8 mg/L would dilute the existing condition and improve the overall water quality as it migrates further east in the upper sediment package.

Based on the physical characteristics of the Site, nitrate concentrations in the shallow subsurface could also be reduced by nitrification and attenuation processes, as well as biological uptake, which are not considered as part of the above noted assessment. Denitrification also plays a primary role in polishing nitrate concentrations in the shallow subsurface which is also not factored in this assessment. As such, impacts are expected to be inconsequential in nature as a result of the proposed development concepts.

5.0 CLOSURE

Based on the results of the sewage impact study, it is concluded that the environmental conditions upon the Site will allow up to 67 residential dwellings to be developed without adverse impact to the local ground water regime. The results of the nitrate dilution calculation show that the net loading of the property is 7.8 mg/L provided that tertiary treatment technology is used. The use of tertiary treatment technology is sufficient to protect the natural environment and will not result in any negative impact on the ground water quality.

The footprint of an individual filter bed has been provided to illustrate that the individual lots are sufficiently sized to accommodate a disposal bed, reserve bed and associated buildings (*e.g.*, dwelling, garage and driveway) while meeting all OBC setbacks in the final design. Similarly, the footprint of a tertiary treatment unit and dispersal bed is also provided to illustrate that the blocks are sufficiently sized for a shared system and the system capabilities have been properly assessed. The exact location of each disposal bed system and the percolation rate used in the final design should be confirmed during the permitting approvals process.

Any concerns associated with the use of tertiary treatment systems can be addressed through one or more of the various types of agreements (*e.g.*, occupancy permit, subdivision agreement, purchase and sale agreement, registration on the deed, and/ or septic maintenance agreement) as is typically used at other municipalities. For the 'shared' tertiary treatment units, it is noted that the number of bedrooms cannot exceed 54 bedrooms / block.



6.0 REFERENCES

- Akindunni, F.F., R.W. Gillham, B. Conant Jr. and T. Franz, 1995
Modelling of contaminant movement near pumping wells: saturated-unsaturated flow with particle tracking
Ground Water, 33 (2), pp. 264-274
- Azimuth Environmental Consulting, Inc., 2021
Environmental Impact Study - Lot 11 Concession 7, Mansfield
prepared for 2735528 Ontario Inc., p. 98
- Chapelle, F.H., 1993
Ground-water microbiology and geochemistry
John Wiley & Sons, Inc., p. 424
- Eyles, N., 2012
Rock drumlins and megaflores of the Niagara Escarpment, Ontario: a hard bed landform assemblage cut by the Saginaw-Huron Ice Stream
Quat. Sci. Reviews, 55, pp. 34-49
- Gerber, R.E., 1999
Hydrogeologic behavior of the Northern till aquitard near Toronto, Ontario
Ph.D. Thesis, U. of Toronto, p.336
- Geyer, D.J., C.K. Keller, J.L. Smith and D.L. Johnstone, 1992
Subsurface fate of nitrate as a function of depth and landscape position in Missouri Flat Creek watershed
US J. Contam. Hydrol., 11, pp. 127-147
- Kassenaar, D., S. Holysh and R. Gerber, 2003
Intergrated 3D Hydrostratigraphic Interpretation in Complex Aquifer Systems
56th Cdn Geotech. Conf. & 4th Joint IAH-CNC/CGS Conf., Winnipeg, p.8
- Kor, P.S.G. and D.W. Cowell, 1988
Evidence of catastrophic subglacial meltwater sheetflood events on the Bruce Peninsula, Ontario
Cdn. J. Earth Sci. 35(10), pp. 1180-1202



Metcalf & Eddy, 1972

Wastewater Engineering - Treatment Disposal and Reuse
McGraw-Hill, p.782

Ministry of the Environment, Conservation and Parks, 2016

D-5-4 Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment
last updated July 2021

<https://www.ontario.ca/page/d-5-4-individual-site-sewage-systems-water-quality-impact-risk-assessment>

Ministry of the Environment, Conservation and Parks, 2016

D-5-5 Private Wells: Water Supply Assessment
last updated June 2021

<https://www.ontario.ca/page/d-5-5-private-wells-water-supply-assessment>

Ministry of the Environment, Conservation and Parks, 2008

Design Guidelines for Sewage Works
PIBS 6879, ISBN 978-1-4249-8438-1, p. 476

<https://www.ontario.ca/document/design-guidelines-sewage-works-0>

Ministry of Environment and Energy, 1995

Hydrogeological Technical Information Requirements for Land Development
Applications (1995)
PIBS 3540, p. 492

<https://ia601601.us.archive.org/12/items/moehydrogeologi00ontauoft/moehydrogeologi00ontauoft.pdf>

Mulligan, R.P.M., H.E. Carolyn and A.F. Bajc, 2018

Stratigraphic analysis of late Wisconsin and Holocene glaciolacustrine deposits
exposed along the Nottawasaga River, southern Ontario, Canada
Can. J. Earth Sci. 55, pp. 863-885

Nottawasaga Valley Conservation Authority, 2018

Integrated Watershed Management Plan - Characterization Report
prepared by Ecosystems Recovery Inc. and issued June, p. 288

Oak Ridges Moraine Groundwater Program, 2023

Geologic and Hydrogeologic on-line database
<https://www.oakridgeswater.ca/>



- Peto MacCallum Limited, 2021
Geotechnical/ Hydrogeological Investigation - Proposed Residential Development -
937045 Airport Road, Mansfield, Ontario
dated September 21, p. 85
- Peto MacCallum Limited, 2022
Ground Water Level Monitoring - Proposed Residential Development -
937045 Airport Road, Mansfield, Ontario
dated July 18, p.2
- Puckett, L., H. Essaid, C. Zamora, J. Wilson, H. Johnson, and J. Vogel, 2008
Transport and Fate of Nitrate at the Ground Water-Surface Water Interface
J. Environ. Qual., 37, pp. 1034-1050
- Pugin, A., S.E. Pullan and D.R. Sharpe, 1996
Observations of tunnel channel in glacial sediments with swallow land-based seismic
reflection
In: Collins, D., P. Holmlund, N. Humphrey, T. Johannesson and R. Powell (Eds)
Proc. Internat'l Sym. On Glacial Erosion and Sedimentation, Annals of Glaciology,
Internat'l Glaciol. Soc., pp. 176-180
- Robertson, W.D., J.A. Cherry and E.A. Sudicky, 1999
Ground-Water Contamination from Two Small Septic Systems on Sand Aquifers
Ground Water, 29 (1), pp. 82-92
<https://doi.org/10.1111/j.1745-6584.1991.tb00500.x>
- Robertson, W.D., B.M. Russell and J.A. Cherry, 1996
Attenuation of nitrate in aquitard sediments of southern Ontario
J. Hydrol. 180, (1-4), pp. 267-281
ISSN 0022-1694, [https://doi.org/10.1016/0022-1694\(95\)02885-4](https://doi.org/10.1016/0022-1694(95)02885-4)
- Rodvang, .S. and W. Simpkins, 2001
Agricultural contaminants in Quaternary aquitards: A review of occurrence and fate in
North America
Hydrogeol. J. 9, pp. 44-59
<https://doi.org/10.1007/s100400000114>



- Rudolph, D., 1997
Development and Demonstration of Approaches to Manage Drinking Water Quality on the Farm
report for Agriculture Canada, p. 151
- Russell, H.A.J., R.W.C. Arnott and D.R. Sharpe, 2002
Evidence for rapid sedimentation in a tunnel channel, Oak Ridges Moraine, southern Ontario, Canada
Sed. Geol., 3134, pp. 1-23
- Russell, H.A.J., D.R. Sharpe, S.E. Pullan and P.J. Barnett, 2000
Form and sedimentary fill of tunnel channels beneath the Oak Ridges Moraine, southern Ontario: the Holland Marsh and King City channel system
GSC, File 3841
- Sharpe, D.R., L.D. Dyke, M.J. Hinto, S.E. Pullan, H.A.J. Russell, T.A. Bernand, P.J. Barnett, and A. Pugin, 1996
Groundwater prospects in the Oak Ridges Moraine area, southern Ontario: application of regional geological models
Current Research, 1996-E, GSC, pp. 181-190
- Starr, R.C. and R.W. Gillham, 1993
Denitrification and organic carbon availability in two aquifers
Ground Water, 31 (6), pp. 934-947
- Straw, A., 1968
Late Pleistocene Erosion Along the Niagara Escarpment of Southern Ontario
GSA Bull., 79, pp. 889-910
- Thorntwaite, C.W. and J. Mather, 1957
Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance
Drexel Institute of Technology, Laboratory of Climatology, Centerton, N.J.
- Trudell, M.R., R.W. Gillham and J.A. Chevy, 1986
An in situ study of the occurrence and rate of denitrification in a shallow unconfined sand aquifer
J. Hydrol., 83, pp. 251-268



APPENDICES

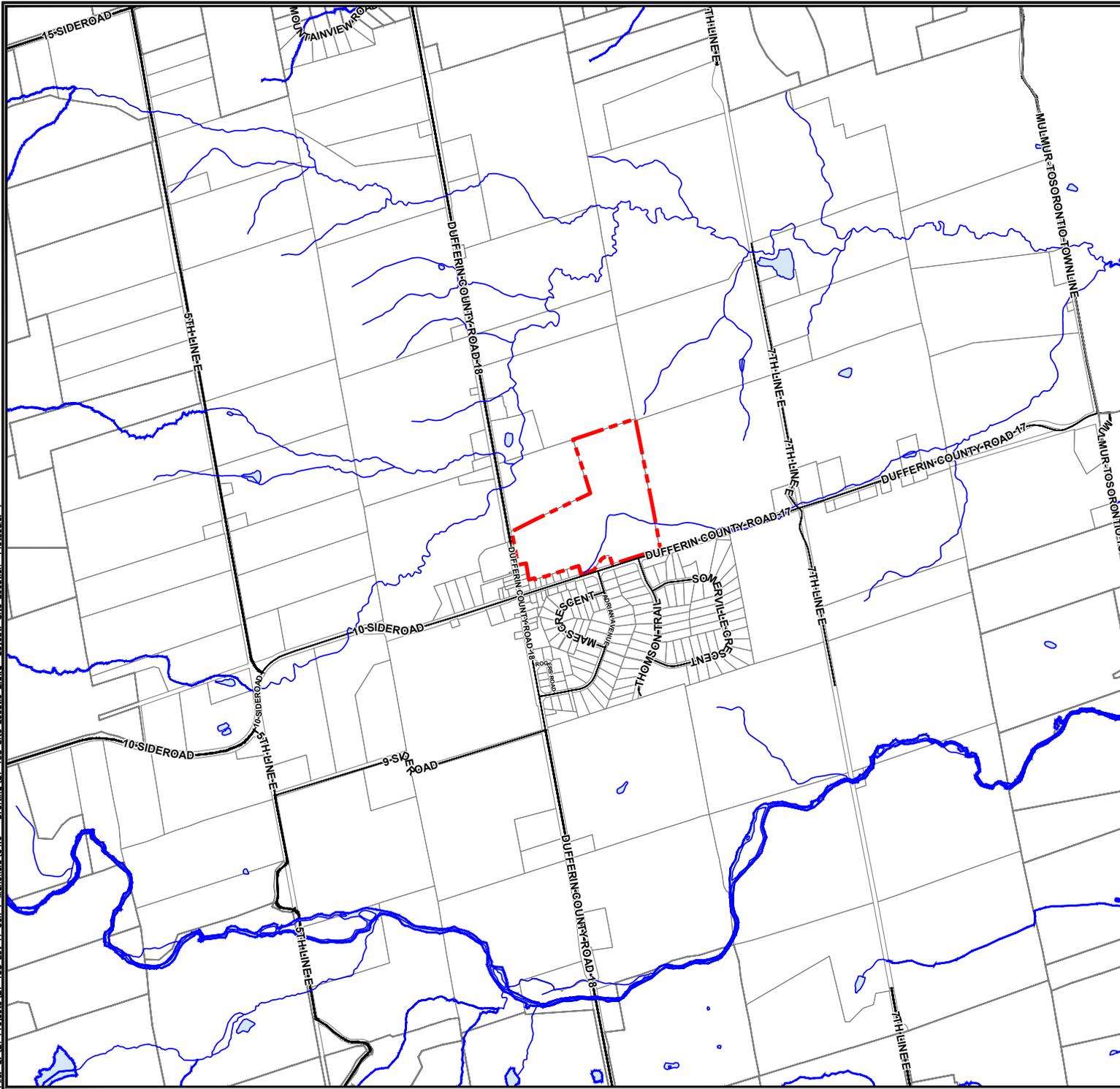
- Appendix A: Figures and Drawings**
 - Appendix B: MECP Water Well Records**
 - Appendix C: Nitrate Calculation**
-
-



APPENDIX A

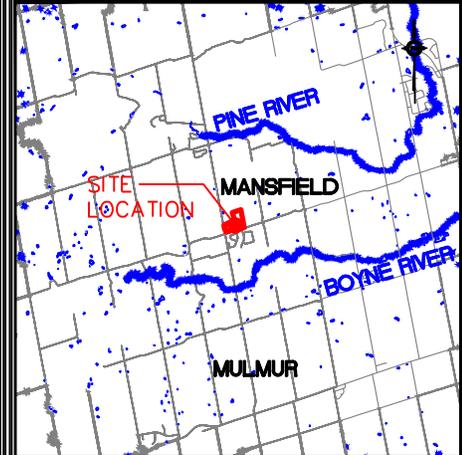
Figures and Drawings

Plotted by: AUU on January 19, 2022 at 12:06pm
File: C:\21 Projects\21-158 Lot 11_Con 7 Mansfield\04.0 - Drafting\21-158 Site Locatib_2.dwg Layout: Site Location PlotScale: 1



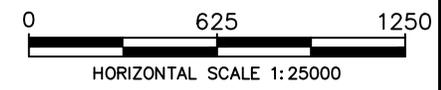
LEGEND:

--- APPROX. PROPERTY BOUNDARY



REGIONAL MAP

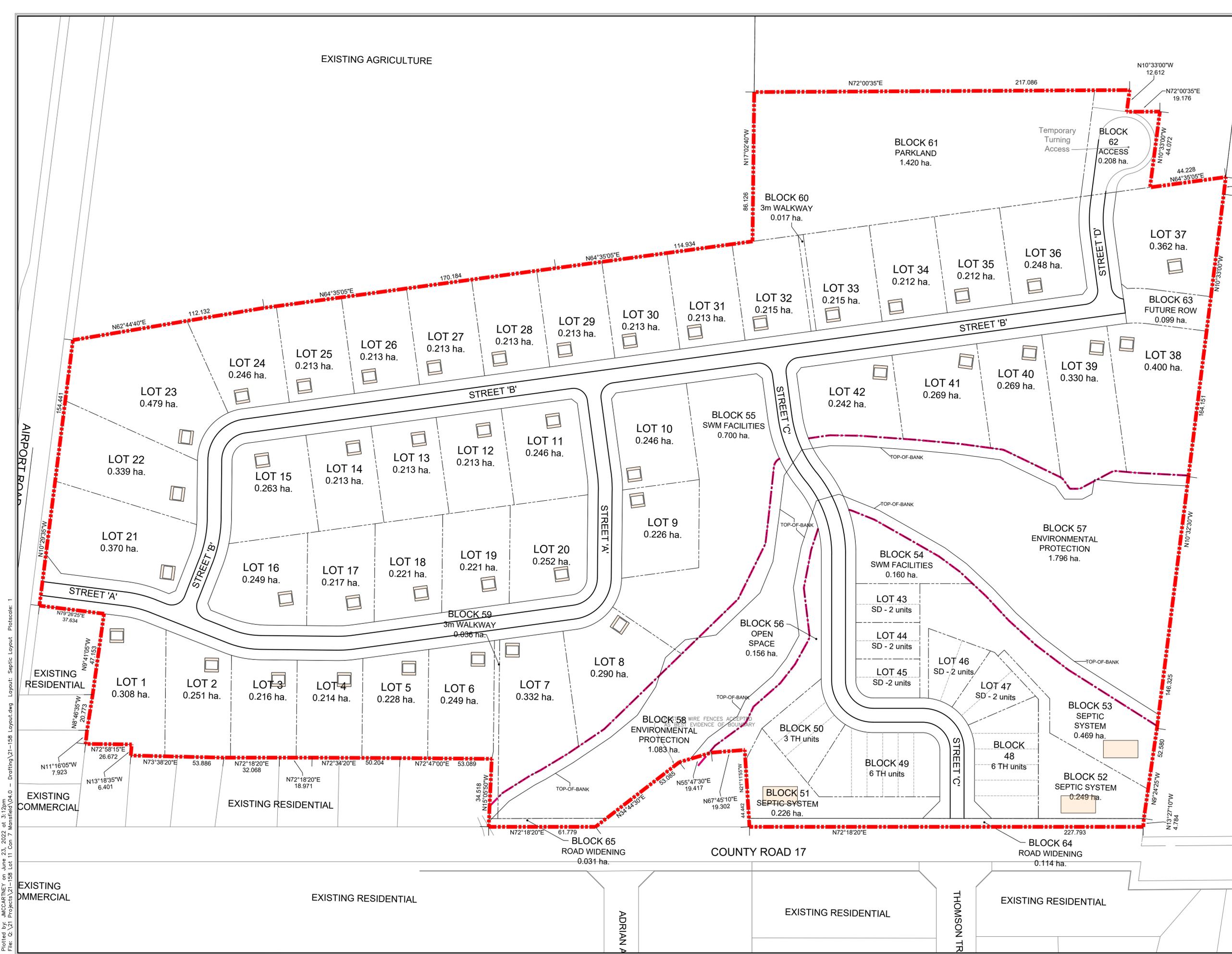
SCALE 1:250000



STUDY AREA LOCATION

**ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON**

DATE ISSUED: JANUARY 2022	Figure No.
CREATED BY: A.L.	
PROJECT NO.: 21-158	A
REFERENCE: DUFFERIN COUNTY	

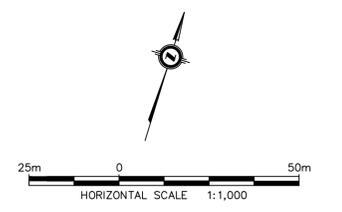


LEGEND:

- PROPERTY BOUNDARY
- LOT LINE
- 6.0m SETBACK FROM TOP-OF-BANK (IPS, SEPT. 2021)
- INDIVIDUAL SEPTIC BED FOOTPRINT (64m²)
- COMMUNAL SEPTIC BED FOOTPRINT (200m²)

NOTES:

- FINAL LOCATION OF SEPTIC FOOTPRINT TO BE CONFIRMED DURING DETAILED DESIGN APPROVALS.



NO.	DESCRIPTION	DATE	BY
2	SITE PLAN UPDATE	10/14/2021	J.C.
1	ISSUED FOR SITE PLAN APPROVAL	09/17/2021	J.C.

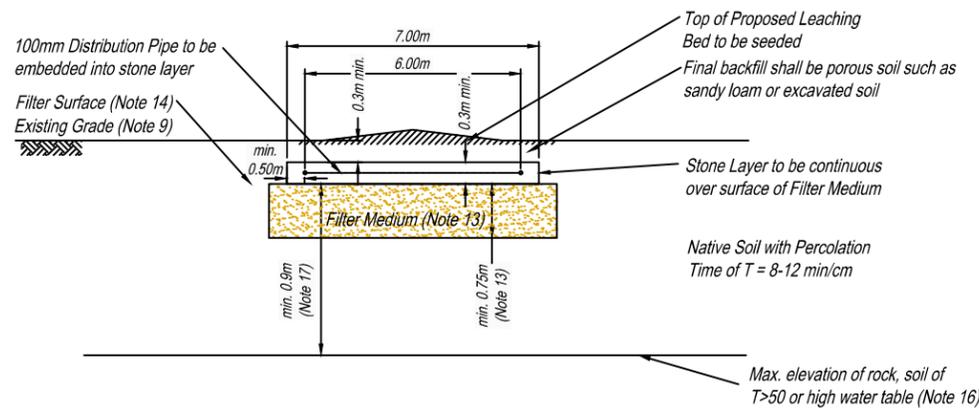
DESIGN BY / APPROVED:

PRELIMINARY SEPTIC SYSTEM LAYOUT PLAN

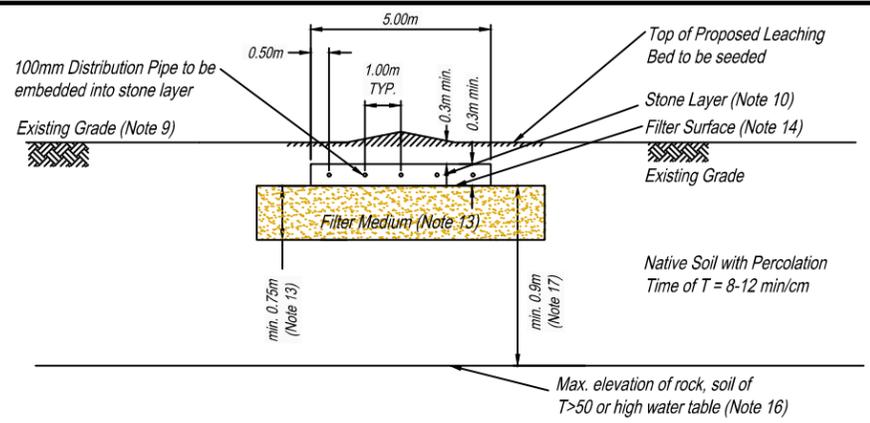
ARMSTRONG ESTATES OF MANSFIELD MULMUR, ON

DATE ISSUED:	SEPTEMBER 2021	DWG NO.	1
CREATED BY:	A.L.		
PROJECT NO.:	21-158		
REFERENCE:	DUFFERIN COUNTY		

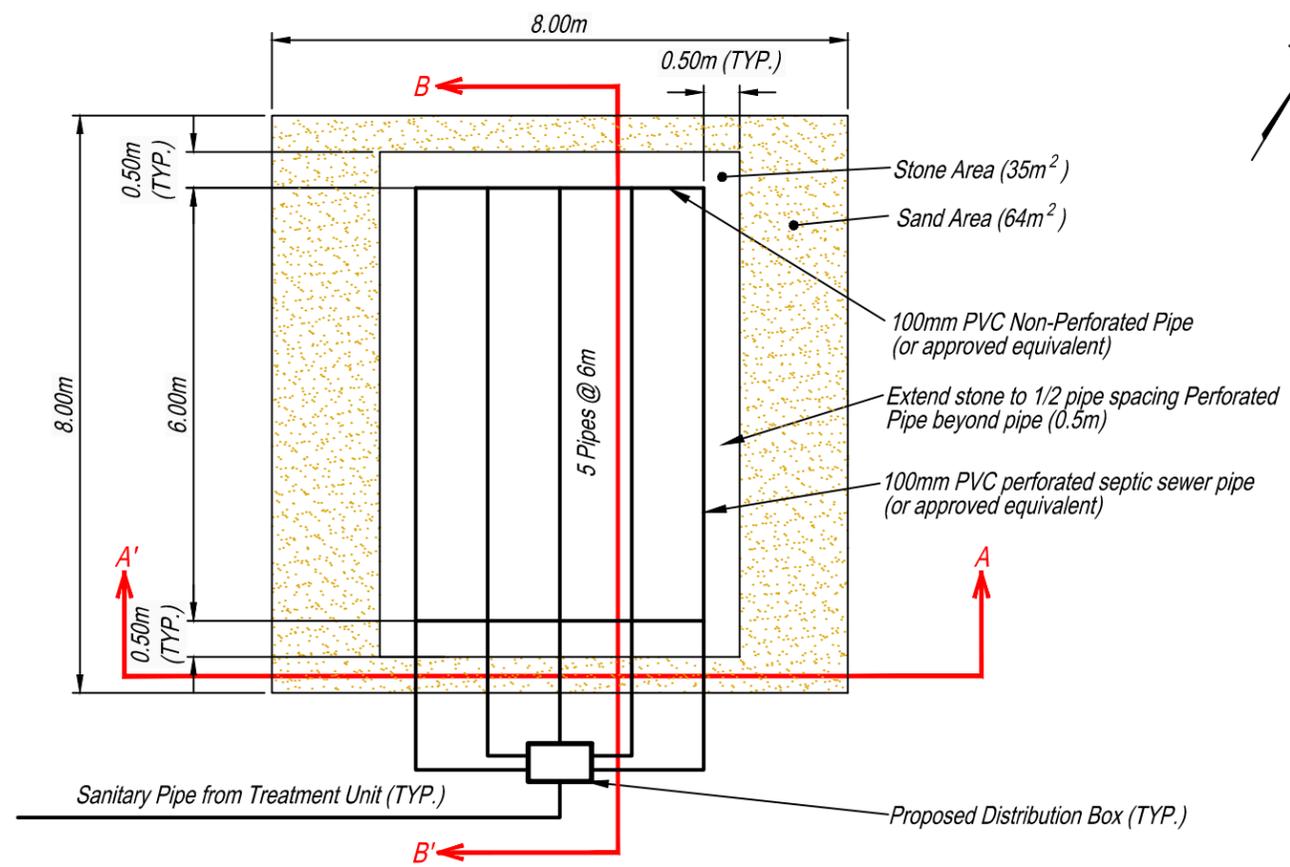
Plotted by: JMCARTNEY on June 23, 2022 at 3:12pm
 File: G:\21\Projects\21-158 Lot 11 Con 7 Mansfield\04.0 - Drafting\21-158 Layout.dwg Layout: Septic Layout Plotscale: 1



Section B-B'
2x Vertical Exaggeration



Section A-A'
2x Vertical Exaggeration



Plan View (TYP.)

SEWAGE DESIGN BASIS (TYPICAL)

DESIGN FLOW:
Total Design Flow (Q) = 3,500 Lpd 4 bedrooms

TREATMENT - FILTER BED

- 1) Surface Area of Filter Medium (stone layer) = $Q/100$ (with tertiary treatment)
 - A = 35.0 m²
 - Effective Area provided = 35.0 m²
 - Area = 5 x 7 m
- 2) Filter Sand Layer Area = $QT/850$
 - Percolation Rate (T) = 8-12 min/cm (PEL 2021)
 - Design Percolation Rate (T) = 15 min/cm
 - A = 61.8 m²
 - Effective Area Provided = 64 m²
 - Area = 8 x 8 m

SEPTIC TANK VOLUME:

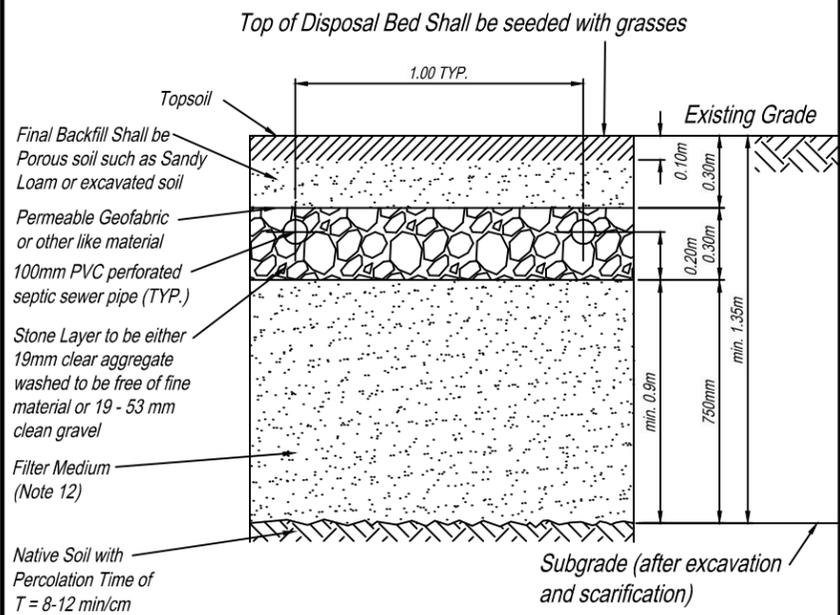
Volume = Qx2
Total Design Flow (Q) = 3500 L
Tank Volume Required = 7000 L

Notes

- 1 Percolation rate to be confirmed on a lot by lot basis during detailed design approvals
- 2 Final location of bed, treatment tanks and dwelling to be confirmed during detailed design
- 3 Tertiary treatment technology to be confirmed during detail design approvals

General Notes for Leaching Filter Bed

1. All piping and plumbing materials must conform to the Plumbing Code.
2. All pipe installations must conform to the Plumbing Code.
3. All pipe connections shall be flexible and watertight.
4. The distribution pipe shall be sloped not less than 30mm and not greater than 50mm for each 10m of distribution pipe.
5. An adequate soil covering that is crowned and sheds water from the area bed is required.
6. The filter bed shall not be constructed in a manner that can adversely affect the performance of the system such as compacting or smearing the native soils.
7. The filter bed shall not be constructed in a location that can adversely affect the performance of the system such as flood-prone areas or inappropriate slopes.
8. The side slope of the leaching bed fill shall be sloped to meet existing grade if applicable (to be confirmed in field).
9. Bed elevations assumed; elevation of bed(s) to be verified in the field by contractor/owner.
10. The stone layer in which the distribution pipe is set is continuous over the surface of the filter medium, and is comprised of stone which is either 19mm clear aggregate washed to be free of fine material, or clean gravel screened to be between 19 and 53mm
11. The stone layer shall be protected from clogging by an appropriate geotextile fabric covering.
12. Only filter material meeting grading requirements acceptable to the MOE for filter bed construction may be used.
13. The filter medium shall have a minimum depth of 750 mm below the stone layer and shall be clean sand comprised of particles ranging in size between the limits of,
 - (a. an effective size of 0.25 mm with a uniformity coefficient not less than 3.5,
 - (b. an effective size of 2.5 mm with a uniformity coefficient not greater than 1.5, and
 - (c. having a uniformity coefficient not greater than 4.5.
14. Maximum area of filter surface is 50m².
15. Contact area between the filter and underlying soil must not be less than the Area = QT/850 where Q is the daily sewage flow and T is the percolation rate of the soil.
16. The surface of the filter medium must be 0.9m above rock, or soil with a T>50 min/cm or the high ground water table.
17. The minimum distance between septic tank and dwelling is 5m.
18. Percolation rate used in the design of the septic bed is based on the grain size analysis from soil sample provided by the PML (2021).



Disposal Bed Cross-Section (TYP.)

No.	Description	Date	By
1	Issued For Site Plan Approval	07-09-2021	JC

Designed By:

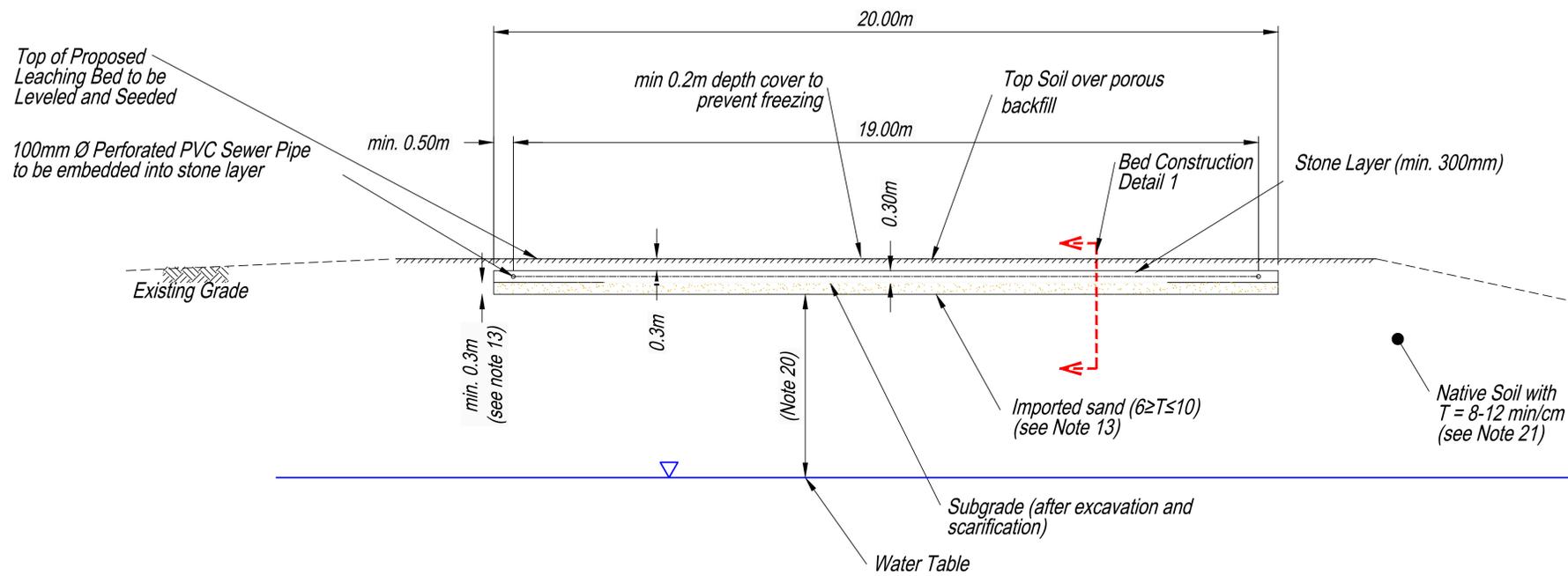
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

TYPICAL FILTER BED DESIGN
LOTS 1-42

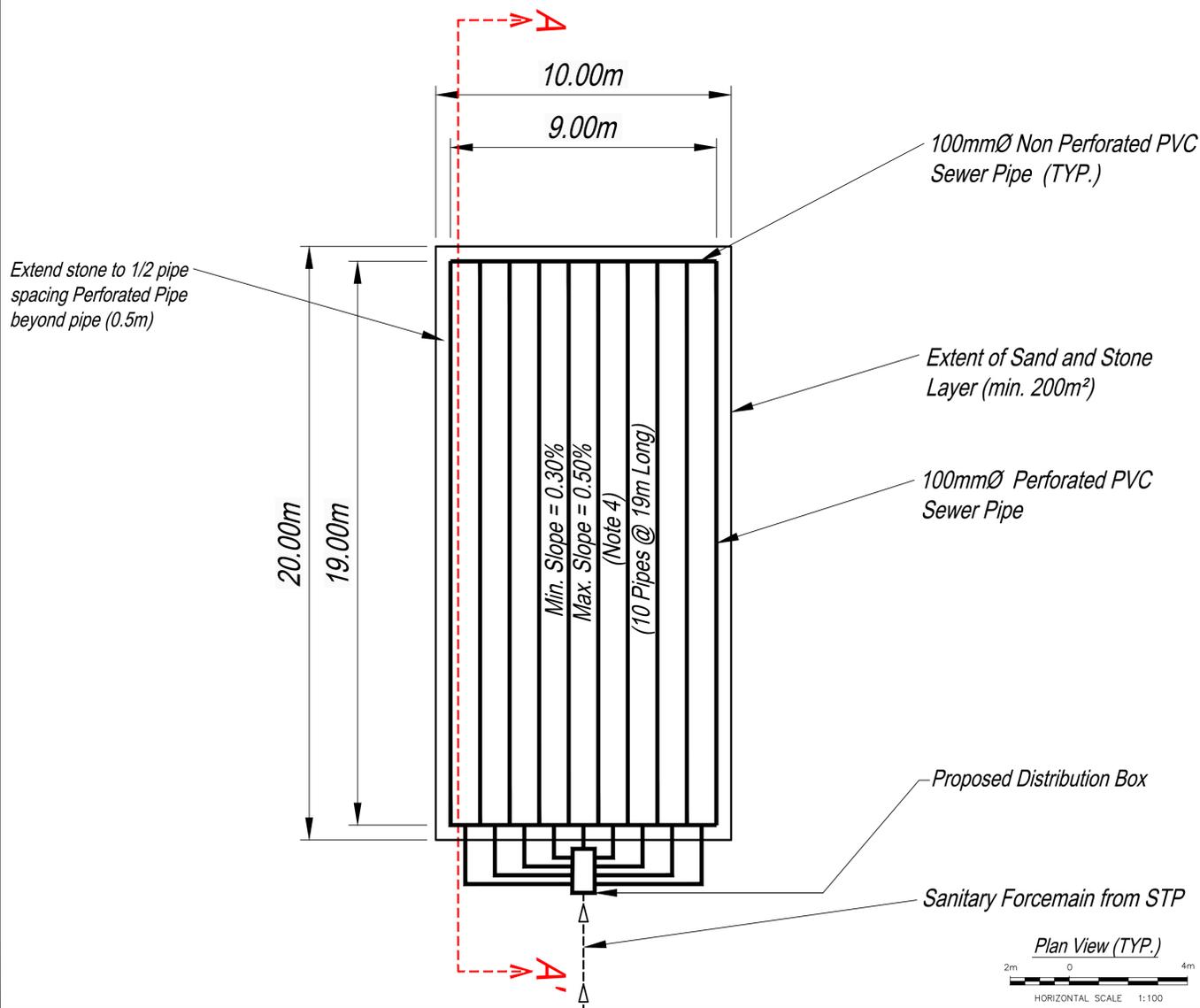
ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED: SEPTEMBER 2021	Drawing No.
CREATED BY: A.L.	2
PROJECT NO.: 21-158	
REFERENCE:	

Plotted by: ALJU on September 8, 2021 at 1:32pm
 File: Q:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04-0 - Drafting\21-158.dwg Layout: SSP2 Plotcode: 0.5
 DAYSTAMP: Q:\21 Projects\21-049 Molenhuis House Tiny Township\drafting\21-049.dwg



Section A-A'
Disposal Bed Area
HORIZONTAL SCALE 1:75



Plan View (TYP.)
HORIZONTAL SCALE 1:100

COMMUNAL SYSTEM SEWAGE DESIGN BASIS (TYPICAL)

DESIGN FLOW:
Total Design Flow (Q) < 9,900 Lpd

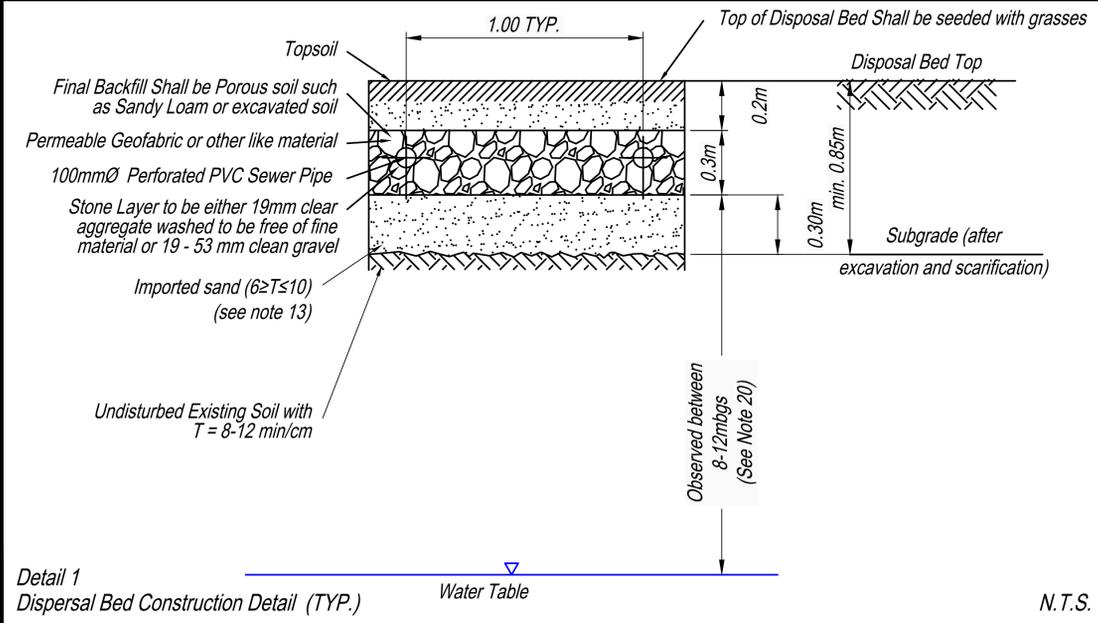
TYPE A DISPERSAL BED

1) Surface Area of Filter Medium (stone layer) = Q/50 (with tertiary treatment)
 A = 198.0 m²
 Effective Area provided = 200.0 m²
 Area = 10 x 20 m

2) Filter Sand Layer Area
 Percolation Rate (T) = 8-12 min/cm (PEL 2021)
 Design Percolation Rate (T) = 15 min/cm
 A = 174.7 m²
 Effective Area Provided = 200 m²
 Area = 10 x 20 m

SEPTIC TANK VOLUME:
 Volume = Qx2
 Total Design Flow (Q) = 9,900 L
 Tank Volume Required 19800 L

Notes
 1 Percolation rate to be confirmed on a lot by lot basis during detailed design approvals
 2 Final location of bed and treatment tanks to be confirmed during detailed design approvals
 3 Tertiary treatment technology to be confirmed during detail design approvals



Detail 1
Dispersal Bed Construction Detail (TYP.)
Water Table

General Notes for Disposal Bed

- All piping and plumbing materials must conform to the Plumbing Code.
- All pipe installations must conform to the Plumbing Code.
- All pipe connections shall be flexible and watertight.
- The distribution pipe shall be sloped not less than 30mm and not greater than 50mm for each 10m of distribution pipe.
- The distribution pipe shall be covered with the stone to a height of at least 50mm above the top of the distribution pipe.
- An adequate soil covering that is crowned and sheds water from the area bed is required.
- The Disposal bed shall not be constructed in a manner that can adversely affect the performance of the system such as compacting or smearing the native soils.
- The disposal bed shall not be constructed in a location that can adversely affect the performance of the system such as flood-prone areas or inappropriate slopes.
- Bed elevations assumed based on topographic survey (by others); all elevations to be verified in the field by septic installer/contractor.
- The stone layer in which the distribution pipe is set is continuous over the surface of the disposal medium, and is comprised of stone which is either 19mm clear aggregate washed to be free of fine material, or clean gravel screened to be between 19 and 53mm
- The stone layer shall be protected from clogging by an appropriate geotextile fabric covering.
- Only disposal material meeting grading requirements acceptable to the MECF for disposal bed construction may be used.
- As per OBC section 8.7.7.1(4), the sand layer must be comprised of sand that has a percolation rate of at least 6 and not more than 10 min/cm, not more than 5% fines passing through a 0.074 mm (No. 200) sieve, and a minimum thickness of 300 mm.
- Construction of the disposal bed must adhere to requirements outlined in OBC Section 8.7.7 (Type A Dispersal Bed).
- Contact area between the disposal and underlying soil must not be less than the Area = QT/850 where Bed Q is the daily sewage flow and T is the percolation rate of the soil.
- Sanitary Pipes/Forcemains shall be insulated under roadways and walkways at a depth great enough to ensure protection against frost and crushing.
- All gravity connections shall have a minimum 2% grade, unless otherwise specified.
- Side slopes (if applicable) vary to a max of 4:1 or 3:1 if measures are taken to prevent erosion and ensure stability of leaching bed.
- Location of disposal bed to be confirmed during detailed design.
- Bottom of stone layer 0.6m above bedrock or highwater table or soil with T >= 50min/cm.
- Percolation rate 8-12 min/cm (PEL, 2021).

No.	Description	Date	By
1	Issued For Site Plan Approval	07-09-2021	JC

Designed By:

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

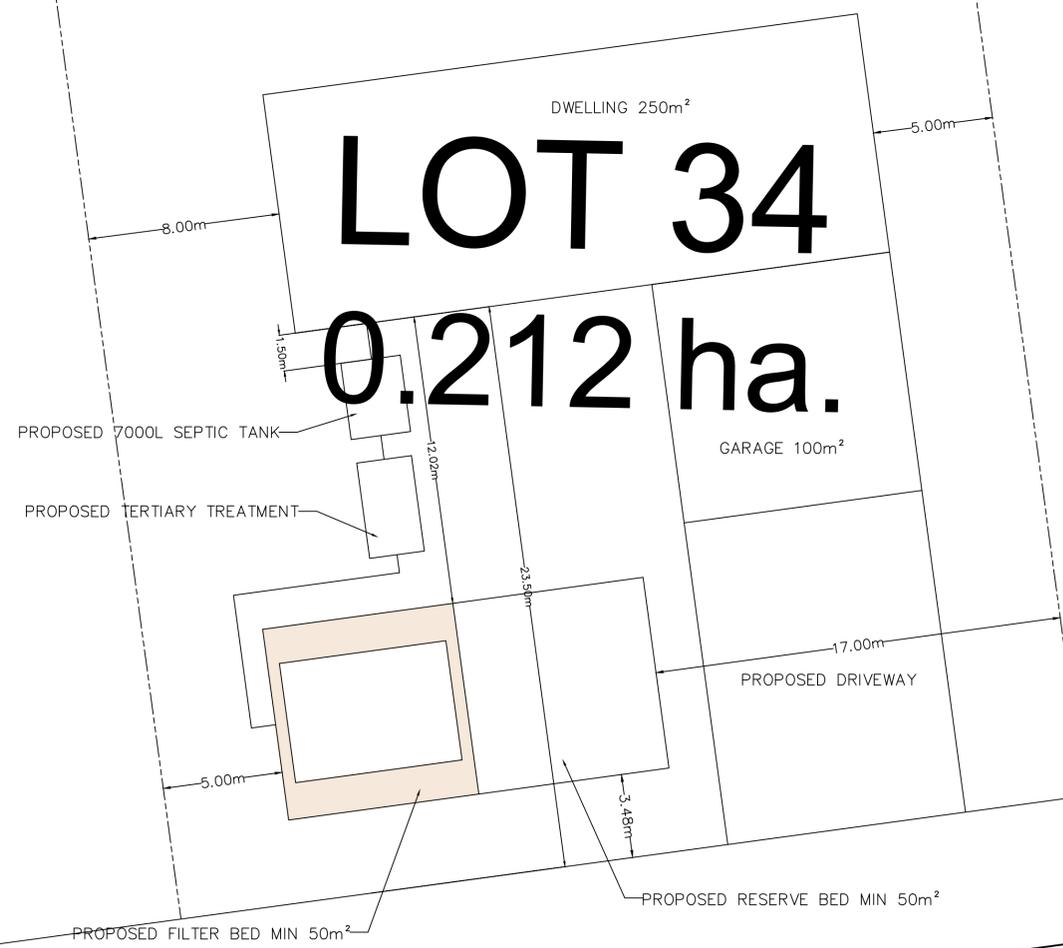
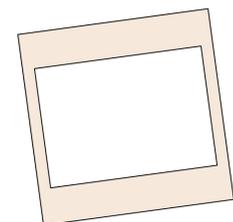
TYPICAL TYPE A DISPERSAL BED (COMMUNAL SYSTEM)

ARMSTRONG ESTATES OF MANSFIELD MULMUR, ON

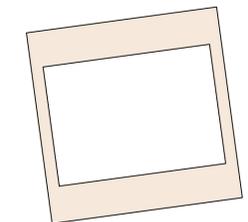
Date Issued:	SEPTEMBER 2021	Drawing No.
Created By:	J.L.M., A.L.	
Project No.	21-158	3
Reference:		

Plotted by: ALIU on September 21, 2021 at 9:02am
 File: Q:\21_P\Projects\21-158 Lot 11, Con 7 Mansfield\04.0 - Drafting\20-328.dwg - Drafting\20-328.dwg - Layout: COMM-BED - Plotscale: 2

LOT 33
0.215 ha.



LOT 35
0.212 ha.

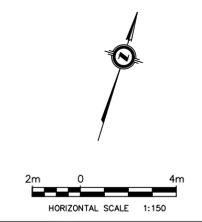


STREET

LEGEND:

- PROPERTY BOUNDARY
- LOT LINE
- 6.0m SETBACK FROM TOP-OF-BANK (IPS, SEPT. 2021)
- INDIVIDUAL SEPTIC BED FOOTPRINT (64m²)

- NOTES**
- FINAL LOCATION OF SEPTIC FOOTPRINT TO BE CONFIRMED DURING DETAILED DESIGN APPROVALS.
 - MIN SETBACK BETWEEN FILTER BED AND PROPERTY LINE IS 3M AND 5M TO DWELLING.
 - MIN. SETBACK BETWEEN SEPTIC/ TREATMENT TANKS AND DWELLING IS 1.5M AND 3M TO PROPERTY LINE.
 - MIN. FRONT AND REAR SETBACK IS 7.5M
 - MIN. INTERIOR SIDE YARD SETBACK IS 1.5M



NO.	DESCRIPTION	DATE	BY
3	INDIVIDUAL LOT PLAN UPDATE	06/14/2022	J.C.
2	SITE PLAN UPDATE	10/14/2021	J.C.
1	ISSUED FOR SITE PLAN APPROVAL	09/17/2021	J.C.

DESIGN BY / APPROVED:

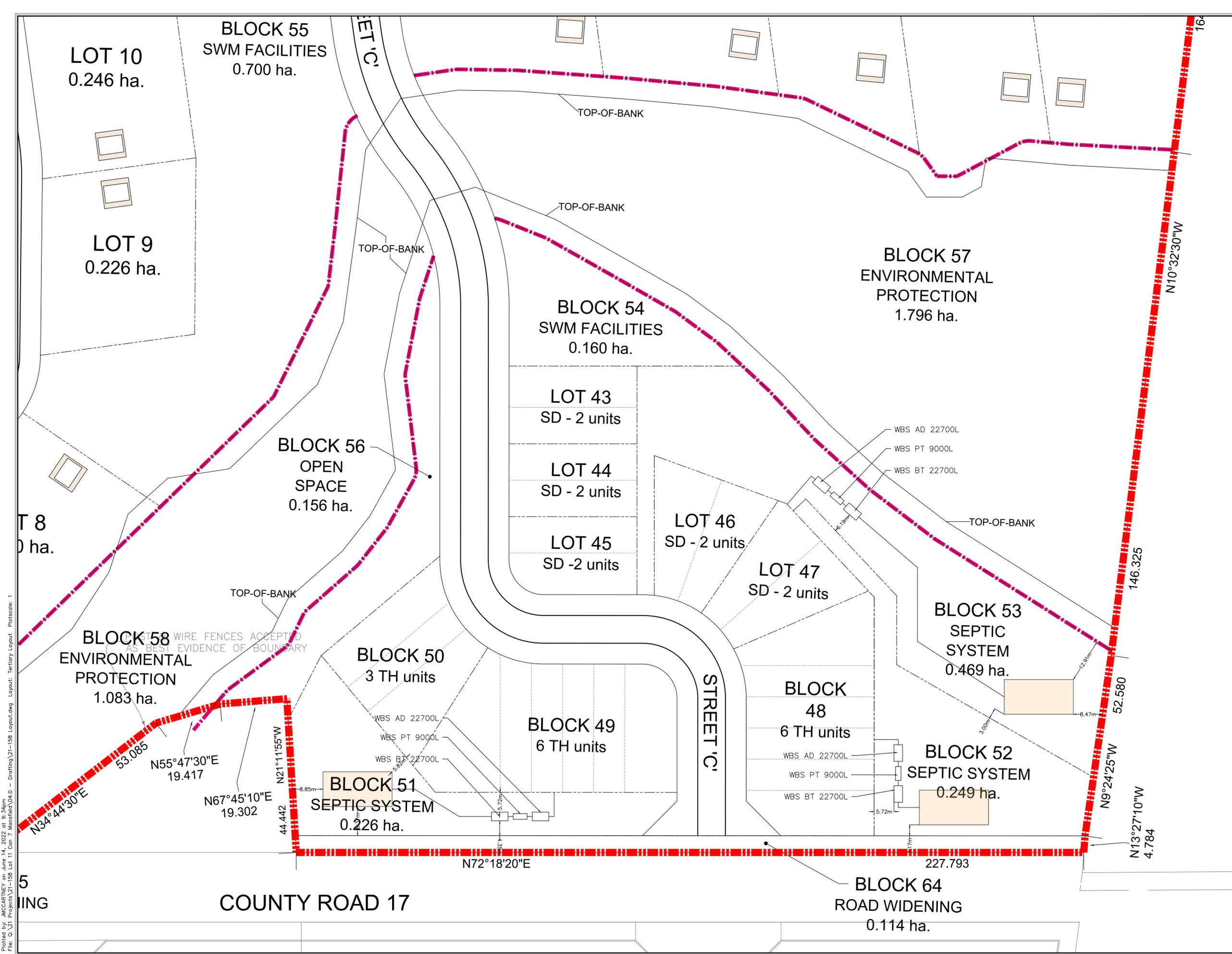


INDIVIDUAL LOT LAYOUT PLAN

ARMSTRONG ESTATES OF MANSFIELD MULMUR, ON

DATE ISSUED:	JUNE 2022	DWG NO.
CREATED BY:	A.L.	4
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

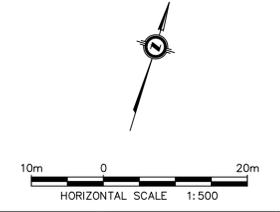
Plotted by: JMCARTNEY on June 23, 2022 at 3:10pm
 File: G:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04.0 - Drafting\21-158 Layout.dwg Layout: Lot Layout Plotscale: 1



LEGEND:

- - - - - PROPERTY BOUNDARY
- LOT LINE
- 6.0m SETBACK FROM TOP-OF-BANK (IPS, SEPT. 2021)
- COMMUNAL SEPTIC BED FOOTPRINT (200m²)

- NOTES:**
1. FINAL LOCATION OF SEPTIC FOOTPRINT TO BE CONFIRMED DURING DETAILED DESIGN APPROVALS.
 2. WBS TERTIARY UNIT (OR APPROVED EQUIVALENT) TO BE CONFIRMED DURING DETAILED DESIGN



NO.	DESCRIPTION	DATE	BY
3	INDIVIDUAL LOT PLAN UPDATE	06/14/2022	J.C.
2	SITE PLAN UPDATE	10/14/2021	J.C.
1	ISSUED FOR SITE PLAN APPROVAL	09/17/2021	J.C.

DESIGN BY / APPROVED:



TERTIARY TREATMENT SEPTIC SYSTEM LAYOUT PLAN

ARMSTRONG ESTATES OF MANSFIELD MULMUR, ON

DATE ISSUED:	JUNE 2022	DWG NO.	5
CREATED BY:	A.L.		
PROJECT NO.:	21-158		
REFERENCE:	DUFFERIN COUNTY		

Plotted by: JMCARNEY on June 14, 2022 at 9:34pm
 File: G:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04.0 - Drafting\21-158 Layout.dwg Layout: Tertiary Layout - PlotScale: 1:500



APPENDIX B

MECP Water Well Records



Ministry of the Environment

Ontario

The Ontario Water Resources Act

41A1/E

WATER WELL RECORD

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

11 1702297 17006 HS E 96

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: [REDACTED] CON. BLOCK, TRACT, SURVEY, ETC.: [REDACTED] LOT: 25-27

DATE COMPLETED: DAY 23 MO 08 YR 77

RC: 90850 ELEVATION: 5 1035 RC: 5 BASIN CODE: 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
SAND				0	15'
BROWN	SAND	CLAY	SANDY CLAY		
GREY	CLAY	GRAVEL GRIT	HARD GRITTY CLAY	15'	80
"	"		STICKY CLAY	80	100
"	"	GRIT	GRITTY CLAY	100	105'
BROWN	SAND		WATER BEARING	105'	114

31 001582805 00802051173 010020586 010520518 011462891

32

41 WATER RECORD

WATER FOUND AT - FEET: 0106

KIND OF WATER:

1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR
2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL

5 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
4 1/8	STEEL	.188	0 - 0108

SCREEN: 004 2x1/2"

DIAMETER: 04000 INCHES

LENGTH: 06 FEET

MATERIAL AND TYPE: stainless steel

DEPTH TO TOP OF SCREEN: 0108 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE
10-13	
18-21	
26-29	

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP AIR

PUMPING RATE: 0006 GPM

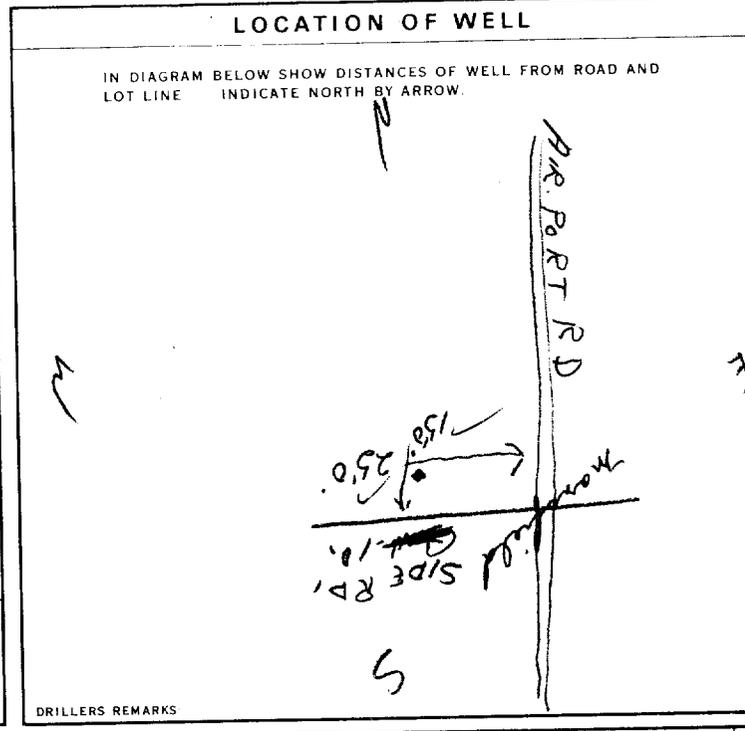
DURATION OF PUMPING: 02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING				
100 FEET	100 FEET	15 MINUTES: 100 FEET	30 MINUTES: 100 FEET	45 MINUTES: 100 FEET	60 MINUTES: 100 FEET	

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 105 FEET

RECOMMENDED PUMPING RATE: 0006 GPM



FINAL STATUS OF WELL: 1 WATER SUPPLY

WATER USE: 01 DOMESTIC

METHOD OF DRILLING: 2 ROTARY (CONVENTIONAL)

CONTRACTOR: [REDACTED]

LICENCE NUMBER: 3602

DATE RECEIVED: 140977

DATE OF INSPECTION: Aug 22/78

INSPECTOR: [REDACTED]

SUBMISSION DATE: DAY 12 MO 9 YR 77

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

11

1705200

Municipality 17006 HS 5 06
Part lot 16

County or District Duff Township/Borough/City/Town/Village Maitland Con block tract survey, etc. 6 Lot 10
Address 167 EDGELEY BLVD. #14, CONCORD Date completed 10 9 1998
Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
<u>Red</u>	<u>Clay</u>			<u>0</u>	<u>10</u>
<u>Red</u>	<u>Shale</u>			<u>10</u>	<u>90</u>
<u>Blue</u>	<u>Shale</u>			<u>90</u>	<u>95</u>

31
32

41 WATER RECORD

Water found at - feet: 75, 95

Kind of water:
 Fresh
 Salty
 Sulphur
 Minerals
 Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
<u>6</u>	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	<u>188</u>	<u>0</u>	<u>20</u>

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

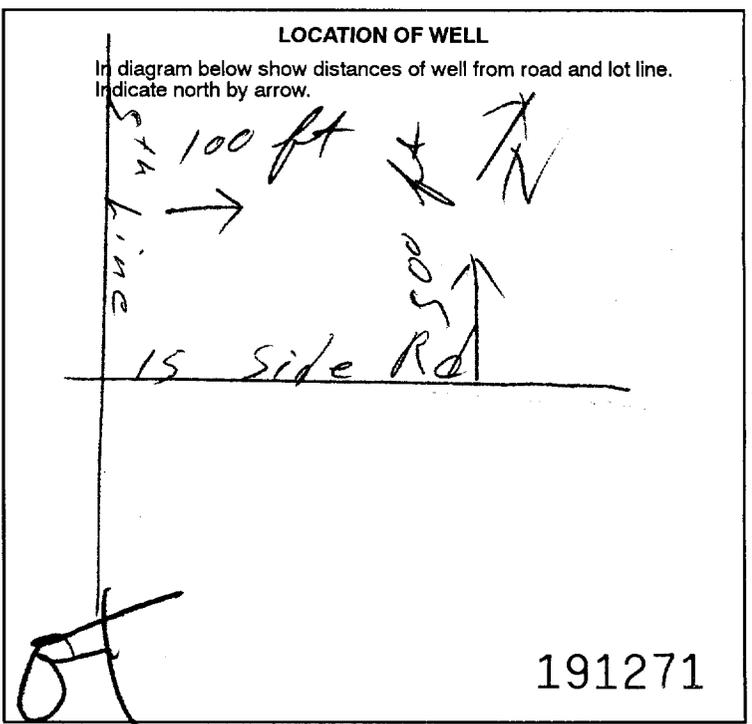
Depth set at - feet
 From To
 Material and type (Cement grout, bentonite, etc.)

71 PUMPING TEST

Pumping test method: Pump Bailer
 Pumping rate: 3 GPM
 Duration of pumping: 3 Hours 0 Mins

Static level: 50 feet
 Water level during pumping: 75 feet
 Water level during recovery: 90 feet

Recommended pump type: Shallow Deep
 Recommended pump setting: 92 feet
 Recommended pump rate: 2 GPM



FINAL STATUS OF WELL

Water supply
 Observation well
 Test hole
 Recharge well

WATER USE

Domestic
 Stock
 Irrigation
 Industrial

METHOD OF CONSTRUCTION

Cable tool
 Rotary (conventional)
 Rotary (reverse)
 Rotary (air)

Name of Well Contractor: B. J. McLean Well Contractor's Licence No.: 3561
 Address: 156 Main St. Flourensville
 Name of Well Technician: B. J. McLean Well Technician's Licence No.: 4-0298
 Signature of Technician/Contractor: B. J. McLean Submission date: _____

MINISTRY USE ONLY

Data source: 3561 Date received: SEP 21 1998
 Date of inspection: _____ Inspector: _____
 Remarks: _____
 CSS. S9



ID: 240975850
Easting: 576,825.0
Drill Method:
Water Level Count: 0
Ground Level: 315.3
Screen 1 Depth (m): -

Well/BH Name: 7267967
Northing: 4,891,116.0
Primary Purpose: Unknown
Water Quality Count: 0
Bottom Depth (m):

Original Name: 7267967
Date Completed: 05/19/2016
Secondary Purpose: Unknown
Rec Pumping Rate:
Total Screens: 1

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description
--------------	------------	-------	--	-------	--	-------	--	-------------

--	--	--	--	--	--	--	--	--



Measurements recorded in: Metric Imperial

A 201327

Well Owner's Information

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

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

Well Location

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

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

UTM Coordinates Zone Easting Northing Municipal Plan and Sublot Number Other

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

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From To. Rows include Sand, Clay, Trace Gravel, Gravel/Sand, Trace Clay, Clay/Gravel, Fine Sand, Silt, Clay, Gravel, Silt, Gravel, Cobble, Blue, and Blue.

Annular Space table with 3 columns: Depth Set at (m/ft) From To, Type of Sealant Used (Material and Type), Volume Placed (m³/R³). Row: 0 to 6.1 Bentonite 0.22

Method of Construction and Well Use table. Method of Construction includes Rotary (Conventional), Rotary (Reverse), Boring, Air percussion, etc. Well Use includes Domestic, Commercial, Municipal, etc.

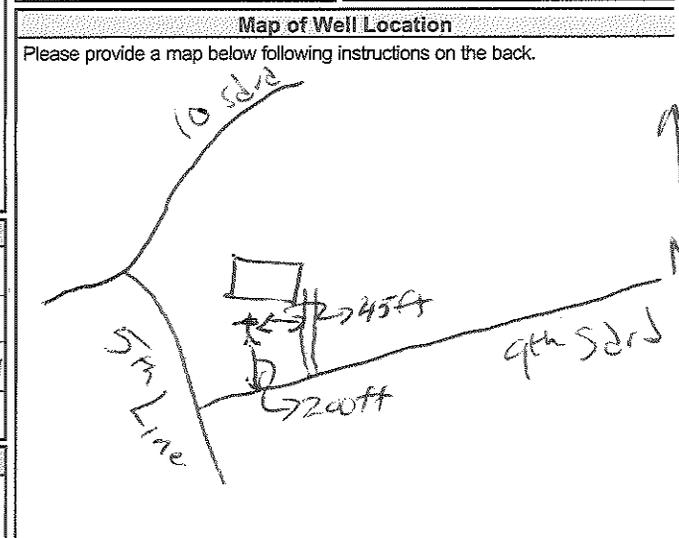
Construction Record - Casing table with 4 columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From To. Rows: 15.24 Steel, 15.24 Open, 10.25 PVC.

Construction Record - Screen table with 4 columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From To. Row: 10.25 PVC, 0.60 slot, 32.62 to 90.55 depth.

Water Details and Hole Diameter table. Water found at Depth, Kind of Water, Depth (m/ft) From To, Diameter (cm/in). Rows: 90.5 (m/ft) Gas, 6.1 (m/ft) Gas, 6.1 (m/ft) Gas.

Well Contractor and Well Technician Information table. Business Name of Well Contractor, Well Contractor's Licence No., Business Address, Municipality, Province, Postal Code, Business E-mail Address, Bus. Telephone No., Name of Well Technician, Well Technician's Licence No., Signature of Technician and/or Contractor, Date Submitted.

Results of Well Yield Testing table. After test of well yield, water was: Clear and sand free, Other. Pumping rate (l/min / GPM), Duration of pumping, Final water level end of pumping (m/ft), Recommended pump depth (m/ft), Recommended pump rate (l/min / GPM), Well production (l/min / GPM), Disinfected? Yes No.



Comments:

Ministry Use Only table. Well owner's information package delivered (Yes/No), Date Package Delivered, Date Work Completed, Audit No. 2228671, Received date 11/15/2016.



Measurements recorded in: Metric Imperial

Well Location

Address of Well Location (Street Number/Name) 568211 9th Side Rd Township Whitby Lot 10 Concession 6
 County/District/Municipality Dufferin City/Town/Village Mansfield Province Ontario Postal Code _____
 UTM Coordinates Zone 17 Easting 576344 Northing 4890501 Municipal Plan and Sublot Number _____ Other _____

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
	<u>Topsoil</u>			<u>0</u>	<u>1</u>
<u>Brown</u>	<u>silty</u>	<u>Sand</u>		<u>1</u>	<u>27</u>
<u>Gray</u>	<u>Sand</u>	<u>silt</u>		<u>27</u>	<u>73</u>
<u>Gray</u>	<u>Sand</u>	<u>clay</u>	<u>silt</u>	<u>73</u>	<u>119</u>
<u>Gray</u>	<u>Sand</u>		<u>fine</u>	<u>119</u>	<u>123</u>
<u>Gray</u>	<u>Shale</u>			<u>123</u>	<u>278</u>

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
<u>0</u> <u>20</u>	<u>Benseal Grout</u>	<u>7.1 ft³</u>

Method of Construction: Cable Tool Rotary (Conventional) Rotary (Reverse) Boring Air percussion Other, specify DI

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	To

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

Water Details		Hole Diameter		
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft) From	To	Diameter (cm/in)
<u>268</u>		<u>0</u>	<u>20</u>	<u>10</u>
		<u>20</u>	<u>278</u>	<u>6</u>

Business Name of Well Contractor Highland Water Wells Well Contractor's Licence No. 2576
 Business Address (Street Number/Name) 225 Elm St Durham Municipality Gray
 Province Ont Postal Code N9B 6R0 Business E-mail Address highlanddrilling@bmts.com
 Bus. Telephone No. (inc. area code) 519 369 6363 Name of Well Technician (Last Name, First Name) Wilson E.
 Well Technician's Licence No. 2113 Signature of Technician and/or Contractor [Signature] Date Submitted 2021 02 23

Results of Well Yield Testing				
After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
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? <input type="checkbox"/> Yes <input type="checkbox"/> No	Static Level	<u>91</u>		
	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: Less than 4gpm not used

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<u>2021 02 23</u>	Audit No. <u>2356796</u>
	Date Work Completed	Rec'd <u>2021 02 23</u>

WATER WELL RECORD

Water management in Ontario

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

11

1701046

MUNICIP. 17006

CON. C/P/N

07

COUNTY OR DISTRICT: **DUFFERIN** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **MULMUIR ENDS** CON., BLOCK, TRACT, SURVEY, ETC.: **VII** LOT: **010**

DATE COMPLETED: DAY **20** MO. **SEPT** YR. **69**

RC. ELEVATION: **10140** RC. BASIN CODE: **212**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	SAND		FINE	0	20
"	SANDY CLAY			20	100
"	FINE SAND & GRAVEL			100	120
"	FINE SAND & COURSE GRAVEL	(DIRTY)	RUNNY CLAY	120	140
"	HARD PAN.		HARD	140	143
"	SAND (COURSE)		TO PEA GRAVEL.	143	149

31 0020008 010000509 012060811 01406081105 0143014 014960011

32

41 WATER RECORD

WATER FOUND FEET	KIND OF WATER			
0143	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
06	STEEL	.188	0	0143
	GALVANIZED			
	CONCRETE			
	OPEN HOLE			
	STEEL			
	GALVANIZED			
	CONCRETE			
	OPEN HOLE			
	STEEL			
	GALVANIZED			
	CONCRETE			
	OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): **030**

DIAMETER: **04.000** INCHES

LENGTH: **06** FEET

MATERIAL AND TYPE: **Concrete and galvanized**

DEPTH TO TOP OF SCREEN: **0143** FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: PUMP BAILER

PUMPING RATE: **0018** GPM

DURATION OF PUMPING: **04** HOURS **00** MINS.

STATIC LEVEL: **075** FEET

WATER LEVEL END OF PUMPING: **075** FEET

WATER LEVELS DURING PUMPING:

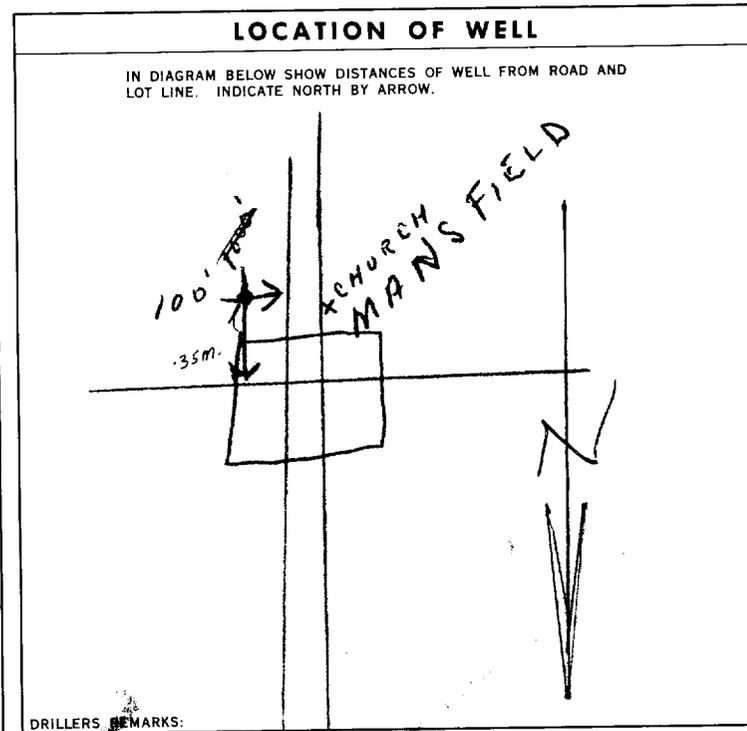
15 MINUTES: 075 FEET	30 MINUTES: 075 FEET	45 MINUTES: 075 FEET	60 MINUTES: 075 FEET
-----------------------------	-----------------------------	-----------------------------	-----------------------------

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: **120** FEET

RECOMMENDED PUMPING RATE: **0020** GPM

SPECIFIC CAPACITY: **036.0** GPM/FT



FINAL STATUS OF WELL

WATER SUPPLY

OBSERVATION WELL

TEST HOLE

RECHARGE WELL

ABANDONED, INSUFFICIENT SUPPLY

ABANDONED, POOR QUALITY

UNFINISHED

WATER USE

DOMESTIC

STOCK

IRRIGATION

INDUSTRIAL

OTHER

COMMERCIAL

MUNICIPAL

PUBLIC SUPPLY

COOLING OR AIR CONDITIONING

NOT USED

METHOD OF DRILLING

CABLE TOOL

ROTARY (CONVENTIONAL)

ROTARY (REVERSE)

ROTARY (AIR)

AIR PERCUSSION

BORING

DIAMOND

JETTING

DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: **KEN MIGHTON** LICENCE NUMBER: **3404**

ADDRESS: **KEN & TERRY STAKNER**

NAME OF DRILLER OR BORER: **KEN & TERRY MIGHTON** LICENCE NUMBER: **3404**

SIGNATURE OF CONTRACTOR: *Kenneth M. Mighton* SUBMISSION DATE: DAY **8** MO. **1** YR. **70**

OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **3602** DATE RECEIVED: **120170**

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: **CSS.S8**

J.B.



WATER WELL RECORD

41A1E

Water management in Ontario

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

11
1 2

1701179

MUNICIP. 17006

CON. HAS E C 08

COUNTY OR DISTRICT
DUFFERIN

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE
MULMUIR

CON., BLOCK, TRACT, SURVEY, ETC.
7 EHS.

LOT
10

DATE COMPLETED
DAY 01 MO DEC YR 70

MANSFIELD

90350

4

ELEVATION 1035

5

BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	SAND			0	20
"	SANDY clay			20	100
"	FINE SAND & GRAVEL			100	120
"	FINE SAND & COARSE GRAVEL (DIRTY Runny clay)			120	140
"	HARD PAN			140	143
"	SAND (COARSE) to fine gravel. (pea)			143	145 1/2

31 0020009 010000509 012000811 0140001105 01430014 0148001011

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0143	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
144	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
04	1 <input checked="" type="checkbox"/> STEEL	1/4	0
	2 <input type="checkbox"/> GALVANIZED		
	3 <input type="checkbox"/> CONCRETE		
	4 <input type="checkbox"/> OPEN HOLE		
	1 <input type="checkbox"/> STEEL		
	2 <input type="checkbox"/> GALVANIZED		
	3 <input type="checkbox"/> CONCRETE		
	4 <input type="checkbox"/> OPEN HOLE		
	1 <input type="checkbox"/> STEEL		
	2 <input type="checkbox"/> GALVANIZED		
	3 <input type="checkbox"/> CONCRETE		
	4 <input type="checkbox"/> OPEN HOLE		

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 012
DIAMETER 04.000
LENGTH 03
MATERIAL AND TYPE 12 Johnson Screen
DEPTH TO TOP OF SCREEN 0145
FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD 1 PUMP 2 RECOVERY

PUMPING RATE 0012 GPM. DURATION OF PUMPING 040 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
075	090	15 MINUTES 090 30 MINUTES 090 45 MINUTES 090 60 MINUTES 090

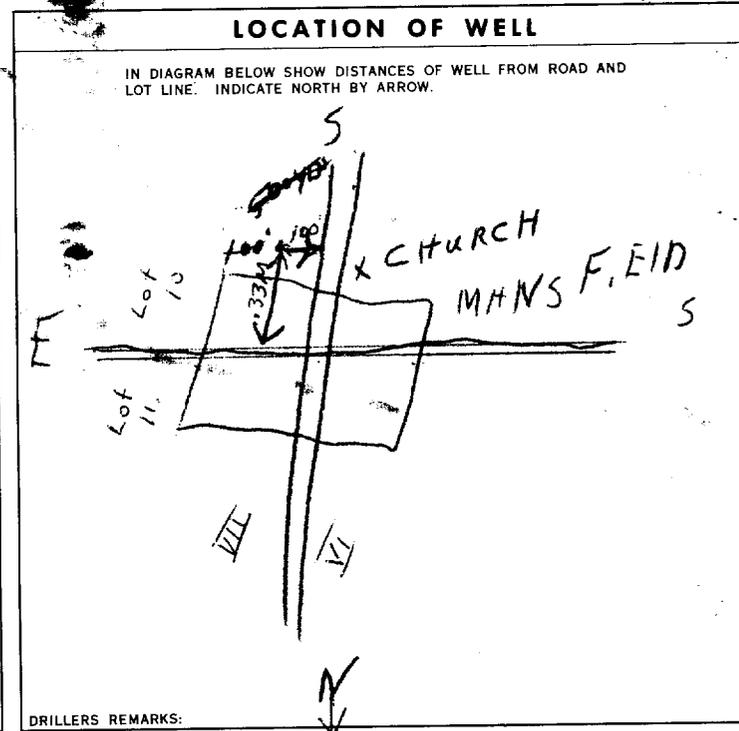
IF FLOWING, GIVE RATE 38-41 GPM. PUMP INTAKE SET AT FEET WATER AT END OF TEST 42

RECOMMENDED PUMP TYPE 1 SHALLOW 2 DEEP

RECOMMENDED PUMP SETTING 130 FEET

RECOMMENDED PUMPING RATE 0012 GPM.

50-53 000.8 GPM./FT. SPECIFIC CAPACITY



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR XEN MIGHTON & SONS LICENCE NUMBER 3602
ADDRESS 51st Ave

NAME OF DRILLER OR BORER Larry Mighton LICENCE NUMBER 3643
SIGNATURE OF CONTRACTOR Kenneth M. Mighton

SUBMISSION DATE DAY 26 MO 1 YR 71

OFFICE USE ONLY

DATA SOURCE 1 CONTRACTOR 3602 DATE RECEIVED 100271
DATE OF INSPECTION INSPECTOR P/E

REMARKS:

CSS.S8



WATER WELL RECORD

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

1702104

MUNICIPALITY 17006 CON 175 E LOT 07

41A/1E

COUNTY OR DISTRICT DUFFERIN	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE MULMUR.	CONG. BLDG. K. TRACT, SURVEY, ETC. L	LOT 25-27 010
DATE COMPLETED DAY 21 MONTH 05 YEAR 76		DATE COMPLETED DAY 21 MONTH 05 YEAR 76	
INSIDE DIA. INCHES 90350	RC 5	ELEVATION 1040	RC 5
BASIN CODE 22			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL			6	1
"	CLAY			1	10
GREY	SHALE	CLAY	SHALE WITH CLAY LAYERS	10	20
"	"		HARD SLABS	20	138

31 0001602	0010605	00202170574	013321773
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41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
0030	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
0080	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		

51 CASING & OPEN HOLE RECORD

INSIDE DIA. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
8.5	STEEL	1.88	0	0023

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17

71 PUMPING TEST

PUMPING TEST METHOD 1 <input checked="" type="checkbox"/> PUMP	PUMPING RATE 002	DURATION OF PUMPING 01 HOURS
STATIC LEVEL 020 FEET	WATER LEVEL END OF PUMPING 100 FEET	WATER LEVELS DURING
15 MINUTES 100 FEET	30 MINUTES 100 FEET	45 MINUTES 103 FEET
60 MINUTES 103 FEET		

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

WATER USE

01 DOMESTIC

METHOD OF DRILLING

2 ROTARY (CONVENTIONAL)

CONTRACTOR

NAME OF WELL CONTRACTOR: Brighton Drilling Co
LICENCE NUMBER: 3602
ADDRESS: #3 Bay St
NAME OF DRILLER OR OPERATOR: Larry
SIGNATURE OF CONTRACTOR: [Signature]
SUBMISSION DATE: 7 76

OFFICE USE ONLY

DATA SOURCE: 1
CONTRACTOR: 3602
DATE RECEIVED: 130776
DATE OF INSPECTION: June 13/77
INSPECTOR: EJ

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

11 1704164 MUNICIPAL 17006 CON. HS E 07

COUNTY OR DISTRICT [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE MULMUR

CON. BLOCK, TRACT, SURVEY ETC 7 LOT 25-27 10

DATE COMPLETED 48-53 DAY 29 MO 03 YR 90

LOW 1A0

RC. ELEVATION RC. BASIN CODE II III IV

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	TOP SOIL			0	3
	SAND + GRAVEL			3	170
			TOTAL = 170'		

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
10-13	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
15-18	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
20-23	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
25-28	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
30-33	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
8	STEEL		0	170
17-18	STEEL			20-23
24-25	STEEL			27-30

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT LEAD PACKER, ETC.)
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS
<input type="checkbox"/> PUMP <input type="checkbox"/> BAILER		

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING				
19-21	22-24	15 MINUTES 26-28	30 MINUTES 29-31	45 MINUTES 32-34	60 MINUTES 35-37	

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
38-41		

LOCATION OF WELL

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

73098

FINAL STATUS OF WELL

<input type="checkbox"/> WATER SUPPLY	<input checked="" type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
<input type="checkbox"/> OBSERVATION WELL	<input type="checkbox"/> ABANDONED, POOR QUALITY
<input type="checkbox"/> TEST HOLE	<input type="checkbox"/> UNFINISHED
<input type="checkbox"/> RECHARGE WELL	<input type="checkbox"/> DEWATERING

WATER USE

<input checked="" type="checkbox"/> DOMESTIC	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> STOCK	<input type="checkbox"/> MUNICIPAL
<input type="checkbox"/> IRRIGATION	<input type="checkbox"/> PUBLIC SUPPLY
<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	<input type="checkbox"/> NOT USED

METHOD OF CONSTRUCTION

<input type="checkbox"/> CABLE TOOL	<input type="checkbox"/> BORING
<input type="checkbox"/> ROTARY (CONVENTIONAL)	<input type="checkbox"/> DIAMOND
<input type="checkbox"/> ROTARY (REVERSE)	<input type="checkbox"/> JETTING
<input checked="" type="checkbox"/> ROTARY (AIR)	<input type="checkbox"/> DRIVING
<input type="checkbox"/> AIR PERCUSSION	<input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: HANSON Well Drilling Ltd. WELL CONTRACTOR'S LICENCE NUMBER: 2063

ADDRESS: 275 GUELPH ONT. N1H 6S2

NAME OF WELL TECHNICIAN: HENRY R. HANSON WELL TECHNICIAN'S LICENCE NUMBER: T-0590

SIGNATURE OF TECHNICIAN-CONTRACTOR: [Signature]

SUBMISSION DATE: DAY 01 MO 05 YR 90

OFFICE USE ONLY

DATA SOURCE: 2663 CONTRACTOR: 59-62 DATE RECEIVED: MAY 08 1990

DATE OF INSPECTION: INSPECTOR:

REMARKS:

CSS.ES

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

11 1704197 17006 HS E 107

COUNTY OR DISTRICT: BRUCE TOWNSHIP: MULMER CON: EHS 7 LOT: 10
 DATE COMPLETED: DAY 16 MO 01 YR 90
 ELEVATION: 25 BASIN CODE: II

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOPSOIL			0	2
BROWN	SAND	GRAVEL	LOOSE	2	15
BROWN	SILT	SAND GRAVEL	COMPACTED	15	35
GREY	CLAY	SILT		35	50
BROWN	SAND	GRAVEL SILT		50	70
GREY	SILT	SAND CLAY	COMPACTED	70	135
GREY	CLAY	SILT		135	140
BROWN	SILT	COARSE SAND		140	160
GREY	CLAY	SILT SAND	COMPACTED	160	190
BROWN	SAND	SILT GRAVEL	SOFT	190	198
GREY	SHALE			198	

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
10-13	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/>	14
15-18	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/>	19
20-23	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/>	24
25-28	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/>	29
30-33	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS	5 <input type="checkbox"/> GAS	6 <input type="checkbox"/>	34

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/4	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	12	190
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		19	20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		26	27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.): 30" DIAMETER: 6" LENGTH: 8'
 MATERIAL AND TYPE: STAINLESS DEPTH TO TOP OF SCREEN: 190'

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC)	
FROM	TO		
18-21	190	2"	PACKER & 4x5" DROP PIPE
26-29	30-33		

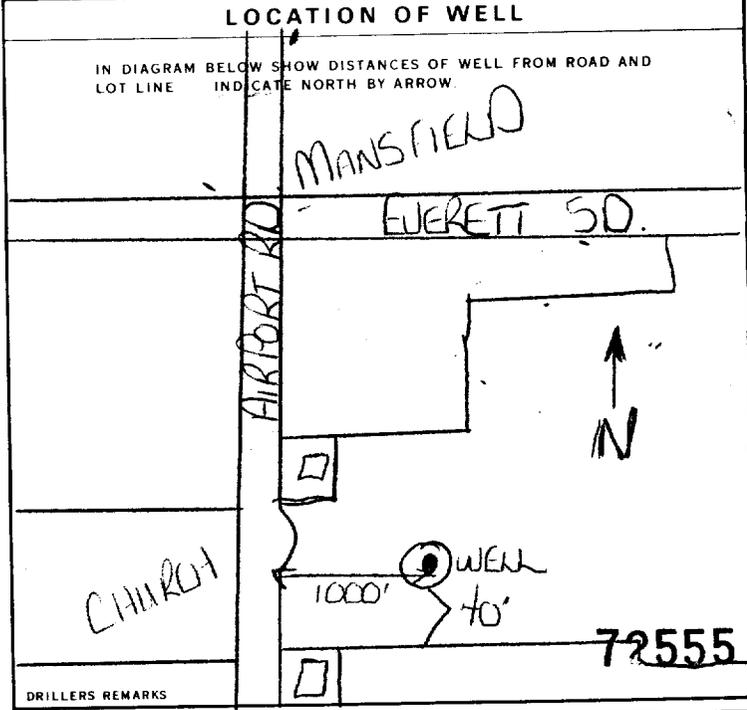
71 PUMPING TEST

PUMPING TEST METHOD: AIR PUMPING RATE: 4 GPM DURATION OF PUMPING: 8 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
19-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
<u>82</u> FEET	<u>190</u> FEET	<u>190</u> FEET	<u>190</u> FEET	<u>190</u> FEET	<u>190</u> FEET

IF FLOWING, GIVE RATE: 190 GPM PUMP INTAKE SET AT: 190 FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP RECOMMENDED PUMP SETTING: 190 FEET



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
 2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
 3 TEST HOLE 7 UNFINISHED
 4 RECHARGE WELL 8 DEWATERING

WATER USE

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

METHOD OF CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: RAIS WELL DRILLING LTD WELL CONTRACTOR'S LICENCE NUMBER: 41015
 ADDRESS: RR#2 BEETON LOG 1A0
 NAME OF WELL TECHNICIAN: CARL M. COMER WELL TECHNICIAN'S LICENCE NUMBER: 0008
 SIGNATURE OF TECHNICIAN/CONTRACTOR: [Signature] SUBMISSION DATE: DAY 19 MO 01 YR 90

OFFICE USE ONLY

DATA SOURCE: 4645 CONTRACTOR: 4645 DATE RECEIVED: JUN 26 1990
 DATE OF INSPECTION: _____ INSPECTOR: _____
 REMARKS: _____

CSS.ES

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

11 1704198

MUNICIPALITY 17006

CON. H.S. E. 07

COUNTY OR DISTRICT [redacted] TOWNSHIP BOROUGH CITY TOWN VILLAGE MULMUR CON. BLOCK TRACT SURVEY ETC EHS 7 LOT 25-27 10

DATE COMPLETED DAY 18 MO 04 YR 90

RC ELEVATION RC BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	TOPSOIL			0	2
Brown	GRAVEL	STONE		2	8
Brown	SILT	SAND GRAVEL	COMPACTED	8	38
Grey	CLAY	SILT SAND	DENSE	38	55
Brown	SILT	SAND	LOOSE	55	65
Brown	SILT	SAND	COMPACTED	65	95
Grey	SILT	SAND CLAY	LAYERED	95	140
Brown	SAND	SILT	LOOSE	140	150
Grey	CLAY			150	

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
150	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/4	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	2	140
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC			20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC			27-30

SCREEN

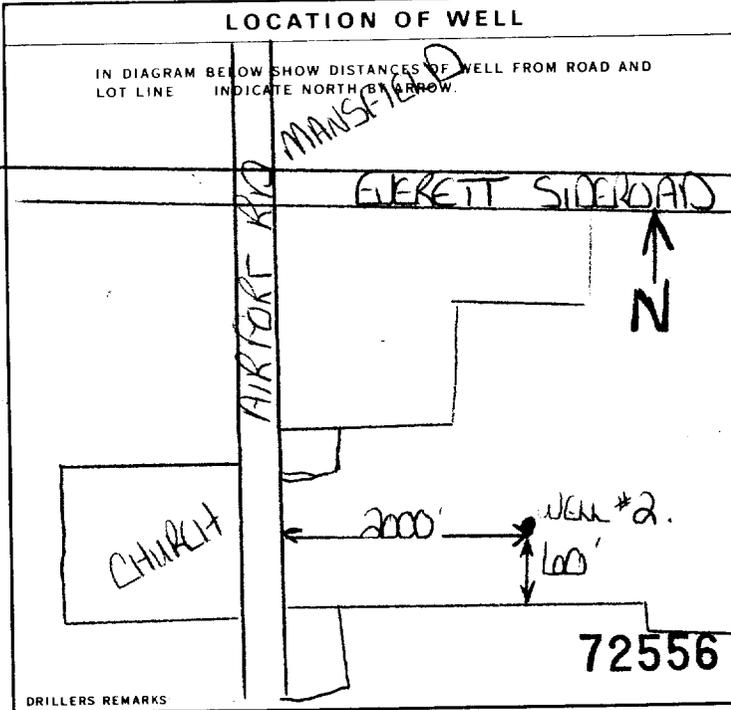
SIZE(S) OF OPENING (SLOT NO.)	31-33	DIAMETER	34-38	LENGTH	39-40
20		10	INCHES	8	FEET
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN		41-44	30
STAINLESS		142		FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT LEAD PACKER ETC.)
FROM	TO	
138	142	K PACKER & 4XS" DROP PIPE.
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD	AIR	PUMPING RATE	20 GPM	DURATION OF PUMPING	5 HOURS
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BALLS				15-16 HOURS	17-18 MINS
STATIC LEVEL	82 FEET	WATER LEVEL END OF PUMPING	140 FEET	WATER LEVELS DURING	
				15 MINUTES	30 MINUTES
				45 MINUTES	60 MINUTES
				140 FEET	140 FEET
				140 FEET	140 FEET
IF FLOWING GIVE RATE		PUMP INTAKE SET AT		WATER AT END OF TEST	
				1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY	
RECOMMENDED PUMP TYPE	<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING	140 FEET	RECOMMENDED PUMPING RATE	20 GPM



FINAL STATUS OF WELL

1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	8 <input type="checkbox"/> DEWATERING

WATER USE

1 <input checked="" type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	9 <input type="checkbox"/> NOT USED

METHOD OF CONSTRUCTION

1 <input type="checkbox"/> CABLE TOOL	6 <input type="checkbox"/> BORING
2 <input checked="" type="checkbox"/> ROTARY (CONVENTIONAL)	7 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	8 <input type="checkbox"/> JETTING
4 <input type="checkbox"/> ROTARY (AIR)	9 <input type="checkbox"/> DRIVING
5 <input type="checkbox"/> AIR PERCUSSION	<input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
R&B WELL DRILLING LTD	4645
ADDRESS	WELL TECHNICIAN'S LICENCE NUMBER
RR#2 BEETON LOG 1A0	0028
NAME OF WELL TECHNICIAN	SUBMISSION DATE
CARL M. COMER	19 04 90
SIGNATURE OF TECHNICIAN CONTRACTOR	DAY MO YR
[Signature]	19 04 90

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
	4645	JUN 26 1990
DATE OF INSPECTION	INSPECTOR	
REMARKS		

CSS.ES

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

11 1704199 MUNICIPAL 17006 CON. H.S. E. 07

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP/BOROUGH/CITY/TOWN/VILLAGE: MULMER CON. BLOCK/TRACT/SURVEY, ETC: EHS 7 LOT: 10
 DATE COMPLETED: DAY 20 MO 04 YR 90
 RC: [REDACTED] ELEVATION: [REDACTED] BASIN CODE: [REDACTED]

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	GRAVEL	SAND STONE	LOOSE	0	18
BROWN	SAND	SILT	COARSE	18	30
BROWN	SILT	SAND CLAY RIBBONS	—	30	60
BROWN	CLAY	—	DENSE	60	65
GREY	CLAY	—	DENSE	65	70
BROWN	SILT	SAND CLAY	SOFT	70	90
GREY	SILT	SAND CLAY	LAYERED	90	142
BROWN	SAND	SILT	MED. TO FINE	142	152

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
150	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	<input type="checkbox"/> SALTY	<input type="checkbox"/> GAS
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	<input type="checkbox"/> SALTY	<input type="checkbox"/> GAS
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	<input type="checkbox"/> SALTY	<input type="checkbox"/> GAS
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	<input type="checkbox"/> SALTY	<input type="checkbox"/> GAS
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	<input type="checkbox"/> SALTY	<input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		12	13-16
16 1/4	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	188	12	140
17-18	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		19	20-23
24-25	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		26	27-30

SCREEN

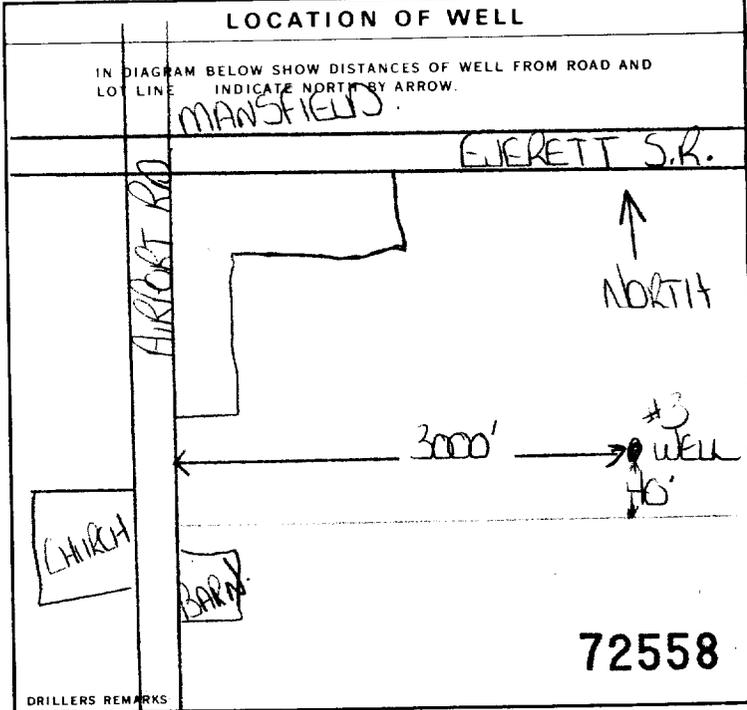
SIZE(S) OF OPENING (SLOT NO): 20
 DIAMETER: 10 INCHES
 LENGTH: 8 FEET
 MATERIAL AND TYPE: STAINLESS
 DEPTH TO TOP OF SCREEN: 142 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
138	142	2' PACKER & 4x5" DROP PIPE
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD: AIR
 PUMPING RATE: 18 GPM
 DURATION OF PUMPING: 10 HOURS
 STATIC LEVEL: 83 FEET
 WATER LEVEL END OF PUMPING: 140 FEET
 WATER LEVELS DURING:
 15 MINUTES: 140 FEET
 30 MINUTES: 140 FEET
 45 MINUTES: 140 FEET
 60 MINUTES: 140 FEET
 IF FLOWING, GIVE RATE: [REDACTED] GPM
 PUMP INTAKE SET AT: 140 FEET
 WATER AT END OF TEST: 18 GPM
 RECOMMENDED PUMP TYPE: SHALLOW DEEP
 RECOMMENDED PUMP SETTING: 140 FEET
 RECOMMENDED PUMPING RATE: 18 GPM



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
 8 DEWATERING

WATER USE

1 DOMESTIC
 2 STOCK
 3 IRRIGATION
 4 INDUSTRIAL
 5 OTHER
 6 COMMERCIAL
 7 MUNICIPAL
 8 PUBLIC SUPPLY
 9 COOLING OR AIR CONDITIONING
 10 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
 10 DIGGING
 11 OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: RB B WELL DRILLING LTD
 WELL CONTRACTOR'S LICENCE NUMBER: 4645
 ADDRESS: RR#2 BEETON, LOG 1A0
 NAME OF WELL TECHNICIAN: CARL M. COMER
 WELL TECHNICIAN'S LICENCE NUMBER: 0002
 SIGNATURE OF TECHNICIAN/CONTRACTOR: [Signature]
 SUBMISSION DATE: DAY 25 MO 04 YR 90

OFFICE USE ONLY

DATA SOURCE: 4645
 DATE RECEIVED: JUN 26 1990
 DATE OF INSPECTION: [REDACTED]
 INSPECTOR: [REDACTED]
 REMARKS: [REDACTED]
 CSS.ES

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

11

1705655

Municipality
17006

Con.
HS E 07

County or District <i>Simcoe</i>	Township/Borough/City/Town/Village <i>Mulmur Mansfield</i>	Con block tract survey, etc. <i>7 HSE</i>	Lot <i>10</i>
Address <i>15 TOWN LINE ORANGEVILLE</i>		Date completed <i>29 09 00</i>	Day month year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
	<i>PREVIOUSLY DRILLED</i>			<i>0</i>	<i>140'-4"</i>
	<i>ABANDONMENT RECORD</i>				
	<i>BENTONITE GROUT TO SURFACE</i>		<i>124'-6"</i>		
			<i>128'-6"</i>		
			<i>128'-6"</i>		
			<i>140'-4"</i>		

41 WATER RECORD

Water found at - feet	Kind of water
<i>10-13</i>	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
<i>15-18</i>	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
<i>20-23</i>	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
<i>25-28</i>	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
<i>30-33</i>	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
<i>006</i>	<input checked="" type="checkbox"/> Steel	<i>188</i>	<i>0</i>	<i>13-16</i>
<i>17-18</i>	<input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic			<i>20-23</i>
<i>24-25</i>	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic			<i>27-30</i>

SCREEN

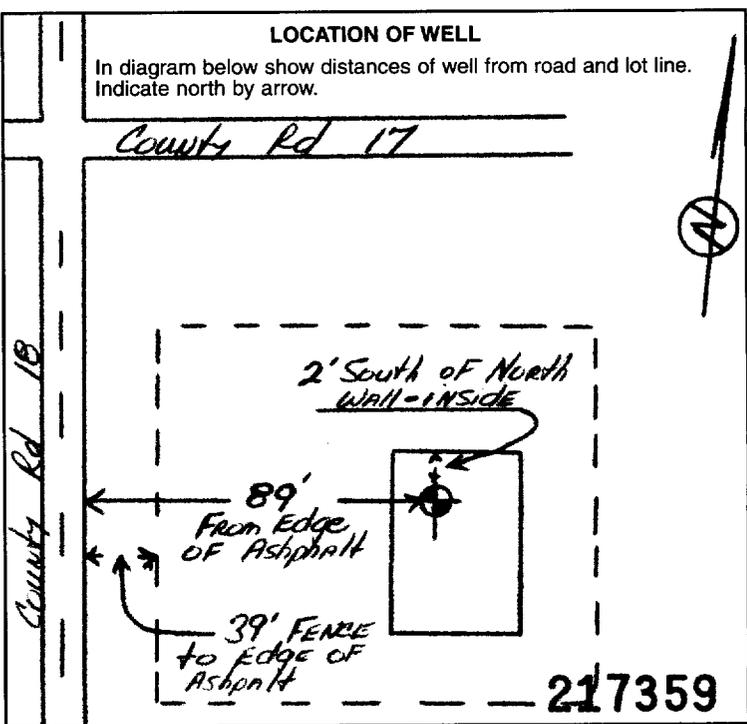
Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type		Depth at top of screen

61 PLUGGING & SEALING RECORD

<input type="checkbox"/> Annular space	<input type="checkbox"/> Abandonment
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)
<i>12-13</i>	<i>124'-6" BENTONITE GROUT</i>
<i>18-21</i>	<i>124'-6" 128'-6" HOLEPLUG PELLET</i>
<i>26-29</i>	<i>128'-6" 140'-4" PEA STONE</i>

71 PUMPING TEST

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



FINAL STATUS OF WELL

Water supply Abandoned, insufficient supply Unfinished
 Observation well Abandoned, poor quality Replacement well
 Test hole Abandoned (Other)
 Recharge well Dewatering

WATER USE

Domestic Commercial Not use
 Stock Municipal Other
 Irrigation Public supply
 Industrial Cooling & air conditioning

METHOD OF CONSTRUCTION

Cable tool Air percussion Driving
 Rotary (conventional) Boring Digging
 Rotary (reverse) Diamond Other
 Rotary (air) Jetting

Other: TRENCH LINE & GROUT PUMP

Name of Well Contractor
LUNNEY WELL DRILLING

Well Contractor's Licence No.
3406

Name of Well Technician
THEO GERRETS

Well Technician's Licence No.
T-0080

Submission date
29 09 00

MINISTRY USE ONLY

Data source
3406

Date received
MAR 22 2001

Date of inspection

Inspector

Remarks

CSS.ES1

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

11

1705656

Municipality 17006 Con. HS E 07

County or District: DUFFERIN Township/Borough/City/Town/Village: MULMUR - MAUSFIELD Con block tract survey, etc.: 7 HSE Lot: 10
Address: 15 TOWNLINE ORANGEVILLE Date completed: 29 09 00
Basin Code: _____

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
				0	143' 4"
				132' 4"	143' 4"
				128' 8"	

PREVIOUSLY DRILLED
ABANDONMENT RECORD
BENTONITE GROUT TO SURFACE
128' 8" HOLEPLUG
PEA STONE & THIRINA

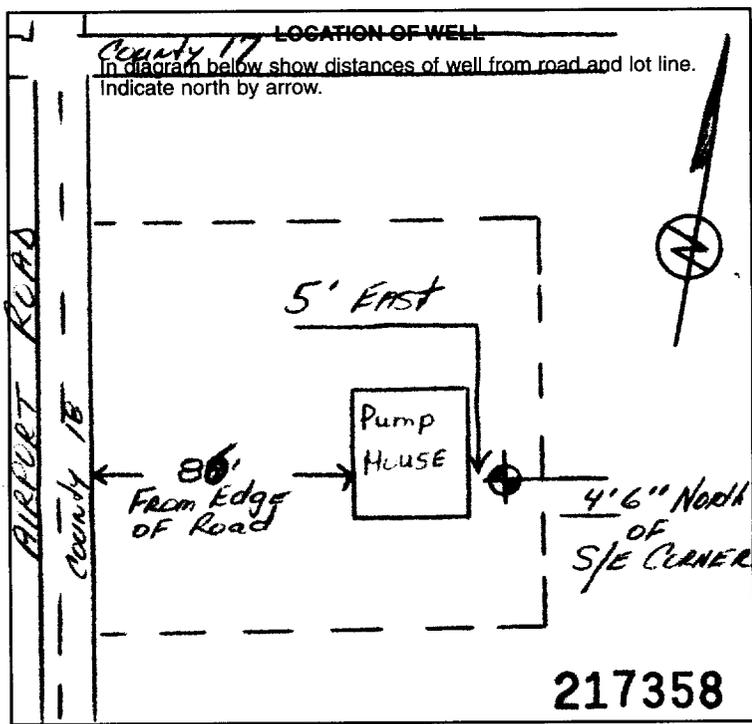
WATER RECORD	
Water found at - feet	Kind of water
10-13	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 14 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 15 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/>
15-18	1 <input type="checkbox"/> Fresh 3 <input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

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11	1 <input checked="" type="checkbox"/> Steel 12 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	188	13-16	?
17-18	1 <input type="checkbox"/> Steel 19 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		20-23	
24-25	1 <input type="checkbox"/> Steel 26 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		27-30	

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

PLUGGING & SEALING RECORD	
<input type="checkbox"/> Annular space	<input checked="" type="checkbox"/> Abandonment
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)
From To	
10-13	128' 8" BENTONITE GROUT
13-16	132' 4" BENTONITE HOLEPLUG
17-18	132' 4" 143' 4" PEA STONE

PUMPING TEST	
Pumping test method	Pumping rate
1 <input type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer	GPM
Static level	Water level during
19-21	15 minutes 26-28
feet	30 minutes 29-31
	45 minutes 32-34
	60 minutes 35-37
feet	feet
If flowing give rate	Pump intake set at
GPM	feet
Recommended pump type	Recommended pump rate
1 <input type="checkbox"/> Shallow 2 <input type="checkbox"/> Deep	GPM



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

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

METHOD OF CONSTRUCTION		
1 <input type="checkbox"/> Cable tool	5 <input type="checkbox"/> Air percussion	9 <input type="checkbox"/> Driving
2 <input type="checkbox"/> Rotary (conventional)	6 <input type="checkbox"/> Boring	10 <input type="checkbox"/> Digging
3 <input type="checkbox"/> Rotary (reverse)	7 <input type="checkbox"/> Diamond	11 <input checked="" type="checkbox"/> Other: <u>TREMMIE LINE & GROUT PUMP</u>
4 <input type="checkbox"/> Rotary (air)	8 <input type="checkbox"/> Jetting	

Name of Well Contractor <u>DIV OF GERRITS WELL DRILLING INC</u>	Well Contractor's Licence No. <u>3406</u>
Address <u>RR#1 GRAND VALLEY</u>	
Name of Well Technician <u>THEO GERRITS</u>	Well Technician's Licence No. <u>T-0080</u>
Signature of Technician/Contractor <u>Theo Gerrits</u>	Submission date <u>29 09 00</u>

Data source	Contractor <u>3406</u>	Date received <u>MAR 22 2001</u>
Date of inspection	Inspector	
Remarks		

CSS.ES1

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

Address of Well Location (County/District/Municipality) DUFFERIN Township MULMER Lot 10 Concession 7 EHS
 RR#/Street Number/Name _____ City/Town/Village MANSFIELD Site/Compartment/Block/Tract etc. _____
 GPS Reading NAD 83 Zone 17 Easting 577596 Northing 4890766 Unit Make/Model MAP 410 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 Metres	
				From	To
		DECOMMISSION	T.D.	45	M
BROWN	SAND			45	41
YELLOW	BENTONITE	HOLE PLUG		41	39
BROWN	SAND			39	6
YELLOW	BENTONITE	HOLE PLUG		6	2
BROWN	SAND	NATIVE		2	0
		CASING REMOVED		2	0

Hole Diameter

Depth From	Metres To	Diameter Centimetres

Water Record

Water found at _____ Metres Kind of Water _____

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 Metres	
			From	To
Casing				
152	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	188	45	0
Screen				
Outside diam	<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	Slot No. ?	UK	
No Casing or Screen				
<input type="checkbox"/> Open hole				

Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
Pump intake set at - (metres)	Static Level	25M		
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. <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	4		4	
Recommended pump depth. _____ metres	5		5	
Recommended pump rate. (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
	20		20	
	25		25	
If pumping discontinued, give reason.	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)
45	0	AS ABOVE	

Method of Construction

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

Water Use

Domestic Industrial Public Supply Other
 Stock Commercial Not used
 Irrigation Municipal Cooling & air conditioning

Final Status of Well

Water Supply Recharge well Unfinished Abandoned, (Other)
 Observation well Abandoned, insufficient supply Dewatering N/R
 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.

Audit No. Z 36797 Date Well Completed 2006 04 18
 Was the well owner's information package delivered? Yes No Date Delivered 2

Well Contractor/Technician Information

Name of Well Contractor FRED CONSTABLE & SON LTD Well Contractor's Licence No. 1663
 Business Address (street name, number, city etc.) 3519 5TH LINE BRADFORD
 Name of Well Technician (last name, first name) KEVIN CONSTABLE Well Technician's Licence No. 70230
 Signature of Technician/Contractor [Signature] Date Submitted 2006 5 10

Ministry Use Only

Data Source _____ Contractor 1663
 Date Received JUN 19 2006 Date of Inspection _____
 Remarks _____ Well Record Number _____

DECOMMISSION
NO TAG

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

Address of Well Location (County/District/Municipality) **DUFFERIN** Township **MULMER** Lot **10** Concession **7EHS**
 RR#/Street Number/Name _____ City/Town/Village **MANSFIELD** Site/Compartment/Block/Tract etc. _____
 GPS Reading NAD **83** Zone **17** Easting **572277** Northing **4890862** Unit Make/Model **MP 410** 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 Metres	
				From	To
			DECOMMISSION	T.D.	44 M
BROWN	SAND			44	41
YELLOW	BENTONITE	HOLE PLUG		41	40
BROWN	SAND			40	15
YELLOW	BENTONITE	HOLE PLUG		15	14
BROWN	SAND			14	6
YELLOW	BENTONITE	HOLE PLUG		6	2
BROWN	SAND	CLAY		2	0
			CASING REMOVED	2	0

Hole Diameter

Depth From	Metres To	Diameter Centimetres

Water Record

Water found at _____ Metres / Kind of Water

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

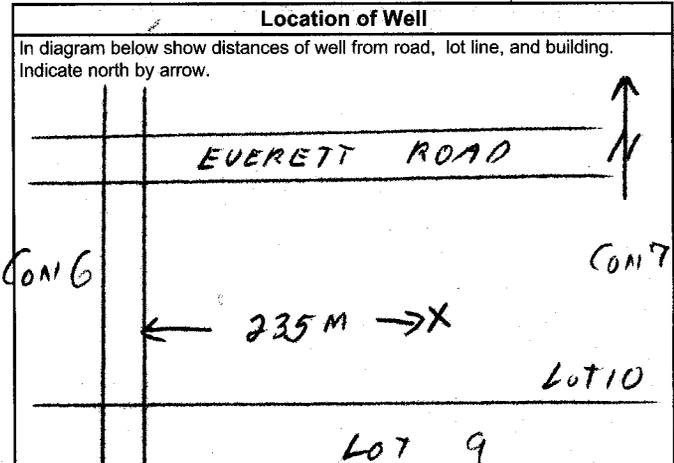
Inside diam centimetres	Material	Wall thickness centimetres	Depth Metres	
			From	To
Casing				
15.2	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	.188	44	0
Screen				
Outside diam	<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	Slot No. ?	UK	
No Casing or Screen				
<input type="checkbox"/> Open hole				

Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
Pump intake set at - (metres)	Static Level	25		
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. <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	4		4	
Recommended pump depth. _____ metres	5		5	
Recommended pump rate. (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
	20		20	
	25		25	
If pumping discontinued, give reason.	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)
44	0	AS ABOVE	



Method of Construction

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

Water Use

Domestic Industrial Public Supply Other
 Stock Commercial Not used
 Irrigation Municipal Cooling & air conditioning

Final Status of Well

Water Supply Recharge well Unfinished Abandoned (Other)
 Observation well Abandoned, insufficient supply Dewatering **N/R**
 Test Hole Abandoned, poor quality Replacement well

Audit No. **2 36798** Date Well Completed **2006 4 18**
 Was the well owner's information package delivered? Yes No Date Delivered _____

Well Contractor/Technician Information

Name of Well Contractor **FRED CONSTABLE SON LTD** Well Contractor's Licence No. **1663**
 Business Address (street name, number, city etc.) **3519 5TH LINE BRADFORD**
 Name of Well Technician (last name, first name) **KEVIN CONSTABLE** Well Technician's Licence No. **TO 230**
 Signature of Technician/Contractor **X Kevin Constable** Date Submitted **2006 5 10**

Ministry Use Only

Data Source _____ Contractor **1663**
 Date Received **JUN 19 2006** Date of Inspection _____
 Remarks _____ Well Record Number _____

Measurements recorded in: Metric Imperial

Page _____ of _____

Well Owner's Information

First Name: MULMUR Last Name / Organization: TOWNSHIP E-mail Address: Well Constructed by Well Owner

Mailing Address (Street Number/Name): _____ Municipality: _____ Province: _____ Postal Code: _____ Telephone No. (inc. area code): _____

Well Location

Address of Well Location (Street Number/Name): _____ Township: MULMER Lot: 10 Concession: 7

County/District/Municipality: DUFFERIN City/Town/Village: _____ Province: Ontario Postal Code: _____

UTM Coordinates: Zone: 813 Easting: 159770091 Northing: 48901041 Municipal Plan and Sublot 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
Black	TOPSOIL	—	SOFT	0	1
Brown	GRAVEL	STONE	LOOSE	1	4
Brown	SILT	SAND	FINE	4	20
Brown	CLAY	—	HARD	20	100
Brown	SAND	SILT, CLAY	LAYERED	100	125
Brown	SAND	—	LOOSE	125	135
Brown	CLAY	—	SOFT	135	138
awn / Grey	SAND	GRAVEL	LOOSE	138	149
GREY	SHALE	—	CRISP	149	150

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
140	0	BENSEAL EZ MUD	8 APPROX.

Results of Well Yield Testing

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

If pumping discontinued, give reason: _____

Time (min)	Draw Down		Recovery	
	Water Level (m/ft)	Time (min)	Water Level (m/ft)	Time (min)
1	88.0	1	110	
2	93.8	2	97.8	
3	98.3	3	88.3	
4	102.0	4	86.2	
5	103.8	5	84.1	
10	108.8	10	82.0	
15	110.4	15	77.8	
20	111.2	20	76.8	
25	111.4	25	76.6	
30	111.5	30	76.3	
40	111.7	40	76.2	
50	111.9	50	76.1	
60	112.2	60	75.7	

Pump intake set at (m/ft): 138 FT

Pumping rate (l/min / GPM): 20 GPM

Duration of pumping: 1 hrs + _____ min

Final water level end of pumping (m/ft): 112.2

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

Recommended pump depth (m/ft): 138

Recommended pump rate (l/min / GPM): 20 GPM

Well production (l/min / GPM): 30 GPM (APPROX)

Disinfected? Yes No

Method of Construction

Cable Tool Diamond Public Commercial Not used

Rotary (Conventional) Jetting Domestic Municipal Dewatering

Rotary (Reverse) Driving Livestock Test Hole Monitoring

Boring Digging Irrigation Cooling & Air Conditioning

Air percussion 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)		Status of Well
			From	To	
6 1/4	STEEL	1.88	+2	140	<input checked="" type="checkbox"/> Water Supply <input checked="" type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
5 1/2	STAINLESS	12 1/4	142	150

Water Details

Water found at Depth (m/ft)	Kind of Water: <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested	Hole Diameter	
		Depth (m/ft) From	Depth (m/ft) To
150	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	0	140
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	140	150

Diameter (cm/in): 8 3/4 (0-140), 6 1/8 (140-150)

Well Contractor and Well Technician Information

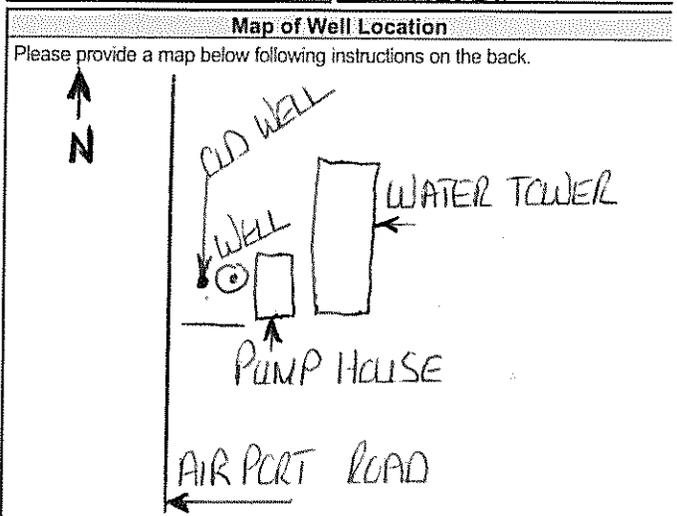
Business Name of Well Contractor: KBW WELL DRILLING LTD Well Contractor's Licence No.: 4161415

Business Address (Street Number/Name): 569 SIDERCAD 10, BEETON, NEW TECUMSAH. Municipality: _____

Province: ON Postal Code: L0G1A0 Business E-mail Address: KBWELL DRILLING.COM

Bus. Telephone No. (inc. area code): 1057292950 Name of Well Technician (Last Name, First Name): KOWALSKI, ROBERT

Well Technician's Licence No.: 2141215 Signature of Technician and/or Contractor: [Signature] Date Submitted: 20130527



Comments: _____

Well owner's information package delivered: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered: 20130527	Ministry Use Only Audit No.: Z159728 JUN 24 2013
Date Work Completed: 20130523		

ID: 1007882221
Easting: 577,739.0
Drill Method:
Water Level Count: 14
Water Quality Count: 0
Bottom Depth (m): 61.0

Well/BH Name: 7359746
Northing: 4,891,277.0
Primary Purpose: Unknown
WL Start Date: 05/06/2020
Rec Pumping Rate: 55.0
Total Screens: 1

Original Name: 7359746
Date Completed: 05/06/2020
Secondary Purpose: Unknown
WL End Date: 05/06/2020
Ground Level: 310.0
Screen 1 Depth (m): 257.3 - 249.3

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description
310.0	0.0		Sand		Gravel			
307.6	2.4							
305.2	4.8							
302.8	7.2		Sand		Silt			
300.4	9.6							
298.0	12.0							
295.6	14.4		Clay		Silt			
293.2	16.8							
290.8	19.2		Clay		Silt			
288.4	21.6							
286.0	24.0							
283.6	26.4							
281.2	28.8		Clay					
278.8	31.2		Fine Sand		Silt			
276.4	33.6							
274.0	36.0		Clay		Silt			
271.6	38.4							
269.2	40.8							
266.8	43.2							
264.4	45.6							
262.0	48.0							
259.6	50.4		Sand					
257.2	52.8							
254.8	55.2							
252.4	57.6							
250.0	60.0							



ID: 1007885568
Easting: 577,785.0
Drill Method:
Water Level Count: 0
Ground Level: 310.6
Screen 1 Depth (m): 268.8 - 268.5

Well/BH Name: 7359755
Northing: 4,891,243.0
Primary Purpose: Unknown
Water Quality Count: 0
Bottom Depth (m): 42.1

Original Name: 7359755
Date Completed: 04/25/2020
Secondary Purpose: Unknown
Rec Pumping Rate:
Total Screens: 1

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description
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Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

41A/E

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

11

1702015

MUNICIP. 17006 HSE 08

COUNTY OR DISTRICT Dufferin County	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Mulmur Township	CON., BLOCK, TRACT, SURVEY, ETC. Con. 8	LOT 1010
--	--	---	--------------------

ADDRESS R.R.#1, Mansfield, Ont.	DATE COMPLETED DAY 05 MO 11 YR 75
---	---

ZONE 17	EASTING 519 550	NORTHING 489 1200	RC 5	ELEVATION 0980	RC 5	BASIN CODE 22
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LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Top Soil			0	1
Brown	Sand			1	42
Grey	Sand			42	53
Brown	Sand			53	61 1/2

31	0001602	0042628	0053228	0062628
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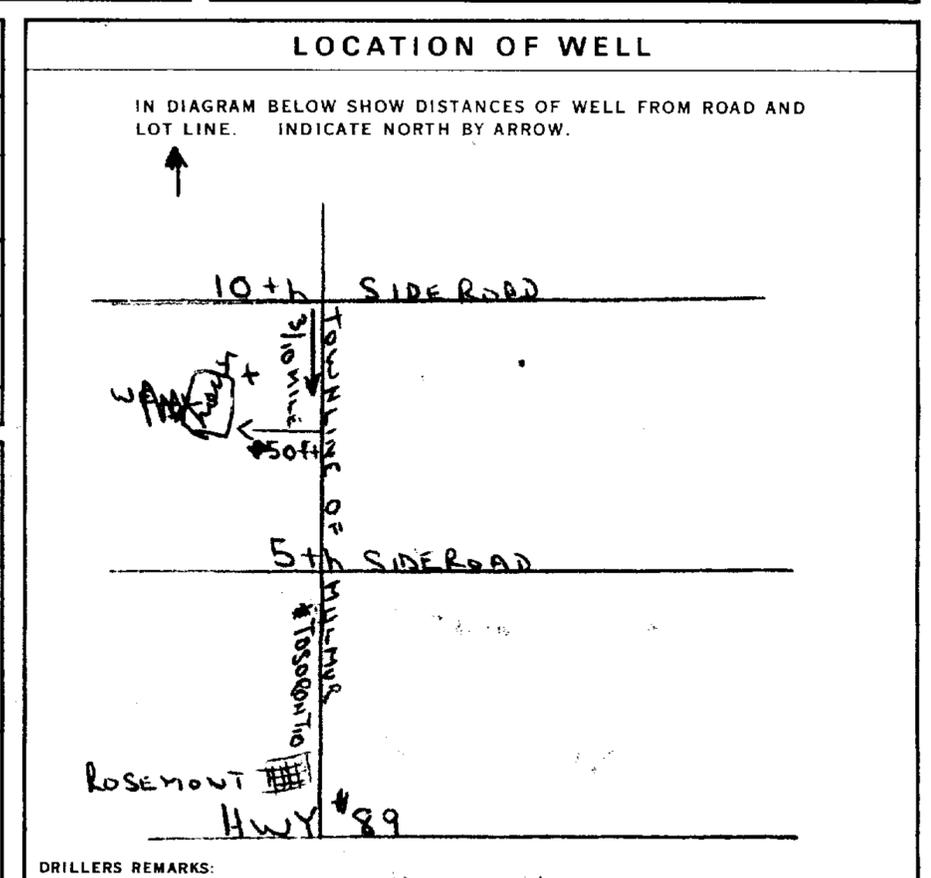
41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH #5 3 <input checked="" type="checkbox"/> SULPHUR 4 <input checked="" type="checkbox"/> MINERAL
15-18	1 <input checked="" type="checkbox"/> FRESH 3 <input checked="" type="checkbox"/> SULPHUR 4 <input checked="" type="checkbox"/> MINERAL
20-23	1 <input checked="" type="checkbox"/> FRESH 3 <input checked="" type="checkbox"/> SULPHUR 4 <input checked="" type="checkbox"/> MINERAL
25-28	1 <input checked="" type="checkbox"/> FRESH 3 <input checked="" type="checkbox"/> SULPHUR 4 <input checked="" type="checkbox"/> MINERAL
30-33	1 <input checked="" type="checkbox"/> FRESH 3 <input checked="" type="checkbox"/> SULPHUR 4 <input checked="" type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD				
INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
30	3 <input checked="" type="checkbox"/> CONCRETE	3	0	0042
30	1 <input checked="" type="checkbox"/> STEEL 2 <input checked="" type="checkbox"/> GALVANIZED 3 <input checked="" type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE	16	42	0062
				61 1/2

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

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

71 PUMPING TEST	
PUMPING TEST METHOD	1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER
PUMPING RATE	0002 1/2 GPM
DURATION OF PUMPING	01 15-16 HOURS 00 17-18 MINS
STATIC LEVEL	053 FEET
WATER LEVEL END OF PUMPING	059 FEET
WATER LEVELS DURING	15 MINUTES: 058 FEET, 30 MINUTES: 057 FEET, 45 MINUTES: 056 FEET, 60 MINUTES: 056 FEET
RECOMMENDED PUMP TYPE	1 <input checked="" type="checkbox"/> SHALLOW 2 <input checked="" type="checkbox"/> DEEP
RECOMMENDED PUMP SETTING	059 FEET
RECOMMENDED PUMPING RATE	0002 1/2 GPM



FINAL STATUS OF WELL	
1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED, POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	
WATER USE	
1 <input checked="" type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
	9 <input type="checkbox"/> NOT USED
METHOD OF DRILLING	
1 <input type="checkbox"/> CABLE TOOL	6 <input checked="" type="checkbox"/> BORING
2 <input type="checkbox"/> ROTARY (CONVENTIONAL)	7 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	8 <input type="checkbox"/> JETTING
4 <input type="checkbox"/> ROTARY (AIR)	9 <input type="checkbox"/> DRIVING
5 <input type="checkbox"/> AIR PERCUSSION	

CONTRACTOR NAME Merwin Mason	LICENCE NUMBER 3612
ADDRESS R.R.#1, Mansfield, Ont.	
CONTRACTOR SIGNATURE <i>Merwin Mason</i>	SUBMISSION DATE DAY 24 MO 11 YR 75

DATA SOURCE 1	CONTRACTOR 3612	DATE RECEIVED 091275
DATE OF INSPECTION June 21 77	INSPECTOR EA	
REMARKS		P WI

WATER WELL RECORD

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

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1703120

MUNICIP.

CON.

COUNTY OR DISTRICT: QUINTAIN TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMER CON. BLOCK, TRACT, SURVEY ETC.: # 5 LOT: 25-27 #10
ADDRESS: MANSFIELD DATE COMPLETED: DAY 18 MO Aug. YR 87

21 ZONE EASTING NORTHING RC ELEVATION RC BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL		H 400	0	1'
BROWN	SAND, CLAY			1'	20'
GRAY	CLAY			20	30
GRAY	SAND		LOOSE	30	46'

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13 30	1 <input type="checkbox"/> FRESH 2 <input checked="" type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
			FROM TO
10-11	1 <input type="checkbox"/> STEEL 2 <input checked="" type="checkbox"/> GALVANIZED	1/6	0 46
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	0.165	0 46
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

SCREEN

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

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	GPM	15-16 HOURS 17-18 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
19-21 10 FEET	22-24 42 FEET	1 <input type="checkbox"/> PUMPING 2 <input checked="" type="checkbox"/> RECOVERY
		15 MINUTES 26-28 40 FEET 30 MINUTES 29-31 39 FEET 45 MINUTES 32-34 38 FEET 60 MINUTES 35-37 37 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	GPM	1 <input type="checkbox"/> CLEAR 2 <input checked="" type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
1 <input type="checkbox"/> SHALLOW 2 <input checked="" type="checkbox"/> DEEP	43-45 40 FEET	46-49 2 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 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL

WATER USE

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

METHOD OF DRILLING

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

NAME OF WELL CONTRACTOR: Ed B. well LICENCE NUMBER: 4919
ADDRESS: Mansfield
CONTRACTOR: Ed B. well LICENCE NUMBER: 4908
SUBMISSION DATE: DAY _____ MO _____ YR _____

DATA SOURCE: _____ CONTRACTOR: _____ DATE RECEIVED: **19 04 85**
DATE OF INSPECTION: _____ INSPECTOR: _____
REMARKS: _____

1703407

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MUNICIPALITY: _____ CON: _____

COUNTY OR DISTRICT: **DUFFERIN** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **MULMUR** CON. BLOCK, TRACT, SURVEY, ETC.: **8 EHS** LEPT 10
ADDRESS: **252 YOUNG ST. ALLISTON.** DATE COMPLETED: DAY **23** MO **6** YR **87**

21 ZONE EASTING NORTHING RC ELEVATION RC BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	SAND	GRAVEL	MIXTURE	0	14
"	"	"	SURFACE SAND	14	65
GREY	CLAY	STONES	STONEY CLAY	65	162
"	"	SAND	PUNNY SAND+CLAY	162	168
"	"	"	HARD CLAY	168	172
BROWN	SAND	"	CLEAN WATER BEARING	172	180

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 19 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 24 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 29 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 34 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 7/8	1 <input checked="" type="checkbox"/> STEEL 12 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0	172
17-18	1 <input type="checkbox"/> STEEL 19 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			20-23
24-25	1 <input type="checkbox"/> STEEL 26 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

SCREEN

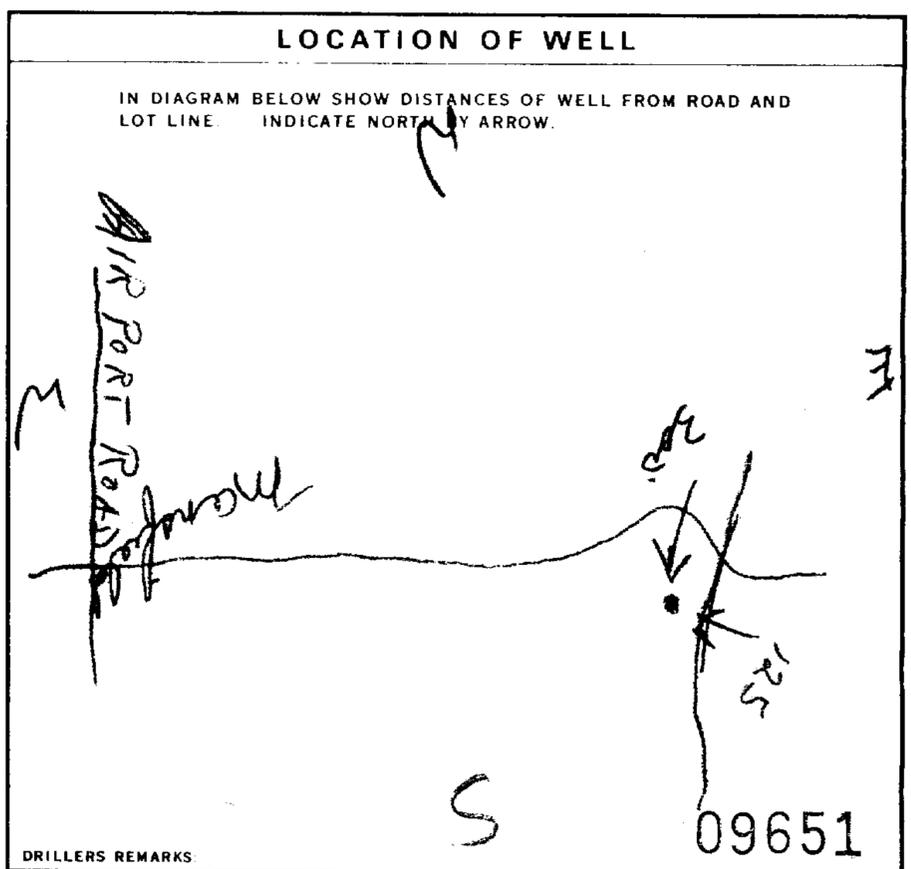
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
3' x 1/4"	6 INCHES	172 FEET
3' x 1/8"		
Material and Type: standards steel		

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
8	20 Bensed
18-21	
22-25	
26-29	
30-33	
80	

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 19 <input checked="" type="checkbox"/> AIR 20 2 <input type="checkbox"/> BAILER	20 GPM	15-16 HOURS 30 17-18 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
19-21: 125 FEET	22-24: 160 FEET	15 MINUTES: 160 FEET 30 MINUTES: 163 FEET 45 MINUTES: 160 FEET 60 MINUTES: 160 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	GPM	1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	165 FEET	15 GPM



54 FINAL STATUS OF WELL

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

55-56 WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: **Trighton's Well Drilling Ltd** LICENCE NUMBER: **3602**
ADDRESS: **#13 Stuyvesant**
NAME OF DRILLER OR BOWER: **Larry Trighton** LICENCE NUMBER: **T0129**
SIGNATURE OF CONTRACTOR: **Kenneth H. Trighton** SUBMISSION DATE: DAY **3** MO **7** YR **87**

OFFICE USE ONLY

DATE RECEIVED: **JUL 08 1987**
DATE OF INSPECTION: _____
INSPECTOR: _____
REMARKS: _____

CSS.ES

20-90

The Ontario Water Resources Act
WATER WELL RECORD

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

11 1704355 17006 HS E 08

COUNTY OR DISTRICT: **DUFFERIN** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **Major** CON. BLOCK TRACT, SURVEY ETC: **Par 8** LOT: **10**
DATE COMPLETED: DAY **10** MO **5** YR **90**
ADDRESS: **16 HIGH PARK AVE TORONTO**

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	topsoil			0	1
Brown	Sand	Gravel		1	22
Brown	Sand			22	51
Brown	clay			51	56
Blue	clay	Sand		56	96
Grey	Sand		fine	96	111
Grey	Sand	clay		111	134
Grey	Sand	Gravel	Medium	134	153
Grey	Sand		fine	153	168

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER		
10-13	1 FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
134	2 <input checked="" type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
15-18	1 FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
20-23	1 FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
25-28	1 FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
30-33	1 FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL	.188	0	148
1/4	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
17-18	1 <input type="checkbox"/> STEEL			20-23
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
	5 <input type="checkbox"/> PLASTIC			
24-25	1 <input type="checkbox"/> STEEL			27-30
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
	5 <input type="checkbox"/> PLASTIC			

SCREEN

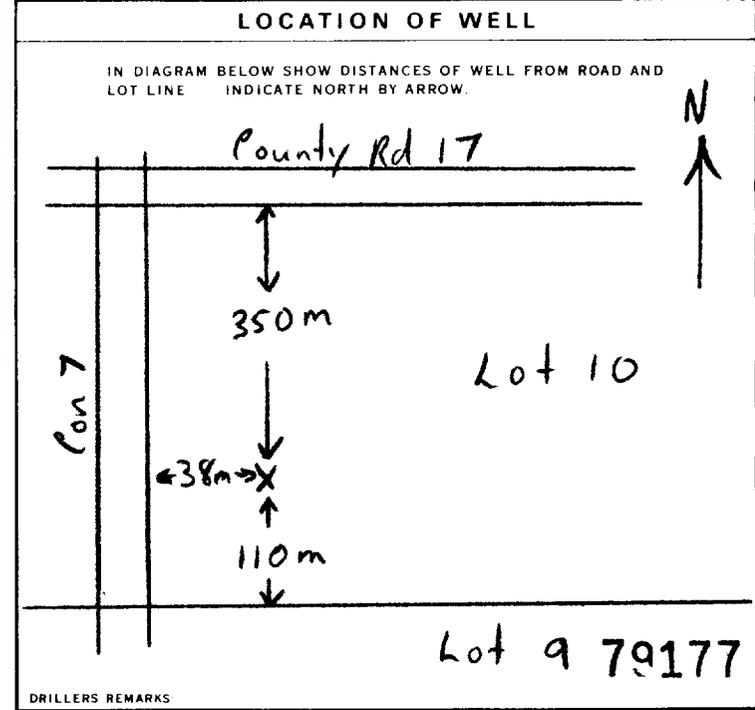
SIZE(S) OF OPENING (SLOT NO.): **#20** DIAMETER: **6** INCHES LENGTH: **3** FEET
MATERIAL AND TYPE: **SS telescope** DEPTH TO TOP OF SCREEN: **148** FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC)
0-10	148 K packer hole plug
10-13	cuttings
18-21	cuttings
26-29	151 168 cuttings

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER
PUMPING RATE: **10** GPM DURATION OF PUMPING: **4** HOURS **0** MINS
STATIC LEVEL: **88** FEET WATER LEVEL END OF PUMPING: **126.3** FEET
WATER LEVELS DURING: 15 MINUTES: **124.7** FEET 30 MINUTES: **124.7** FEET 45 MINUTES: **124.7** FEET 60 MINUTES: **124.7** FEET
IF FLOWING, GIVE RATE: **140** GPM PUMP INTAKE SET AT: **140** FEET WATER AT END OF TEST: **10** FEET
RECOMMENDED PUMP TYPE: SHALLOW DEEP RECOMMENDED PUMP SETTING: **140** FEET RECOMMENDED PUMPING RATE: **10** GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: **Fred Constable & Son Ltd** WELL CONTRACTOR'S LICENCE NUMBER: **1663**
ADDRESS: **3936 Major Mackenzie Dr Woodbridge**
NAME OF WELL TECHNICIAN: **Kevin Constable** WELL TECHNICIAN'S LICENCE NUMBER: **70230**
SIGNATURE OF TECHNICIAN/CONTRACTOR: **Kevin Constable** SUBMISSION DATE: DAY **21** MO **5** YR **90**

OFFICE USE ONLY

DATA SOURCE: **1663** CONTRACTOR: **1663** DATE RECEIVED: **JUL 30 1991**
DATE OF INSPECTION: _____ INSPECTOR: _____
REMARKS: _____

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

11

1705505

Municipality 17006 Con. HS E 08

County or District Dufferin	Township/Borough/City/Town/Village Mulmur	Con block tract survey, etc. 8	Lot 10
Address		Date completed 20 day 04 month 00 year	

21

U T M 10 12 17 18 24 25 26 30 31 47

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Grey	Coarse Sand	Medium Gravel		0	66
Brown	Clay	Fine Gravel		66	100
Grey	Clay	Fine Gravel	Soft	100	132
Grey	Clay	Med Gravel	Hard	132	141
Grey	Med Sand			141	149

31

32

10 14 15 21 32 43 65 75 89

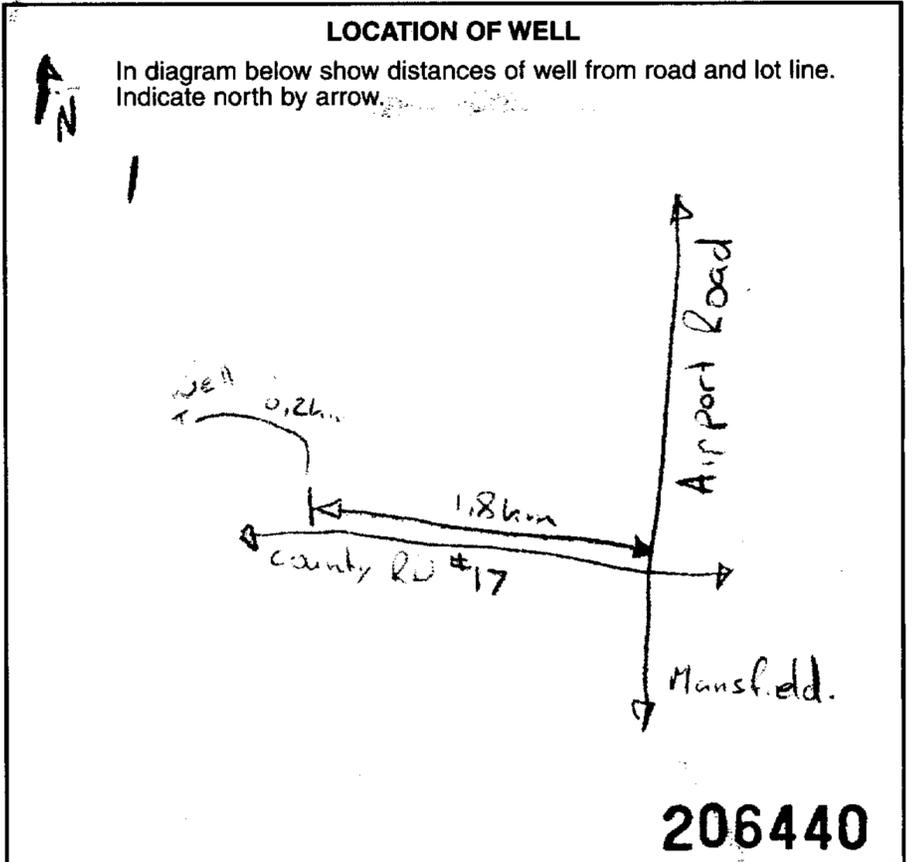
41 WATER RECORD	
Water found at - feet	Kind of water
141	1 <input checked="" type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 14 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
15-18	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 19 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
20-23	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 24 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
25-28	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 29 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
30-33	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 34 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
8	1 <input type="checkbox"/> Steel 12 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		0	13
6	1 <input checked="" type="checkbox"/> Steel 19 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	188	+1	138 141
24-25	1 <input type="checkbox"/> Steel 26 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN	Sizes of opening (Slot No.)	Diameter	Length
		#12	5 inches
	S/S		138 feet

61 PLUGGING & SEALING RECORD		
<input type="checkbox"/> Annular space <input type="checkbox"/> Abandonment		
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
0	13	Hole Plug
18-21	22-25	
26-29	30-33	

71 PUMPING TEST	Pumping test method 1 <input checked="" type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer	Pumping rate 5 GPM	Duration of pumping 8 Hours 17 Mins	
	Static level 106 feet	Water level end of pumping 135 feet	Water levels during	
	If flowing give rate GPM		Pump intake set at 137 feet	Water at end of test <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy
	Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	Recommended pump setting 137 feet	Recommended pump rate 5 GPM	



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

55-56 WATER USE		
1 <input checked="" type="checkbox"/> Domestic	5 <input type="checkbox"/> Commercial	9 <input type="checkbox"/> Not use
2 <input type="checkbox"/> Stock	6 <input type="checkbox"/> Municipal	10 <input type="checkbox"/> Other
3 <input type="checkbox"/> Irrigation	7 <input type="checkbox"/> Public supply	
4 <input type="checkbox"/> Industrial	8 <input type="checkbox"/> Cooling & air conditioning	

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

Name of Well Contractor Tom Aaron	Well Contractor's Licence No. 6782
Address 8 John Ave Alliston ON L9R1J8	
Name of Well Technician Roger Aaron	Well Technician's Licence No. 2478
Signature of Technician/Contractor Roger Aaron	Submission date 28 day 04 mo 00 yr

MINISTRY USE ONLY	Data source 6782	Contractor 6782	Date received MAY 24 2000
	Date of inspection	Inspector	
	Remarks CSS.ESO		

A016517
A.016517

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.

Well Owner's Information and Location of Well Information

MUN 17006 CON H5 8 LOT 10

DUFFERIN COUNTY **MULMUR TWP** **10 C8 H5E**
RR#/Street Number/Name 588480 DUFFERIN RD 17 City/Town/Village Site/Compartment/Block/Tract etc.
GPS Reading NAD 83 Zone 17 Easting 578660 Northing 4891703 Unit Make/Model CARMIN ETREX 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		Metres	
				From	To	From	To
BROWN	SAND			0	15	0	4.6
BROWN	SAND CLAY	SAND		15	44	4.6	13.4
GREY	CLAY	SANDY		44	53	13.4	16.2
GREY	SAND	CLAYEY		53	84	16.2	25.6
GREY	SAND	SILTY		84	94	25.6	28.7
GREY	CLAY	SANDY		94	100	28.7	30.5
GREY	SILT	SANDY		100	115	30.5	35.1
GREY	SAND	SILTY		115	137	35.1	41.8
GREY	SAND			137	143	41.8	43.6

Hole Diameter

Depth	Metres	Diameter
From	To	Centimetres

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth Metres	
			From	To
Casing				
15.9	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	0.48	0.74	42.7

Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
Pump intake set at - (metres) <u>38</u>	Static Level	16.4		
Pumping rate - (litres/min) <u>13</u>	1	—	1	24.6
Duration of pumping <u>1</u> hrs + <u>2</u> min	2	17.4	2	24.1
Final water level end of pumping <u>25.7</u> metres	3	17.9	3	23.5
Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	4	18.5	4	23.0
Recommended pump depth <u>39</u> metres	5	19.1	5	22.5
Recommended pump rate (litres/min) <u>31</u>	10	21.3	10	20.7
If flowing give rate - (litres/min)	15	22.6	15	19.4
	20	23.7	20	18.5
	25	24.3	25	17.9
If pumping discontinued, give reason.	30	24.8	30	17.5
	40	25.3	40	17.0
	50	25.5	50	16.8
	60	25.6	60	16.6

Water Record

Water found at 41.8 m Kind of Water Fresh Sulphur Gas Salty Minerals Other:

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

Chlorinated Yes No

Screen

Outside diam	Material	Slot No.	Depth Metres	
14.6	<input checked="" type="checkbox"/> STAINLESS <input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	14	42.7	43.6

No Casing or Screen

Open hole

Plugging and Sealing Record Annular space Abandonment

Depth set at - Metres	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
From	To	
0	6.1 BENTONITE SLURRY	0.2

Method of Construction

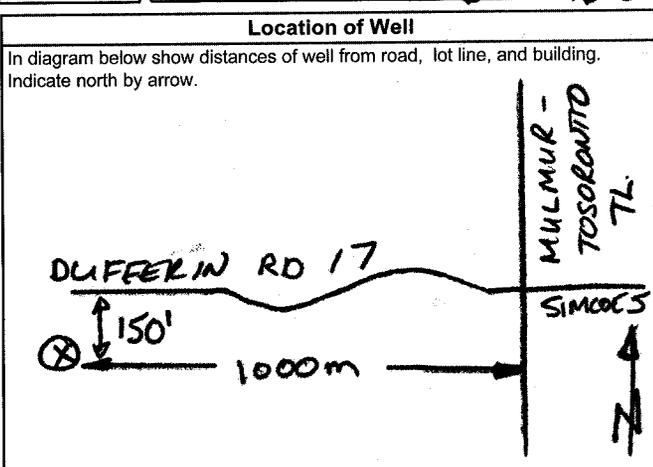
Cable Tool Rotary (air) Diamond Digging
 Rotary (conventional) Air percussion Jetting Other
 Rotary (reverse) Boring Driving

Water Use

Domestic Industrial Public Supply Other
 Stock Commercial Not used
 Irrigation Municipal Cooling & air conditioning

Final Status of Well

Water Supply Recharge well Unfinished Abandoned, (Other)
 Observation well Abandoned, insufficient supply Dewatering
 Test Hole Abandoned, poor quality Replacement well



Audit No. **Z 16609** Date Well Completed **2004 08 24**

Was the well owner's information package delivered? Yes No Date Delivered **2004 08 30**

Well Contractor/Technician Information

Name of Well Contractor COUNTRY WATER SYSTEMS Well Contractor's Licence No. 7088
Business Address (street name, number, city etc.) 6995 SIMCOE RD 56, UTOPIA, 877.333.9355
Name of Well Technician (last name, first name) SCOTT, PETER Well Technician's Licence No. T-1667
Signature of Technician/Contractor [Signature] Date Submitted 2004 08 24

Ministry Use Only

Data Source Contractor **7088**

Date Received **SEP 13 2004** Date of Inspection **2004 08 24**

Remarks Well Record Number **1706276**

UTM 9 1045 VI
 Basin St. East
 Lot - 11

H.S.E.



RECEIVED
 JUN 25 1957
 ONTARIO WATER RESOURCES COMMISSION

17 No 741

The Water-well Drillers Act, 1954
 Department of Mines

Water-Well Record

Ship, Village, Town or City..... Mulmur
 Village, Town or City).....
 Address Mansfield

Date completed 1 May 57
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 6 1/2"
 Length(s) pulled
 Type of screen
 Length of screen

Static level
 Pumping rate 1/2 gpm
 Pumping level
 Duration of test

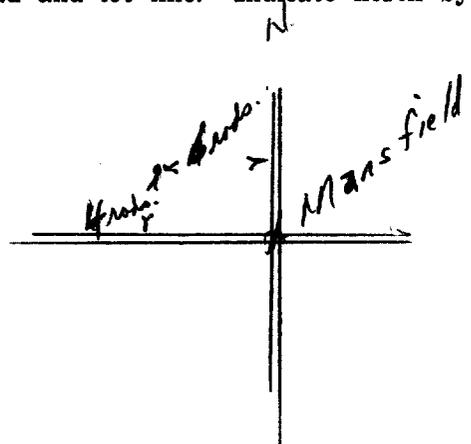
Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>sandy gravel</u>	<u>0</u>	<u>140</u>			
<u>sand & clay</u>	<u>140</u>	<u>162</u>			
<u>grey shale</u>	<u>162</u>	<u>250</u>			

For what purpose(s) is the water to be used?
 Is water clear or cloudy?
 Is well on upland, in valley, or on hillside?
 Drilling firm M. S. Bellerby
 Address 19 Melgund Rd. Toronto
 Name of Driller
 Address
 Licence Number.....

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



I certify that the foregoing statements of fact are true.

Date May 7 1957 M. S. Bellerby
 Signature of Licensee

Ontario Street East, 06
Lot 011



WATER RESOURCES DIVISION
17 No 742
OCT 10 1965
ONTARIO WATER RESOURCES COMMISSION

UTM 5 R 1045
The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22 County or Distr. St. Catharines Township, Village, Town or City MULMUR MANSFIELD
 Con. V.H. S.E. Alufferin Lot 11 Date completed 22 7 1965
 (day month year)
 Owner Village of Mansfield Address MANSFIELD P.O.
 (print in block letters)

Casing and Screen Record

Inside diameter of casing 4"
 Total length of casing 123'
 Type of screen Johnston S.S. No. 8 mesh
 Length of screen 6 ft.
 Depth to top of screen 123'
 Diameter of finished hole 4"

Pumping Test

Static level 80'
 Test-pumping rate 5' G.P.M.
 Pumping level 100
 Duration of test pumping 5'0 hrs
 Water clear or cloudy at end of test clear
 Recommended pumping rate 5' G.P.M.
 with pump setting of 120 feet below ground surface

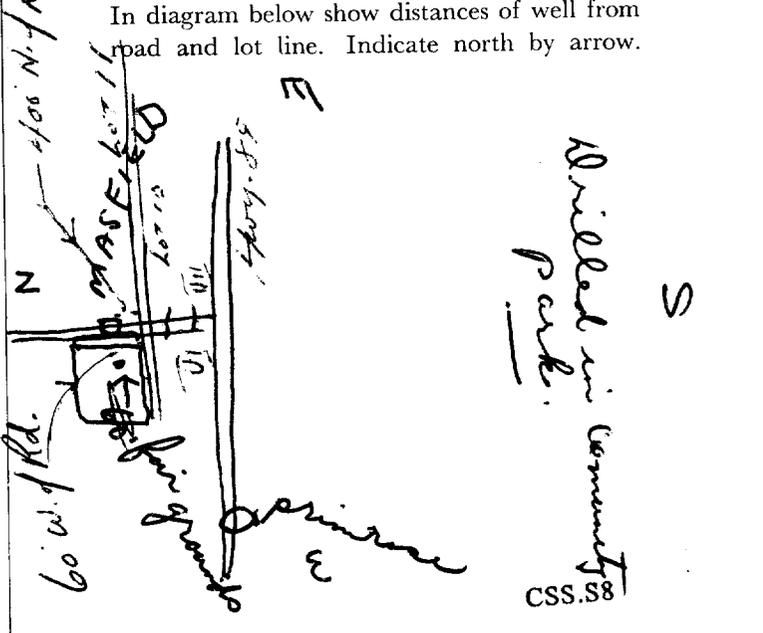
Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Top soil</u>	<u>0</u>	<u>1</u>		
<u>fine gravel & large stones</u>	<u>1</u>	<u>16</u>	<u>27'</u>	<u>fresh</u>
<u>Ridges clay fine gravel & sand</u>	<u>16</u>	<u>120</u>	<u>120'</u>	
<u>fine sand</u>	<u>120</u>	<u>129</u>	<u>129'</u>	

For what purpose(s) is the water to be used? Village drinking water park plus several houses
 Is well on upland, in valley, or on hillside? upland
 Drilling or Boring Firm Ken Nighton & Son
 Address Durham
 Licence Number 1640
 Name of Driller or Borer Larry Nighton
 Address Durham Ont
 Date Keneth M. Nighton
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well



UTM 18 Z 1830 E
 9 R 1030
 Elev. 9 R 1030



WATER RESOURCES
 17 DIVISION 775
 NOV 2 1965
 ONTARIO WATER
 RESOURCES COMMISSION
 MULMUR
 MANSTFIELD

Basin 22 District DUFFERIN Township, Village, Town or City MANSTFIELD
 County LANARK District E.H.S. Lot 11 (eleven) Date completed 11 (day) JAN. (month) 1965 (year)
 Address MANSTFIELD ONT.

Casing and Screen Record

Inside diameter of casing 36"
 Total length of casing _____
 Type of screen _____
 Length of screen _____
 Depth to top of screen _____
 Diameter of finished hole 36"

Pumping Test

Static level _____
 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

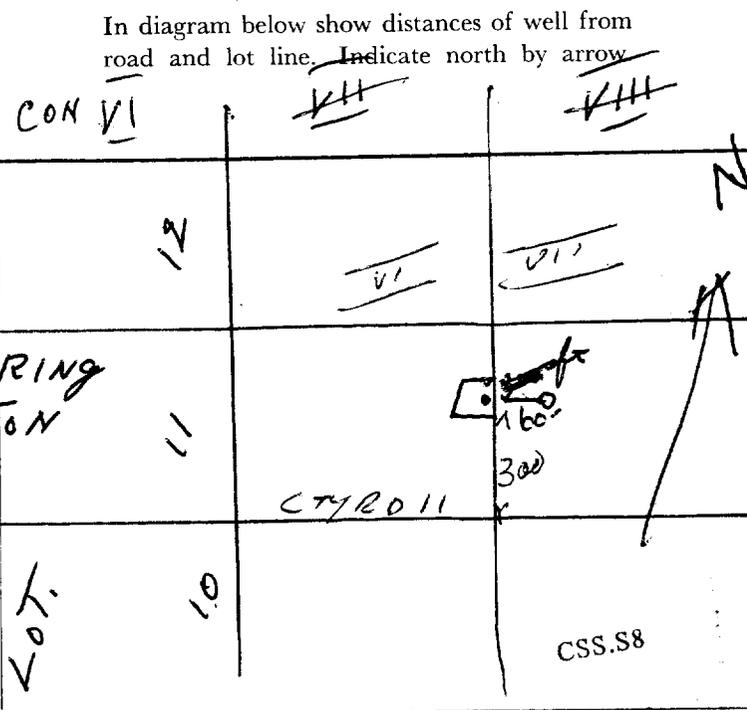
Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
TOP SOIL	0	3		
SANDY LOAM	3	27		
HARD CLAY	27	37		
SAND + GRAVEL	37	43		
SAND	43	54		
DRY CLAY + SAND	54	63		
NO WATER				

For what purpose(s) is the water to be used? white water
 Is well on upland, in valley, or on hillside? upland
 Drilling or Boring Firm _____
 Address _____
 Licence Number 1808
 Name of Driller or Borer BABLIK WELL BORING
 Address 126 LAUREL AVE ISLINGTON
 Date SEP 9 1965
m.s. Bablik
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well





Ministry of the Environment

Ontario

The Ontario Water Resources Act

41A1/E

WATER WELL RECORD

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

11 1702297
 MUNICIPALITY 17006
 COUNTY HS E
 YEAR 96
 LOT 25-27
 CON. BLOCK, TRACT, SURVEY, ETC. VI
 DATE COMPLETED 08-23-88
 DAY 23 MO 08 YR 77
 RC 90850 ELEVATION 5 1035 RC 5 BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
SAND				0	15'
BROWN	SAND	CLAY	SANDY CLAY		
GREY	CLAY	GRAVEL GRIT	HARD GRITTY CLAY	15'	80
"	"		STICKY CLAY	80	100
"	"	GRIT	GRITTY CLAY	100	105'
BROWN	SAND		WATER BEARING	105'	114

31 001582805 00802051173 010020586 010520518 011462891
 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0106	<input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL 19
15-18	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 19 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL 24
20-23	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 29 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL 34
25-28	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 29 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL 34
30-33	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 34 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL 34

5 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
4 1/8	STEEL	.188	0 - 0108
	GALVANIZED		
	CONCRETE		
	OPEN HOLE		

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 004
 DIAMETER 04000 INCHES
 LENGTH 06 FEET
 MATERIAL AND TYPE stainless steel
 DEPTH TO TOP OF SCREEN 0108 FEET

61 PLUGGING & SEALING RECORD

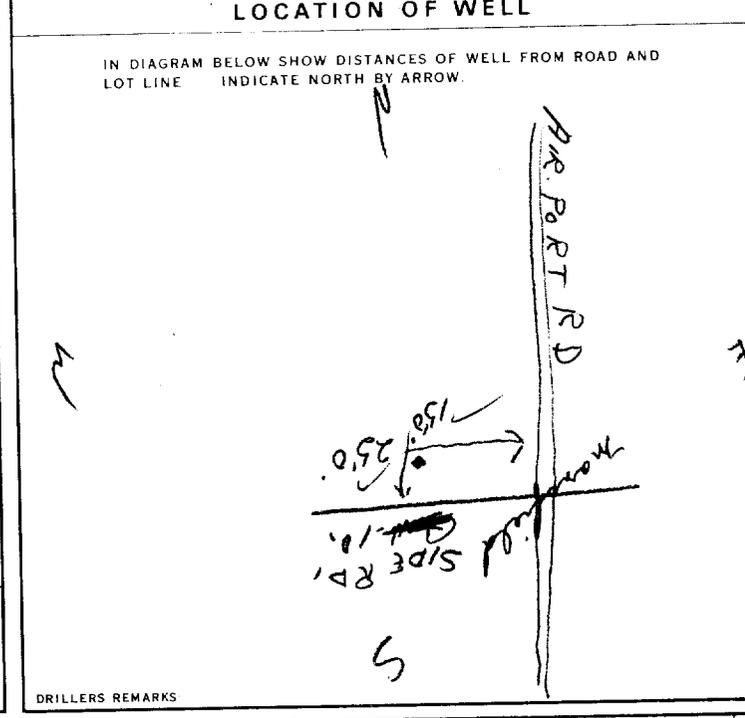
DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
10-13	
14-17	
18-21	
22-25	
26-29	
30-33	
34-37	
38-41	
42-45	
46-49	
50-53	

71 PUMPING TEST

PUMPING TEST METHOD 1 PUMP AIR 10
 PUMPING RATE 0006 GPM 11-14
 DURATION OF PUMPING 02 HOURS 00 MINS 15-16 17-18

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING				
100 FEET	100 FEET	15 MINUTES 100 FEET	30 MINUTES 100 FEET	45 MINUTES 100 FEET	60 MINUTES 100 FEET	35-37

IF FLOWING GIVE RATE 38-41
 PUMP INTAKE SET AT 105 FEET 43-45
 WATER AT END OF TEST 1 BAILER 2 CLOUDY 42
 RECOMMENDED PUMP TYPE SHALLOW DEEP
 RECOMMENDED PUMP SETTING 105 FEET 43-45
 RECOMMENDED PUMPING RATE 0006 GPM 46-49



FINAL STATUS OF WELL 1

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

WATER USE 01

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

METHOD OF DRILLING 2

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

CONTRACTOR

NAME OF WELL CONTRACTOR: *Mickleton Well Drilling Ltd*
 LICENCE NUMBER: 3602
 ADDRESS: *3301 Bayview*
 NAME OF DRILLER OR BOREHOLE CONTRACTOR: *Ed V. Lighton*
 LICENCE NUMBER:
 SIGNATURE OF CONTRACTOR: *Ed V. Lighton*
 SUBMISSION DATE: DAY 12 MO 9 YR 77

OFFICE USE ONLY

DATA SOURCE: 1
 CONTRACTOR: 3602
 DATE RECEIVED: 140977
 DATE OF INSPECTION: Aug 22/78
 INSPECTOR: *ES*
 REMARKS: *new bore*
 08858



WATER WELL RECORD

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

11

1702832

MUNICIP.

COP.

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON., BLOCK, TRACT, SURVEY ETC

LOT 25-27

MANFIELD Ont.

DATE COMPLETED

DAY 19 MO 10 YR 81

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Grey Clay		Stones		0	21
Grey-Blue Shale				21	127

31 _____
32 _____

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input checked="" type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-17	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6"	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	0.188	12	22
	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		22	127

SCREEN

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

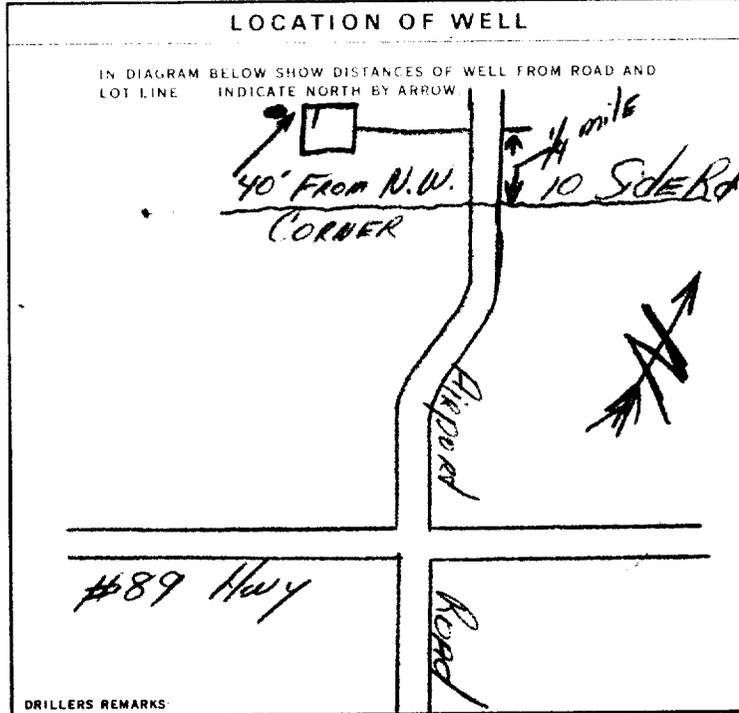
MATERIAL AND TYPE _____
DEPTH TO TOP OF SCREEN 41-44 30 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	2 GPM	15-16 30 HOURS 17-18 30 MIN
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
23 FEET	126 FEET	15 MINUTES 26-28 FEET 30 MINUTES 29-31 FEET 45 MINUTES 32-34 FEET 60 MINUTES 35-37 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	120 GPM	1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	120 FEET	2 GPM



FINAL STATUS OF WELL

1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	

WATER USE

1 <input checked="" type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	9 <input type="checkbox"/> NOT USED

METHOD OF DRILLING

1 <input type="checkbox"/> CABLE TOOL	6 <input type="checkbox"/> BORING
2 <input checked="" type="checkbox"/> ROTARY (CONVENTIONAL)	7 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	8 <input type="checkbox"/> JETTING
4 <input type="checkbox"/> ROTARY (AIR)	9 <input type="checkbox"/> DRIVING
5 <input type="checkbox"/> AIR PERCUSSION	

CONTRACTOR

NAME OF WELL CONTRACTOR: LUNNEY WELL DRILLING
LICENCE NUMBER: 3406
ADDRESS: RR# 1 LAUREL, Ont.
NAME OF DRILLER OR BORER: _____
LICENCE NUMBER: _____
SIGNATURE OF CONTRACTOR: _____
SUBMISSION DATE: DAY 19 MO 10 YR 81

OFFICE USE ONLY

DATA SOURCE: _____ CONTRACTOR: _____ DATE RECEIVED: 30 03 82
DATE OF INSPECTION: _____ INSPECTOR: _____
REMARKS: _____

CSS.ES



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

11

1702926

MUNICIP

CON.

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON. BLOCK, TRACT, SURVEY ETC

DATE COMPLETED

DAY 24 MO June YR 83

MANNSFIELD

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MCST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	TOP Soil			0	1
GREY	CLAY	STONES. SANDY SHALEY CLAY		1	18
"	SHALE	SLAB SHALE		18	60

Cemented shot to 45'

Recovery 14 gallon per hr. (Freshwater) being hooked up for drinking. (They have a salt well on property 100 ft +)

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
60	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
45	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
8 1/2	STEEL	1/8	+2 18

SCREEN

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

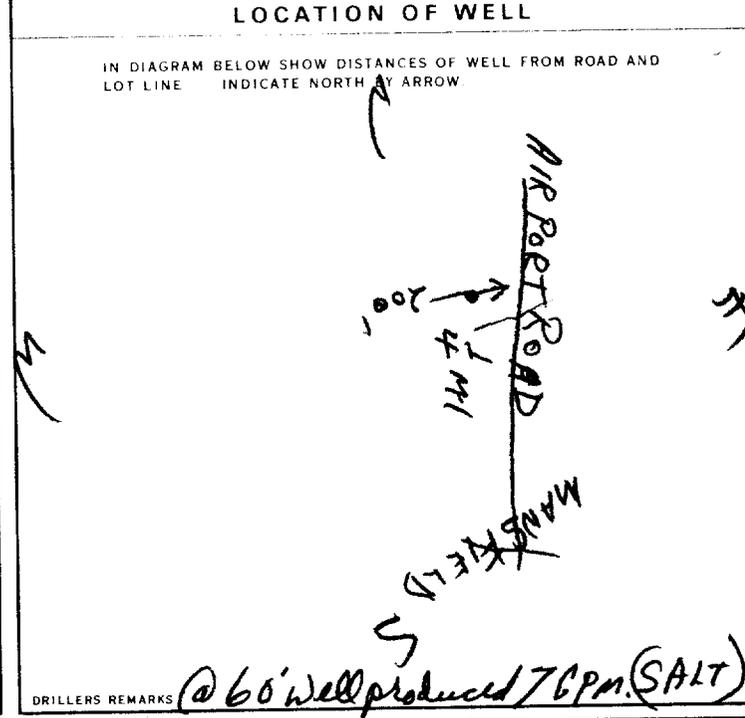
61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER ETC.

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
<input checked="" type="checkbox"/> PUMP <input type="checkbox"/> BAILER	GPM	HOURS

STATIC LEVEL	WATER LEVEL - END OF PUMPING	WATER LEVELS DURING			
20		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES



FINAL STATUS OF WELL

WATER SUPPLY

WATER USE

DOMESTIC

METHOD OF DRILLING

ROTARY (AIR)

CONTRACTOR: **Nightin's Well Drilling Ltd** LICENCE NUMBER: **3602**

NAME OF DRILLER OR BOPER: **Larry Nightin** LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: **Rennoth Nightin** SUBMISSION DATE: **19 7 83**

OFFICE USE ONLY

DATA SOURCE: **CONTRACTOR** DATE RECEIVED: **21 07 83**

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

1703175

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

COUNTY OR DISTRICT: **DUFFERIN** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **MUMUR MANSFIELD** COM. SECT., TRACT., SURVEY, ETC.: **VI** LOT: **11**
DATE COMPLETED: DAY **15** MO **oct** YR **85**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL			0	1
GREY	CLAY	STONES	STONEY CLAY	1	15
"	"	SHALE	SHALE LAYERS	15	18
"	SHALE	SLAB SHALE		18	51
"	"	"	"	51	70

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
25	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
2	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
51	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
70	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
13	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	1/4"	1	18
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

SCREEN

SIZE (SI) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
		DEPTH TO TOP OF SCREEN
		FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: **AIR** 1 PUMP 2 BAILER
PUMPING RATE: **1/2** GPM
DURATION OF PUMPING: 15-16 HOURS 17-18 MINS

STATIC LEVEL: **25** FEET
WATER LEVEL END OF PUMPING: 22-24 FEET
WATER LEVELS DURING: 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: 1 CLEAR 2 CLOUDY

RECOMMENDED PUMP TYPE: SHALLOW DEEP
RECOMMENDED PUMP SETTING: **65** FEET
RECOMMENDED PUMPING RATE: 43-45 GPM
RECOMMENDED RECOVERY RATE: 46-49 GPM

FINAL STATUS OF WELL

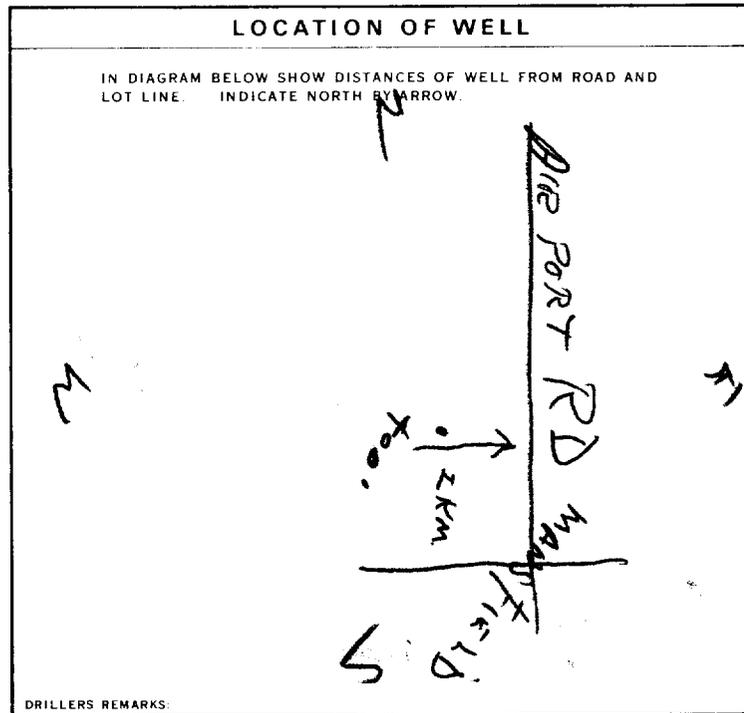
1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL

WATER USE

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

METHOD OF DRILLING

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



CONTRACTOR

NAME OF WELL CONTRACTOR: **Nighton's Well Drilling Ltd** LICENCE NUMBER: **36 02**
ADDRESS: **#3 Stayner**
NAME OF DRILLER OR BORE: **Larry & Terry Nighton** LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: **Denneth M. Nighton** SUBMISSION DATE: DAY **12** MO **12** YR **85**

OFFICE USE ONLY

DATA SOURCE: 58 CONTRACTOR: 59-62 DATE RECEIVED: **13 12 85** 63-68
DATE OF INSPECTION: INSPECTOR:
REMAPS:

WATER WELL RECORD

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

11

1704351

MUNICIPALITY 17006

CON. HS E

06

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Mansfield
CON. BLOCK, TRACT, SURVEY ETC: VI E.H. LOT: 15
DATE COMPLETED: DAY 25 MO 06 YR 91

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	Top soil			0	1
BROWN	SAND	GRAVEL, STONES		1	23
BROWN	SAND		FINE HARD (DRY)	23	51
BROWN	SAND		(MEDIUM) HARD DRY	51	79
BROWN	SAND	CLAY	BROWN SAND WITH CLAY RIDGES	79	101
BROWN	SAND		CLEAN WATER BEARING SAND	101	112
BROWN	SAND	flumpe pipe		112	123

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
101/112	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
6 7/8	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	102

SCREEN

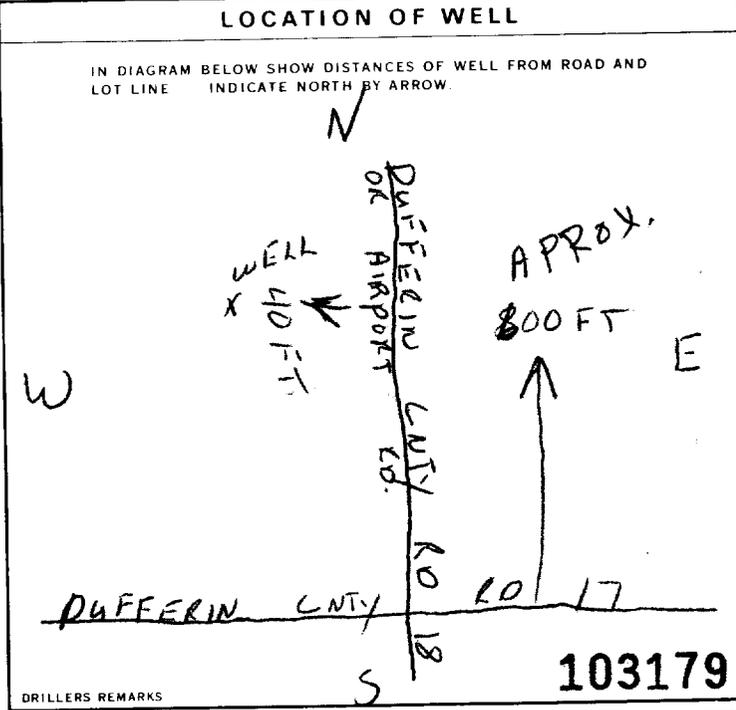
SIZE OF OPENING (SLOT NO): 8
DIAMETER: 6 INCHES
LENGTH: 67 FEET
MATERIAL AND TYPE: STAINLESS STEEL
DEPTH TO TOP OF SCREEN: 102 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE
3	BENSEAL

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER
PUMPING RATE: 30 GPM
DURATION OF PUMPING: 2 HOURS 30 MINS
STATIC LEVEL: 79 FEET
WATER LEVEL END OF PUMPING: 100 FEET
WATER LEVELS DURING: 15 MIN: 100, 30 MIN: 100, 45 MIN: 100, 60 MIN: 100
PUMP INTAKE SET AT: 120 FEET
RECOMMENDED PUMP TYPE: SHALLOW DEEP
RECOMMENDED PUMP SETTING: 120 FEET
RECOMMENDED PUMPING RATE: 20 GPM



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL 8 DEWATERING

WATER USE

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

METHOD OF CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: MIGHTON'S WELL DRILLING LTD. WELL CONTRACTOR'S LICENCE NUMBER: 3602
ADDRESS: RR #2 STAYNER ONT
NAME OF WELL TECHNICIAN: TERRY MIGHTON WELL TECHNICIAN'S LICENCE NUMBER: T-0130
SIGNATURE OF TECHNICIAN/CONTRACTOR: [Signature] SUBMISSION DATE: DAY 17 MO 7 YR 91

OFFICE USE ONLY

DATA SOURCE: 3602 DATE RECEIVED: JUL 23 1991
DATE OF INSPECTION: INSPECTOR:
REMARKS:
CSS.ES

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

11

1705727

Municipality 17006 Con. HS E 06

County or District: **DUFFERIN** Township/Borough/City/Town/Village: **Mulmur** Con block tract survey, etc.: **V/E** Lot: **11**
Address: **MANSFIELD** Date completed: **11 09 01**
Basin Code: _____

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BROWN	SAND			0	8
BROWN	CLAY	STONES	STONEY CLAY	8	27
BROWN	SAND	CLAY	SANDY CLAY	27	36
GREY	CLAY		HARD	36	47
GREY	SHALE		HARD	47	120

41 WATER RECORD

Water found at - feet	Kind of water
108/120	1 <input checked="" type="checkbox"/> Fresh 2 <input checked="" type="checkbox"/> Salty
15-18	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
20-23	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
25-28	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas
30-33	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/8	1 <input checked="" type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	0.188	+2	48
17-18	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			20-23
24-25	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN

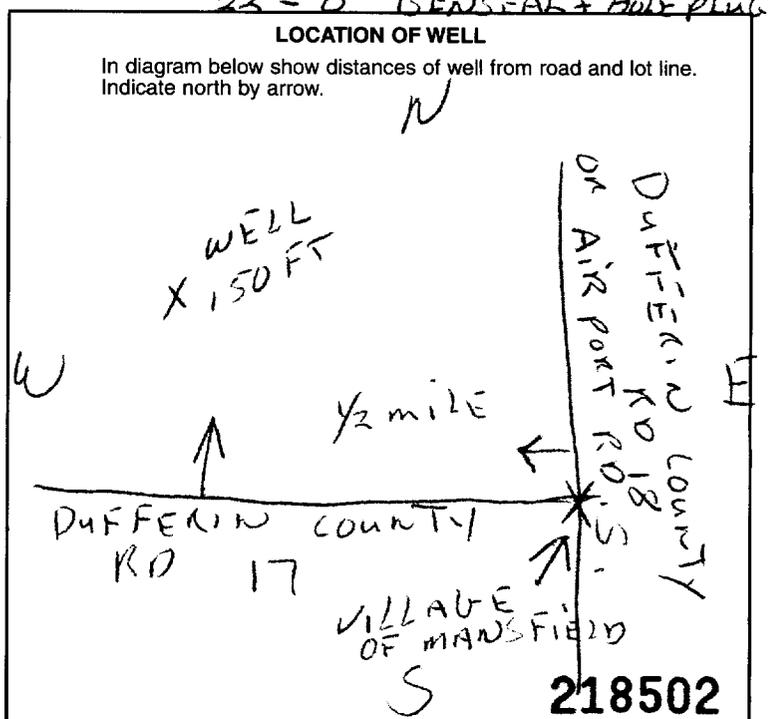
Sizes of opening (Slot No.)	Diameter	Length
—	— inches	— feet
Material and type		Depth at top of screen
—		— feet

61 PLUGGING & SEALING RECORD

Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
5	12	BENSEAL
120	91	HOLE PLUG
91	22	(LEAN SAND GRAVEL)
23	0	BENSEAL + HOLE PLUG

71 PUMPING TEST

Pumping test method	Pumping rate	Duration of pumping
1 <input type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer	1 GPM	Hours: _____ Mins: _____
Static level: 38 feet	Water level end of pumping: 118 feet	Water levels during:
		15 minutes: 118 feet
		30 minutes: 118 feet
		45 minutes: 118 feet
		60 minutes: 118 feet



54 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

SALT WATER.

55-56 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

57 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: **MIGHTON'S WELL DRILLING** Well Contractor's Licence No.: **3602**
Address: **RR2 STAYNER ONT**
Name of Well Technician: **LARRY MIGHTON** Well Technician's Licence No.: **T-0129**
Signature of Technician/Contractor: **Kenneth J. Mighton** Submission date: **day 27 mo 9 yr 01**

MINISTRY USE ONLY

Data source: **3602** Date received: **OCT 02 2001**
Date of inspection: _____ Inspector: _____
Remarks: _____

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

11

1705845

Municipality
17006

Con. HS E 06

County or District: **DUFFERIN** Township/Drough/City/Town/Village: **MULMER** Con. block tract survey, etc.: **6** Lot: **11**
Address: [Redacted] Date completed: **23 01 02**

21 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	To
BLACK	TOPSOIL	—	SOFT	0	1
BROWN	CLAY.	SAND	SOFT	1	21
BROWN	SAND	SILT	DIRTY	21	95
BROWN	SAND	CLAY	DIRTY	95	118
BROWN	SAND	—	LOOSE	118	125

31 32

41 WATER RECORD

Water found at - feet	Kind of water
125	1 <input checked="" type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 14 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 <input type="checkbox"/> Gas 19
15-18	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 19 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 <input type="checkbox"/> Gas 24
20-23	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 24 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 <input type="checkbox"/> Gas 29
25-28	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 29 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 <input type="checkbox"/> Gas 34
30-33	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 34 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 <input type="checkbox"/> Gas 60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 3/4	1 <input checked="" type="checkbox"/> Steel 12 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	188	+2	120
17-18	1 <input type="checkbox"/> Steel 19 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			20-23
24-25	1 <input type="checkbox"/> Steel 26 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
14	6 inches	4 feet

Material and type: **STAINLESS** Depth at top of screen: **121** feet

61 PLUGGING & SEALING RECORD

Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
0-13	21	HOLE PLUG CUTTING.
18-21	22-25	
26-29	30-33	

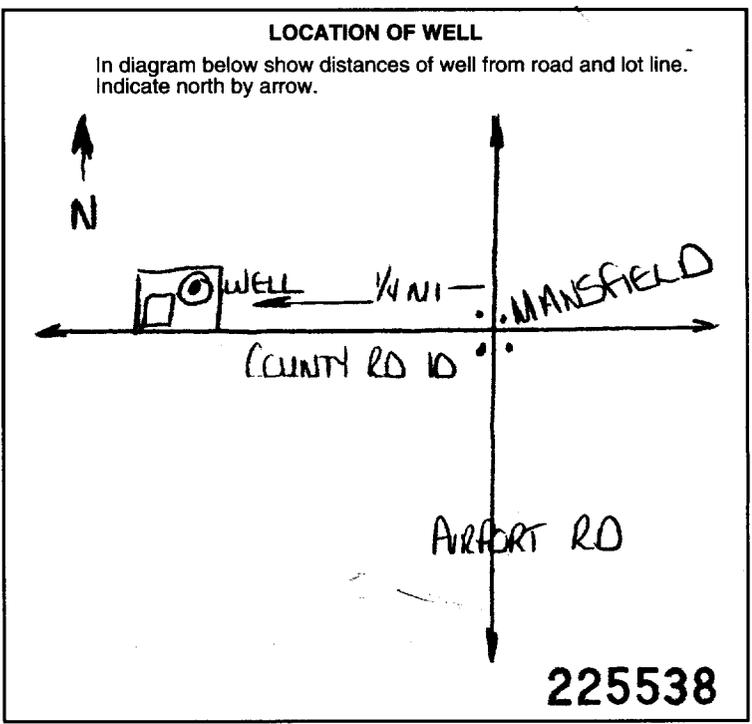
71 PUMPING TEST

Pumping test method: **Air** Pumping rate: **15** GPM Duration of pumping: **1** Hours **17** Mins

Static level	Water level end of pumping	Water levels during			
88 feet	118 feet	15 minutes: 118 feet	30 minutes: 118 feet	45 minutes: 118 feet	60 minutes: 118 feet

If flowing give rate: **8** GPM Pump intake set at: **115** feet Water at end of test: Clear Cloudy

Recommended pump type: Shallow Deep Recommended pump setting: **8** GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor: **REB WELL DRILLING LTD** Well Contractor's Licence No.: **4645**
Address: **PO Box 320 BEETON, ONT L0G 1A0**
Name of Well Technician: **ROBERT W. KAWALSKI** Well Technician's Licence No.: **T2425**
Signature of Technician/Contractor: [Signature] Submission date: **23 01 02**

MINISTRY USE ONLY

Data source: **4645** Date received: **JUN 14 2002**
Date of inspection: Inspector:
Remarks: **CSS.ES2**



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

11

1706071

Municipality 17006 HS E 06

County or District, Township/Borough/City/Town/Village (Mulmer), Con block tract survey, etc. (6), Lot (11), Address of Well Location (937058 Airport Road), Date completed (28 5 03)

21, Zone, Easting, Northing, RC, Elevation, RC, Basin Code, ii, iii, iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions). Table with columns: General colour, Most common material, Other materials, General description, Depth - feet (From, To). Rows include Top Soil, Gravel, Sand Clay, Shale, Clay Layers, Hard.

31, 32

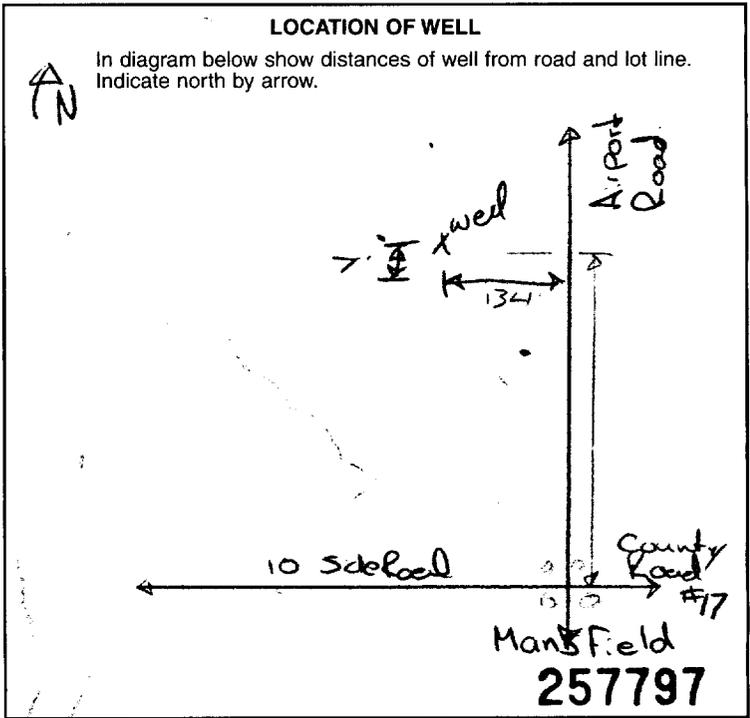
41 WATER RECORD. Table with columns: Water found at - feet, Kind of water (Fresh, Salty, Sulphur, Minerals, Gas).

51 CASING & OPEN HOLE RECORD. Table with columns: Inside diam inches, Material, Wall thickness inches, Depth - feet (From, To).

54 SIZES OF OPENING (Slot No.), Diameter, Length, Material and type, Depth at top of screen.

61 PLUGGING & SEALING RECORD. Table with columns: Depth set at - feet (From, To), Material and type (Cement grout, bentonite, etc.).

71 PUMPING TEST. Includes Pumping test method, Pumping rate (3 GPM), Duration of pumping (4 Hours), Static level (204 feet), Water level end of pumping (54' 5"), Water levels during pumping, Pump intake set at (97 feet), Recommended pump type (Deep), Recommended pump setting (97 feet), Recommended pump rate (3 GPM).



FINAL STATUS OF WELL, WATER USE, METHOD OF CONSTRUCTION. Includes checkboxes for Water supply, Abandoned, Unfinished, Replacement well, etc.

Name of Well Contractor (Tom's Well Drilling Ltd), Well Contractor's Licence No. (743), Address (3 John Ave All. Jan ON L9R 1S8), Name of Well Technician (Roger Harun), Well Technician's Licence No. (2478), Signature of Technician Contractor, Submission date (28 5 03).

MINISTRY USE ONLY. Data source (7143), Date received (JUL 02 2003), Date of inspection, Inspector, Remarks (C.S.S. 853).

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

1706150

HS E 06

County or District: [Redacted] Township/Borough/City/Town/Village: MULMUR
 Address of Well Location: BOX 155 MANSFIELD
 Date completed: 9 day 10 month 3 year

Zone: [] Easting: [] Northing: [] RC: [] Elevation: [] RC: [] Basin Code: []

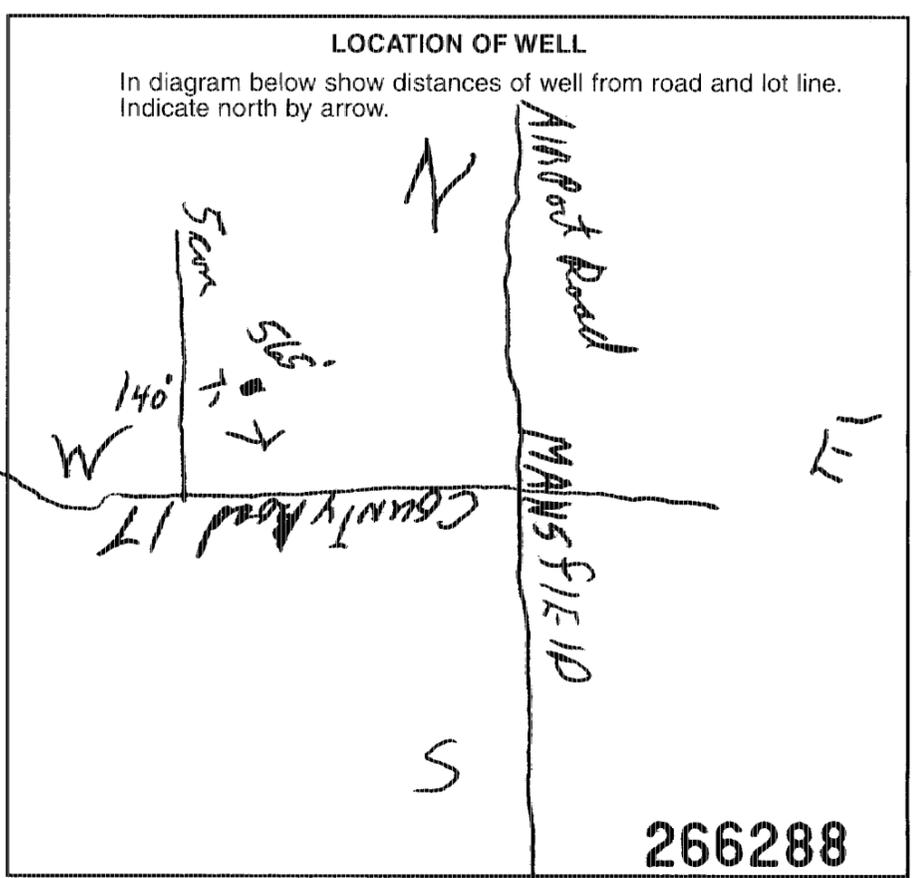
LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BROWN	Fill			0	18"
GREY	SHALE & clay layers			18"	14
GREY	SHALE	Hard		14	21
GREY	SHALE &	BLACK SHALE	Hard to soft	21	100

31 ID 877015

41 WATER RECORD Water found at - feet: 32 to 100 Kind of water: <input checked="" type="checkbox"/> Fresh, <input type="checkbox"/> Salty, <input type="checkbox"/> Sulphur, <input type="checkbox"/> Minerals, <input type="checkbox"/> Gas	51 CASING & OPEN HOLE RECORD Inside diam inches: 6 1/4, 5 1/4 Material: <input checked="" type="checkbox"/> Steel, <input type="checkbox"/> Galvanized, <input type="checkbox"/> Concrete, <input type="checkbox"/> Open hole, <input type="checkbox"/> Plastic Wall thickness inches: 1.188 Depth - feet: 18 to 100	SCREEN Sizes of opening (Slot No.): [] Diameter: [] Length: [] Material and type: []	61 PLUGGING & SEALING RECORD <input checked="" type="checkbox"/> Annular space, <input type="checkbox"/> Abandonment Depth set at - feet: 0 to 20 Material and type: BENSEAL
---	---	---	--

71 PUMPING TEST

Pumping test method: Pump, Bailor
 Pumping rate: 5 GPM
 Duration of pumping: 1 hour 15 mins
 Static level: 29 feet
 Water level end of pumping: 90 feet
 Water levels during: 15 min: 90, 30 min: 90, 45 min: 90, 60 min: 90
 Recommended pump type: Deep
 Recommended pump setting: 90 feet
 Recommended pump rate: 5 GPM



FINAL STATUS OF WELL

Water supply, Abandoned, insufficient supply, Unfinished
 Observation well, Abandoned, poor quality, Replacement well
 Test hole, Abandoned (Other)
 Recharge well, Dewatering

WATER USE

Domestic, Commercial, Not use
 Stock, Municipal, Other
 Irrigation, Public supply
 Industrial, Cooling & air conditioning

METHOD OF CONSTRUCTION

Cable tool, Air percussion, Driving
 Rotary (conventional), Boring, Digging
 Rotary (reverse), Diamond, Other
 Rotary (air), Jetting

Name of Well Contractor: Mighlin's Well Drilling
 Well Contractor's Licence No.: 3602
 Address: R22 STAYNER
 Name of Well Technician: Larry Mighlin
 Well Technician's Licence No.: T-129
 Signature of Technician/Contractor: [Signature]
 Submission date: 30 mo 10 yr 03

MINISTRY USE ONLY

Data source: 8602
 Date received: NOV 05 2003
 Date of inspection: [] Inspector: []
 Remarks: []

Address of Well Location (Street Number/Name)		Township	Lot	Concession
		MULMER	11	6
County/District/Municipality		City/Town/Village	Province	Postal Code
DUFFERIN			Ontario	
JTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number
NAD 83		576715	4891201	

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
BROWN	SAND	SILT	LOOSE	0	7
BROWN	CLAY	—	HARD	7	26
BROWN	SAND	CLAY	LAYERED	26	110
BROWN	SAND	—	LOOSE	110	126
GREY	CLAY	—	HARD	126	0

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
0 to 20	HOLE PLUG	4

Results of Well Yield Testing				
After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____				
If pumping discontinued, give reason:				
Pump intake set at (m/ft)				
120 FT.				
Pumping rate (l/min / GPM)				
Duration of pumping				
1 hrs + _____ min				
Final water level end of pumping (m/ft)				
109 FT.				
If flowing give rate (l/min / GPM)				
Recommended pump depth (m/ft)				
130 FT.				
Recommended pump rate (l/min / GPM)				
8 GPM				
Well production (l/min / GPM)				
8 GPM				
Disinfected?				
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input checked="" type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
6 1/4	STEEL	188	+2	121	

Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		
			From	To	
5 1/2	STAINLESS	12	122	126	

Water Details		Hole Diameter	
Water found at Depth	Kind of Water: <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
6 (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____		From To	
		0 20 10 in	
		20 122 8 3/4	
		122 126 6 1/8	

Well Contractor and Well Technician Information			
Business Name of Well Contractor		Well Contractor's Licence No.	
RB WELL DRILLING LTD		416 415	
Business Address (Street Number/Name)		Municipality	
3519 SIDER ROAD 10, BEETON		NEW TECUMSEAH	
Province	Postal Code	Business E-mail Address	
ON	L0G 1A0	RBWELL DRILLING.COM	
Business Telephone No. (inc. area code)		Name of Well Technician (Last Name, First Name)	
1057292950		KAWALSKI, ROBERT	
Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted	
24125	[Signature]	20150917	

Map of Well Location	
Please provide a map below following instructions on the back.	

Comments:

Well owner's information package delivered		Date Package Delivered		Ministry Use Only	
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	20150918	20150916	Audit No. Z 215708	Received NOV 23 2015



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

A248504

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name: MULMER, Last Name / Organization: TOWNSHIP, Mailing Address, Municipality, Province, Postal Code, Telephone No., Well Constructed by Well Owner

Well Location

Address of Well Location, Township: MULMER, Lot: 15, Concession: 6 EHS, County/District/Municipality: DUFFERIN, City/Town/Village, Province: Ontario, UTM Coordinates, Municipal Plan and Sublot Number

Overburden and Bedrock Materials/Abandonment Sealing Record

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To. Includes handwritten note: ALTERATION TO ORIGINAL WELL DRILLED JULY 17 1991 RECORD # 103179

Annular Space table with columns: Depth Set at (m/ft) From, To, Type of Sealant Used, Volume Placed (m³/ft³). Includes handwritten note: REPLACED SEAL AFTER WELL WAS SLEAVED

Method of Construction and Well Use checkboxes. Includes handwritten note: PUMP TRUCK

Construction Record - Casing table with columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From, To, Status of Well. Includes handwritten notes: 6 1/4 STEEL, 1 1/4-5 1/2 STEEL, 5 1/2 STEEL, SCREWED INTO PACKER

Construction Record - Screen table with columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From, To, Status of Well

Water Details and Hole Diameter tables. Includes checkboxes for Fresh/Untested water and Depth/Diameter measurements.

Well Contractor and Well Technician Information. Includes Business Name: RAB WELL DRILLING LTD, Business Address: 35169 SIDEROAD 10 BAEYON NEW TECUMSETH, Well Contractor's Licence No.: 416145, Well Technician: KOWALSKI, ROBERT

Results of Well Yield Testing table. Includes columns: Draw Down (Time, Water Level), Recovery (Time, Water Level), Pump intake set at, Pumping rate, Duration of pumping, Final water level end of pumping, If flowing give rate, Recommended pump depth, Recommended pump rate, Well production, Disinfected?

Map of Well Location. Includes handwritten map showing well location relative to Mansfield and Airport Rd. Includes handwritten note: WELL @ 40 FT.

Well owner's information package delivered and date work completed. Includes checkboxes for Yes/No and dates: 20180605, 20180516

Ministry Use Only. Includes Audit No.: 2287207, Received: JUN 26 2018

44 35
 UTM 18RVT
 Elev. 5R 1030



GROUND WATER BRANCH
 17 JAN 16 1962 67
 ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22 County or District Dufferin Township, Village, Town or City Mulmur.
 Con. # 5E VII Lot 11 Eleven Date completed 27 Nov. 1961
 (day month year)
 Address Mansfield, Ont.

Casing and Screen Record

Inside diameter of casing 30"
 Total length of casing 28 1/2'
 Type of screen
 Length of screen
 Depth to top of screen
 Diameter of finished hole 30

Pumping Test

Static level 23'
 Test-pumping rate 50 Gallons G.P.M.
 Pumping level
 Duration of test pumping 8 hrs.
 Water clear or cloudy at end of test Clear
 Recommended pumping rate G.P.M.
 with pump setting of feet below ground surface

Well Log

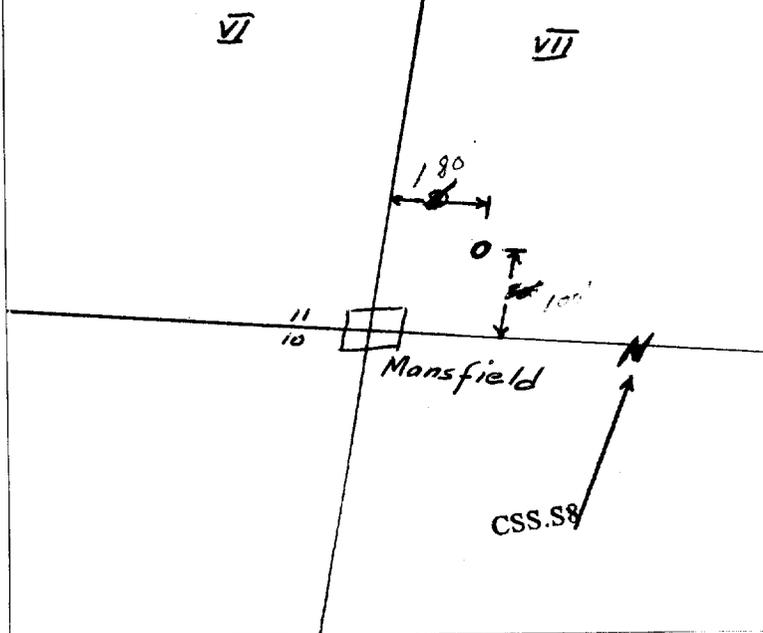
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Sandy Brown Clay</u>	<u>0</u>	<u>2</u>	<u>23'</u>	<u>Fresh.</u>
<u>Gravel</u>	<u>2</u>	<u>10</u>		
<u>Sand</u>	<u>10</u>	<u>16</u>		
<u>Sandy Clay</u>	<u>16</u>	<u>28 1/2</u>		

For what purpose(s) is the water to be used? Household.
 Is well on upland, in valley, or on hillside? upland.
 Drilling or Boring Firm
Babuik Well Boring
 Address 126 Laurel Ave.
Islington, Ont.
 Licence Number 8
 Name of Driller or Borer Mike S. Babuik
 Address Same as above
 Date Jan 15 1962
Mike S. Babuik
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



W Hurontario Street East



WATER RESOURCES DIVISION No. 17 No. 768 NOV 30 1965 ONTARIO WATER RESOURCES COMMISSION

UTM 5 R 1000

Elev. 5 R 1000

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22 DUFFERIN

Township, Village, Town or City MULMUR

County or District HSE 7 Lot 11

Date completed 24 11 1965 (day month year)

Address MANSFIELD

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 70'
Type of screen ✓
Length of screen ✓
Depth to top of screen ✓
Diameter of finished hole 4"

Pumping Test

Static level 40
Test-pumping rate 9 G.P.M.
Pumping level 54
Duration of test pumping 15 hrs @ 4 1/2 P.M.
Water clear or cloudy at end of test Clear
Recommended pumping rate 5' G.P.M.
with pump setting of 62 feet below ground surface

Well Log

Water Record

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		
Clay	1	10		
Sand	10	25		fresh
Grey clay	25	70	70	
Sand + gravel	70	72	72	

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

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

Drilling or Boring Firm Ken Brighton + Son

Address 10 urban

Licence Number 1645

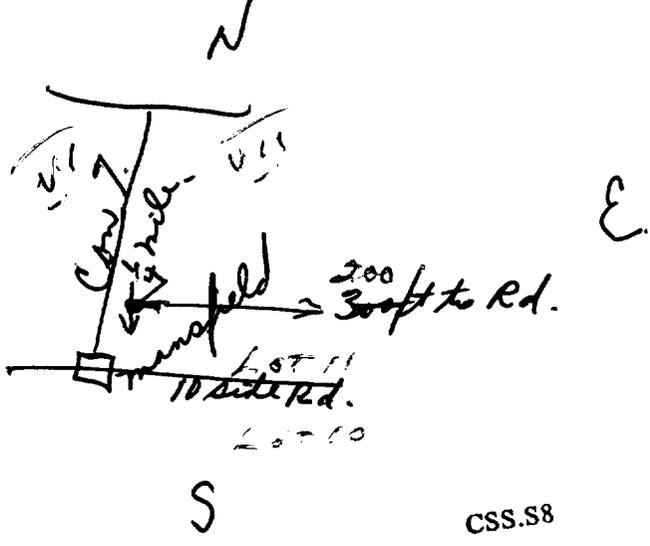
Name of Driller or Borer Larry Brighton

Address Dufferin

Date 26/11/65
Kenneth G. Brighton
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 7 15M-60-4138

1/4 MILE N.E. of 10 sideroad
200' E. of Co. Rd. 10

OWRC COPY

CSS.S8

TM 1172 576920
SB 4R 489110110
lev. 5TR 11035
HSE
CODED
Water management in Ontario

1700957

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22
County or District **DUFFERIN** Township, Village, Town or City **MULMUR MANSFIELD**
Con. 7 H.S.E. Lot 11 W.H. Date completed 26 NOV 1968
Address **MANSFIELD**

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 107'
Type of screen Johnston Stainless Steel no 10
Length of screen 3'
Depth to top of screen 107'
Diameter of finished hole 4"

Pumping Test

Static level
Test-pumping rate 5 G.P.M.
Pumping level 90'
Duration of test pumping 1 hr.
Water clear or cloudy at end of test Clear
Recommended pumping rate 5 G.P.M.
with pump setting of 104 feet below ground surface

Well Log

Water Record

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		
gravelly clay	1	10		
fine beach sand clay	10	100		
hard clay	100	103		
water bearing sand (medium to fine)	103	107	103 to 107	fresh

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

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

Drilling or Boring Firm **Kenneth G. Nighton & Sons**

Address **Stager**

Licence Number **2973**

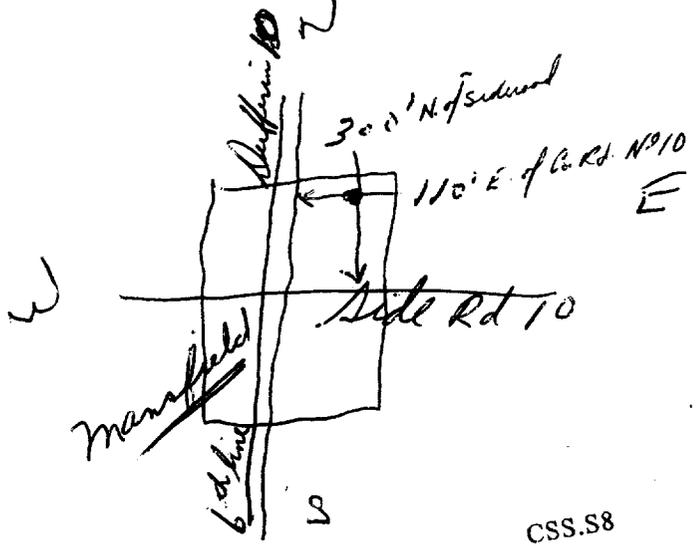
Name of Driller or Borer **Kenneth G. Nighton**

Address **Stager**

Date **30/11/68**
Kenneth G. Nighton
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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





WATER WELL RECORD

41A/E

ONTARIO

PRINT ONLY IN SPACES PROVIDED

CHECK CORRECT BOX WHERE APPLICABLE

11

1701446

MUNICIP.

1,7006

CON.

HS E C 07

COUNTY OR DISTRICT: ~~FRANKLIN~~ TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: ~~FRANKLIN~~ MULMER, ~~FRANKLIN~~ ⁹³ ~~FRANKLIN~~ VII. HSE LOT 25-27: 011

DATE COMPLETED: DAY 20 MO. Oct YR. 72

GRID: 390950 4 1025 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	coarse	SAND & Large Stone		0	25
Brown	SAND clay			25	112
Blue	clay	forms of shale		112	160

31 002561012 011262805 016030517

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH	2 <input type="checkbox"/> SALTY	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	12		13-16
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	19		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	26		27-30

SCREEN

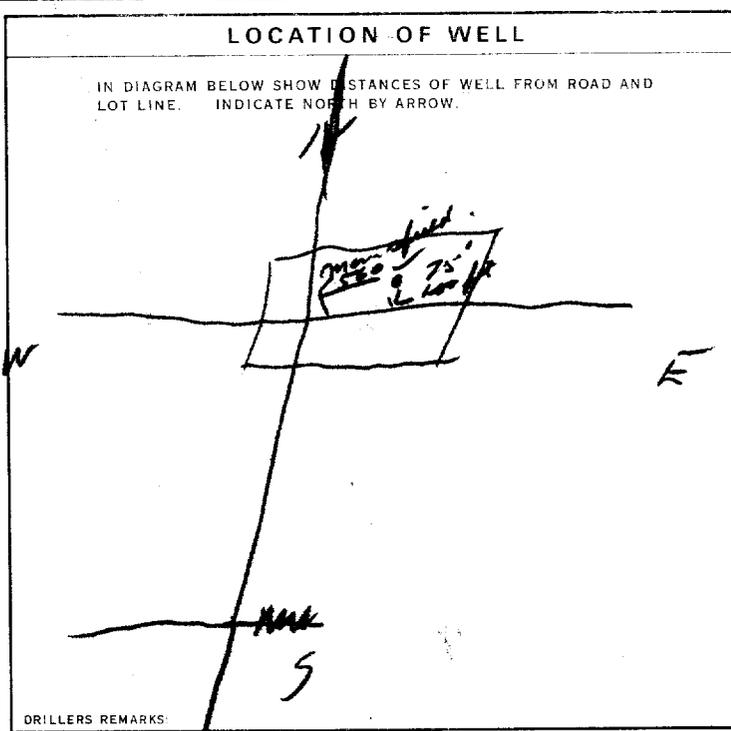
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
	31-33	34-38
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN 41-44

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUP / LEAD PACKER, ETC.
10-13		14-17
18-21		22-25
26-29		30-33

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS
1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER		15-16 HOURS 17-18 MINS.
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
19-21 FEET	22-24 FEET	15 MINUTES 26-28 FEET 30 MINUTES 29-31 FEET 45 MINUTES 32-34 FEET 60 MINUTES 35-37 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	GPM	1 <input type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	FEET	GPM



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
5 COMMERCIAL
6 MUNICIPAL
7 PUBLIC SUPPLY
8 COOLING OR AIR CONDITIONING
9 NOT USED

METHOD OF DRILLING

1 TABLE 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: Ken Mighler & sons LICENCE NUMBER: 3602

ADDRESS: Stuyvesant

NAME OF DRILLER OR BORER: Larry Mighler LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: Kenneth A. Mighler SUBMISSION DATE: DAY 15 NO. 1 YR. 72

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3602 DATE RECEIVED: 230173

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

CSS 58 P/WI

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

11

1705216

Municipality 17006 Con. HS E 07

County or District Duff Township/Borough/City/Town/Village Mulmur Con block tract survey, etc. 7 Lot 11
Address RR1 Mansfield Date completed 10 10 98
day month year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
	Brown clay, sand			0	20
	Blue clay, sand			20	67
	Blue clay, sand, stones			67	130
	Blue clay, pebbles			130	140
	Grey sand			140	145

31
32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6	1 <input checked="" type="checkbox"/> Steel 12 2 <input type="checkbox"/> Galvanized 13 3 <input type="checkbox"/> Concrete 14 4 <input type="checkbox"/> Open hole 15 5 <input type="checkbox"/> Plastic 16	188 + 3	141	
	17-18 1 <input type="checkbox"/> Steel 19 2 <input type="checkbox"/> Galvanized 20 3 <input type="checkbox"/> Concrete 21 4 <input type="checkbox"/> Open hole 22 5 <input type="checkbox"/> Plastic 23			20-23
	24-25 1 <input type="checkbox"/> Steel 26 2 <input type="checkbox"/> Galvanized 27 3 <input type="checkbox"/> Concrete 28 4 <input type="checkbox"/> Open hole 29 5 <input type="checkbox"/> Plastic 30			27-30

SCREEN

Sizes of opening (Slot No.) 6 Diameter 5 inches Length 4 feet
Material and type Stainless
Depth at top of screen 131 feet

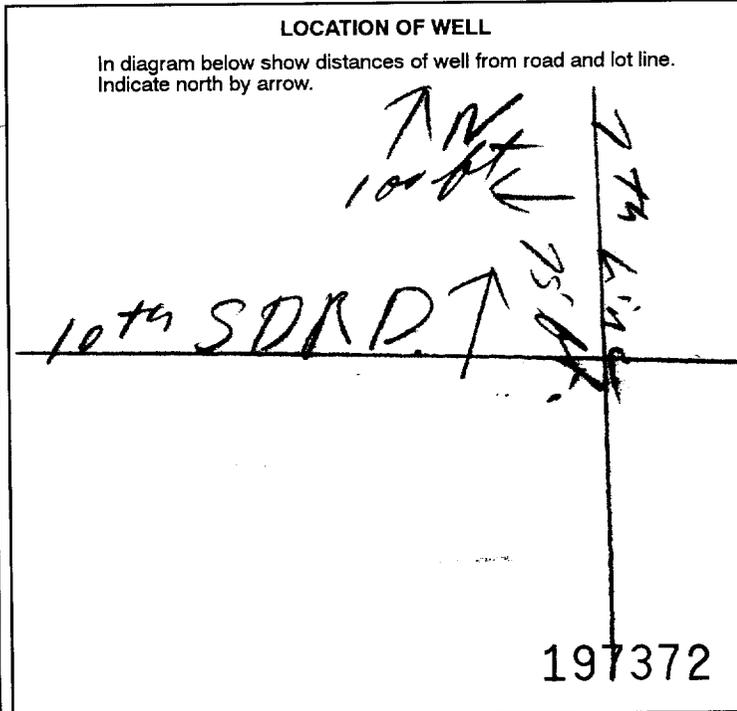
61 PLUGGING & SEALING RECORD

Annular space Abandonment

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

71 PUMPING TEST

Pumping test method Pump Bailer
Pumping rate 25 GPM Duration of pumping 3 Hours 3 Mins
Static level 60 feet Water level end of pumping 100 feet
Water levels during Pumping Recovery
15 minutes 75 feet 30 minutes 75 feet 45 minutes 75 feet 60 minutes 100 feet
If flowing give rate 140 GPM Pump intake set at 10 feet
Water at end of test Clear Cloudy
Recommended pump type Shallow Deep
Recommended pump setting 140 feet Recommended pump rate 10 GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor TS Miller Well Contractor's Licence No. 3561
Address Box 156 Jelensville
Name of Well Technician TS Miller Well Technician's Licence No. F0298
Signature of Technician/Contractor TS Miller Submission date _____ day mo yr

MINISTRY USE ONLY

Data source 3561 Contractor 3561 Date received OCT 27 1998
Date of inspection _____ Inspector _____
Remarks _____

CSS. ES9

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

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1706073

Municipality 17006 HS E Con. 07
PART II

County or District: **DUFFERIN**
Township/Borough/City/Town/Village: **MAN'SFIELD MULNAR**
Cdn block tract survey, etc.: **VII EST** Lot: **11**
Address: **MAN'SFIELD** Date completed: **30** day **07** month **03** year

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BROWN	TOPSOIL			0	2
BROWN	CLAY	STONES	STONEY CLAY	2	12
RED	CLAY	STONES	STONEY CLAY	12	63
GREY	CLAY		HARD	63	140
GREY	SAND	CLAY	SANDY CLAY DIRTY	140	161
GREY	SAND	GRAVEL	TOO DIRTY	161	180
GREY	SHALE	LAYER'S & SILT	HARD	180	200

31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

41 WATER RECORD

Water found at - feet	Kind of water
10-13	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas
15-18	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas
20-23	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas
25-28	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas
30-33	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas 6 <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	1 <input checked="" type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	0.188 + 2	175	
17-18	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			20-23
24-25	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN

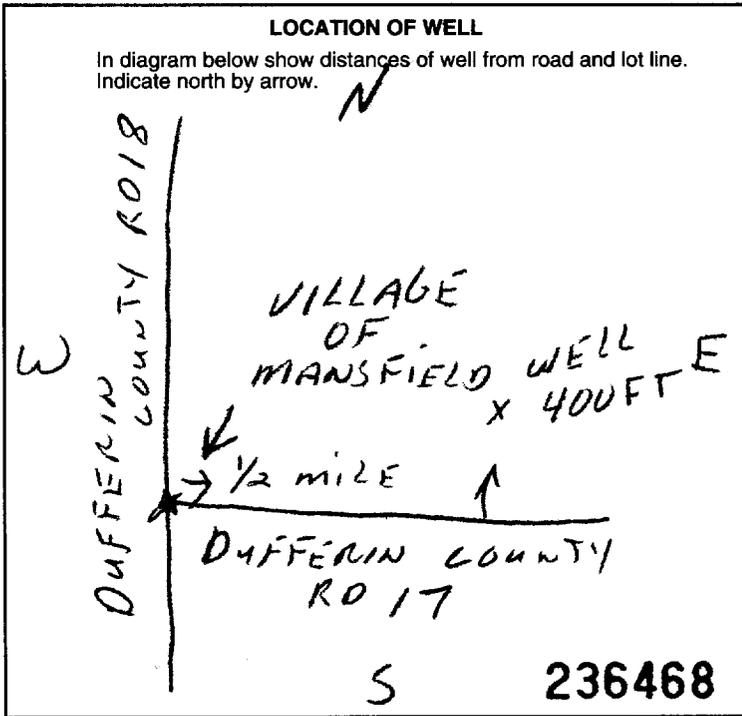
Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type		Depth at top of screen feet

61 PLUGGING & SEALING RECORD

Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
3	12	BENSEAL
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

Pumping test method	Pumping rate GPM	Duration of pumping
1 <input type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer		15-16 Hours 17-18 Mins
Static level	Water level during	Water levels during
19-21	22-24	15 minutes 26-28 30 minutes 29-31 45 minutes 32-34 60 minutes 35-37
feet	feet	feet
If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy
Recommended pump type	Recommended pump setting	Recommended pump rate
<input type="checkbox"/> Shallow <input type="checkbox"/> Deep	feet	GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor: **MIGHTON'S WELL DRILLING** Well Contractor's Licence No.: **3602**
Address: **RR2 STAYNER ONT**
Name of Well Technician: **LARRY MIGHTON** Well Technician's Licence No.: **T-0129**
Signature of Technician/Contractor: *Larry Mighton* Submission date: **18** day **7** mo **03** yr

MINISTRY USE ONLY

Data source	Contractor	Date received
	3602	JUL 22 2003
Date of inspection	Inspector	
Remarks		

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

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1706171

Municipality: 17006 Con: HS E 07

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Address of Well Location		Date completed	04 09 03

21

Zone Easting Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
		PRE DRILLED		0	180
GREY/BROWN	DRILL CUTTINGS		HARD	180	200
GREY	CLAY	—	DENSE	200	205
GREY	SHALE	—	CRISP	205	220

31

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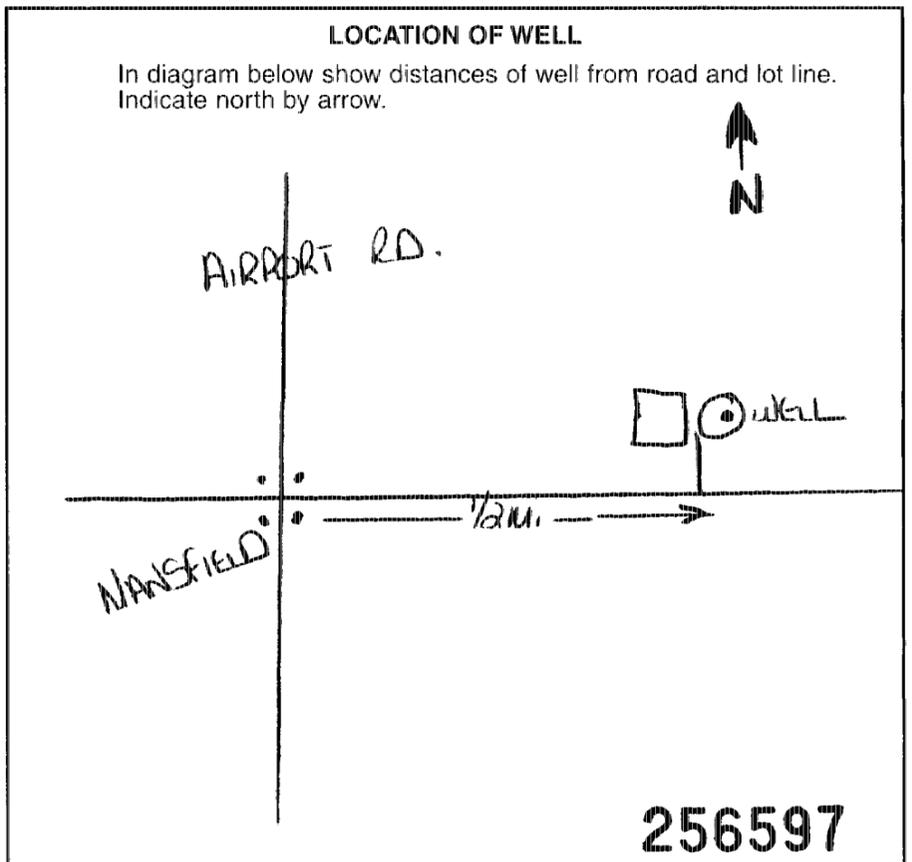
41 WATER RECORD			
Water found at - feet	Kind of water		
10-13	<input checked="" type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
200-220	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	<input checked="" type="checkbox"/> Steel	188	+2	APPROX 180

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

61 PLUGGING & SEALING RECORD		
<input checked="" type="checkbox"/> Annular space		
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)	
0-13	25	HELEPLUG

71 PUMPING TEST			
Pumping test method	AIR	Pumping rate	2 GPM
Static level	102 feet	Water levels during	210 feet
Recommended pump type	<input checked="" type="checkbox"/> Deep	Recommended pump setting	210 feet



FINAL STATUS OF WELL		
<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well

Name of Well Contractor	Well Contractor's Licence No.
R&B WELL DRILLING LTD	4645
Name of Well Technician	Well Technician's Licence No.
ROBERT W KOWALSKI	T-2425
Signature of Technician	Submission date
[Signature]	29 10 03

MINISTRY USE ONLY	Data source	Contractor	Date received
	Date of inspection	Inspector	
	Remarks		
CSS FS4			

Measurements recorded in: Metric Imperial

A 085738

Page of

Well Location

Address of Well Location (Street Number/Name) #588383 Ct Rd 17		Township	Lot	Concession
County/District/Municipality Simcoe		City/Town/Village Mansfield	Province Ontario	Postal Code
UTM Coordinates Zone	Easting	Northing	Municipal Plan and Sublot Number	
NAD 83	17	577796	4291478	

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
Red Brown	Clay Sand	Gravel	Hard	0	4.87
Grey	Clay		Soft	4.87	9.14
Grey	Silt	Clay, Sand	Layered	9.14	34.13
Grey	Fine Sand	Medium Sand	Loose	34.13	38.70

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From: 0 To: 6.09	Enviroplug Medium	0.2123763

Method of Construction	Well Use
<input checked="" type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input type="checkbox"/> Rotary (Reverse) <input type="checkbox"/> Boring <input type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging <input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Other, specify

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
15.24	Steel	188	+0.60	34.13	
25.4	Open Hole		0	6.09	

Construction Record - Screen				
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
12.70	Stainless Steel #8		34.13	36.57

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Depth (m/ft) From	Diameter (cm/in) To
34.13	<input checked="" type="checkbox"/> Fresh	+0.60	34.13
	<input type="checkbox"/> Gas	0	6.09
	<input type="checkbox"/> Other, specify	34.13	36.57

Well Contractor and Well Technician Information			
Business Name of Well Contractor H2O Calvin Merklinger Well Drilling		Well Contractor's Licence No. 7219	
Business Address (Street Number/Name) 4131-15th Line RR#3 Cookstown		Municipality Simcoe	
Province Ont	Postal Code L0L 1L0	Business E-mail Address	
Bus. Telephone No. (inc. area code) 7054358791			
Name of Well Technician (Last Name, First Name) Merklinger Calvin			
Well Technician's Licence No. 2887		Signature of Technician and/or Contractor Calvin Merklinger	
		Date Submitted 20090806	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level	16.76		
	1	17.98	1	27.43
	Pump intake set at (m/ft) 36.57			
	2	19.50	2	26.51
	Pumping rate (l/min / GPM) 30			
	3	20.72	3	25.60
Duration of pumping 1 hrs + 0 min				
4	21.33	4	24.68	
Final water level end of pumping (m/ft) 28.34				
5	22.25	5	24.07	
If flowing give rate (l/min / GPM)				
10	25.29	10	21.03	
15	26.67	15	19.20	
20	27.43	20	18.28	
Recommended pump depth (m/ft) 32.91				
25	27.98	25	17.67	
Recommended pump rate (l/min / GPM) 30				
30	28.16	30	17.37	
Well production (l/min / GPM) 30				
40	28.34	40	16.91	
50	28.34	50	16.76	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
60	28.34	60	Static	

Map of Well Location	
Please provide a map below following instructions on the back.	
Comments	
Well owner's information package delivered <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Package Delivered 20090702
Date Work Completed 20090702	Ministry Use Only Audit No. 2098420 AUG 17 2009



Ontario

WATER WELL RECORD

41 A/E
63/78

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

11 1702494

MUNICIPALITY 17006 CON. HS E 08

COUNTY OR DISTRICT: SIACON-DUFFERIN TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TOSCONTO MULMUR CON. BLOCK, TRACT, SURVEY, ETC.: 8 LOT: 011

ADDRESS: EVERETT DATE COMPLETED: 08 16 78

ZONE: 21 EASTING: 17 NORTHING: 579000 ELEVATION: 4891700 BASIN CODE: 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	TOP SOIL		HARD	0	1'
Brown	CLAY		"	1'	20'
Brown	SAND		PACTED	20	30
GREY	CLAY		HARD	30	35
Brown	SAND		DACHED	35	50'

31 000160273 002060573 0030628 003520573 0050628

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41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH #5 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
15-18	1 <input checked="" type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input checked="" type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	2	0	0030
17-18	1 <input type="checkbox"/> STEEL 2 <input checked="" type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	2	30	0050
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
		41-44
		FEET

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: _____

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

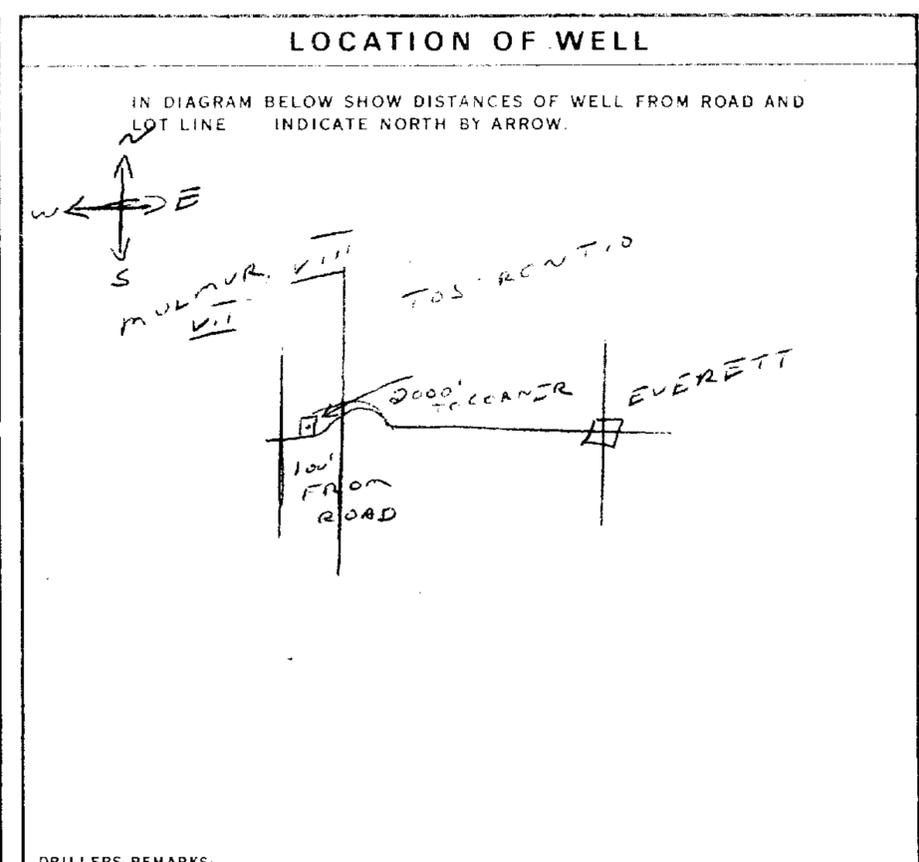
PUMPING TEST METHOD: 1 PUMP 2 BAILER

PUMPING RATE: _____ DURATION OF PUMPING: 15-16 30 17-18 _____

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING					
19-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES		
032	048	048	047	046	045		
FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET

RECOMMENDED PUMP TYPE: 1 SHALLOW 2 DEEP

RECOMMENDED PUMP SETTING: 048 FEET



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

1 DOMESTIC 2 STOCK 3 IRRIGATION 4 INDUSTRIAL 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: Ed R. Hall Bury LICENCE NUMBER: 49.9

ADDRESS: Palgrave

NAME OF DRILLER OR BORER: Alan Yura LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: Alan Yura SUBMISSION DATE: _____

OFFICE USE ONLY

DATA SOURCE: 1 58 CONTRACTOR: 49/9 59-62 DATE RECEIVED: 27 12 78 63-68

DATE OF INSPECTION: August 1979 INSPECTOR: _____

REMARKS: Changed From 5115121

CSS:SS P WI

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

11 1705058 Municipality 17006 Con. CON 08

County or District: **DUFFERIN**
 Township/Borough/City/Town/Village: **MULMUR**
 Address: **RR 4 MANSFIELD**
 Date completed: **25 08 97**
 Lot: **11**

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BROWN SAND		STONES	HARD	0	18
GREY CLAY			SOFT	18	27
GREY CLAY		SAND	SANDY CLAY	27	54
BROWN SAND			CLEAN WATER		
			BEARING SAND	54	61

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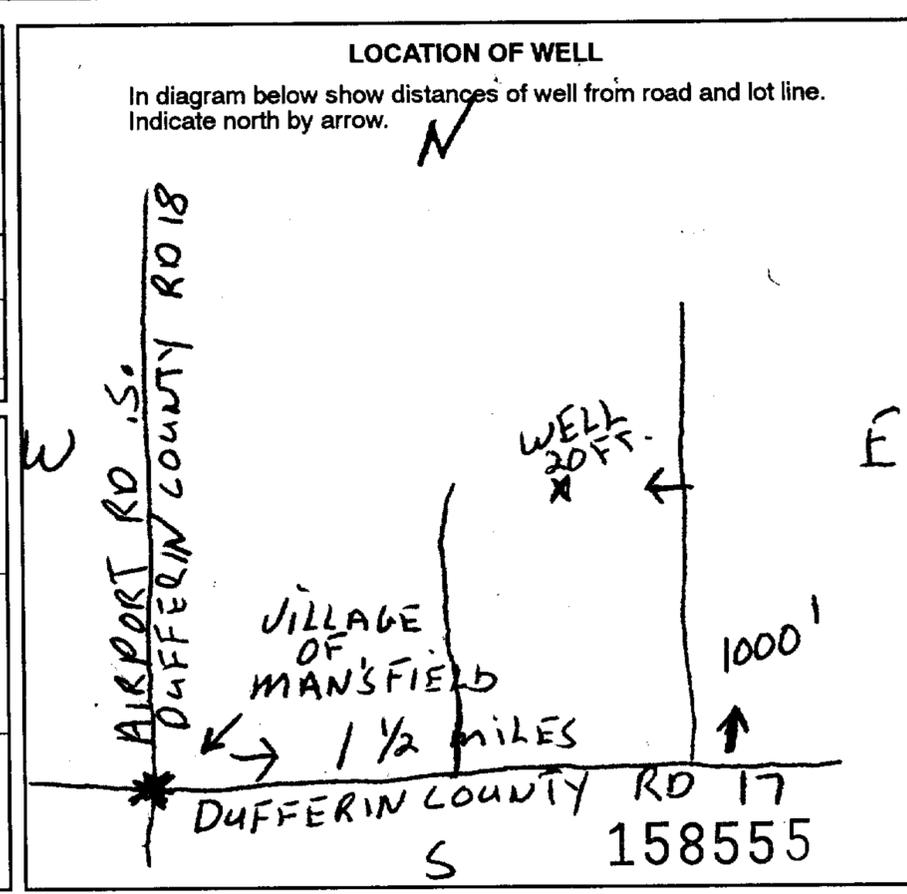
41 WATER RECORD	
Water found at - feet	Kind of water
54-61	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
15-18	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
20-23	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
25-28	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
30-33	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	Steel	0.188 + 1/2	58	
	Galvanized			
	Concrete			
	Open hole			
	Plastic			

60 SCREEN	62 SIZES OF OPENING (Slot No.)	63 DIAMETER	64 LENGTH
	8	6 inches	3' 6"
	Material and type		65 DEPTH AT TOP OF SCREEN
	STAINLESS STEEL		58 feet

61 PLUGGING & SEALING RECORD	
Annular space	
Abandonment	
Depth set at - feet	
From	To
5	14
Material and type (Cement grout, bentonite, etc.)	
BENSEAL	

71 PUMPING TEST	72 PUMPING TEST
Pumping test method: <input checked="" type="checkbox"/> Pump <input checked="" type="checkbox"/> Sailer Pumping rate: 4 GPM Duration of pumping: 2 Hours 15 Mins	Static level: 105 feet Water level end of pumping: 34 feet Water levels during pumping: 15 minutes: 34 feet 30 minutes: 34 feet 45 minutes: 34 feet 60 minutes: 34 feet
Recommended pump type: <input checked="" type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep Recommended pump setting: 45 feet	Water at end of test: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy Recommended pump rate: 7 GPM



73 FINAL STATUS OF WELL

74 WATER USE

75 METHOD OF CONSTRUCTION

Name of Well Contractor: **L.T.D. MIGHTON'S WELL DRILLING**
 Well Contractor's Licence No.: **3602**
 Address: **RR 2 STAGNER ONT.**
 Name of Well Technician: **GERRY H. MIGHTON**
 Well Technician's Licence No.: **T-0130**
 Signature of Technician/Contractor: **Kenneth M. Mighton**
 Submission date: **15 9 97**

MINISTRY USE ONLY

Data source: **3602**
 Date received: **SEP 19 1997**
 Date of inspection: _____
 Inspector: _____
 Remarks: **CSS.S8**

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 Information and Location of Well Information

RR#/Street Number/Name: same City/Town/Village: 147/11 8 Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 Zone 17 Easting 552619 Northing 4879801 Unit Make/Model: SpurTrak 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 Metres	
				From	To
<u>Black</u>	<u>top soil</u>			<u>0</u>	<u>1</u>
<u>Brown</u>	<u>clay stone</u>			<u>1</u>	<u>22</u>
<u>Blue</u>	<u>clay part.</u>			<u>22</u>	<u>86</u>
<u>Org</u>	<u>soil.</u>			<u>86</u>	<u>90</u>

all measurement are imperial

Hole Diameter

Depth From	Metres To	Diameter Centimetres
<u>0</u>	<u>20</u>	<u>8</u>
<u>+3</u>	<u>90</u>	<u>6</u>

Water Record

Water found at 88 metres Kind of Water: Fresh Sulphur Gas Salty Minerals

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 Metres	
			From	To
<u>6</u>	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	<u>188</u>	<u>+3</u>	<u>86</u>
<u>5</u>	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized		<u>12</u>	<u>86</u> <u>90</u>

Screen

Outside diam 5 Steel Fibreglass Plastic Concrete Galvanized Slot No. 12

No Casing or Screen Open hole

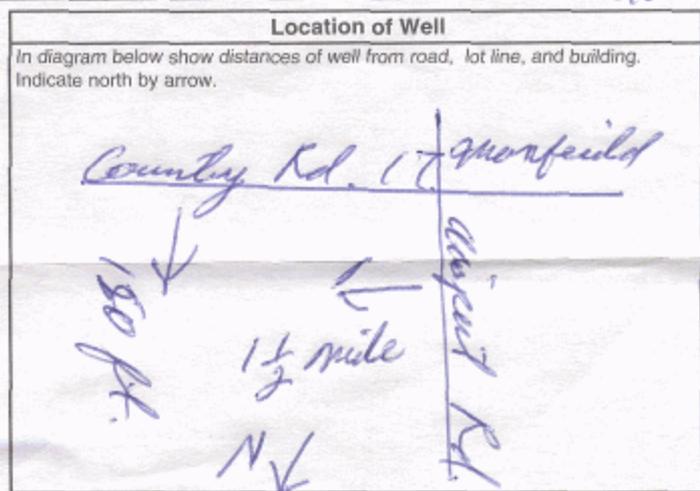
Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
<u>pump.</u>				
Pump intake set at (metres) <u>88</u>		<u>144-8</u>		<u>88</u>
Pumping rate (litres/min) <u>10</u>	<u>1</u>	<u>54-3</u>	<u>1</u>	<u>78-2</u>
Duration of pumping hrs + min	<u>2</u>	<u>60-3</u>	<u>2</u>	<u>70-5</u>
Final water level end of pumping <u>88</u> metres	<u>3</u>	<u>66-6</u>	<u>3</u>	<u>67-3</u>
Recommended pump type. <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	<u>4</u>	<u>72-8</u>	<u>4</u>	<u>60-5</u>
Recommended pump depth. <u>88</u> metres	<u>5</u>	<u>78-7</u>	<u>5</u>	<u>58-2</u>
Recommended pump rate. (litres/min) <u>8</u>	<u>10</u>	<u>88</u>	<u>10</u>	<u>53-3</u>
If flowing give rate (litres/min)	<u>15</u>	<u> </u>	<u>15</u>	<u>52-1</u>
	<u>20</u>	<u> </u>	<u>20</u>	<u>49-2</u>
	<u>25</u>	<u> </u>	<u>25</u>	<u> </u>
	<u>30</u>	<u> </u>	<u>30</u>	<u> </u>
	<u>40</u>	<u> </u>	<u>40</u>	<u> </u>
	<u>50</u>	<u> </u>	<u>50</u>	<u> </u>
	<u>60</u>	<u>88</u>	<u>60</u>	<u>45-2</u>

Run out water

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)
<u>0</u>	<u>20</u>	<u>several ply</u>	<u>4 bags</u>



Method of Construction

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

Water Use

Domestic Industrial Public Supply Other Stock Commercial Not used Irrigation Municipal Cooling & air conditioning

Final Status of Well

Water Supply Recharge well Unfinished Abandoned, (Other) Observation well Abandoned, insufficient supply Dewatering Test Hole Abandoned, poor quality Replacement well

Audit No. **Z 56933** Date Well Completed 2011 01 17

Was the well owner's information package delivered? Yes No Date Delivered 2011 01 17

Well Contractor/Technician Information

Name of Well Contractor: same Well Contractor's Licence No.: 3561

Business Address (street name, number, city etc.): RR2 Shelburne

Name of Well Technician (last name, first name): same Well Technician's Licence No.: 7295

Signature of Technician/Contractor: [Signature] Date Submitted: 2011 01 17

Ministry Use Only

Data Source: Contractor

Date Received: FEB 03 2011 Date of Inspection: 2011 01 17

Remarks: Well Record Number

Address of Well Location (Street Number/Name)		Township MULNER	Lot 11	Concession 8 EHS
County/District/Municipality DUFFERIN		City/Town/Village		Province Ontario
UTM Coordinates NAD 83	Zone	Easting 1578178	Northing 4892157	Municipal Plan and Sublot Number
Other				Postal Code

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	SAND	GRAVEL	LOOSE	0	74
Brown	CLAY	—	SOFT	74	78
GREY	CLAY	—	HARD	78	86
GREY	CLAY	SILT	LAYERED	86	128
Brown	SAND	SILT	LOOSE	128	148
GREY	SHALE	—	HARD	148	154

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0 to 20	HOLE PLUG	4

Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input checked="" type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
6 1/4	STEEL	1.88	+2	133	

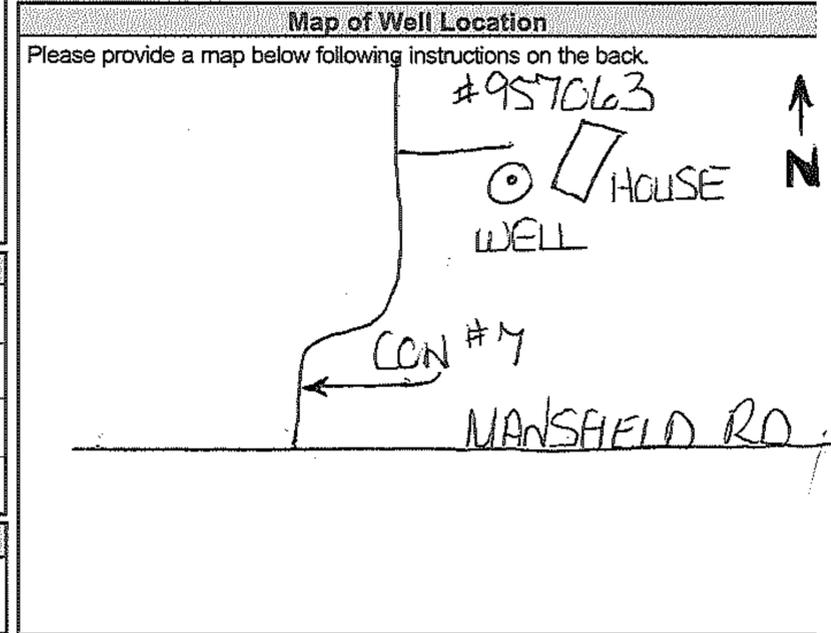
Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Other, specify _____
			From	To	
5 1/2	STAINLESS	10, 10, 10	133	149	
5 1/2	STEEL	SUMP	149	154	

Water Details		Hole Diameter	
Water found at Depth 150 (m/ft)	Kind of Water: <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From	Diameter (cm/in) To
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	0	20
Water found at Depth _____ (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	20	133
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____		8 3/4
Water found at Depth _____ (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____		

Well Contractor and Well Technician Information	
Business Name of Well Contractor R&B WELL DRILLING LTD	Well Contractor's Licence No. 416415
Business Address (Street Number/Name) 3569 SIDEROAD 10, BEETON	Municipality NEW TECUMSAH
Province ON	Postal Code L0G1A0
Business E-mail Address R&B WELL DRILLING.COM	

Bus. Telephone No. (inc. area code) 905 729 2950	Name of Well Technician (Last Name, First Name) KOWALSKI, ROBERT
Well Technician's Licence No. 24215	Signature of Technician and/or Contractor
	Date Submitted 2016/09/30

Results of Well Yield Testing				
After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____				
If pumping discontinued, give reason:	Static Level	112		
	1	113	1	130
Pump intake set at (m/ft) 152 FT.	2	114	2	128.4
Pumping rate (l/min / GPM) 3 GPM	3	117	3	127
Duration of pumping 1 hrs + 10 min	4	119	4	126
Final water level end of pumping (m/ft) 132 FT	5	123	5	125
If flowing give rate (l/min / GPM)	10	124	10	121
	15	127	15	119
	20	129	20	116
Recommended pump depth (m/ft) 152 FT.	25	132	25	114
Recommended pump rate (l/min / GPM) 3 GPM	30	132	30	113
Well production (l/min / GPM) 3 GPM	40	132	40	112
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	50	132	50	112
	60	132	60	112



Comments:	Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 2016/09/30	Date Work Completed 2016/09/28
		Ministry Use Only	
		Audit No. 2235595	Received OCT 17 2016

Measurements recorded in: Metric Imperial

A252752

Page 8 of

Address of Well Location (Street Number/Name) #957003 7TH Line Township Mulmur Lot # 11 Concession # 8
 County/District/Municipality Dufferin City/Town/Village Mansfield Province Ontario Postal Code
 UTM Coordinates Zone Easting Northing NAD 83 1757921948911648 Municipal Plan and Sublot 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)	From	To
Brown	Sand		Damp	0	12	
Brown	Clay	Stones		12	32	
Grey	Clay	Stones		32	86	
Grey	Silt	Clay		86	121	
Grey	Sand	Clay		121	158	
Grey	Sand	Gravel		158	165	

Annular Space

Depth Set at (m)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0' 20'	Grout	

Results of Well Yield Testing

After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m)	Time (min)	Water Level (m)
If pumping discontinued, give reason:	Static Level	45'		
	1		1	
	2		2	
	3		3	
	4		4	
	5		5	
Pump intake set at (m)	150'			
Pumping rate (l/min / GPM)	2 GPM			
Duration of pumping	1 hrs + min			
Final water level end of pumping (m)	143'6"			
If flowing give rate (l/min / GPM)				
Recommended pump depth (m)	150'			
Recommended pump rate (l/min / GPM)	2 GPM			
Well production (l/min / GPM)	2 GPM	40	143'6"	40
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	50	143'6"	50	
	60	143'6"	60	114'9"

Method of Construction Well Use

Cable Tool Diamond Public Commercial Not used
 Rotary (Conventional) Jetting Domestic Municipal Dewatering
 Rotary (Reverse) Driving Livestock Test Hole Monitoring
 Boring Digging Irrigation Cooling & Air Conditioning
 Air percussion Industrial Other, specify
 Other, specify Air D.R.

Construction Record - Casing Status of Well

Inside Diameter (cm)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
6"	Steel	188"	+2'	160'	<input checked="" type="checkbox"/> Water Supply
6"	"K" Packer		157'	158'	<input type="checkbox"/> Replacement Well
5"	Steel	188"	158'	160'	<input type="checkbox"/> Test Hole
					<input type="checkbox"/> Recharge Well
					<input type="checkbox"/> Dewatering Well
					<input type="checkbox"/> Observation and/or Monitoring Hole
					<input type="checkbox"/> Alteration (Construction)
					<input type="checkbox"/> Abandoned, Insufficient Supply
					<input type="checkbox"/> Abandoned, Poor Water Quality
					<input type="checkbox"/> Abandoned, other, specify
					<input type="checkbox"/> Other, specify

Construction Record - Screen

Outside Diameter (cm)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
5"	Stainless	#20		
5"	Stainless	#12	160'	165'

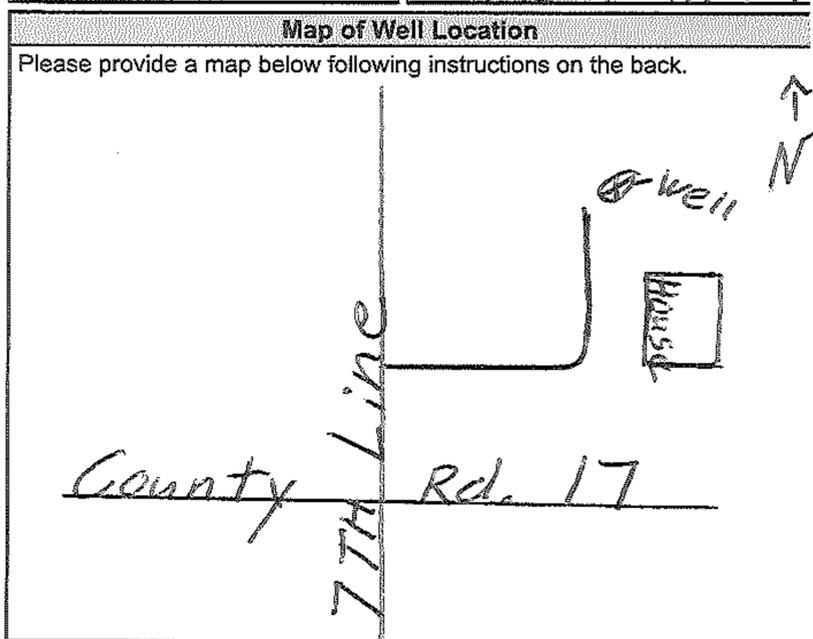
Water Details Hole Diameter

Water found at Depth (m/ft)	Kind of Water: <input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Depth (m/ft)		Diameter (cm/in)
		From	To	
161' (m)		0'	20'	8"
165' (m)		20'	165'	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor Highland Water Wells Well Contractor's Licence No. 25716
 Business Address (Street Number/Name) Box 141 Durham Municipality Grey
 Province Ont Postal Code N0G1R0 Business E-mail Address

Bus. Telephone No. (inc. area code) 51193696363 Name of Well Technician (Last Name, First Name) Wilson, Clint
 Well Technician's Licence No. 3456 Signature of Technician and/or Contractor Date Submitted 20180723



Comments:

Well owner's information package delivered Yes No

Date Package Delivered 20180729 Date Work Completed 20180722

Ministry Use Only
 Audit No. 2293309
 Received AUG 03 2018

MA



WATER RESOURCES DIVISION
17 JAN No. 5-1964 743
ONTARIO WATER RESOURCES COMMISSION

UTM H. S. E. 790

Co. 5 R. 5

Elev. 5 R. 12990

WATER WELL RECORD

Basin 22 Dufferin
County or District

Township, Village, Town or City Mulmur

Sec. 6 H.S.E. Lot 12

Date completed 19 Dec 1964
(day month year)

Address Mansfield ont

Casing and Screen Record

Inside diameter of casing 30 inches
Total length of casing 31 feet
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 30 inches

Pumping Test

Static level ground to water 20 feet
Test-pumping rate 1/4 gallon per min G.P.M.
Pumping level
Duration of test pumping
Water clear or cloudy at end of test clear
Recommended pumping rate 1/4 G.P.M.
with pump setting of 29' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Top brown soil</u>	<u>0</u>	<u>12</u>		
<u>grey clay</u>	<u>12</u>	<u>16</u>		
<u>grey shale</u>	<u>16</u>	<u>30</u>		
<u>water comes from the bottom</u>			<u>30 feet</u>	<u>fresh</u>

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

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

Drilling or Boring Firm

Address

Licence Number 1278

Name of Driller or Borer Maurice Babine

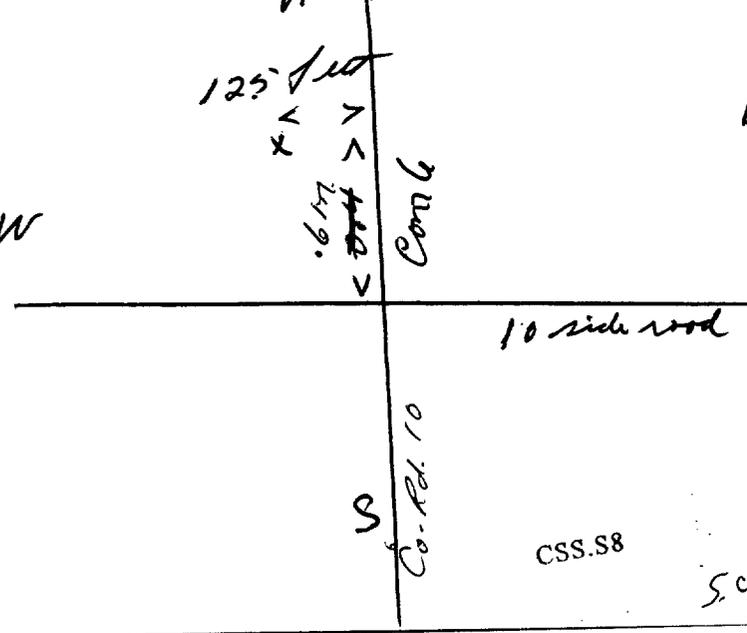
Address 90 B. Munkamthorpe

Date Dec 19/64

Maurice Babine
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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





MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act
WATER WELL RECORD 41 A11E

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

11 1701692-1 17006 45 E 06

COUNTY OR DISTRICT: DUFFERIN TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR, CO. BLOCK, TRACT, SURVEY, ETC.: 1 MANSFIELD LOT 25-27: 012
DATE COMPLETED: 04 MO. JUNE YR. 74
NG RC ELEVATION RC BASIN CODE II III IV
1701692 17 575606 4891498 5 1190 5 22 AUG 09, 1977 322

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL			0	1
RED	CLAY			1	8
RED	SHALE	CLAY	SHALE WITH CLAY RIDGES	8	18
"	"		HARD LAYERS	18	65'
"	"	BLUE LAYERS		65'	102

31 0001602 0008705 00187170574 00657177473 0102717

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0045 10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
0069 15-18	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
0102 20-23	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
5 1/8 10-11	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	1.88	0	2 1/2
06 12-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		2 1/2	0102
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

SCREEN

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

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

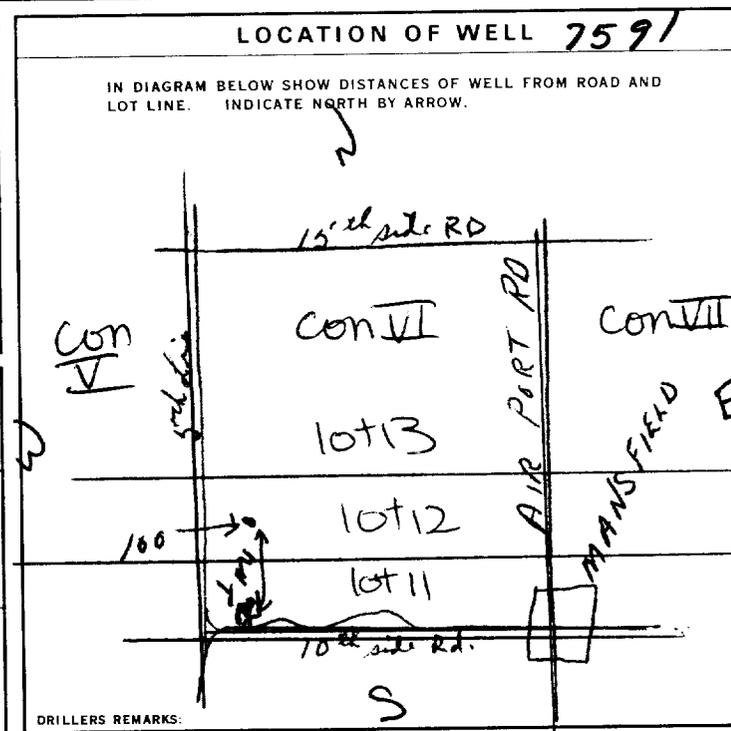
PUMPING TEST METHOD: PUMP BAILER

PUMPING RATE: 0003 01 15-16 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING			
025'	080'	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
		080'	080'	080'	080'

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 095' FEET



FINAL STATUS OF WELL

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

WATER USE 01

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

METHOD OF DRILLING 4

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

CONTRACTOR

NAME OF WELL CONTRACTOR: KEN MIGHTON & SONS LICENCE NUMBER: 3602
ADDRESS: STAYNER,
NAME OF DRILLER OR BORER: Larry Mighton
SIGNATURE OF CONTRACTOR: Kenneth M. Mighton SUBMISSION DATE: DAY 25 MO. 6 YR. 74

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3602 DATE RECEIVED: 270674
DATE OF INSPECTION: INSPECTOR: 270674
REMARKS: CSS.S8 P KO WI



Ontario

WATER WELL RECORD

41A/E

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

11 | 1702002 | 17006 HS E | 06

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MILLMUR CON. BLOCK, TRACT, SURVEY, ETC.: 6 F.H.S. LOT: 25-27

DATE COMPLETED: DAY 26 M 09 YR 75

RC: 391550 ELEVATION: 5 1175 BASIN CODE: 5 22

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	TOP SOIL			0	1
GREY	CLAY			1	5
RED	SHALE			5	12
GREY	SHALE		HARD LAYERS	12	25
RED-GRAY	SHALE		HARD LAYERS	25	80
Brown	SHALE		"	80	84
GREY	SHALE		"	84	120

31 0001602 000520586 001271771 00252177374 008071773 008461773

32 012017

41 WATER RECORD

WATER FOUND AT - FEET: 0074

KIND OF WATER:

1 FRESH 3 SULPHUR
2 SALTY 4 MINERAL

51 CASING & OPEN HOLE RECORD

INCH DIAM: 5.4

MATERIAL: GALVANIZED

WALL THICKNESS INCHES: 1.88

DEPTH - FEET: 0 0020

SCREEN

SIZE(S) OF OPENING (SLOT NO.):

DIAMETER: 31-33 INCHES

LENGTH: 34-38 FEET

MATERIAL AND TYPE:

DEPTH TO TOP OF SCREEN: 41-44 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET:

FROM TO MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING METHOD: 1 PUMP 2 BAILER

PUMPING RATE: 0003 GPM

DURATION OF PUMPING: 01 X 00 HOURS

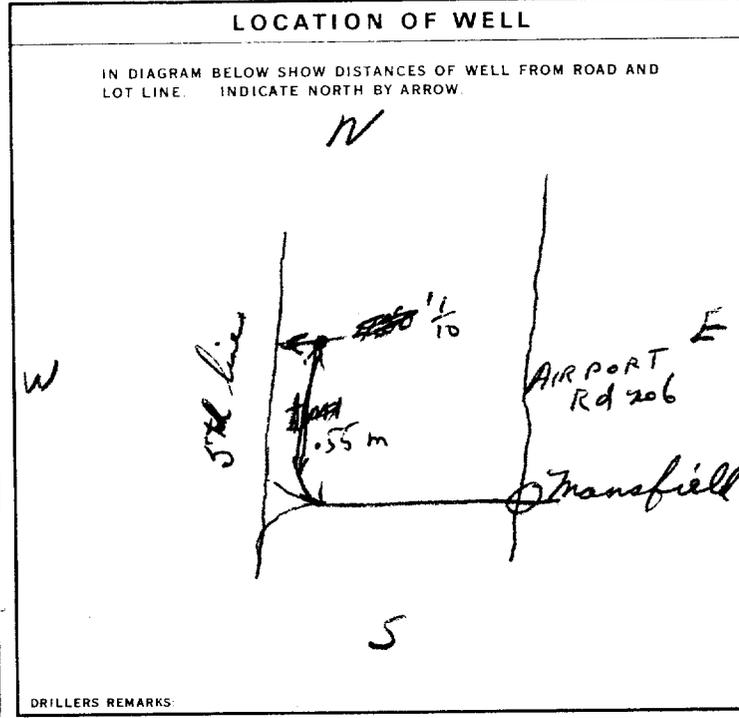
WATER LEVELS DURING PUMPING:

19-21: 030 FEET 22-24: 095 FEET 26-28: 095 FEET 29-31: 095 FEET 32-34: 095 FEET 35-37: 095 FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 110 FEET

RECOMMENDED PUMPING RATE: 0003 GPM



FINAL STATUS OF WELL: 1

WATER USE: 01

METHOD OF DRILLING: 2

CONTRACTOR: [Signature] Limited 3602

NAME OF DRILLER: [Signature]

SUBMISSION DATE: DAY 3 MO 10 YR 75

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3602 DATE RECEIVED: 071075

DATE OF INSPECTION: June 8/77 INSPECTOR: [Signature]

REMARKS: CSS.S8



WATER WELL RECORD

41A/E

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

11 | 1702003 | 17006 HS E | 06

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MVR CON. BLOCK, TRACT, SURVEY, ETC.: VI LOT: 012

DATE COMPLETED: 09 DAY 25 MONTH SEPT YEAR 75

ELEVATION: 915.50 RC 5 0960 RC 5 BASIN CODE: 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL			0	1
"	CLAY		HEAVY CLAY	1	18
GREY	SHALE		HARD LAYERS	18	120

31 0001602 0018605 01202177374

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0100	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
06-11	1 <input checked="" type="checkbox"/> STEEL	.188	0	22
17-18	1 <input type="checkbox"/> STEEL			20-23
24-25	1 <input type="checkbox"/> STEEL			27-30

SCREEN

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

MATERIAL AND TYPE: [REDACTED] DEPTH TO TOP OF SCREEN: 41-44 FEET

61 PLUGGING & SEALING RECORD

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

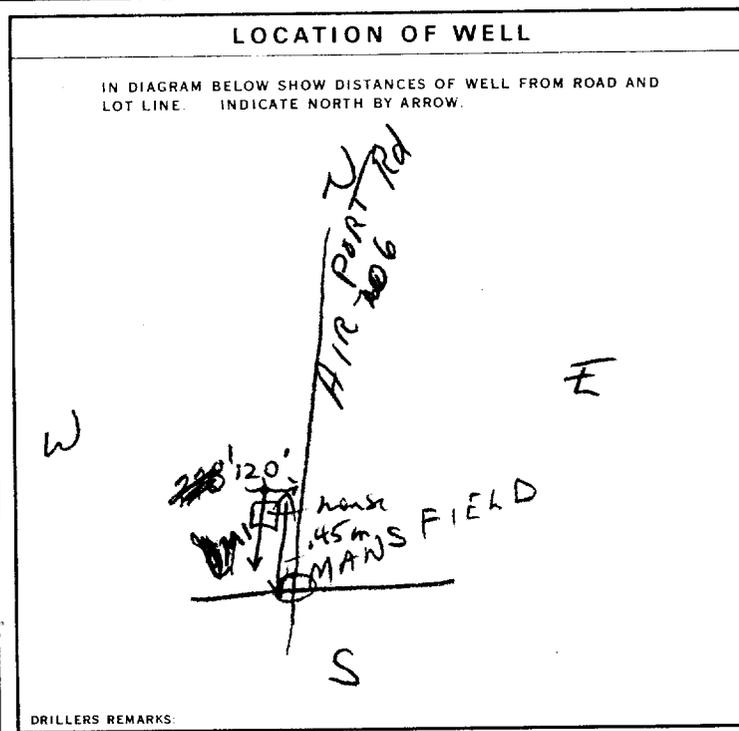
71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	0001 GPM	01 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
023 FEET	115 FEET	15 MINUTES: 115 FEET	30 MINUTES: 115 FEET	45 MINUTES: 115 FEET	60 MINUTES: 115 FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMPING RATE: 115 GPM



FINAL STATUS OF WELL: 1 WATER SUPPLY

WATER USE: 1 DOMESTIC

METHOD OF DRILLING: 2 ROTARY (CONVENTIONAL)

CONTRACTOR: NIGHT'S DRILLING CO LTD

ADDRESS: #13 [REDACTED]

SIGNATURE OF CONTRACTOR: [REDACTED]

LICENCE NUMBER: 3602

SUBMISSION DATE: DAY 3 NO. 10 YR. 75

OFFICE USE ONLY

DATA SOURCE: 1

CONTRACTOR: 3602

DATE RECEIVED: 071075

DATE OF INSPECTION: June 8/77

INSPECTOR: [REDACTED]

REMARKS: [REDACTED]

CSS.S8



WATER WELL RECORD

A1A/1

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

COUNTY OR DISTRICT: Simcoe TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR CON. BLOCK, TRACT, SURVEY, ETC.: EHS. LOT: 012

DATE COMPLETED: DAY 24 MO AUG YR 79

RC: 17006 CON: HS E LOT: 06

RC: 11 ELEVATION: 0975 BASIN CODE: 22

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	CLAY			0	15
GRAY	SHALE		Crumbly shale	15	30
			HARD SLAB SHALE	30	140

31: 0015605 00302117 0114021773

32: [Scale]

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
15-18	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
20-23	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
25-28	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	
30-33	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	STEEL			13-16
17-18	STEEL	1.88		20-23
24-25	STEEL			27-30

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE
10-13	14-17
18-21	22-25
26-29	30-33

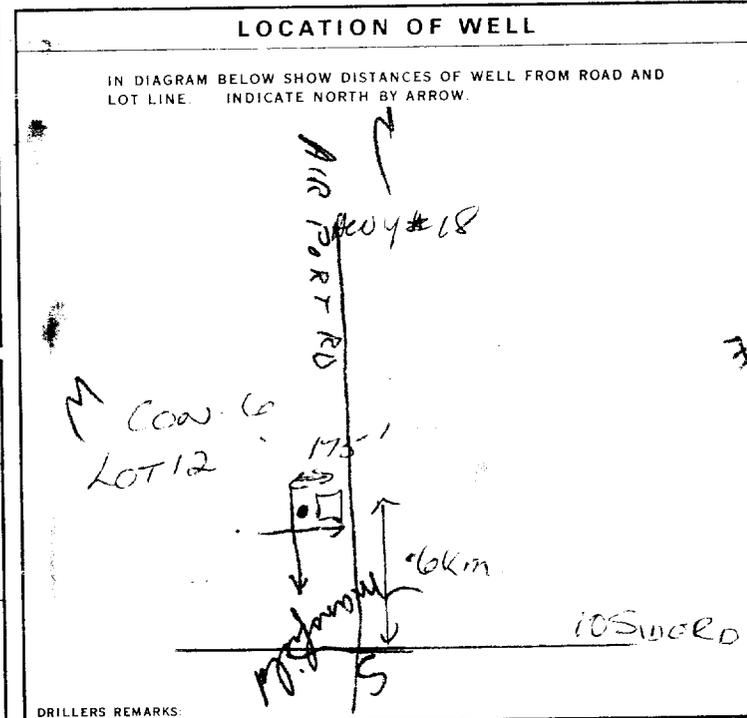
71 PUMPING TEST

PUMPING TEST METHOD: PUMP APR PUMPING RATE: 000 GPM DURATION OF PUMPING: 00 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING RECOVERY			
0/9	120	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
		120	120	120	120

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 135 FEET RECOMMENDED PUMP RATE: 0001 GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: McIntosh Well Drilling Ltd LICENCE NUMBER: 5602

ADDRESS: #13 Stagers

NAME OF DRILLER OR BORE: Larry McIntosh LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: Lawrence H. McIntosh SUBMISSION DATE: DAY 29 MO 8 YR 79

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3602 DATE RECEIVED: 060979

DATE OF INSPECTION: June 14, 1980 INSPECTOR: [Signature]

REMARKS: Changed From 5716251 CSS.S8

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

11 1703646 17006

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MANSFIELD
CON. BLOCK, TRACT, SURVEY, ETC: [REDACTED] LOT: 12
DATE COMPLETED: DAY 9 MO 8 YR 88

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
RED	CLAY			0	6
"	SHALE	CLAY	MIXTURE	6	18
"	"		HARD SLAB SHALE	18	60
GREY	"		" " "	60	78

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
55	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
70	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/4	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	1.88	+2	18

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE
0	18" Benseal

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 AIR LIFT

PUMPING RATE: 4 GPM

DURATION OF PUMPING: 1 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING					
16 FEET	70 FEET	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES	75 MINUTES	90 MINUTES

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 75 FEET

RECOMMENDED PUMPING RATE: 4 GPM

LOCATION OF WELL

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

DRILLERS REMARKS: 38034

FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL 9 DEWATERING

WATER USE

1 DOMESTIC 5 COMMERCIAL
2 STOCK 6 MUNICIPAL
3 IRRIGATION 7 PUBLIC SUPPLY
4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
9 OTHER 10 NOT USED

METHOD OF CONSTRUCTION

1 CABLE TOOL 5 BORING
2 ROTARY (CONVENTIONAL) 6 DIAMOND
3 ROTARY (REVERSE) 7 JETTING
4 ROTARY (AIR) 8 DRIVING
5 AIR PERCUSSION 9 DIGGING 10 OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Neighbors Well Drilling Ltd
WELL CONTRACTOR'S LICENSE NUMBER: 3602
ADDRESS: #3 Stuymer
NAME OF WELL TECHNICIAN: Larry Neighbour
WELL TECHNICIAN'S LICENSE NUMBER: 70127
SIGNATURE OF TECHNICIAN/CONTRACTOR: Kenneth H. Neighbour
SUBMISSION DATE: 19 8 88

OFFICE USE ONLY

DATA SOURCE: 3602 CONTRACTOR: 3602 DATE RECEIVED: AUG 23 1988
DATE OF INSPECTION: INSPECTOR:
REMARKS:
CSS.ES

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

11

1704903

MUNICIP. 17006

CON. HS E

06

COUNTY OR DISTRICT: **DUFFERIN** TOWNSHIP BOROUGH CITY, TOWN, VILLAGE: **MULMUR** CON. BLOCK TRACT SURVEY ETC: **11** LOT: **12**

OWNER (SURNAME FIRST): [REDACTED] ADDRESS: **R.R. MANSFIELD** DATE COMPLETED: DAY **20** MO **9** YR **95**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	TOP SOIL			0	1
"	CLAY	STONES	STONEY CLAY	1	12
GREY	"	SHALE	SHALE CLAY Mixture	12	23
RED	SHALE	HARD	SLAB SHALE	23	143
GREY					

31 32

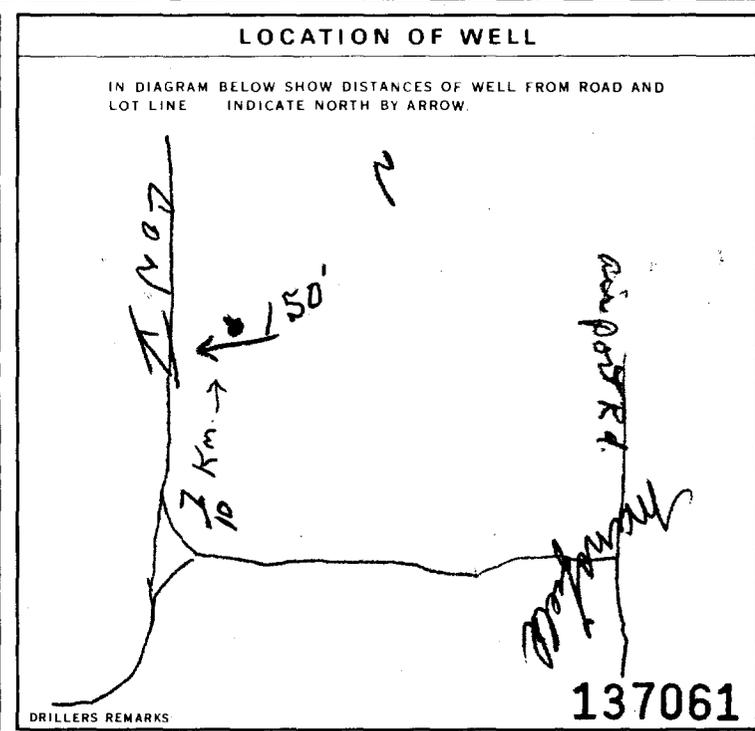
41 WATER RECORD			
WATER FOUND AT - FEET	KIND OF WATER		
40 TO 143	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS
	<input type="checkbox"/> SALTY	<input type="checkbox"/> GAS	

51 CASING & OPEN HOLE RECORD				
INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
8 1/2	STEEL	.188	1	23

SCREEN	SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)	
FROM	TO		
8	16	Benseal	

71 PUMPING TEST			
PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING	
<input checked="" type="checkbox"/> PUMP	8 GPM	15-16 HOURS	17-18 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	
57 FEET	120 FEET	15 MINUTES: 50 FEET	30 MINUTES: 100 FEET
		45 MINUTES: 120 FEET	60 MINUTES: 120 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST	
	140 FEET	1 CLEAR 2 CLOUDY	
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE	
<input checked="" type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	140 FEET	6 GPM	



FINAL STATUS OF WELL	
<input checked="" type="checkbox"/> WATER SUPPLY	<input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
<input type="checkbox"/> OBSERVATION WELL	<input type="checkbox"/> ABANDONED POOR QUALITY
<input type="checkbox"/> TEST HOLE	<input type="checkbox"/> UNFINISHED
<input type="checkbox"/> RECHARGE WELL	<input type="checkbox"/> DEWATERING

WATER USE	
<input checked="" type="checkbox"/> DOMESTIC	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> STOCK	<input type="checkbox"/> MUNICIPAL
<input type="checkbox"/> IRRIGATION	<input type="checkbox"/> PUBLIC SUPPLY
<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	<input type="checkbox"/> NOT USED

METHOD OF CONSTRUCTION	
<input type="checkbox"/> CABLE TOOL	<input type="checkbox"/> BORING
<input type="checkbox"/> ROTARY (CONVENTIONAL)	<input type="checkbox"/> DIAMOND
<input type="checkbox"/> ROTARY (REVERSE)	<input type="checkbox"/> JETTING
<input checked="" type="checkbox"/> ROTARY (AIR)	<input type="checkbox"/> DRIVING
<input type="checkbox"/> AIR PERCUSSION	<input type="checkbox"/> DIGGING
	<input type="checkbox"/> OTHER

CONTRACTOR	
NAME OF WELL CONTRACTOR: Nighttime Well Drilling Ltd	WELL CONTRACTOR'S LICENCE NUMBER: 3602
ADDRESS: #2 Stagers	
NAME OF WELL TECHNICIAN: Larry Nighttime	WELL TECHNICIAN'S LICENCE NUMBER: T0129
SIGNATURE OF TECHNICIAN: Kenneth A. Nighttime	SUBMISSION DATE: DAY 19 MO 10 YR 95

OFFICE USE ONLY	
DATA SOURCE	CONTRACTOR: 3602 DATE RECEIVED: OCT 16 1995
DATE OF INSPECTION	INSPECTOR
REMARKS	

CSS.ES

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Mark correct box with a checkmark, where applicable.

1705049

Municipality 17006 H.S. E 06
PLAN 7R2923 WH

County or District [redacted] Township/Borough/City/Town/Village **MULMUR** Con. block tract survey, etc. **II** Lot 12
Address **MANSFIELD** Date completed 30 day 91 month year
Northing RC Elevation RC Basin Code ii iii iv 5

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BLACK	TOPSOIL			0	1
BROWN	CLAY	STONES	STONEY CLAY	1	5
RED	CLAY		HARD & SOFT LAYER'S	5	18
RED	SHALE			18	38
GREY	SHALE			38	41
GREY	SHALE		HARD AND SOFT LAYERS	41	137

41 WATER RECORD

Water found at - feet	Kind of water
41	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
130	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
8 1/8	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	0.188	41	40
5	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	250	137	137

SCREEN

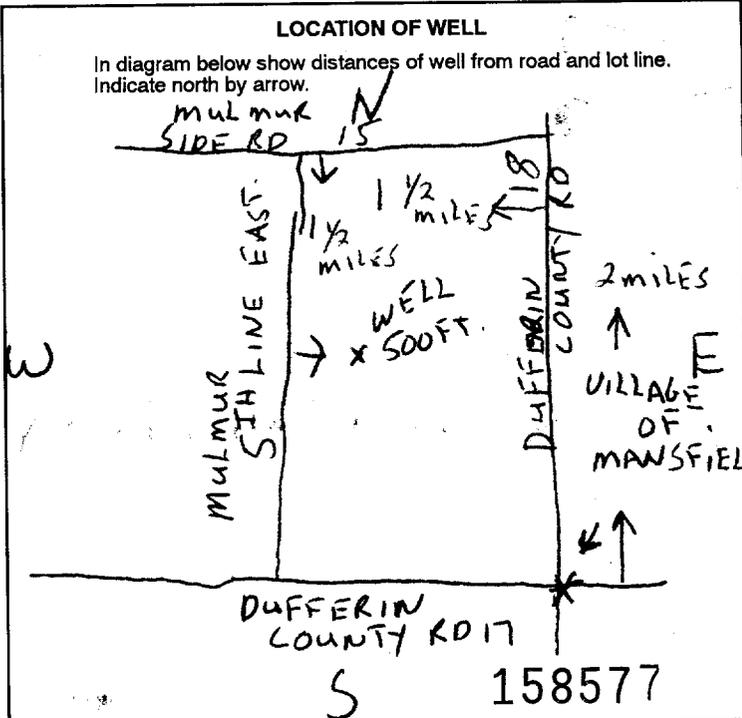
Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

61 PLUGGING & SEALING RECORD

<input type="checkbox"/> Annular space	<input type="checkbox"/> Abandonment
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)
4	BENSEAL

71 PUMPING TEST

Pumping test method <input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailer	Pumping rate 2 1/2 GPM	Duration of pumping 3 Hours
Static level 18 feet	Water level during pumping 15 minutes: 130 feet	Recovery 60 minutes: 130 feet
Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	Recommended pump setting 125 feet	Recommended pump rate 2 1/2 GPM



FINAL STATUS OF WELL

<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)	
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering	

WATER USE

<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input type="checkbox"/> Other
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION

<input checked="" type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	

Name of Well Contractor: **Mighton's Well Drilling L.T.O.** Well Contractor's Licence No.: **3602**

Address: **RR #2 Stayner Ont**

Name of Well Technician: **Terry Mighton** Well Technician's Licence No.: **T-0130**

Signature of Technician/Contractor: **Kenneth G. Mighton** Submission date: **day 17 mo 6 year 97**

MINISTRY USE ONLY

Data source	Contractor 3602	Date received JUL 03 1997
Date of inspection	Inspector	
Remarks	CSS.S8	

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

11

1705902

Municipality Con. 17006 HS E 06

County or District DUFFERIN	Township/Borough/City/Town/Village MULMER	Con block tract survey, etc. 6	Lot 12
Address RR#1 MANSFIELD		Date completed 1 8 02 day month year	

21

Northings: 10, 12, 17, 18, 24, 25, 26, 30, 31

RC: 10, 14, 15, 22, 23, 24

Elevation: 10, 14, 15, 22, 23, 24

Basin Code: ii, iii, iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BROWN	TOP-SOIL			0	1
BROWN	SAND			1	8
BROWN	SAND			8	10
GREY	CLAY			10	14
GREY	CLAY	STONES	HARD	14	18
BEDROCK OR SHALE IN BOTTOM					
AS FAR AS COULD BORE					

31

32

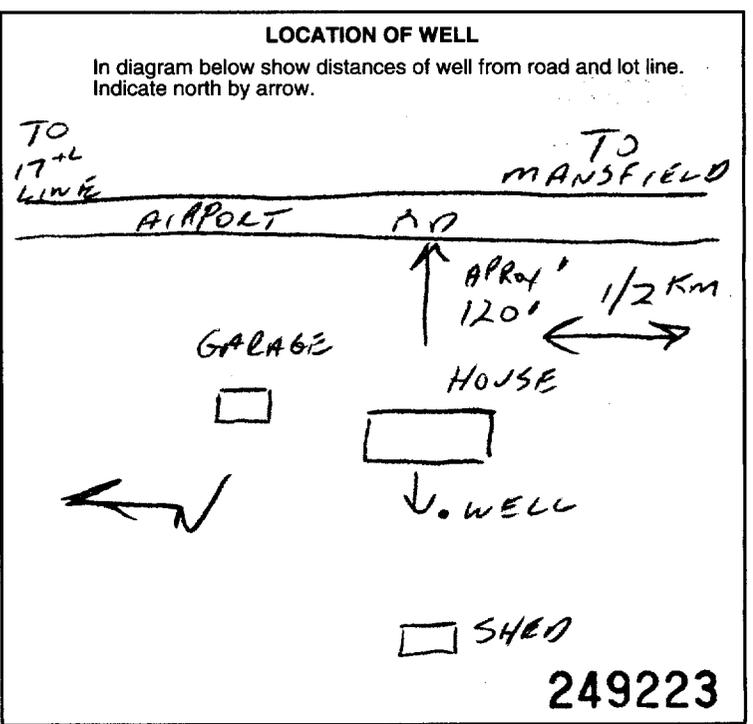
WATER RECORD			
Water found at - feet	Kind of water		
8-10	<input checked="" type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
15-18	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
20-23	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
25-28	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
30-33	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
36	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	3	0	18
17-18	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic			20-23
24-25	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic			27-30

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

PLUGGING & SEALING RECORD			
Annular space		Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
0-3	3-17	BENSEAL	
18-21	22-25		
26-29	30-33		

PUMPING TEST	71 Pumping test method		10 Pumping rate		11-14 Duration of pumping		
	<input type="checkbox"/> Pump <input type="checkbox"/> Bailer		GPM		Hours Mins		
	Static level		Water level end of pumping		Water levels during		
	19-21		22-24		1 <input type="checkbox"/> Pumping 2 <input type="checkbox"/> Recovery		
	8			15 minutes	30 minutes	45 minutes	60 minutes
	feet		feet	26-28	29-31	32-34	35-37
	If flowing give rate		Pump intake set at		Water at end of test		
	38-41		feet		<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy		
	Recommended pump type		Recommended pump setting		Recommended pump rate		
	<input checked="" type="checkbox"/> Shallow <input type="checkbox"/> Deep		17		feet GPM		



FINAL STATUS OF WELL		
<input type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)	
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering	

WATER USE		
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not use
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input type="checkbox"/> Other
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION		
<input type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	

Name of Well Contractor JOHNSON & BAETZ	Well Contractor's Licence No. 3030
Address BRANTFORD	
Name of Well Technician JOHN BAETZ	Well Technician's Licence No. T-0333
Signature of Technician/Contractor <i>[Signature]</i>	Submission date day mo yr

MINISTRY USE ONLY	Data source 3030	Contractor 3030	Date received SEP 25 2002
	Date of inspection		Inspector
	Remarks CCO.EC2		

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

11 1704847 17,006 HS E 08

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR CON. BLOCK, TRACT, SURVEY, ETC: CONC. 8 LOT: W 1/2 12
DATE COMPLETED: DAY 10 MO 6 YR 92
RR# 3, MANSFIELD

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	SAND	SILT		0	92
BROWN	CLAY		SOFT	92	100
BLUE	CLAY	SAND		100	110
BROWN	SAND	SILT		110	134
BLUE	CLAY	STONES, MUD SHALE		134	140
BLUE	SHALE			140	154

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER		
10-13	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
127	2 <input checked="" type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
15-18	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERALS
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERALS	6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL	12	0	127
6	2 <input type="checkbox"/> GALVANIZED	188		
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
	5 <input type="checkbox"/> PLASTIC			
17-18	1 <input checked="" type="checkbox"/> STEEL	19	134	154
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
	5 <input type="checkbox"/> PLASTIC			
24-25	1 <input type="checkbox"/> STEEL	26		
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
	5 <input type="checkbox"/> PLASTIC			

SCREEN

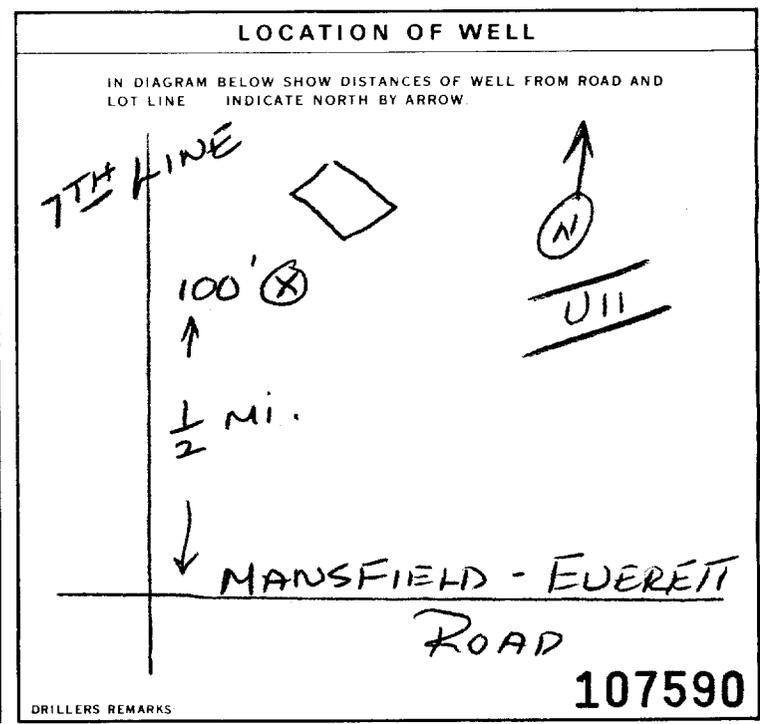
SIZE OF OPENING (SLOT NO.): #10 SLOT DIAMETER: 6 INCHES LENGTH: 7 FEET
MATERIAL AND TYPE: STAINLESS STEEL DEPTH TO TOP OF SCREEN: 127 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER
PUMPING RATE: 4 1/2 GPM DURATION OF PUMPING: 2 HOURS
STATIC LEVEL: 108 FEET WATER LEVEL END OF PUMPING: 126 FEET
WATER LEVELS DURING: 15 MINUTES: 120 FEET 30 MINUTES: 123 FEET 45 MINUTES: 126 FEET 60 MINUTES: 126 FEET
PUMP INTAKE SET AT: 152 FEET WATER AT END OF TEST: CLEAR
RECOMMENDED PUMP TYPE: SHALLOW DEEP
RECOMMENDED PUMP SETTING: 152 FEET RECOMMENDED PUMPING RATE: 4 1/2 GPM



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL 8 DEWATERING

WATER USE

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

METHOD OF CONSTRUCTION

1 CABLE TOOL 6 BORING
2 ROTARY (CONVENTIONAL) 7 DIAMOND
3 ROTARY (REVERSE) 8 JETTING
4 ROTARY (AIR) 9 DRIVING
5 AIR PERCUSSION 10 DIGGING 11 OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: SCOTT WELL DRILLING WELL CONTRACTOR'S LICENCE NUMBER: 4778
ADDRESS: Box 497, NOBLETON
NAME OF WELL TECHNICIAN: KEN SCOTT WELL TECHNICIAN'S LICENCE NUMBER: T-0583
SIGNATURE OF TECHNICIAN/CONTRACTOR: [Signature] SUBMISSION DATE: DAY ____ MO ____ YR ____

OFFICE USE ONLY

DATA SOURCE: 4778 CONTRACTOR: 4778 DATE RECEIVED: MAY 04 1995
DATE OF INSPECTION: INSPECTOR:
REMARKS:

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

1704930

Municipality 17006 HS E 08

11

County or District **DUFFERIN** Township/Borough/City/Town/Village **MULMAR** Con block tract survey, etc. **8** Lot **12-13**
 Date completed **18** day **12** month **95** year

Address **ALLISTON**

Zone Easting Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	SAND	—	LOOSE	0	35
Brown	SILT	CLAY FINE SAND	LAYERED	35	50
Brown	CLAY	SILT	—	50	65
Brown	SILT	FINE SAND	LAYERED	65	78
Grey	CLAY	—	—	78	88
Brown	SILT	TO COARSE SAND	—	88	100
Brown	GRAVEL	SILT	LOOSE	100	106
Grey	SILT	GRAVEL CLAY	—	106	113
Grey	CLAY	—	DENSE	113	122
Grey	SHALE	—	CRISP COMPACTED	122	220

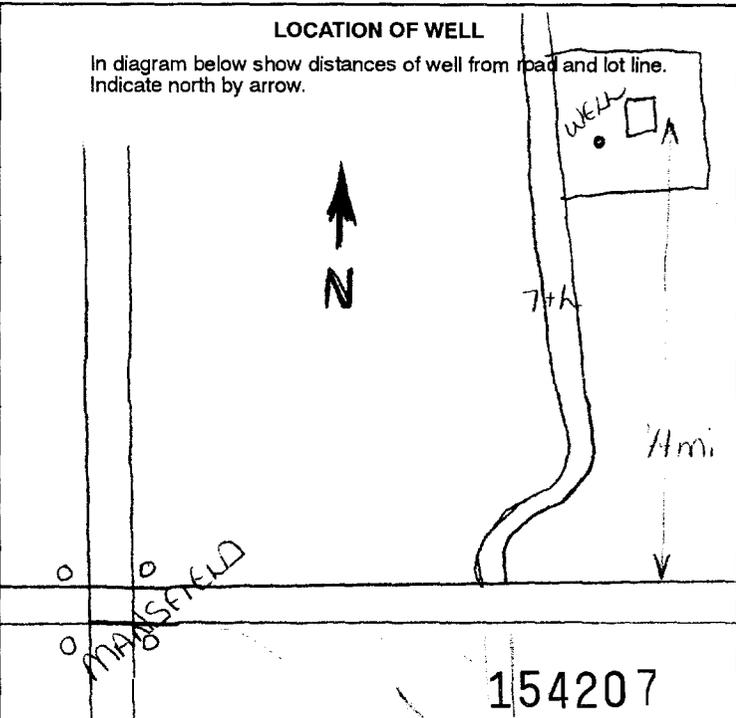
WATER RECORD	
Water found at - feet	Kind of water
220	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Sulphur Minerals Gas
15-18	<input type="checkbox"/> Salty <input type="checkbox"/> Sulphur Minerals Gas
20-23	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur Minerals Gas
25-28	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur Minerals Gas
30-33	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur Minerals Gas

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	Steel	1.88	1.2	98
5 1/4	Steel	1.88	95	165
5 1/8	Steel	1.88	165	220

Sizes of opening (Slot No.)	Diameter	Length
—	—	—

PLUGGING & SEALING RECORD	
Depth set at - feet	
From	To
10-13	14-17
18-21	22-25
26-29	30-33

PUMPING TEST	
Pumping test method	Pumping rate
<input checked="" type="checkbox"/> Pump <input type="checkbox"/> Bailor	3 GPM
Static level 95 feet	Water level during pumping
15 minutes 230 feet	30 minutes 220 feet
45 minutes 220 feet	60 minutes 220 feet
Recommended pump type <input checked="" type="checkbox"/> Deep	Recommended pump setting 200 feet



FINAL STATUS OF WELL
 Water supply Abandoned, insufficient supply Unfinished
 Observation well Abandoned, poor quality Replacement well
 Test hole Abandoned (Other)
 Recharge well Dewatering

WATER USE
 Domestic Commercial Not used
 Stock Municipal Other
 Irrigation Public supply
 Industrial Cooling & air conditioning

METHOD OF CONSTRUCTION
 Cable tool Air percussion Driving
 Rotary (conventional) Boring Digging
 Rotary (reverse) Diamond Other
 Rotary (air) Jetting

Name of Well Contractor **K&B WELL DRILLING LTD** Well Contractor's Licence No. **4645**
 Address **RR #2 BEECH CMT LOG IAC**
 Name of Well Technician **CARL M. COMER** Well Technician's Licence No. **T0028**
 Signature of Technician/Contractor **[Signature]** Submission date **4 mo 1 yr 96**

MINISTRY USE ONLY
 Date source **4645** Date received **APR 15 1996**
 Date of inspection Inspector
 Remarks

Measurements recorded in: Metric Imperial

Tag #: **A169391**

Page _____ of _____

Address of Well Location (Street Number/Name) _____ Township **MULMUR** Lot **12** Concession **8**

County/District/Municipality **DUFFERIN** City/Town/Village _____ Province **Ontario** Postal Code _____

UTM Coordinates Zone **18** Easting **579311** Northing **4892565** Municipal Plan and Sublot 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	To
BLACK	TOPSOIL	—	SOFT	0	1
BROWN	SAND	—	LOOSE	1	23
GREY	CLAY	SILT	LAYERED	23	36
GREY	CLAY	—	HARD	36	53
BROWN	SAND	—	FINE	53	65
GREY	CLAY	—	HARD	65	75
BROWN	SAND	—	LOOSE	75	85

Annular Space

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0 to 20	HOLE PLUG	4

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) **75 FT**

Pumping rate (l/min / GPM) **10 GPM**

Duration of pumping **1** hrs + _____ min

Final water level end of pumping (m/ft) **65 FT**

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

Recommended pump depth (m/ft) **75 FT**

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

Well production (l/min / GPM) **10 GPM**

Disinfected? Yes No

Time (min)	Draw Down		Recovery	
	Water Level (m/ft)	Time (min)	Water Level (m/ft)	Time (min)
Static Level	12			
1	13	1	60	
2	15	2	53	
3	16	3	48	
4	19	4	45	
5	21	5	39	
10	26	10	35	
15	29	15	32	
20	35	20	28	
25	38	25	25	
30	44	30	21	
40	49	40	17	
50	53	50	16	
60	65	60	13	

Method of Construction

Cable Tool Diamond Public Commercial Not used
 Rotary (Conventional) Jetting Domestic Municipal Dewatering
 Rotary (Reverse) Driving Livestock Test Hole Monitoring
 Boring Digging Irrigation Cooling & Air Conditioning
 Air percussion Industrial Other, specify _____
 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)		Status of Well
			From	To	
6 1/4	STEEL	188	+2	80	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		Status of Well
			From	To	
5 1/2	STAINLESS	14	81	85	<input type="checkbox"/> Other, specify _____

Water Details

Water found at Depth (m/ft)	Kind of Water:	Hole Diameter
85	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From To Diameter (cm/in)
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	0 20 10 1/2
	<input type="checkbox"/> Fresh <input type="checkbox"/> Untested	20 80 8 3/4
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	80 85 6 1/8

Well Contractor and Well Technician Information

Business Name of Well Contractor: **R&B WELL DRILLING LTD** Well Contractor's Licence No.: **46145**

Business Address (Street Number/Name): **3569 SIDEROAD 10, BEECH, NEW TELLIMATH** Municipality: _____

Province: **ON** Postal Code: **L0G1A0** Business E-mail Address: **RBWELL DRILLING.COM**

Bus. Telephone No. (inc. area code): **9057292950** Name of Well Technician (Last Name, First Name): **KOWALSKI, ROBERT**

Well Technician's Licence No.: **2425** Signature of Technician and/or Contractor: _____ Date Submitted: **20141104**

Map of Well Location

Please provide a map below following instructions on the back.

Comments: _____

Well owner's information package delivered: Yes No

Date Package Delivered: **20141104**

Date Work Completed: **20141103**

Ministry Use Only

Audit No.: **Z183980**

Received: **DEC 22 2014**



APPENDIX C

Nitrate Calculations

NITRATE LOADING CALCUATIONS

Armstrong Estates, Mansfield

Assumptions

Nitrate limit	10 mg/L	
No of Lots	67	
annual average precipitation surplus	393 mm/a	(orangeville Station)

Detailed Calculation

$$C_e = (C_p * P * A + C_s * Q_s + C_b * Q_b) / (P * A + Q_s + Q_b)$$

where

Downgradient Area	(A)	176,910 m ²	Pervious Area
Annual Infiltration Rate	(P)	236 mm	60% of surplus
Diluting Volume	(P*A)	41,715 m ³ /a	
Aquifer Thickness	(b)	4 m	assumed
Aquifer Velocity	(v)	1.5E-08 m/s	assumed
		0.001 m/day	
Aquifer Cross-sectional Width	(l)	800 m	
Base Flow	(Q _b)	1,515 m ³ /a	
Average Daily Sewage Volume	(Q _s)	67,000 L/day	Input (average Design Flow)
		24,472 m ³ /a	
Rainfall Nitrate Concentration	(C _p)	0.2 mg/L	standard treatment
Ground Water Nitrate Concentration	(C _b)	19.0 mg/L	standard treatment
Effluent Nitrate Concentration	(C _s)	40.0 mg/L	standard treatment
Estimated Site Concentration	(C _e)	15.0 mg/L	>10mg/L (Nitrate Drinking Water Standard)
Downgradient Area	(A)	176,910 m ²	Pervious Area
Annual Infiltration Rate	(P)	236 mm	60% of surplus
Diluting Volume	(P*A)	41,715 m ³ /a	
Aquifer Thickness	(b)	4 m	assumed
Aquifer Velocity	(v)	1.5E-08 m/s	assumed
		0.001 m/day	
Aquifer Cross-sectional Width	(l)	800 m	assumed
Base Flow	(Q _b)	1,515 m ³ /a	
Average Daily Sewage Volume	(Q _s)	67,000 L/day	Input (average Design Flow)
		24,472 m ³ /a	
Rainfall Nitrate Concentration	(C _p)	0.2 mg/L	standard treatment
Ground Water Nitrate Concentration	(C _b)	19.0 mg/L	standard treatment
Effluent Nitrate Concentration	(C _s)	20.0 mg/L	Tertiary treatment (15-25mg/L depending on technology)
Estimated Site Concentration	(C _e)	7.8 mg/L	<10mg/L (Nitrate Drinking Water Standard)