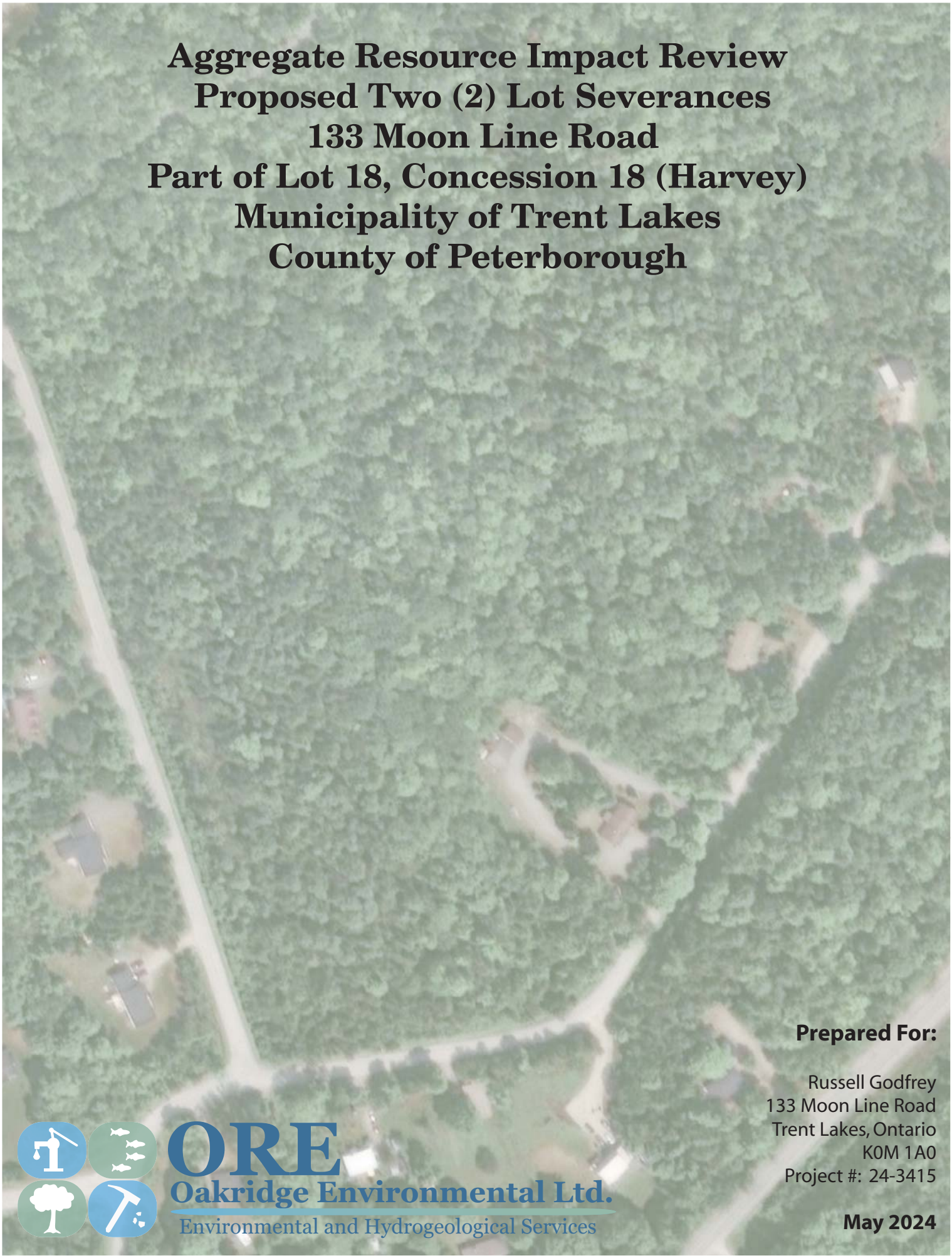
Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road
Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes
County of Peterborough



Prepared For:

Russell Godfrey
133 Moon Line Road
Trent Lakes, Ontario
K0M 1A0
Project #: 24-3415

May 2024

ORE
Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

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May 8, 2024

133 Moon Line Road
Trent Lakes, Ontario
K0M 1A0

Attention: **Russell Godfrey**

Re: Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road
Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes, County of Peterborough
ORE File No. 24-3415

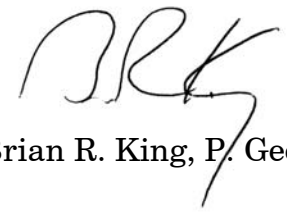
Dear Mr. Godfrey:

Oakridge Environmental Ltd. is pleased to present this report outlining the findings of our impact review, prepared in support of your proposed application to create two new residential lots by consent.

Our study provides an overview of the geological setting and constraints that would likely affect local aggregate resource development on, or near your proposed severances. As you will see, our review has revealed that a new pit development, or expansion of an existing pit, within 300 m of the proposed lots is highly unlikely to occur, due to a variety of constraints and challenges. Regardless, in the very unlikely event that aggregate resources are somehow developed in the vicinity, it is our opinion that the proposed lots would not be significantly impacted.

Should you have any questions, please contact our office at any time.

Yours truly,
Oakridge Environmental Ltd.



Brian R. King, P. Geo.

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1.0 Introduction

1.1 General

This aggregate resource impact review has been prepared in support of an application to create two (2) new residential lots by consent. The lots will consist of approximately 1.1 acres and 0.9 acres, severed from an approximately 17.4 acre property that occurs northeast of Bobcaygeon, within Lot 18, Concession 18 (former geographic Township of Harvey), Municipality of Trent Lakes.

One (1) lot will have approximately 36 m of frontage along the east side of Moon Line Road North, and the other will have approximately 40 m frontage along the north side of Moon Line Road (Figures 1 and 2).

1.2 Study Area Definition

The location of the subject property which includes the proposed lots and lands to be retained is illustrated by Figure 2. The "study area" for this review is based on a 300 m radius of interest surrounding the subject property.

Two (2) areas containing aggregate resources occur within the 300 m radius of interest, according to the Official Plan (OP) mapping of the Municipality of Trent Lakes (Figure 3). These are identified on Figure 3 and are identified respectively herein as "Area A" and "Area B".

However, the new County of Peterborough OP mapping (Figure 4) also includes an aggregate resource "overlay" that appears to span the gap between Area A and Area B. According to the Section 8.4 of the County OP, the overlay is supposed to reflect information provided by the Ontario Geological Survey (OGS). This is not the case, as the overlay does not correspond to the OGS mapping, as discussed in a following section. Regardless, the overly suggests that the potential aggregate resources are expected to be continued from Area A to Area B, with the overlay's footprint touching the subject property east of the southernmost proposed severance lot.

Further confusion is provided by the Preliminary Severance Review (PSR). Mapping presented in the PSR indicates a different aggregate resource boundary that significantly diverges from those of the two Official Plans. The pertinent illustration from the PSR is presented in Appendix A. As the PSR was provided before the current lot plan was prepared, the positioning of the proposed severance lots is not representative. Nevertheless, the boundary of the aggregate resource area clearly extends well into the subject property and into the southernmost proposed lot, labelled

as a *"primary sand and gravel deposit"*.

Notwithstanding the questionable and divergent mapping, given the proximity of the various aggregate resource areas to the subject property, a technical study is required to demonstrate that the proposed severances and their eventual development will not preclude or hinder the expansion, continued use and/or access to any neighbouring aggregate resources. Similarly, it will also be necessary to demonstrate that the proposed severances and development would not be impacted by any existing or future aggregate operations (including expansion of existing operations).

Within the Study Area, a single pit operation, licensed under the Aggregate Resources Act (ARA), occurs east of the subject property. An on-line query indicates that the operation is a Class B pit (i.e., <20,000 tonnes annually), operated by Envision Excavating Ltd. Interestingly, the PSR mapping does not include this licensed pit (i.e., "Area A"), despite it being on the current municipal OP and new County OP schedules. No explanation is provided for this significant discrepancy, although a possible rationale is discussed in a following section.

Although the OP refers to "aggregate resources", it is understood that the resources in question are unconsolidated sand and gravel, not bedrock resources. As such, the Study Area is limited to a 300 m radius from the proposed lots, also indicated on our illustrations, as per the MNRF's draft guidelines.

1.3 Applicable Policy

The following relevant excerpts were extracted from Sections 4.1.3.3, 6.2.13.2 and 7.7.1 of the County of Peterborough's Official Plan:

> *"Local municipalities shall identify and protect from incompatible uses and activities that would preclude or hinder their expansion or continued use, or which would be incompatible for reasons of public health, public safety, or environmental impact, all existing mineral aggregate and mineral mining operations and known significant deposits of aggregate and non-aggregate mineral resources."*
>
> *"All proposed non-aggregate uses within 300 m of Aggregate Resource Areas and established Extraction operations shall be evaluated by the Township for potential land use conflicts and prohibited where such conflicts would preclude or hinder the establishment of a new operation..."*
>
> *"It shall be a policy of this Plan to maintain compatibility between sensitive land uses and facilities such as active waste disposal sites, industry, commercial, sewage treatment plants, and aggregate activities. Measures including land uses separation shall be provided between incompatible land uses in accordance with the guidelines of the Ministry of the Environment. Distances will vary depending*

> *on the nature of the facility and the intervening land uses. Separation distances are recommende an adequate means to reduce the adverse impacts of offensive odours, noise, and dust. The greater the scale and intensity of the facility, the greater will be the distance required. The plan also recognizes that land use separations should be applied reciprocally to new sensitive land use encroaching on existing facilities."*

and,

> *"In areas of significant mineral aggregate and non-aggregate resource potential, as identified by the Ministry of Natural Resources, the Ministry of Northern Development and Mines, private landholders or the development industry in consultation with the local municipalities, uses which do not preclude future access to and extraction of these potential resources may be permitted. All other uses of the land which prohibit future access to and extraction of the resources shall be considered secondary and generally discouraged until such time as the resource is substantially depleted. Alternative land uses may be permitted where:*
>
> - *extraction would not be feasible; or*
> - *the proposed use of the land serves a greater long-term interest of the general public;*
> - *prior to any approval of a change in land use, the proponent shall consult with the County and the Ministry of Natural Resources and will be required to prepare a study indicating the nature of the land use change, detailing the deposit's potential for extraction and demonstrating the compatibility and the need for the alternative land use."*

Typically, developments are not permitted on or within 300 m of an unconsolidated (e.g., sand and gravel) aggregate resource or within 500 m of a bedrock aggregate resource area, unless it can be demonstrated that the resource is not of economic importance or cannot be extracted due to site limitations (or other constraints). In this regard, Section 4.1.3.3 of the County's Official Plan provides additional detail:

> *"All extraction and processing operations should be located and operated in such a manner as to minimize the impact on the natural, social and built environments. In particular, water resources including both surface and ground, shall be protected from adverse impacts of extraction. Appropriate separation distances for proposed and existing aggregate operations are usually determined on a site specific basis. However, the Ministry of Environment considers the area of influence to be 500 metres for a quarry, 300 metres for a pit below the groundwater table and 150 metres for a pit above the groundwater table. This area is considered to have the greatest impact on sensitive land uses from the pit or quarry operation. Environmental studies should be required to assess the impact if development occurs within this influence area. This influence area should be applied*

reciprocally to new sensitive land uses encroaching upon an existing extraction operation or lands committed for future extraction."

The Official Plan of the Municipality of Trent Lakes also provides the following:

"*5.1.21 Mineral Aggregate Resource Setbacks*

Licensed mineral aggregate operations and areas of known high potential mineral aggregate resources are designated as Aggregate Resource Extraction on Schedule "A1", "A2" and "A3" of this Plan. Other lands identified as having high potential mineral aggregate resources are identified as Mineral Aggregate Resource on Schedule "C" of this Plan.

The policies of Section 5.10.7 shall apply with respect to proposals for development on or adjacent to lands designated as Aggregate Resource Extraction on Schedules "A1", "A2" and "A3", or identified as Mineral Aggregate Resource on Schedule "C".

Sensitive land uses (as defined in Section 5.1.28 of this Plan) should not be permitted to locate within:

i) 150 metres of existing licensed sand and gravel pit operations that are above the water table;

ii) 300 metres of existing licensed sand and gravel pit operations that are below the water table;

iii) 500 metres of existing licensed quarry operations, or lands identified as Mineral Aggregate Resource for Limestone Bedrock on Schedule "C"; or

iv) 300 metres of lands identified as Mineral Aggregate Resource for Sand and Gravel on Schedule "C";

unless studies are completed to demonstrate that the encroachment of the sensitive land uses will not be impacted by such matters as groundwater interference, noise, dust, traffic and vibration.

The above-noted influence areas should be applied reciprocally to new sensitive land uses encroaching upon an existing extraction operation or lands committed for future extraction."

And,

"*5.10.7 Protection of Mineral Aggregate Resources and Operations*

For the purpose of this section, "development" means the creation of a new lot, a change in land use, or the construction of buildings and structures, requiring

approval under the Planning Act.

Development on or adjacent to lands designated Aggregate Resource Extraction on Schedules "A1", "A2" and "A3" or identified as Mineral Aggregate Resource on Schedule "C", which would preclude or hinder the establishment of new mineral aggregate operations or access to the resources, shall only be permitted if:

a) Resource use would not be feasible; or

b) The proposed land use or development serves a greater long term public interest; and

c) Issues of public health, public safety and environmental impact are addressed.

Existing mineral aggregate operations shall be protected from development and land use activities that would preclude or hinder their expansion or continued use, or which would be incompatible for reasons of public health, public safety or environmental impact. The policies of Sections 5.1.21 (Mineral Aggregate Resource Setbacks) and 5.10.5 shall be considered in this regard."

1.4 Scope of Work

A site-specific Terms of Reference (ToR) was not been provided for our study. However, widely accepted ToR are available from the Ministry of Natural Resources and Forestry (MNRF). A copy of the MNRF's draft ToR is presented in Appendix B.

In preparing this review, we have relied primarily on published information from a variety of sources, augmented by a brief site inspection from which we have examined the local terrain conditions. Detailed intrusive investigations or surveys have not been conducted and are beyond the scope of this assessment.

During this study, the following tasks have been completed:

- Available background data were compiled and reviewed, including published mapping, aerial photography, published geological reports and Ministry of the Environment, Conservation and Parks (MECP) well records.

- A geo-referenced base plan has been prepared from recent aerial photography to illustrate local land use.

- The well record data were reviewed with regard to the local stratigraphic setting and extent of unconsolidated aggregate deposits.

- Potential constraints have been examined, including the following:

  - the size and potential tonnage of the deposit(s);
  - aggregate quality;
  - topographic restrictions;
  - setbacks under the Aggregate Resource Act (ARA) Provincial Standards;
  - proximity to existing sensitive uses;
  - water table depth;
  - proximity to sensitive species or habitats, and
  - potential economic viability.

- All data were analysed, and

- This report was prepared, outlining our findings and conclusions.

2.0 Topography and Drainage

The subject property and much of the Study Area occurs in an area of fairly subdued topographic relief, generally <7 m (Figure 2). Local drainage is generally to the southeast, toward Pigeon Lake. While there are no channelized watercourses in the Study Area, numerous pocket wetland features occur, all mapped as unevaluated. The majority of the property is forested.

The combination of low relief and presence of wetlands suggests that a shallow water table condition likely occurs throughout the Study Area.

3.0 Nearby Uses

The subject property consists of undeveloped rural lands, other than the applicant's residence (Figure 5). Surrounding uses within the study area include rural, undeveloped lands and an assortment of existing (residential) lots along Moon Line Road North, Elwood Crescent and Moon Line Road. A large subdivision development occurs immediately southwest of Moon Line Road North. Several of the lots fronting on Moon Line Road (south of the subject property) occur within the aggregate resource area identified in the PSR (Appendix A).

These existing uses already significantly constrain future aggregate development within the study area, especially along Moon Line Road, south of the subject property. Typically, a 30 m setback applies to residential uses and roads.

4.0 Geological Setting

4.1 Surficial Geology

As illustrated by Figure 6, the subject property is mostly covered by deposits of the Dummer Till Complex. The Dummer Complex is composed of scattered, pitted hummocks of blocky, angular debris extending as a broad belt from Lake Simcoe to northeast of Kingston. The northern margin generally follows the Precambrian - Paleozoic bedrock contact. The southern margin is irregular and diffuse, with Dummer Complex deposits separated by drumlins. The drumlins do not show any indications of having been overridden. Dummer Complex sediments are often associated with large expanses of bare or boulder-strewn Paleozoic bedrock and have not generally been found overlying any other type of sediment.

Traditionally, the Dummer Complex has been regarded as an "end moraine" wherein the late Wisconsin glacial ice which flowed southwestward across the area retreated to a point north of the Paleozoic - Precambrian contact. The Complex has a massive, unstratified, unsorted structure suggesting a subglacial environment of deposition. The pitted, hummocky morphology of the Dummer Complex, separated by expanses of bare or boulder strewn bedrock plains is the result of large scale ice stagnation. Meltwaters may have washed the areas between hummocks clean of debris.

The Dummer Moraine deposits have also been referred to as "rubble terrain" (Bukhari et al, 2021), as per:

> *"The dominant geomorphic feature of the surface of Palaeozoic carbonates down-ice of the Shield is a broad belt of coarse carbonate rubble...mapped and named previously as the Dummer Moraine given its resemblance in plan form to a large end moraine."*

And,

> *"LiDAR mapping identifies large areas of chaotic rubble terrain made up of low-relief mounds of debris up to 2 m high, with steep-sided cone-like hummocks as high as 10 m with steep side slopes standing at, or near, the angle of repose.... These surfaces are littered with limestone slabs and angular blocks... No preferred organization or distribution of hummocks can be identified and the term 'uncontrolled' is appropriate."*

This means that the rubble was eroded from the paleozoic rocks as the glacier advanced southward, then there was a retreat/melt-back where the rubble was dumped to form the "rubble terrain".

West of the Study Area, a different till (referred to as the Newmarket Till) occurs,

possibly extending below the Dummer Complex in some areas. The Newmarket Till is drumlinized, with drumlin ridges being mapped about 1.2 km to the southwest. This till is a dense, silt and clay rich unit that is widely recognized as a regional aquitard.

Other than the Dummer (till) Complex, the dominant soil type present in the Study Area consists of glaciofluvial sand, with some gravel. Within the glaciofluvial deposits, several small pockets of stratified ice-contact kames are mapped, one occurring partially within the Study Area boundary, to the south. Several small eskers are also mapped as occurring within the larger glaciofluvial deposit. One of these occurs about 500 m south of the Study Area and another occurs along the lakeshore, also 600 m to the east. Kames and eskers are typically composed of layered, highly permeable sand and gravel deposits which are generally viewed as important aggregate resources. Several small pits are indicated on the mapping, all well south of the Study Area.

4.2 Bedrock Geology

Bedrock below the site consists of limestone and shale of the Bobcaygeon Formation. The lower part of the formation consists of fine to medium grained nodular limestone. The upper part of the formation is fine to medium grained, bioclastic limestone. The limestone bedrock is exposed (outcrops) at several locations along Moon Line Road, immediately south of the subject property, indicating that the overburden is fairly thin in the Study Area.

The bedrock geology is not expected to be particularly important with respect to potential constraints associated with the unconsolidated aggregate resources in the study area. However, the shallow nature of the bedrock surface will constrain the aggregate resource thickness.

5.0 Aggregate Resource Inventory Mapping

The original provincial aggregate resource mapping of Harvey Township (Aggregate Resources Inventory Paper 132, 1995) indicates the footprint of the aggregate resources is based on geological mapping that is similar to Figure 6. The main deposit is referred to as *"Selected Sand and Gravel Resource Area 3"*, described as:

> *"Selected Sand and Gravel Resource Area 3 is located just northeast of Bobcaygeon. This Resource Area comprises an esker surrounded by outwash material, and contains a gravel content of approximately 49%. Only 2% of the material is finer than 75 μm (Figures 4a and 4b). Granular A and B, SSM and hot-laid asphalt sand could be produced from this deposit. The Resource Area occupies approximately 177 ha, but only about 140 ha would be available for extractive activity (Table 3). The resource potential is approximately 11.2 million*

> *tonnes. Because of the proximity to Bobcaygeon, this area is quickly becoming sterilized."*

While the 1995 mapping identifies two small eskers and one of the kames, the majority of the resource is labelled as 'outwash'. Other than the eskers or kame deposits, the majority of the aggregate is described as being of either secondary or tertiary significance, including the portion within and proximal to the Study Area.

The 1995 study identified the presence of five small (former) pits excavated into the aggregate resource. These are all described in the same manner as:

> *"small pit located in outwash material - area being developed around Bobcaygeon".*

In all instances, a face height was not provided, suggesting the resource thickness is minimal.

Updated Aggregate Resources Inventory Paper 105 (ARIP 105, 2019), which covers all of Peterborough County, describes the Study Area as being partly within an aggregate deposit of Primary Significance. From the provincial mapping, this area is illustrated by Figure 7, with its extents being similar to the geological mapping.

ARIP 105 defines the local aggregate deposit as:

> *"Selected Sand and Gravel Resource Area 6 is located on the northern edge of the Town of Bobcaygeon, just west of Pigeon Lake. The deposit contains both glaciofluvial outwash deposits and undifferentiated ice-contact stratified drift. The resource area contains 1 active pit licence and 3 abandoned unlicenced pits, resulting in an unlicenced area of approximately 174 ha.*
>
> *The aggregate material is varied, with layers of fine- to medium-grained sand and layers of sand with up to 80% gravel content. In some beds, up to 80% of the material is greater than 10 cm in size. Clast lithology is dominated by limestone (90%); the remainder is Precambrian rock (10%). Gravel is subangular to subrounded.*
>
> *Historical grain size analyses of unprocessed aggregate material range from 53 to 77% of coarse aggregate, from 20 to 44% for sand, and from 1 to 4% for fines. Historical aggregate test results indicated a Petrographic Number between 101.4 and 146.2 for Granular and 16 mm, and between 108.2 and 164.8 for concrete (CA) and HL products. The historical aggregate test results and historical summary sheets from the Ministry of Transportation indicate that the granular material is generally acceptable for the production of Granular A and is conditionally acceptable for the production of Granular B and SSM products. The presence of clasts derived from Shadow Lake Formation shale and siltstone in*

> *parts of the deposit limits its use as an aggregate source. Where too much Shadow Lake Formation lithology is present in the coarse aggregate, the material is not suitable for the production of HL products.*
>
> *Previously extracted areas and other cultural constraints reduce this area to approximately 139 ha (see Table 3). Assuming a conservative deposit thickness of 4.5 m, the selected resource area should have a granular resource of approximately 11 million tonnes. An observed pit face height of approximately 7 m and historical MTO source files containing records of test holes to a depth of approximately 3 m suggest that the 4.5 m deposit thickness is a conservative estimate."*

The closest existing pits to the Study Area identified in ARIP 105 are referred to as Pit Nos. 11 and 12.

No. 11 occurs roughly 400 m south of the Study Area and is comprised of two licensed areas: No. 3468, which is a Class A pit, licensed to the Municipality of Trent Lakes (known as the "Bobcaygeon Pit"), and No. 3320, a Class B pit, licensed to Roger Harrison. Both pits occur within the aggregate resource area.

No. 12 is listed in the ARIP as an "overgrown pit" (which is also License No. 3358). This pit is not within the aggregate resource area identified by provincial mapping, although is within an aggregate resource area identified by the Official Plans.

ARIP 105 also identifies three small (unlicensed) pits in proximity to the Study Area. These are both described as "Outwash deposit - old, overgrown pit". One of the pits is also described as "Resources depleted". In all instances, a face height was either not provided or was listed as 1 m to 2 m in height, suggesting the resource thickness is minimal.

The extents of the aggregate resource defined in ARIP 105 appear to have been the base for the OP mapping (Figure 3), subsequently modified by the County. Numerous existing residential lots near the subject site occur *within* the aggregate resource area indicated on Figure 7 and on the map accompanying the PSR (Appendix A).

6.0 Well Record Data

Aggregate resource development can be highly constrained by groundwater issues. An elevated water table can limit the extractable volume of sand and gravel, as the Provincial Standards generally require the pit floor to remain at least 1.5 m above the established groundwater table elevation, unless extraction below the water table is approved. While extraction below the water table is possible, dewatering is usually impractical, leaving only drag-line methods as a viable approach, which are depth-limited.

Well records can provide relevant data on groundwater levels and can also provide useful subsurface data on the various types of deposits present. Ministry of the Environment, Conservation and Parks (MECP) well records representing recorded wells within an approximately 1 km radius of the study area have been reviewed as part of this assessment. A plot of the well locations is provided by Figure 8. It is important to recognize that the location coordinates provided by the MECP are not completely accurate and have not been "ground-truthed". A summary of the well record data is provided in Appendix C.

As illustrated by Figure 8, the study area and surrounding lands contain a fairly large number of recorded wells, evenly distributed along the main roads. Of these, our interest is primarily in just those that plot within the combined aggregate resource areas illustrated by Figures 3, 4 and 7. However as Area A (Figures 3 and 4) appears to have been eliminated as an aggregate resource by the PSR, our emphasis is strictly on the remaining resource area delineated on Figure 7.

Within the boundary of the aggregate resources that occur in the Study Area, there are seven (7) recorded wells. Table 1 (below) presents a brief summary of the driller's formation logs for each. Records for each are presented in Appendix C.

Summary of Recorded Wells

Well No.	Overburden Type	Overburden Thickness (m)	Water Table Depth (m)	Aggregate Present
5107241	stony clay (till)	3.05	4.27	No
5108202	stony clay (till)	3.05	9.14	No
5106517	clay & stone (till)	2.13	1.83	No
5105293	gravel & boulders	3.05	3.05	Possible*
5101880	clay & small boulders (till)	2.74	3.81	No
7049433	clay & stones (till)	4.27	2.87	No
5109218	boulders	2.13	1.83	Possible*
Averages		2.92	3.83	

* gravel and/or boulders could be utilized as aggregate if crushed, however, could also indicate till.

In all instances for the wells listed in Table 1, the driller reported intersecting limestone and/or shale (i.e., non-aggregate) below the overburden.

From the well record data, it is clear that the purported aggregate resources in the

southern part of the Study Area are almost non-existent. Most of the records indicate only the presence of clay or clay and gravel type soils, most of which are likely till, overlying limestone bedrock at various depths. Moreover, the driller's formation descriptions provide no indication that glaciofluvial or ice contact deposits are present. It is not clear how the mapping could be so different from the actual conditions.

The two wells that may have encountered potential aggregate are not situated close together and are separated by at least one other well that did not intersect aggregate. As such, these two occurrences do not represent a continuous aggregate deposit.

The well record data also indicate that many local wells exhibit fairly shallow static water levels, consistent with a shallow water table condition as suggested by the presence of pocket wetlands throughout the area.

There are no known municipal wells, wellhead protection zones, intakes or intake protection zones associated with the Study Area. As such, there are no source protection plans in effect that would represent a significant constraint with regard to development of the proposed severance lots or any aggregate resources.

7.0 Ecological Features

7.1 Natural Heritage Information Centre (NHIC)

The NHIC provides an online database managed by the Ministry of Natural Resources and Forestry (MNRF). Within the database, Ontario has been divided into a grid consisting of 1 km^2 areas or regional squares, each given a unique identifier. The squares can be searched for species of conservation concern, plant communities, wildlife concentration areas and natural areas. This search includes 120 m of adjacent lands around the subject property.

The search area falls within four (4) of the 1 km^2 squares: 17PK9537, 17PK9538, 17PK9637, & 17PK9638. However, of these only 17PK9537 and 17PK9637 contain the aggregate resource area(s).

The query indicates that one (1) Wildlife Concentration Area is recorded in the area:

Wildlife Concentration Area:

Colonial Wading Bird Colony

The colonial wading bird colony is expected to be pertinent to the shoreline area of Pigeon Lake, situated 900 m east of the subject property. It has no relevance to the

Study Area.

However, the query indicates that six (6) Species at Risk (SAR) have been recorded in the relevant squares:

Common Name	**Scientific Name**	**SAR Status**
Bobolink	*Dolichonyx oryzivorus*	Threatened
Eastern Meadowlark	*Sturnella magna*	Threatened
Eastern Milksnake	*Lampropeltis triangulum*	NAR[1]
Eastern Whip-poor-will	*Antrostomus vociferus*	Threatened
Eastern Wood-Pewee	*Contopus virens*	Special Concern

1 Not at Risk - Special Concern (SARA/COSEWIC)

An excerpt from the NHIC's website illustrating the location of the squares relative to the 120 m search area around subject site is also included in Appendix D.

7.2 Wetlands

As illustrated by Figure 2, the Study Area (and the aggregate resources within the Study Area) contains a variety of pocket wetlands, all mapped as unevaluated. These tend to occur in topographic depressions and indicate the presence of a shallow water table condition. Three of the small wetlands are situated within or proximal to the aggregate resource area, including within the subject property. It is understood that one of the wetland features represented a significant constraint on the location of one of the planned severances, resulting in a need to modify the location to that currently proposed. The same wetland would presumably represent a similar constraint on any future development of the aggregate resources, as well.

At the very least, the wetlands would be protected from future pit development by the imposition of setbacks/buffers.

7.3 Species at Risk (SAR)

The presence of endangered species (or their critical habitat) can be an important constraint with respect to development of aggregate resources. The NHIC query results (discussed above) identified several sensitive and/or regulated species that are known to occur in the vicinity of the Study Area. These include Bobolink, Eastern Meadowlark, Eastern Whip-poor-will, Eastern Wood-Pewee and Eastern Milksnake.

Bobolink and Eastern Meadowlark are generally associated with farm lands as they

nest in the tall grass. The subject property and the southern part of the Study Area is largely forested, therefore, does not appear to contain this type of habitat. In contrast, these treed areas could be habitat for Eastern Whip-poor-will, Eastern Wood-Pewee and/or Eastern Milksnake. Any of these could be found within the local forests, representing significant constraints on development of the aggregate resources, should a future pit remove or displace the habit.

Given the above, an ecological study would need to be completed as part of any licence application under the ARA, to determine whether any of the above species would need to be accommodated. All or part of the resources could theoretically be constrained.

8.0 Interpretation and Constraint Assessment

The extents of the aggregate deposit situated within the Study Area are illustrated on Figure 9, based on the resource footprint indicated by the County's PSR and the provincial aggregate resource mapping. Other aggregate resource areas (such as Area A of Figure 3) have not been considered as they are no longer viewed as viable resources.

Also shown on Figure 9 are the various mandatory and expected setbacks that would be applied to the deposit, should a licence under the ARA be applied for. The existing residential uses would require imposing a minimum 30 m setback on any extraction operation under the ARA. A similar 30 m setback would apply from County Road 36 and from Moon Line Road. Environmental setbacks (also 30 m) would be applicable from the adjacent wetlands. The undeveloped property boundary setback is typically 15 m.

Once the various setback constraints are applied, the remaining resources would be highly fragmented, with the largest continuous area being a block of ~2.3 ha situated south of County Road 36. A second, smaller block (~1.4 ha) occurs on the opposite side of the road. Two very small blocks are also present - one within the subject property and the other at the extreme southern part of the Study Area, although those are far too small to be considered in any viability assessment.

Using the largest block as an example, the overburden thickness varies from 2.13 m to 4.27 m, with a simple average thickness of 2.92 m, according to the well record data (Table 1). Discounting the upper 0.3 m for topsoil, the actual thickness of potential aggregate would be 2.62 m. In the very unlikely event that all of the formation log data were incorrect and the overburden were to actually consist of aggregate materials, the largest block would have a volume of approximately 60,300 m^3.

With the average water table depth being approximately 3.83 m (as per Table 1),

groundwater should theoretically occur below the overburden (i.e., within the limestone). However, because the Provincial Standards would require the pit floor to remain at least 1.5 m above the water table, the effective maximum pit depth would be reduced to 3.83 m - 1.5 m = 2.33 m, assuming average conditions. Again subtracting a 0.3 m allowance for the topsoil, the workable thickness would be reduced to approximately 2.0 m. Therefore, the available volume would be reduced to ~46,000 m^3. This volume would have an approximate mass of ~81,400 tonnes, assuming a tonnage factor of 1.77 tonnes/m^3, as per ARIP 105.

Despite the preceding being based on assumed average conditions, the well record data include instances of much shallower water table occurrences (e.g., 1.83 m, as per Table 1). While operating a pit below the water table is possible, doing so could require significant dewatering due to the highly permeable materials or would involve costly underwater excavations. Both are logistically difficult, expensive and would require significant environmental controls. As such, extracting unconsolidated aggregate below the water table is rarely conducted in Ontario and is assumed to be unlikely in this setting.

The volume could be further reduced should it be necessary to apply additional setbacks associated with endangered species, also reducing the theoretical resource tonnage.

By any measure, the unconstrained aggregate deposits present within the Study Area represent a small resource with respect to pit development, if the resources exist at all. From our experience in the aggregate industry, deposit valuations for resources <1 million tonnes are problematic, given the costs associated with licensing, capital investment and future operating costs. Given the current economic framework, it is unlikely that an applicant would consider a resource of this size (in this environment) to be economically viable.

In addition to the poor economics of the deposit size, we also have considerable doubt with regard to the quality of aggregate. We are also questioning whether there is any actual aggregate resource within the Study Area. For example, as illustrated by Figures 3 and 6, a previously identified aggregate resource (referred to herein as "Area A", Pit No. 3358) appears to be composed entirely of Dummer Complex till and is no longer included as a resource by provincial mapping (Figure 7). Not surprisingly, that pit is now described in the literature as "overgrown", and has likely been abandoned as a commercial operation. This also seems to be the case elsewhere in the Study Area, with few exceptions.

We expect that the local aggregate resources need to be re-evaluated, as the mapping does not agree with the available data. While there is little doubt that some glaciofluvial and/or glaciolacustrine deposits occur in the area (along with a few small ice-contact features), their extents have may have been exaggerated. It is not

uncommon for some occurrences of the Dummer Complex till to be mistaken for aggregate resource due to the abundant coarse fraction and somewhat loose texture. However, the Dummer Complex till requires considerable processing to yield an acceptable aggregate product, due to its significant fines content.

Our firm has encountered similar situations east of Peterborough where OP mapped aggregate deposits were found to be composed of Dummer Complex till. This till can be also found in landforms that are easily confused with eskers and/or kames. Our findings are supported by Mihychuk (1984) and the recent LiDAR work by Bukhari et al (2021).

9.0 Impact Assessment

In addition to evaluating the potential for future development of aggregate resources within the study area, it is also necessary to review the potential for impacts on the proposed residential lots, in the event that a nearby aggregate resource is developed.

As outlined in the preceding sections, there appears to be no potential for sand and gravel resource development within the proposed lots or within a 300 m radius (Study Area), especially considering the large number of residential lots already approved in the immediate area. However, in the unlikely event that some nearby aggregate resources can be developed within or outside of the Study Area, we can assess the potential impacts that such commercial operations could have on the proposed severance development.

Potential (theoretical) impacts and sensitivities will vary according to the type of resource development. The principal factors associated with operation of an aggregate pit that could impact a residence include:

- noise and vibration;
- dust;
- traffic;
- interference with drainage, and/or
- interference with groundwater supplies.

With regard to *noise and vibration*, any aggregate deposit in the Study Area would not require blasting, although crushing of "over-size" materials could be needed, given the potential presence of boulders. The presence of fines would also require screening. While not noiseless, such activities are not generally a major source of noise or vibration, especially if separated by 300 m. Mitigation can usually be applied as needed and would be recommended in the supporting studies for the ARA application.

Dust is typically a problem that results from crushing and to a lesser extent, from equipment/traffic in a pit and/or along its haul routes. Dust suppression is generally required by most ARA licences and would presumably be required for any existing or new pit(s) in the study area.

Increased *traffi*c can be a concern for pit developments. Development of a pit in the vicinity of the proposed severances would likely require access off County Road 36. While any increase in local traffic would likely be unappreciated by the existing residents and lot owners (especially given the increasing amount of residential development in the area), completion of a traffic impact study would likely be required of any proponent as part of an ARA licence application. Any recommendations from that study would need to be implemented as a licensing condition, to mitigate impacts.

As any new pit operation would likely be required to implement generous setbacks from *surface water* features (e.g., local wetlands), it is unlikely that the operations would result in any significant alteration of drainage patterns. As such, negative effects on drainage would be highly unlikely.

As the local aggregate deposits occur exclusively above the bedrock and would likely be restricted to "above-water" operations, any future pit operation should not require dewatering. As outlined above, the ARA licence would require the pit floor to remain at least 1.5 m above the established water table. As such, there should be no significant effects on local groundwater resources. As residences in the Study Area are supplied by private wells, any applicant for an ARA licence would need to confirm that groundwater would not be impacted by conducting a hydrogeological ("water") study.

Despite the above, any commercial/industrial use (including pits) are potential sources of groundwater contamination, if fuels or chemicals (etc.) are mis-handled. A pit generally represents a highly permeable environment from which any such releases can enter the groundwater regime and migrate with the direction of groundwater flow. In this instance, the proposed residences would <u>not</u> be constructed downgradient of the theoretical aggregate extraction area. As such, any risk to future groundwater quality at the proposed lots resulting from accidental releases associated with a future pit operation south of the lots should be mitigated in this setting.

10.0 Conclusions and Recommendations

10.1 The results of our review indicate that the mapped aggregate resources has changed considerably over the years, resulting in considerable redefining of the resources. Within the Study Area (i.e., within 300 m of the subject property), the mapped aggregate resources now occur only in the southernmost part of the subject property, extending into the southern part of the Study Area. Within the Study Area, these are described largely as (glacial) "outwash" deposits, with several small ice-contact features present.

10.2 From our review of the MECP well record data for wells within the Study Area, the average overburden thickness (above the bedrock) in the southern Study Area is only 2.92 m, regardless of the formation type. In the same area, the average water table depth is shallow. After applying the minimum 1.5 m separation between the water table and a theoretical pit floor, and removing 0.3 m as an allowance for topsoil, the average exploitable thickness would be vertically constrained to ~2 m, perhaps less, depending on the water table configuration.

10.3 Areal constraints have also been assessed, including cultural and environmental setbacks as would theoretically be applied under the ARA Provincial Standards. Once applied, the mapped resources within the Study Area become highly fragmented, especially by local roads and existing residential development. Other constraints could include natural heritage setbacks, as several Species at Risk are known to occur in the area.

10.4 Our analysis of the constraints associated with the aggregate resource within the Study Area indicates that the resources would be split into two main "blocks", on either side of County Road 36, with the largest occurring to the south. Using the largest block as an example, the theoretical resource tonnage contained would be on the order of 81,400 tonnes, assuming there are no additional constraints (which is far from certain).

Based on the tonnage available in the theoretical unconstrained blocks, a *new* commercial pit operation would not likely be economically viable in either, when considering the cost associated with licensing, new infrastructure, capital equipment and operational costs.

10.5 From our review of the MECP well record formation log data for wells within the Study Area, it is apparent that the majority of the subsurface formations consist of Dummer Complex till, as opposed to a continuous aggregate resource feature. This is a

potentially significant quality constraint on the local aggregate resources, irrespective of their size. However, in the absence of a detailed subsurface investigation to confirm those observations, we cannot be completely certain of this. As such, we would recommend that the aggregate resources as currently mapped be re-examined and the mapping updated accordingly.

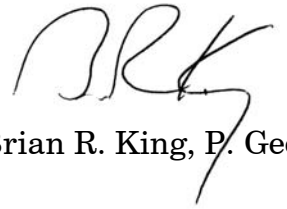
10.6 In the very unlikely event that an aggregate pit could be established near the proposed lots, our review of potential impacts indicates that the proposed lots should not be negatively affected, although traffic issues could be a consideration, as the primary access/entrance to the resource would likely be from County Road 36.

10.7 Based on the information presented in this report, it is our opinion that there are no economically viable commercial aggregate resources within 300 m of the proposed severance lots. The resources occur in a comparatively small quantity and would be highly constrained by various regulatory and environmental setback requirements. Moreover, it is likely that some of the resources have been incorrectly mapped and should not be considered aggregate resources at all.

Therefore, it is recommended that the proposed severances be granted, subject to any Planning and/or other outstanding considerations.

* End of Report *

Respectfully Submitted,
Oakridge Environmental Ltd.



Brian R. King, P. Geo.

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Statement of Qualifications

Brian R. King, P. Geo. is the principal author of this report and is responsible for its content as a Qualified Person (QP). Mr. King supervised the design of, collection of data for, and interpretive work involved in this study.

Mr. King has been practising in the fields of environmental geology, hydrogeology, economic geology, mineral deposit and aggregate resource assessments for more than 40 years. Mr. King is a Registered, Practising Professional Geoscientist (Ontario Reg. No. 0396). As a principal and the president of Oakridge Environmental Ltd., Mr. King is authorized to conduct and report on geological, hydrogeological, environmental and mineral resource studies and investigations.

Mr. King's educational background includes completion of an Honours Bachelor of Science degree from Brock University, specializing in the geological sciences including hydrogeology, geochemistry and environmental science. Mr. King has also participated in continuing education related to groundwater science, environmental geology, contaminant assessment and land development.

Mr. King holds memberships in the following organizations:

> Practising Member of the Association of Professional Geoscientists of Ontario
> Member of the International Association of Hydrogeologists

It is further stated that Mr. King, Oakridge Environmental Ltd. or its employees, have no ownership interest in the subject property and that the only remuneration to be received is monetary and solely related to the work completed, as outlined in this report.

Brian R. King, P. Geo.

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K9J 6X7

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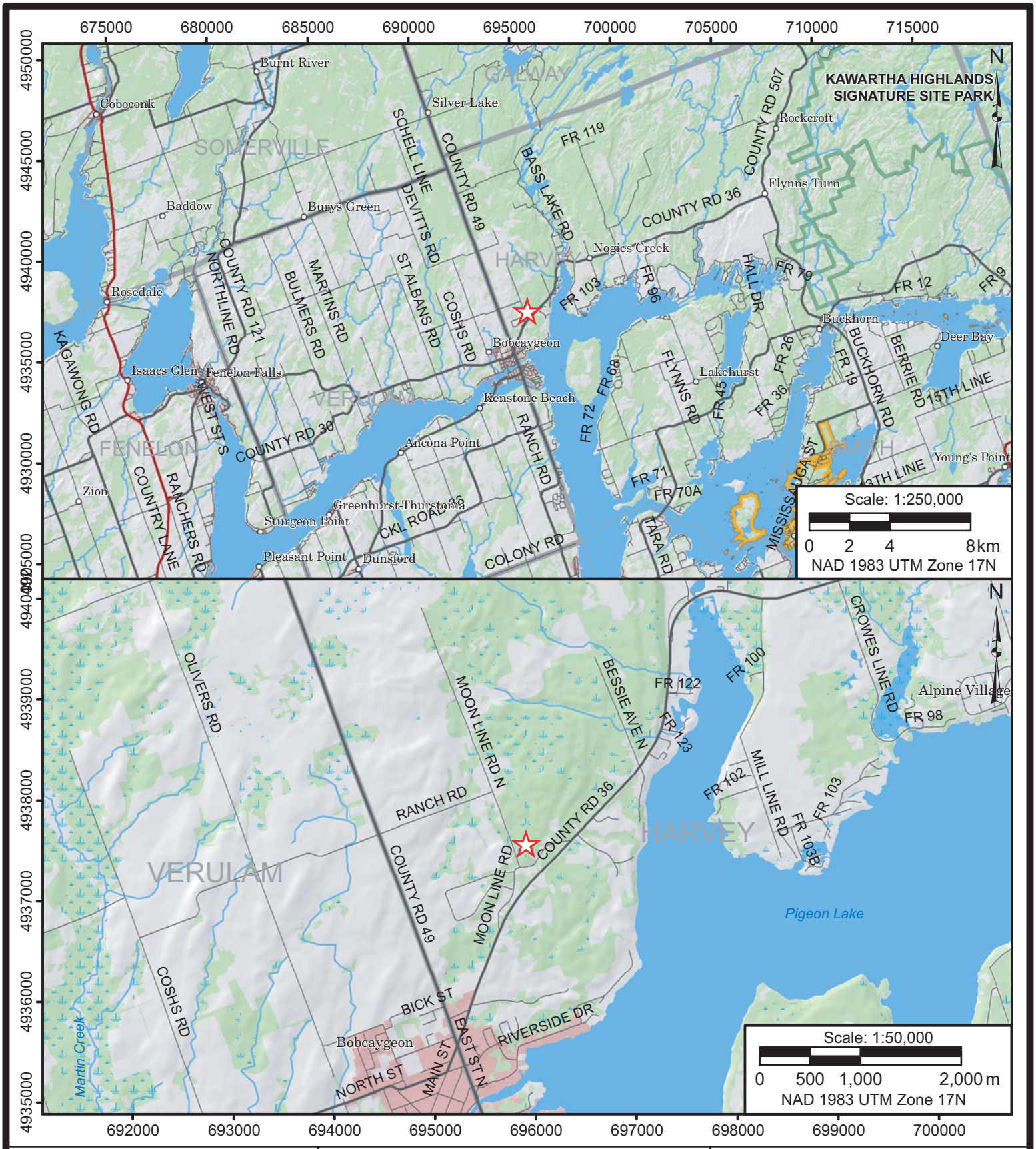
brian@oakridgeenvironmental.com email

FIGURES



Approximate Site Location

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Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road
Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes, County of Peterborough

North American Datum (NAD) 1983

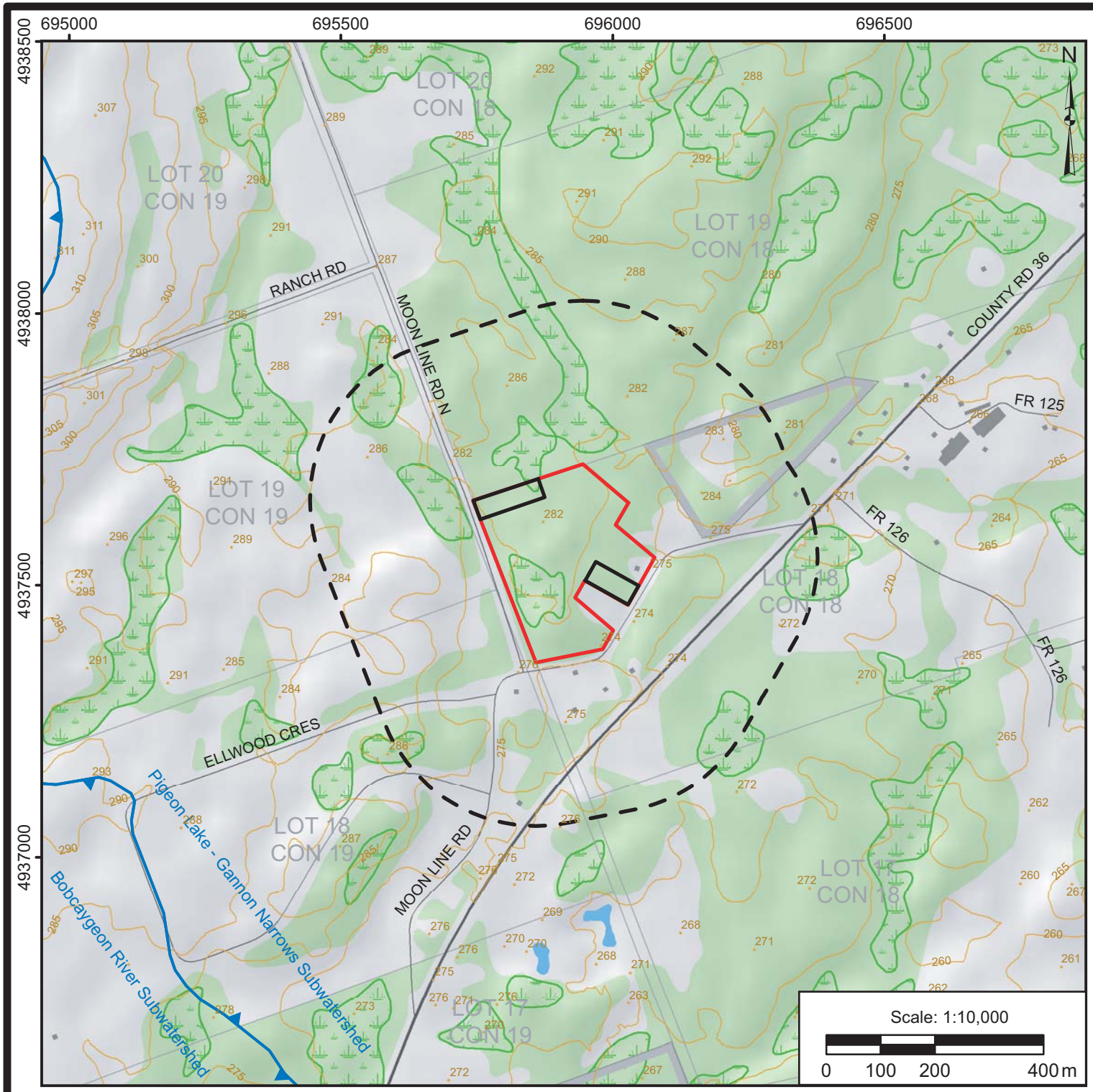
TITLE
General Location

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT # 24-3415

DATE May 2024

FIGURE NO. **1**



Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

- Approximate Property Boundary
- Proposed Lots
- Study Area (300 m)
- Wooded Area
- Waterbody
- Wetland (Unevaluated)
- Watershed Boundary
- Contour (5m Intervals)
- Spot Height (m asl)
- Building (symbol)
- Road
- Aggregate Site
- Geographic Lot Fabric

Notes:
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Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

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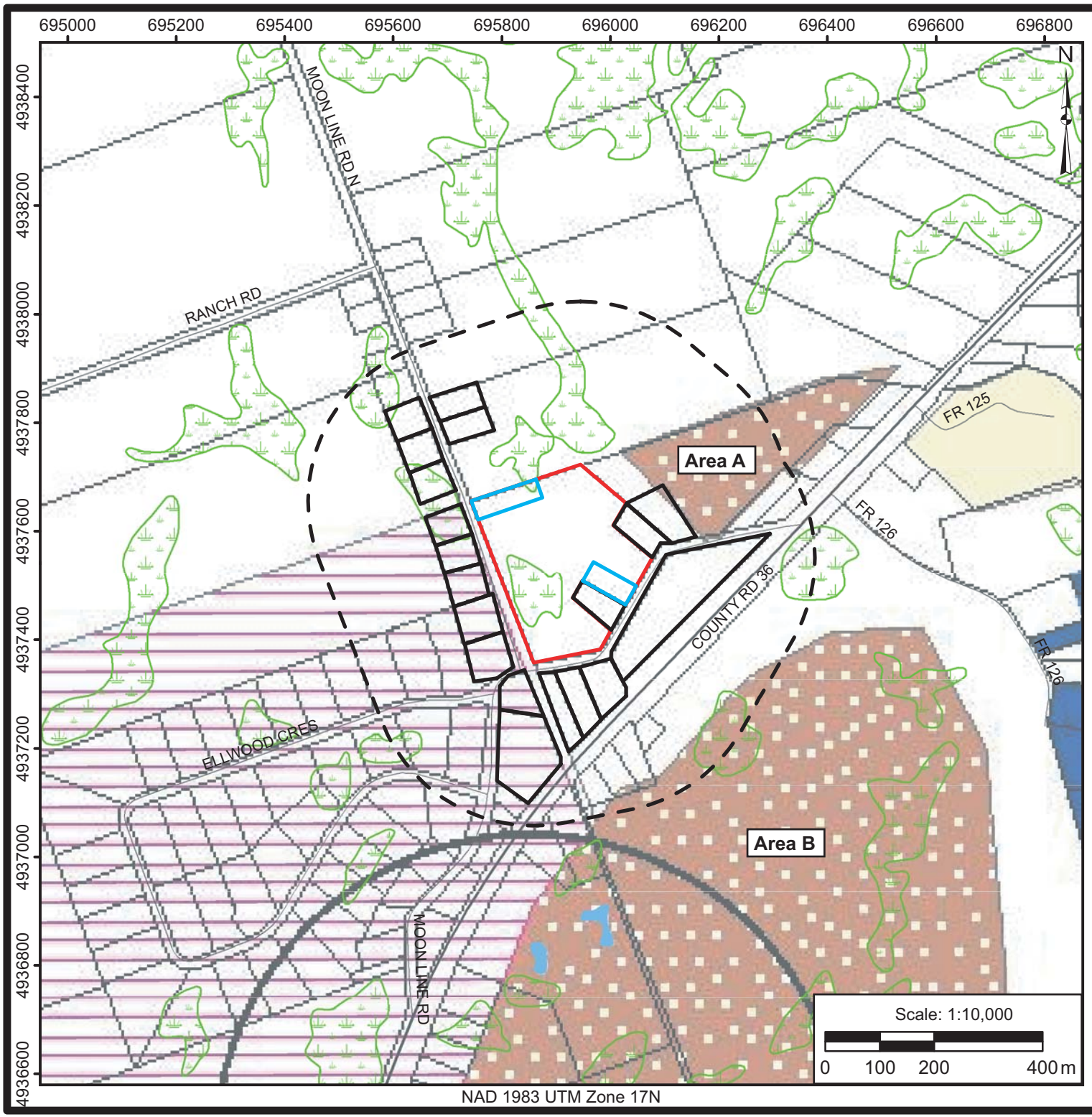
TITLE

Topography and Drainage

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	2
DATE	
May 2024	



Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

- Study Area (300 m)
- Approximate Property Boundary
- Proposed Lots
- Existing Lots
- Wetland (Unevaluated)
- Waterbody

Land Use Designation

- Hamlet
- Industrial
- Aggregate Resource Extraction
- Recreational Dwelling Area
- Rural

Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

Land Use Designation legend provided by Schedule "A1" Land Use & Transportation Plan Harvey from The Township of Galway-Cavendish & Harvey Official Plan (2013)

Imagery provided by Peterborough County Official Plan Mapping (2014)

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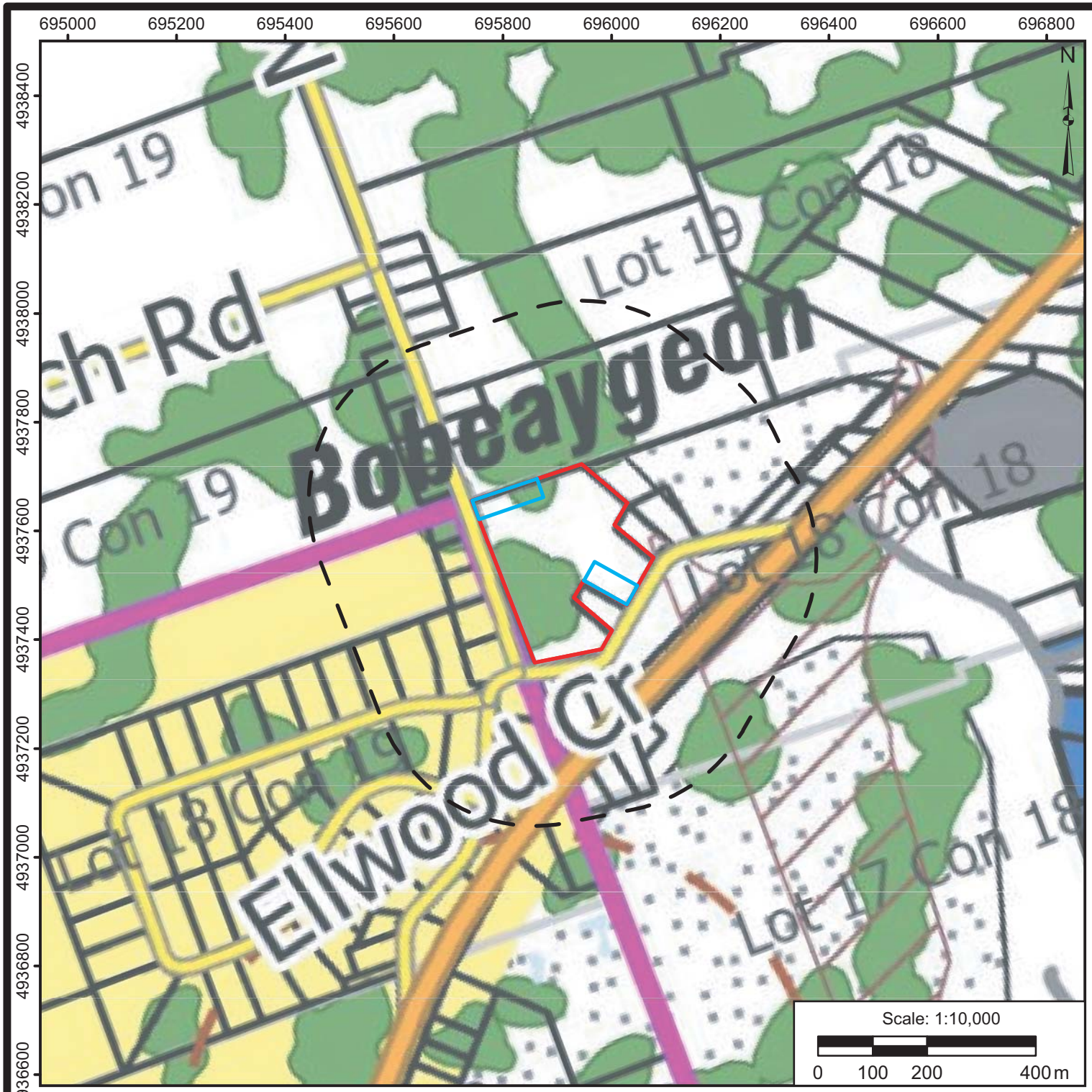
TITLE

Municipal Official Plan Mapping

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	3
DATE	
May 2024	



Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

- Study Area (300 m)
- Approximate Property Boundary
- Proposed Lots
- Existing Lots
- Wetland (Unevaluated)
- Waterbody

Land Use Designation (Map TL-2)

- Employment
- Extractive Industrials
- Natural Core Area
- Rural
- Rural Settlement
- Aggregate Overlay

Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

Imagery provided by Map TL-2 from the Municipality of Trent Lakes Land Use Schedule (2024)

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TITLE

County of Peterborough Official Plan Mapping

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	4
DATE	
May 2024	

NAD 1983 UTM Zone 17N

Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

- Approximate Property Boundary
- Proposed Lots
- Study Area (300m)
- Property Lines

Scale: 1:10,000

0 100 200 400 m

Notes:
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Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

Imagery provided by ESRI (Maxar, 2023)

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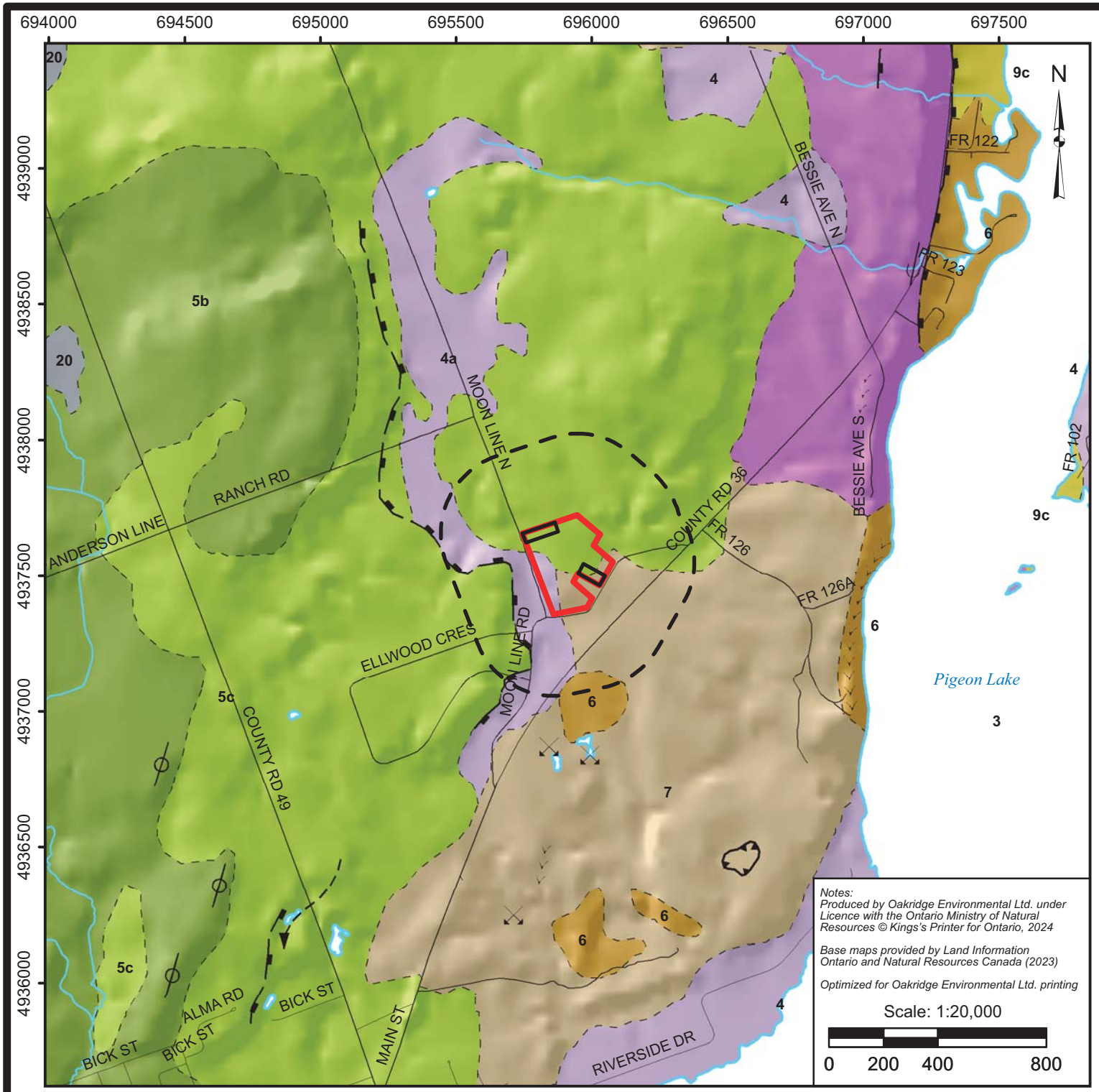
TITLE

Surrounding Land Use

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	5
DATE	
May 2024	



Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

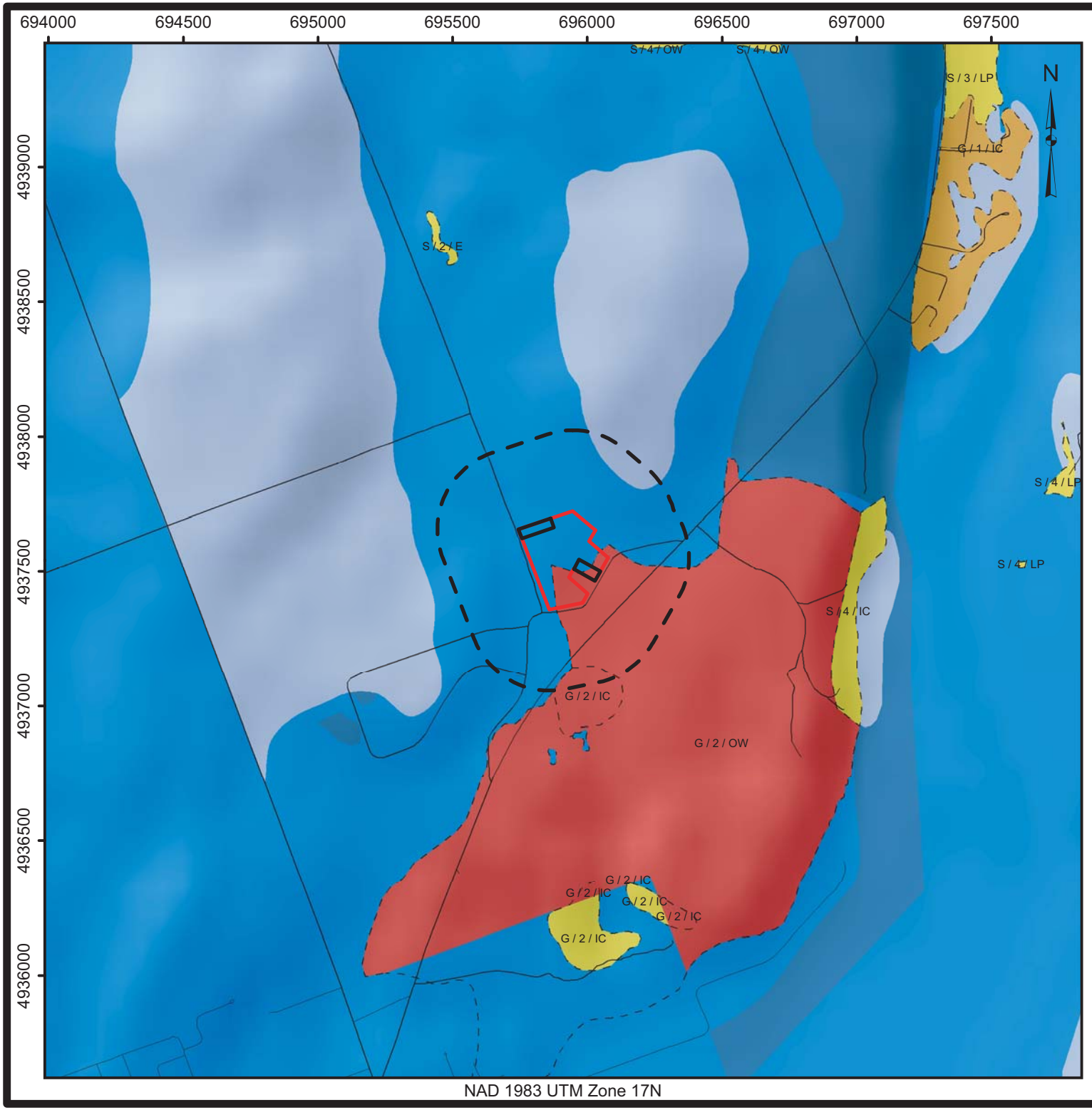
- Approximate Property Boundary
- Proposed Lots
- Study Area (300 m)
- Waterbody
- Watercourse
- 3 — Paleozoic bedrock
- 4 — Paleozoic bedrock-drift complex
- 4a — Paleozoic bedrock-drift complex: Mainly till veneer
- 5b — Glacial Deposits (Till): Stone-poor, carbonate-derived silty to sandy till
- 5c — Glacial Deposits (Till): Stony, carbonate-derived silty to sandy till
- 6 — Ice-contact stratified deposits
- 7 — Glaciofluvial deposits
- 9c — Coarse-textured glaciolacustrine deposits: Foreshore-basinal deposits
- 20 — Organic deposits
- Sand and Gravel Pit
- Drumlin or Drumlinoid Ridges
- Glacial Striae (direction of ice movement known)
- Bedrock Escarpment
- Esker (direction of flow known)
- Meltwater Channel (inferred direction of flow)
- Ice-contact Slope
- Contact (approximate/assumed)

TITLE

Surficial Geology

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	6
DATE	
May 2024	



Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

- Approximate Property Boundary
- Proposed Lots
- Study Area (300 m)
- Contact

Aggregate Classification

- Primary
- Secondary
- Tertiary

Depth to bedrock

- Less than 1 m
- 1 m to 8 m
- 8 m to 15 m

Scale: 1:20,000

0 200 400 800 m

Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

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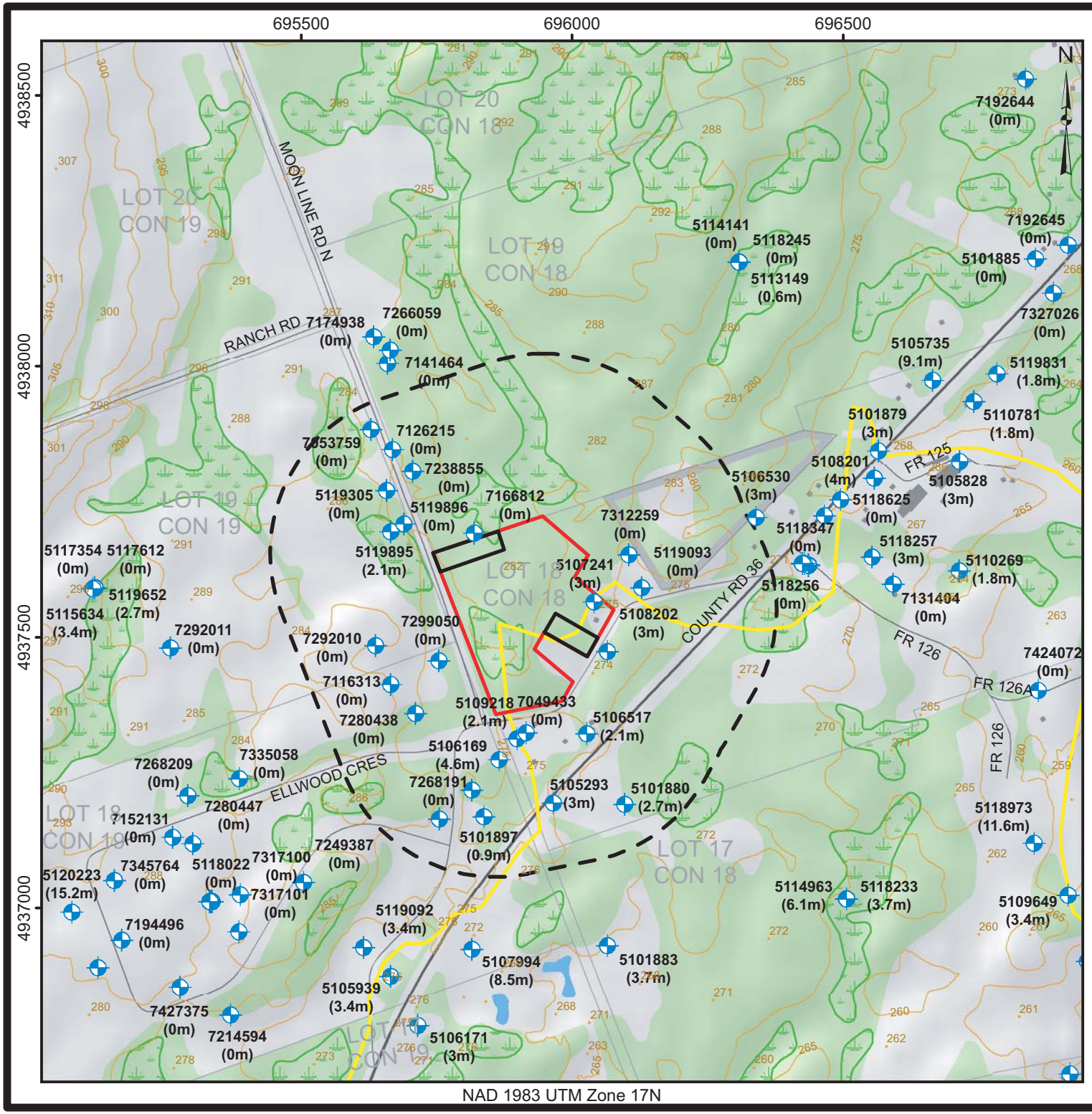
TITLE

Provincial Aggregate Resource Mapping

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	7
DATE	
May 2024	



NAD 1983 UTM Zone 17N

Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough

- Approximate Property Boundary
- Proposed Lots
- Study Area (300 m)
- Primary Aggregate (Provincial Aggregate Resource Mapping)
- Wooded Area
- Waterbody
- Wetland (Unevaluated)
- Contour (5m Intervals)
- Spot Height (m asl)
- Building (symbol)
- Road
- Aggregate Site
- Geographic Lot Fabric
- Well ID (Depth to Bedrock)

Scale: 1:10,000

0 100 200 400 m

Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

Optimized for Oakridge Environmental Ltd. printing

TITLE

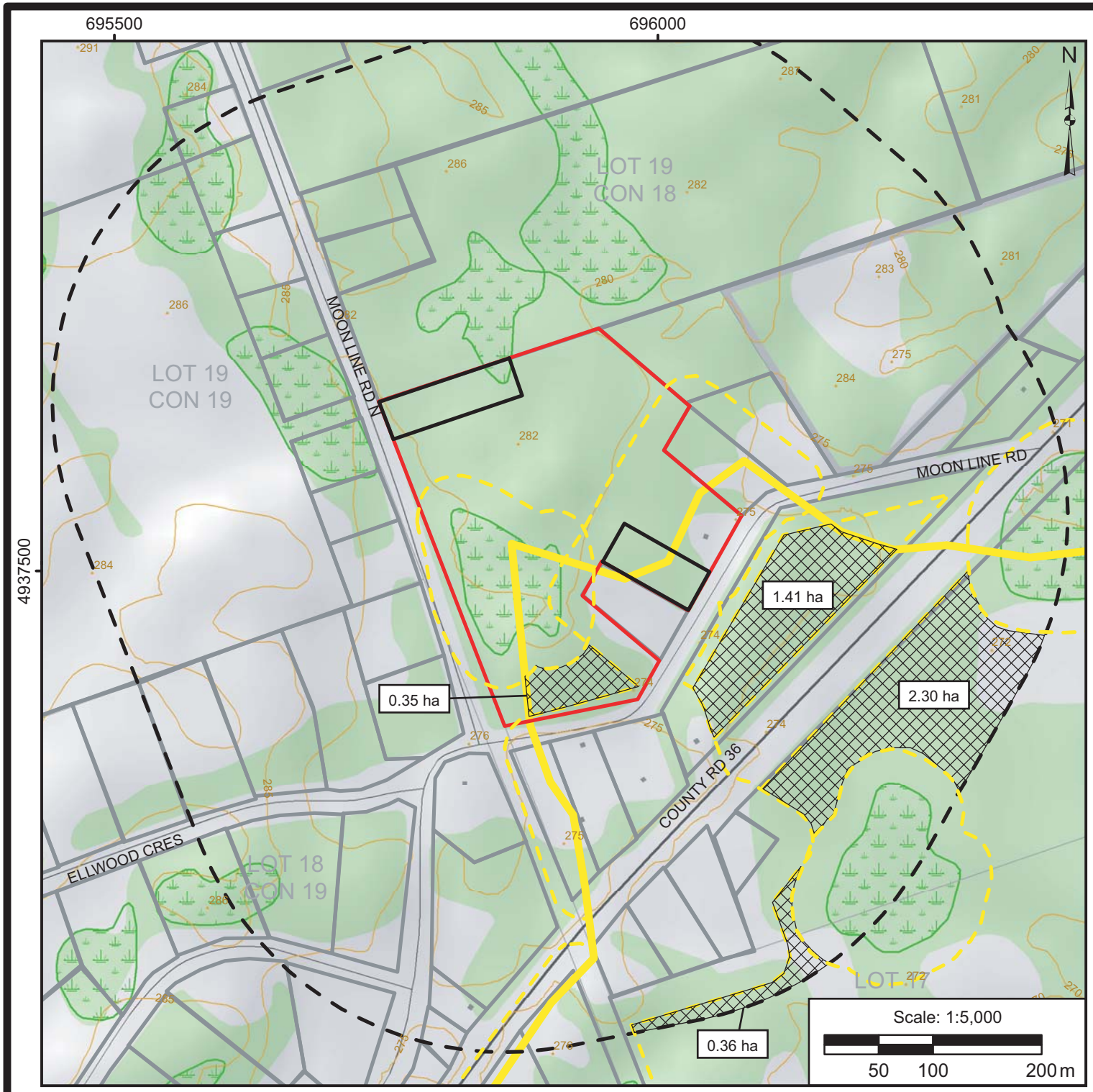
MECP Well Record Locations

ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	8
DATE	
May 2024	

Aggregate Resource Impact Review
Proposed Two (2) Lot Severances
133 Moon Line Road

Part of Lot 18, Concession 18 (Harvey)
Municipality of Trent Lakes,
County of Peterborough



NAD 1983 UTM Zone 17N

- Approximate Property Boundary
- Proposed Lots
- Study Area (300 m)
- Primary Aggregate (Provicial Aggregate Resource Mapping)
- Applicable Setbacks (30 m)
- Potential Pit Areas
- Property Lines
- Wooded Area
- Waterbody
- Wetland (Unevaluated)
- Contour (5m Intervals)
- Spot Height (m asl)
- Building (symbol)
- Road
- Aggregate Site
- Geographic Lot Fabric

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Base maps provided by Land Information Ontario and Natural Resources Canada (2023)

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TITLE

Aggregate Resource Constraint

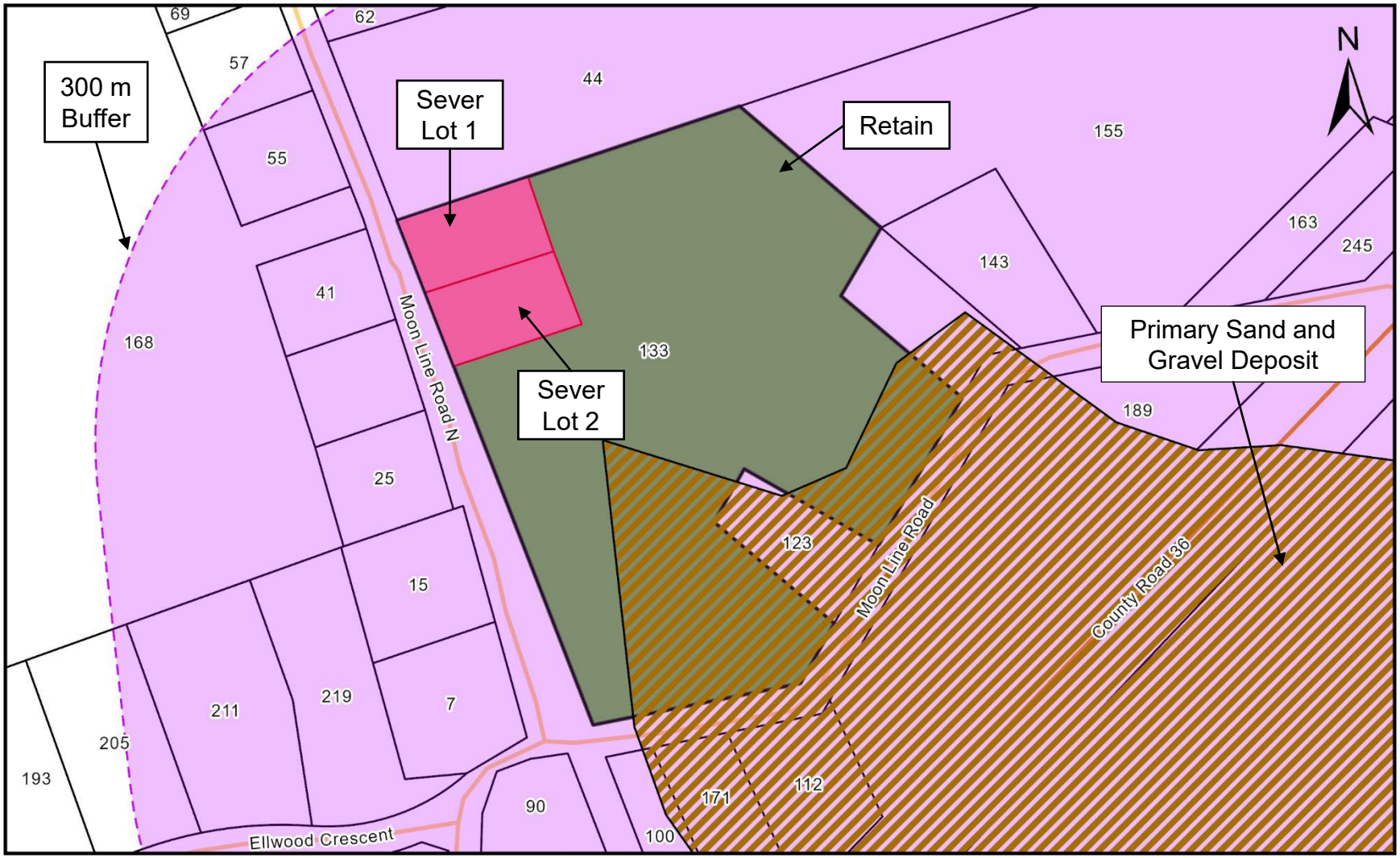
ORE Oakridge Environmental Ltd.
Environmental and Hydrogeological Services

PROJECT #	FIGURE NO.
24-3415	9
DATE	
May 2024	

APPENDIX A

Preliminary Severance Review (PSR) Aggregate Resource Mapping

Roll #1542-010-004-07000
Lot 18, Concession 18 (Harvey)
Godfrey (KMD Planning Inc)
Mineral Aggregate Deposits



Scale (Metric)
1:3,600

APPENDIX B

DRAFT Terms of Reference (MNRF)

Terms of Reference for an Aggregate Study—for Severances

A study is triggered when an application for development occurs within:

- 300 metres of a known unconsolidated deposit (e.g., sand gravel, clay) or a mineral aggregate pit operation; or
- 500 meters of a known bedrock deposit or a bedrock quarry operation.

The applicant should be required to assess the impact of the proposed development on the mineral aggregate resource and the mineral aggregate operations(s). This will require the applicant to provide the following kinds of information and analysis to the approval authority to assess the potential impacts on the aggregate resource.

1. **Introduction—general, policy rationale (relationship to PPS policies) scope of work, site description, existing aggregate use analysis**

2. **Topography and Drainage**

3. **Geological Setting**

4. **Aggregate Resource Mapping**

- The location and type of mineral aggregate resources locates within the planning areas
- Studies carried out on the identification and protection of areas of mineral aggregates located in the planning area
- The areal extent of the deposit(s)
- The type of deposit (e.g., bedrock, sand and gravel, clay)
- The quality of the deposit and its general suitability for use in construction of as an industrial material

5. **Site Inspection**

6. **MOE Well Record Data Review**

7. **Compatibility Analysis**

- Will buildings, structures or incompatible land uses be located directly on top of a known mineral aggregate deposit?
- Will there be land use conflicts resulting from incompatibility of the activities of existing or future aggregate operations and activities?
- Will there be off site land use conflicts resulting from the competing demands of the two land uses (e.g., conflicts in road traffic, cumulative demand/impact on water resources)
- Will there be increased potential for restrictions to the operation of an existing pit or quarry or a new aggregate operation?

8. **Constraint Assessment**

- The size and potential tonnage of the deposit(s)
- Aggregate quality
- Topographic restrictions
- Proximity to existing sensitive uses
- Water table depth
- Proximity to sensitive species or habitats
- Potential economic viability
- Distance to existing licenced or permitted pits or quarries

9. **Mitigation Studies**

- Identification of development restrictions in the zone of influence
- Lot relocation or redesign
- Establishment of building setbacks
- Establishment of landscape or buffer strips
- Establishment of noise attenuation design features
- Avoidance of truck traffic in road design
- Working with the owner or the aggregate resource operator
- Investigate removal of the aggregate prior to development

10. **List of Figures to include:**

- General location plan
- Topography and drainage plan
- Aerial photo plan
- Physiography Map
- Surficial geology map
- Aggregate resource areas
- Site photographs
- MOE well location plan

After collecting the necessary information as part of this study process the planning authority will be in a position to make one of the following four decisions:

- determine that the development will not have any negative impact on the aggregate resource,
- determine that the development has a negative impact on the resource, but these impacts may be overcome by appropriate modifications to the design or construction phases and/or the adoption of appropriate mitigation techniques,
- determine that the development will result in negative impacts that cannot be overcome by planning, design or construction changes, or
- determine there is still insufficient information to determine negative impacts.

APPENDIX C

Well Record Data

31D10E

UTM 17 694082 E

Co 15 R 4449369 68 N

Elev 16 R 18880

Basin 2A

WATER WELL RECORD

The Ontario Water Resources Commission Act

GROUND WATER BRANCH
51 No. 1800
MAY 25 1964
ONTARIO WATER RESOURCES COMMISSION

County or District Peterborough Township, Village, Town or City Harvey

Con. 18 part Lot 18 Date completed 4 (day) May (month) 1964 (year)

[redacted] ress Bobcaygeon, Ont.

Casing and Screen Record

Inside diameter of casing 6¼"

Total length of casing 23'

Type of screen —

Length of screen —

Depth to top of screen —

Diameter of finished hole 6¼

Pumping Test

Static level 12½'

Test-pumping rate 9 G.P.M.

Pumping level 13'

Duration of test pumping 1 hr.

Water clear or cloudy at end of test Clear

Recommended pumping rate 9 G.P.M.

with pump setting of 22 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Clay & small boulders	0	9	23'	fresh
Limestone	9	23		

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 G. Hart & Sons

R.R.1

Address Lenelon Falls Ontario

Licence Number 1202

Name of Driller or Borer GEORGE HART

Address Same as above

Date May 4/64 G. Hart

(Signature of Licensed Drilling or Boring Contractor)

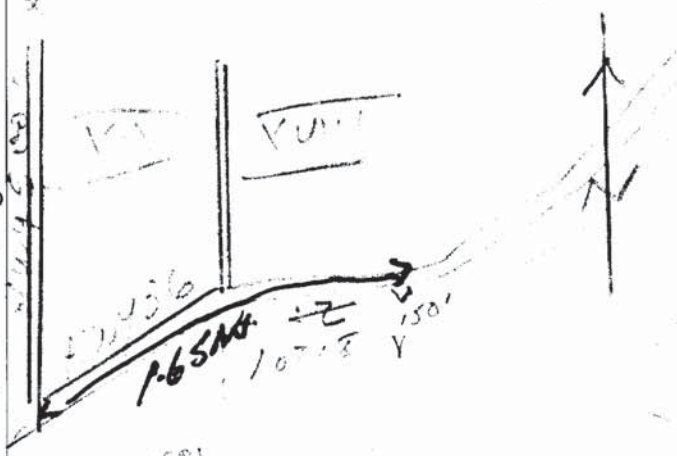
(per M.H.)

Form 7 10M-62-1152

OWRC COPY

Location of Well

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



31D/10E

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

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

11

5105293

MUNICIP. 5701A | CON CON 18

COUNTY OR DISTRICT: Peterborough | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Harvey | CON., BLOCK, TRACT, SURVEY, ETC.: 18 | LOT: 18

[redacted] Box 274, Bobcaygeon

DATE COMPLETED: DAY 13 MO 7 YR 70

UTM: 36970 | RC: 4 | ELEVATION: 0890 | RC: 6 | BASIN CODE: 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
	GRAVEL	BOULDERS	~~Boulders~~	0	10'
GREY			Limestone rock	10'	30'

31 0010 1113 0030 2115

32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER			
0015	1 ☒ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL
[illegible]	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL
20-23	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL
25-28	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL
30-33	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
06	1 ☒ STEEL, 2 ☐ GALVANIZED, 3 ☐ CONCRETE, 4 ☐ OPEN HOLE	188	0	0012
10-11	1 ☐ STEEL, 2 ☐ GALVANIZED, 3 ☐ CONCRETE, 4 ☒ OPEN HOLE			0030

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER | PUMPING RATE: 0004 GPM | DURATION OF PUMPING: 01 HOURS 00 MINS. | WATER LEVELS DURING: PUMPING / RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
010 FEET	025 FEET	010 FEET	010 FEET	010 FEET	010 FEET

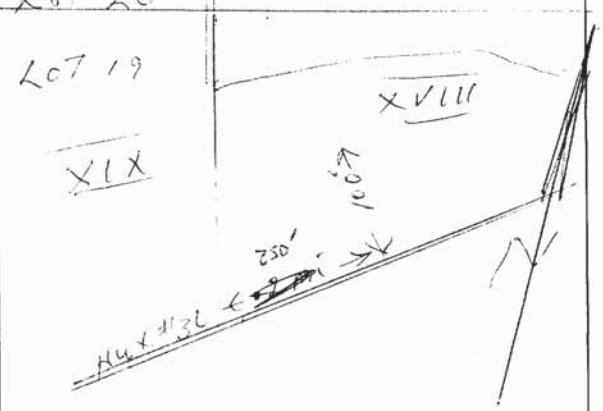
IF FLOWING, GIVE RATE: GPM. | PUMP INTAKE SET AT: 29' FEET | WATER AT END OF TEST: ☒ 1 CLEAR ☐ 2 CLOUDY

RECOMMENDED PUMP TYPE: ☒ SHALLOW ☐ DEEP | RECOMMENDED PUMP SETTING: 029' FEET | RECOMMENDED PUMPING RATE: 0004 GPM.

000.3 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

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

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

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

CONTRACTOR

NAME OF WELL CONTRACTOR: G. Hart & Sons | LICENCE NUMBER: 3588

ADDRESS: R.R.3, Fenelon Falls, Ont.

NAME OF DRILLER OR BORER: Same as above | LICENCE NUMBER: [redacted]

SIGNATURE OF CONTRACTOR: G. Hart | SUBMISSION DATE: DAY 16 MO 01 YR 71

OWRC COPY Per M.H.

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2548 | DATE RECEIVED 190171

DATE OF INSPECTION | INSPECTOR

REMARKS:

J.B.

The Ontario Water Resources Commission Act

WATER WELL RECORD

31D/10E

Water management in Ontario

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

(11) 5106517 | MUNICIP. 5101 | CON. CON | 18

COUNTY OR DISTRICT: PETERBOROUGH | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Harvey | CON., ~~BLOCK, TRACT, SURVEY, ETC.~~: XVIII | LOT 018

[redacted] Stanley Ave Toronto 14 | DATE COMPLETED: DAY 05 MO 07 YR 73

G 37098 | RC 4 | ELEVATION 0890 | RC 6 | BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
Brown	Clay	Stone	Stoney Cley	Nil	7
Grey	Shale			7	10
Grey	LimeStone		Hard	10	21

OWRC 4.7

(31) 00071605/12 | 00010217 | 00021215

(32)

(41) WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0016	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
06 6¼	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0010
06 6¼	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		10	0021 21
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

(61) PLUGGING & SEALING RECORD

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

(71) PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	0004 GPM	02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
006 FEET	006 FEET	006 FEET	006 FEET	006 FEET	006 FEET

1 ☒ PUMPING 2 ☐ RECOVERY

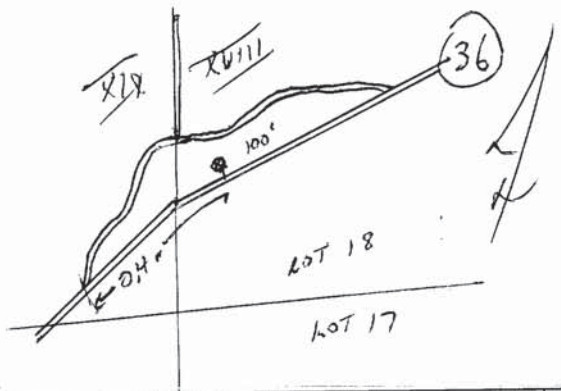
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM.	20 FEET	☒ 1 CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☒ SHALLOW ☐ DEEP	020 FEET	0004 GPM.

008.0 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 9637

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



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

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

METHOD OF DRILLING 1
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: Donald Hart | LICENCE NUMBER: 2515

ADDRESS: RR 3. Fenelon Falls

NAME OF DRILLER OR BORER: Donald Hart | LICENCE NUMBER: 2515

SIGNATURE OF CONTRACTOR: Donald Hart | SUBMISSION DATE: DAY 9 MO 7 YR 73

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2515 | DATE RECEIVED 09 10 73

DATE OF INSPECTION: Aug 21/75 | INSPECTOR: J.B.

REMARKS:

P 100

WI

OWRC COPY

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

31D/10E

Ontario

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

11 | 5107241 | MUNICIP. 5101 | CON. CON | 18

COUNTY OR DISTRICT: Peterborough | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Harvey | CON., BLOCK, TRACT, SURVEY, ETC.: XVIII | LOT: 018

[redacted] Box 568 Bobcaygeon | DATE COMPLETED: DAY 06 MO. 08 YR. 74

37341 | RC 4 | ELEVATION 0895 | RC 4 | BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Clay	Stone	Stoney Clay	Nil	10
Grey	Lime Stone	—	Hard	10	54

OWRC P.1

OWRC 1.5

31 | 0a1060512 | 0a024815

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
00/8	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
06 6	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	Nil	0010
06 6	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		10	24 0024
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER

PUMPING RATE: 0003 GPM | DURATION OF PUMPING: 02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
014 FEET	014 FEET		FEET	FEET	FEET	FEET

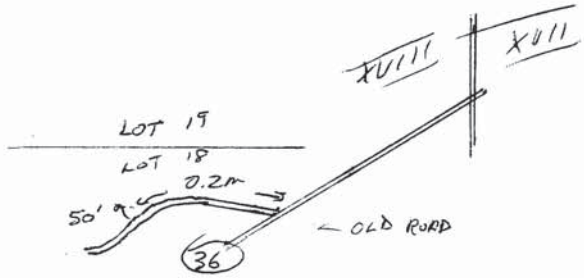
IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: 93 FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☒ SHALLOW ☐ DEEP | RECOMMENDED PUMP SETTING: 023 FEET | RECOMMENDED PUMPING RATE: 0003 GPM

006.0 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 9637

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



FINAL STATUS OF WELL 1

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

WATER USE 01

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

METHOD OF DRILLING 1

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: Donald Hart | LICENCE NUMBER: 25-15-

ADDRESS: R.R. 1. Fenelon Falls

NAME OF DRILLER OR BORER: Donald Hart | LICENCE NUMBER: 25-15

SIGNATURE OF CONTRACTOR: Donald Hart | SUBMISSION DATE: DAY 7 MO. 8 YR. 74

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2515 | DATE RECEIVED 121874 181274

DATE OF INSPECTION: July 7/75 | INSPECTOR: J.B.

REMARKS:

P | WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

Ontario

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

11 | 5108202 | MUNICIP 5101 | CON. CON | 18

COUNTY OR DISTRICT: Peterborough | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Harvey | CON., BLOCK, TRACT, SURVEY, ETC.: 18 GR | LOT: 018

[redacted] Neilson Dr. Otoboca | DATE COMPLETED: DAY 01 MO 09 YR 76

37250 5 0890 6 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Clay	Stone	Stoney Clay	Nil	10
Grey	Shale	—	Shale	10	12
Grey	Lime Stone	—	Hard	12	53

OWRC

31 | 0101060587 | 0012121.7 | 0053215.73

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0053	1 ☐ FRESH 3 ☒ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	NIL	0012
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN (FEET)

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER

PUMPING RATE: 0005 GPM | DURATION OF PUMPING: 02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
030 FEET	030 FEET		FEET	FEET	FEET	FEET

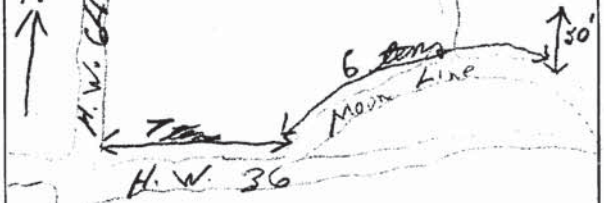
IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: 52 FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 052 FEET | RECOMMENDED PUMPING RATE: 0004 GPM

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL 1	1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL	5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED
WATER USE 01	1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER	5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED
METHOD OF DRILLING 1	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: Donald Hart | LICENCE NUMBER: 2515

ADDRESS: R.R.1 Fenelon Falls

NAME OF DRILLER OR BORER: Donald Hart | LICENCE NUMBER: 2515

SIGNATURE OF CONTRACTOR: Donald Hart | SUBMISSION DATE: DAY 10 MO 9 YR 76

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2515 | DATE RECEIVED 0 110 76

DATE OF INSPECTION | INSPECTOR

REMARKS: P July 19/77 WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

31P/10E

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

(11) 5109218 MUNICIP 5101 CON. CON 1 18

COUNTY OR DISTRICT: [redacted] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Harvey | CON., BLOCK, TRACT, SURVEY, ETC: LOT 12 | LOT: 018

[redacted] 5 King Edward Ave TO. | DATE COMPLETED: DAY 03 MO 11 YR 73

UTM 737100 | RC 5 | ELEVATION 0900 | DC 16 | BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Lgy.	Boulders.			0	7
Lgy.	Limestone			7	25
				[redacted]	

(31) 0007213 0025215

(32)

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0012	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
0023	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
06	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	188	[redacted]	0010
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

(61) PLUGGING & SEALING RECORD

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

(71) PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER | PUMPING RATE: 0002 GPM | DURATION OF PUMPING: 03 HOURS 00 MINS

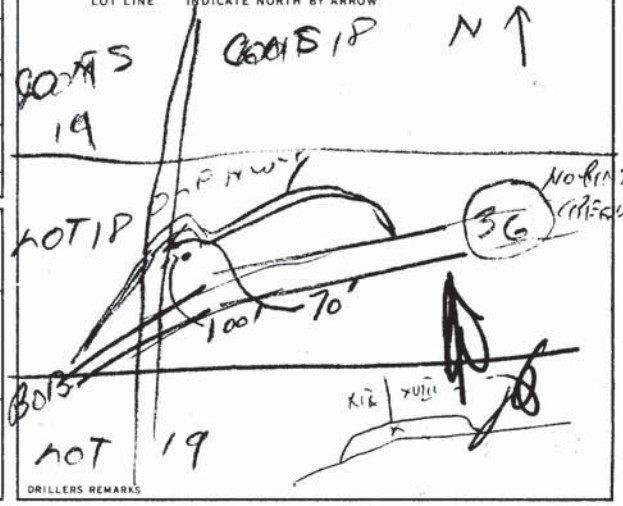
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
006 FEET	008 FEET		[redacted] FEET	23.31 FEET	32-34 FEET	33-37 FEET

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

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP | RECOMMENDED PUMP SETTING: 024 FEET | RECOMMENDED PUMPING RATE: 0001 GPM

LOCATION OF WELL

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



DRILLERS REMARKS

FINAL STATUS OF WELL	1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED
WATER USE 01	1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING ☐ OTHER 9 ☐ NOT USED
METHOD OF DRILLING	1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: FULTON WELL DRILLING | LICENCE NUMBER: 2202
ADDRESS: 21 Mary W. Babcock.
NAME OF DRILLER OR BORER | LICENCE NUMBER
SIGNATURE OF CONTRACTOR: Donald R Fulton | SUBMISSION DATE: DAY 27 MO 11 YR 73

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2202 | DATE RECEIVED 051273
DATE OF INSPECTION | INSPECTOR
REMARKS: PLOTTED JOHN 12/7/74.

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77

Ontario Ministry of the Environment

Well Tag Number (Plate number below)
A029836
A 029836

Well Record
Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only
MUN ___ CON ___ LOT ___

Well Owner's Information and Location of Well Information

[redacted]

Peterborough | Township: Harvey | Lot: 18 | Concession: 18

RR#/Street Number/Name: 205 Moonline Rd.
City/Town/Village: Bobcaygeon
Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 | Zone 17 | Easting 695,898 | Northing 4937,313
Unit Make/Model: Magellan
Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
Black	Topsoil			0	1
Brown	Clay, Stones			1	14
Brown	Limestone			14	22
Gray	Limestone			22	56

Hole Diameter

Depth From	Depth To	Diameter
0	20	8"
20	56	6"

Water Record

Water found at ___ / Kind of Water
39ft ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: UNTESTED
___ 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	Material	Wall thickness	Depth From	Depth To
Casing				
6¼	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.188	+2	20
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		

No Casing or Screen
☒ Open hole — 20 — 56

Test of Well Yield

Pumping test method: Pump

	Draw Down Time min	Draw Down Water Level	Recovery Time min	Recovery Water Level
Static Level		9.4		
1	1	10.5	1	19.7
2	2	12.0	2	19.5
3	3	12.3	3	19.4
4	4	12.5	4	19.2
5	5	12.6	5	19.1
10	10	13.3	10	18.6
15	15	13.8	15	18.3
20	20	14.3	20	17.9
25	25	14.7	25	17.6
30	30	15.00	30	17.4
40	40	15.8	40	17.0
50	50	16.5	50	16.6
60	60	17.0	60	16.2

Pump intake set at - (metres) 53ft
Pumping rate - (litres/min) 12 gpm
Duration of pumping 5 hrs + ___ min
Final water level end of pumping 22.3ft metres
Recommended pump type. ☐ Shallow ☒ Deep
Recommended pump depth. 53ft metres
Recommended pump rate. 8gpm (litres/min)
If flowing give rate - (litres/min)
If pumping discontinued, give reason.

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	20	Bentonite slurry	

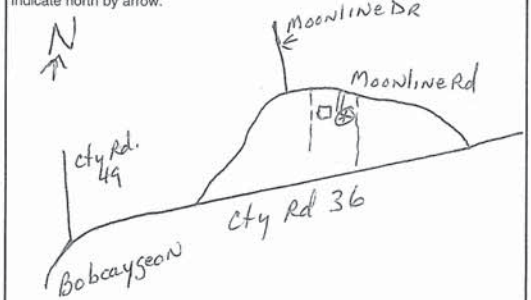
Method of Construction
☒ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

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

Location of Well

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



Audit No. Z 59057
Date Well Completed: 2007 04 12
Was the well owner's information package delivered? ☐ Yes ☐ No
Date Delivered

Well Contractor/Technician Information

Name of Well Contractor: G.Hart & Sons Well Drilling Ltd.
Well Contractor's Licence No.: 2662
Business Address (street name, number, city etc.): Box 850, Fenelon Falls, ON
Name of Well Technician (last name, first name): Rochetta Mike
Well Technician's Licence No.:
Signature of Technician/Contractor: X [signature]
Date Submitted

Ministry Use Only

Data Source
Contractor: 2662
Date Received: SEP 19 2007
Date of Inspection
Remarks
Well Record Number

0506E (08/2006)

Ministry's Copy

Cette formule est disponible en français

APPENDIX D

NHIC Mapping

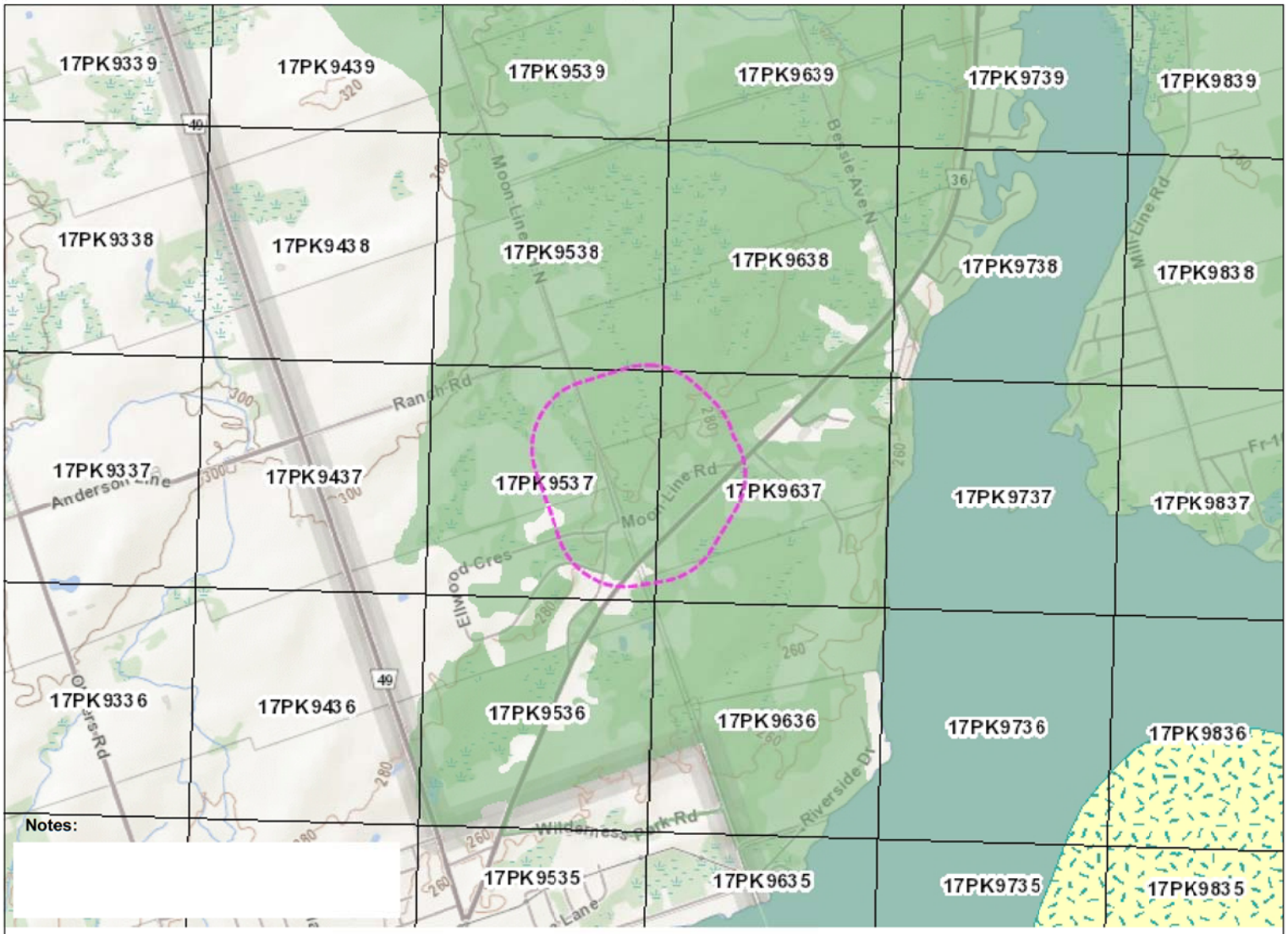
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

NHIC Map

Map created:4/24/2024



Legend

- NHIC 1 Km Grd
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Conservation Reserve
- Provincial Park
- Natural Heritage System

1.3 0 0.65 1.3 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

NHIC Data

To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1053092	WILDLIFE CONCENTRATION AREA	Mixed Wader Nesting Colony	Colonial Wading Bird Colony	SNR			17PK9538	
1053092	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	S4B	THR	THR	17PK9538	
1053092	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	17PK9538	
1053092	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	17PK9538	
1053091	WILDLIFE CONCENTRATION AREA	Mixed Wader Nesting Colony	Colonial Wading Bird Colony	SNR			17PK9537	
1053091	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	S4B	THR	THR	17PK9537	
1053091	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	17PK9537	
1053091	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	17PK9537	
1053102	WILDLIFE CONCENTRATION AREA	Mixed Wader Nesting Colony	Colonial Wading Bird Colony	SNR			17PK9638	
1053102	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17PK9638	
1053102	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	S4B	THR	THR	17PK9638	
1053102	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	17PK9638	
1053102	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	17PK9638	
1053101	WILDLIFE CONCENTRATION AREA	Mixed Wader Nesting Colony	Colonial Wading Bird Colony	SNR			17PK9637	
1053101	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17PK9637	

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1053101	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	S4B	THR	THR	17PK9637	
1053101	SPECIES	Eastern Milksnake	Lampropeltis triangulum	S4	NAR	SC	17PK9637	
1053101	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	17PK9637	
1053101	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	17PK9637	