SITE EVALUATION REPORT (UPDATE)

Zoning By-law Amendment

3 Gonnsen Trail, Municipality of Dysart et al.

9 July 2025

TERRASTORY
environmental consulting inc.

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3 Gonnsen Trail, Municipality of Dysart et al.

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1 INTRODUCTION

1.1 Study Background

Terrastory Environmental Consulting Inc. (hereinafter "Terrastory") was retained by Madlo Enterprises (hereinafter "the Applicant") to prepare this Site Evaluation Report (SER) in connection with a Zoning By-law Amendment (ZBA) application at 3 Gonnsen Trail (hereinafter "Subject Property") in the Municipality of Dysart et al. The Subject Property is an approximately 1.3-hectare (3.2 acre) parcel with frontage on Drag Lake and accessed via a private driveway from Murrays Road. The Subject Property is vacant (i.e., no built structures) and in a naturalized state with various deciduous and coniferous forest types and variable topography with some steep slopes towards the shoreline. The location of the Subject Property within its broader landscape setting is shown in **Figure 1**.

The Subject Property is designated Waterfront Residential Area per Schedule A (Map 5, Dudley Township) under the Municipality's Official Plan (OP) and is further subject to Special Policy Area LSP-4 (Blueberry Trail, Drag Lake). There are no significant natural features mapped within the Subject Property per Schedule B (Natural Heritage Features and Areas) under the Municipality's OP. The Subject Property is further designated "Rural Land" per Schedule A under the County of Haliburton's OP. Drag Lake is considered "not at capacity" for Lake Trout (*Salvelinus namaycush*) per Schedule L (Natural Heritage – Lakes) under the County's OP. The Subject Property is specially zoned Waterfront Residential Type 5 with exception 3 (WR5L-3) under the Municipality's Zoning By-law, which mandates a minimum shoreline setback of 45 m for structures and leaching beds and a reduced minimum lot area (1.2 ha).

A Site Evaluation Report (SER) was previously completed in 2012 as part of a subdivision application which facilitated the creation of the Subject Property ("Lot 3"). The SER included an extended shoreline setback recommendation extending 45 m for the Subject Property ("Lot 3"), ostensibly to minimize the potential for erosion given on-site slopes. This 45 m setback was incorporated into the site-specific WR5L-3 zone.

Through the ZBA application considered herein, the owner wishes to construct the dwelling within the 45 m setback outside of the 30 m setback. The Municipality has requested the submission of an updated SER to support the ZBA application. A general Terms of Reference (ToR) for the SER was provided by planning staff (K. Orsan) on 17 May 2024 (see **Appendix 1**). In particular, the SER must be undertaken consistent with Section 17.5.3 of the Municipality's OP and address the following items:

1. Slopes and specifically address area of use limitation, show building envelopes and septic systems.
2. Soil depth, type, and moisture
3. Shoreline and upland vegetation
4. Overland and/or storm drainage
5. Fish and wildlife habitat.
6. Natural and cultural heritage protection.
7. If policies of Section 4 & 5 of the Municipal Official Plan can be met, and what mitigations measures may be required to do so.

8. Site Plan showing proposed dwelling, septic system location as confirmed in the environmental report.

1.2 Study Purpose

The purpose of this SER is to present a biophysical characterization of the Subject Property and Adjacent Lands (i.e., those within 120 m of the Subject Property) as a means to demonstrate (as required under Section 17.5.3 of the Municipality's OP) that the lands are suitable for the proposed development and that development will not be unduly constrained by site limitations. The scope and approach of this study address the reporting requirements of the ToR (see **Appendix 1**) and Section 17.5.3 of the Municipality's OP. It is understood that this report will form part of the ZBA application package to be submitted for consideration by municipal council.

2 APPROACH AND METHODS

This study is composed of five (5) discrete components which are bulleted below and further described in the following sections.

1. **Acquire background biophysical information and mapping** available for the local landscape surrounding the Subject Property (see **Section 2.1**).
2. **Conduct site assessments and ecological surveys** to field-verify the accuracy of the acquired background biophysical information and collect additional biophysical information as necessary (see **Section 2.2**).
3. **Assess the significance** of the biophysical information collected and natural features identified within the context of applicable natural heritage and environmental policies.
4. **Predict the effects** of the application on the identified significant natural features and natural environment, particularly the net effects once mitigation measures and technical recommendations are implemented (see **Section 2.3**).
5. **Determine whether the proposed application addresses applicable natural heritage and environmental policies** at municipal, provincial, and federal levels (see **Section 2.4**).

2.1 Background Biophysical Information Assessment

This study is supported by background biophysical information and mapping acquired and reviewed from a variety of sources which are listed below in **Table 1**.

Table 1. Background Biophysical Information Acquired and Reviewed.

Type of Information Acquired	Description
Ortho-rectified Aerial Photographs	• 2009, 2012, 2013, 2015, 2019, 2020, 2024
Natural Feature Mapping	• Municipality of Dysart et al. Official Plan (office consolidation December 2024), including Schedules A and B. • County of Haliburton Official Plan (2017), including Schedules A and L. • Land Information Ontario (LIO) accessed via the "Make a Map: Natural Heritage Areas" web-based platform (last accessed 22 April 2025).

Type of Information Acquired	Description
Physiographic Resource Mapping and Datasets	• Ontario Base Mapping produced by MNR (1:10,000) with 5 m contours. • Provincial Digital Terrain Model (LiDAR-derived). • Ontario Well Records (publicly-available). • Surficial Geology of Southern Ontario (Ontario Geological Survey 2010). • Physiography of Southern Ontario (Chapman and Putnam 1984).
Ecological Resource Mapping and Datasets	• Natural Heritage Information Centre (NHIC) database accessed via the "Make a Map: Natural Heritage Areas" web-based platform (squares: 17QK0592, 17QK0591, 17QK0491, 17QK0492, 17QK0391, 17QK0392, 17QK0291, 17QK0292; last accessed 22 April 2025). • iNaturalist "(NHIC) Rare species of Ontario" project (last accessed 22 April 2025). • Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005 (Cadman et al. 2007) and OBBA 3 (2021-2023) existing data from the Birds Canada-NatureCounts database (square: 17QK09). • eBird (last accessed 22 April 2025). • iNaturalist "Herps of Ontario" project and Ontario Reptile & Amphibian Atlas (last accessed 22 April 2025). • Ontario Butterfly Atlas database (square: 17QK09; last accessed 22 April 2025). • iNaturalist "Ontario Odonata" project (last accessed 22 April 2025). • Atlas of Ontario Odonata. • Bumble Bee species distribution maps from iNaturalist and Bumble Bee Watch. • Aquatic Species at Risk Maps produced by Fisheries and Oceans Canada (last accessed 22 April 2025). • Atlas of the Mammals of Ontario (Dobbyn 2005).
Other Information	• Site Evaluation Report for the Gonnsen Property by RiverStone Environmental prepared in 2012.

2.2 Site Assessment and Surveys

The acquired background information per **Table 1** helped direct site assessments carried out by Terrastory Ecologists on 11 June 2024 (A. McCrum) and 30 June 2024 (T. Knight). **Table 2** below indicates the primary assessments/surveys performed during each site visit, weather conditions, and time on-site.

Table 2. Site Assessments and Ecological Surveys performed on the Subject Property.

Date of Site Assessment	Assessments/Surveys Performed	Terrastory Staff	Weather Conditions	Time On-site
11 June 2024	Site Reconnaissance; Breeding Bird Survey #1; vascular plant survey, ELC, preliminary Habitat Mapping	A. McCrum	Air temperature: 9 - 13°C, Beaufort wind 0-2, cloud cover 0 – 25%, no precipitation.	7:50am – 11:20am
30 June 2024	Breeding Bird Survey #2, vascular plant survey, ELC, soils assessment.	T. Knight	Air Temperature 15°C, Beaufort wind 0-2, cloud cover 75 – 100%, no precipitation.	8:00am – 9:30am

The site assessments and surveys centred on characterizing the land use (e.g., historical development patterns, existing built features, land maintenance, etc.), physiographic (e.g., topography, drainage, surface water features, etc.), and ecological (e.g., vegetation, wildlife, habitats, etc.) conditions and features of the Subject Property and (where appropriate) Adjacent Lands (i.e., those within 120 m of the Subject Property). All land-use, physiographic, and ecological information described for Adjacent Lands was collected from either current aerial photographs or observations from inside the Subject Property and/or publicly-accessible areas (e.g., rights-of-way, etc.). The locations and boundaries of significant natural features and/or habitats were recorded on-site with a high-accuracy GPS supported by representative photographs.

In addition to collecting general biophysical information, the following targeted assessments (i.e., feature- or species-specific surveys) were undertaken:

- **Vegetation Mapping according to Ecological Land Classification (ELC):** Vegetation communities on the Subject Property were characterized and mapped according to Great Lakes-St. Lawrence Ecosite Fact Sheets (Wester et al. 2015). Vegetation communities were initially identified based on current aerial photographs and then verified and refined (as necessary) on-site. ELC mapping was scaled to the finest level of resolution deemed appropriate. Vegetation communities mapped on Adjacent Lands were delineated predominantly via aerial photograph interpretation.
- **Vascular Plant Survey:** Vascular plants were recorded based on a comprehensive area search ("wandering transects") within naturally-occurring (i.e., non-planted) or naturalizing areas of vegetation. Particular effort was paid to areas with the greatest potential to support significant vascular plants (i.e., designated Species at Risk, provincially rare, etc.) and areas with the greatest potential for impact based on the proposed development plan. Nomenclature and common names for the recorded vascular plant species are generally consistent with the Southern Ontario Vascular Plant Species List (Bradley 2013) except where a name change has more recently been adopted by NHIC.
- **Breeding Bird Surveys according to the Ontario Breeding Bird Atlas Protocol:** Two rounds of breeding bird surveys were conducted in accordance with the Ontario Breeding Bird Atlas (OBBA) protocol (Bird Studies Canada et al. 2001). Surveys occurred within the appropriate season (May 24–July 10), time of day (between dawn and approximately 5 hours after dawn), and weather conditions (no rain, wind speed ≤3 on the Beaufort Wind Scale). While the OBBA protocol recommends that stations be situated at least 300 m apart (to avoid double counting), the stations established herein were often closer together to ensure more comprehensive survey coverage. Surveys occurred for a minimum duration of 10 minutes at each station. Species were also recorded during comprehensive area searches ("wandering transects") that were completed while traveling between each station.
- **Aquatic Habitat Assessment:** Fish and aquatic habitat conditions within all on-site surface water features were assessed, particularly along the shoreline. Information collected included substrate type, cover/structure, evidence of erosion, substrate type, shoreline bank stability, and aquatic and riparian vegetation, along with other relevant characteristics.

2.3 Effects Assessment and Mitigation

The potential ecological effects of an application can be understood spatially as zones that radiate outward from the direct project footprint (e.g., building envelope, etc.) and associated areas of site alteration (e.g., grading, etc.). While the greatest potential for effects typically occurs within areas directly subject to development or disturbance, surrounding areas may also be affected indirectly. Such indirect effects can include light or noise pollution that affects wildlife communities on

Adjacent Lands, or degradation of water quality within a downstream receptor resulting from sediment runoff during construction.

The following five-pronged approach is employed herein to assess the effects of an application on significant natural features and species and (where warranted) the natural environment in general:

1. **Scope** the effects assessment to environmental components that warrant consideration. The effects assessment herein centres principally on significant natural features and species (i.e., those that have policy significance within the planning jurisdiction), but may also consider general environmental effects where warranted.
2. **Identify the predicted direct and indirect effects** of the application on each significant natural feature or species during all project stages (i.e., pre- to -post-development) in the absence of mitigation. Direct effects are those where there is a cause-effect relationship between a proposed activity and an effect on a natural feature or species (e.g., tree clearance within a building footprint, etc.). Indirect effects result when an activity is linked to a direct effect through a chain of foreseeable interactions or steps.
3. **Evaluate the significance** of the predicted effects for each environmental component based on their attributes (i.e., spatial extent, magnitude, timing, frequency, and duration) and likelihood (i.e., high, medium, low).
4. Where the potential for negative effects are anticipated, **recommend ecologically-meaningful mitigation measures** to avoid such impacts first (where possible), and where impacts cannot be avoided to minimize, compensate, and/or enhance as appropriate.
5. **Identify the predicted residual or net effect**s of the application assuming implementation of all recommended mitigation measures.

Per step 4, mitigation measures are offered where the potential for negative effects are anticipated to a degree that cannot be supported given the prevailing policy context. Whenever possible, Terrastory works iteratively with the project team as a means to identify development plan options that avoid negative effects first; options that would minimize or mitigate such negative effects are less preferred and considered secondarily. In general, avoidance measures that have already been incorporated into the application or project design are not duplicated as technical recommendations herein. The effects assessment and any recommended mitigation measures are provided in **Section 5**.

2.4 Natural Heritage Policy Context

There is an overlapping municipal, provincial, and federal policy framework respecting the protection of natural heritage features and areas across central Ontario. These requirements include objectives, policies, and directives which are principally contained in federal and provincial statutes, regulations, policy statements, Official Plans, and guidance documents. The overarching natural heritage policy framework directing development activities within the Subject Property is outlined below in **Table 3**. A determination of whether the application considered herein addresses such policies is provided in **Section 6**.

Table 3. Applicable Natural Heritage Policies.

Level of Government	Natural Heritage or Environmental Policy Requirements
Municipal	Municipality of Dysart et al Official Plan (office consolidation December 2024). County of Haliburton Official Plan (2017).
Provincial	Provincial Planning Statement 2024, pursuant to the *Planning Act*, R.S.O. 1990, c. P.13, including: • Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (MNR 2010). • Significant Wildlife Habitat Technical Guide (MNR 2000). • Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (MNRF 2015). • Significant Wildlife Habitat Mitigation Support Tool (MNRF 2014). *Endangered Species Act* (ESA), S.O. 2007, c. 6, including: • Ontario Regulation 230/08 – Species at Risk in Ontario List • Ontario Regulation 242/08 – General • Ontario Regulation 832/21 – Habitat *Fish and Wildlife Conservation Act*, S.O. 1997, c. 41.
Federal	*Fisheries Act*, R.S.C. 1985, c. F-14, including: • Fish and Fish Habitat Protection Policy Statement (DFO 2019). *Migratory Birds Convention Act*, S.C. 1994, c. 22, including: • Migratory Birds Regulations, C.R.C., c. 1035.

3 EXISTING BIOPHYSICAL CONDITIONS

The following is a description of the biophysical features and conditions of the Subject Property, which are shown spatially on **Figure 2**. Representative photographs are provided in **Appendix 2**.

3.1 Land-use and Landscape Setting

The Subject Property is situated along the southern shoreline of Drag Lake. The immediate local landscape consists of scattered waterfront lots set within a continuously forested landscape. Several aggregate pits are in operation about a kilometre (km) to the southwest. The village of Haliburton is approximately 6.5 km westward.

3.2 Physical Setting

3.2.1 Bedrock, Surficial Geology, and Soils

The bedrock underlying the Subject Property forms part of the Central Metasedimentary Belt forming part of the Grenville Province (Ontario Geological Survey 2011). The Subject Property overlaps with a geospatially narrow band of carbonate metasedimentary rocks such as marbles and other calcareous rocks, which differ from adjacent granitic plutonic rocks which characterize much of the southern Canadian Shield.

The Subject Property also forms part of the Algonquin Highlands physiographic region (Chapman and Putnam 1984) which is defined by shallow to very shallow, coarse to loamy soils interspersed with occasional Precambrian bedrock exposures. The Algonquin Highlands are broadly dome-

shaped overall, sloping down to the Georgian Bay Fringe physiographic region on its western and southern flanks. The soils tend to be sandy, rocky, and acidic. There are occasional valleys comprised of outwash sand and gravel (representing pathways and outlets of glacial meltwater) and occasional wetlands and other swampy ground in hollows. Surficial geological mapping indicates the Subject Property contains a mixture of thin drift over bedrock and ice-contact sand deposits (Ontario Geological Survey 2010).

A soils investigation within the Subject Property revealed generally deeper soil coverage (>60 cm) over the underlying bedrock with no discernible exposures. Beneath the thin humus layer, on-site soils were found to comprised of silty sand. The B horizon contained a reddish-brown hue imparted by iron and typical of humo-ferric podzols (enriched by iron and aluminum) found throughout the southern Canadian Shield.

Publicly-accessible water well records near the Subject Property indicate the bedrock is likely about 1 m or so beneath the surface within the Subject Property, though bedrock depths are expected to be variable based on topographic position and other factors.

3.2.2 Topography and Drainage

The Subject Property encompasses a wide topographic gradient (i.e., ridge top, slope, and lakeshore), with the main slope trending in a predominantly northeast-southwest direction. The topographic survey (see **Appendix 3**) indicates a total of 23.5 m of overall relief, extending from 379.5 metres above sea level (masl) at the ridge top in the eastern portion of the Subject Property to 356 masl along the shoreline. Portions of the on-site slopes are moderate to steep, although there is a narrow, flat terrace extending between the toe and intervening crest of two separate slopes represented by the location of the private access driveway (see **Figure 2**). Photographs of the existing private driveway and flat terrace are found in **Appendix 2**. Topographic contours and direction of overland drainage are also shown on **Figure 2**.

There are no drainage features (e.g., watercourses, swales) within the Subject Property. It is expected that rainfall generally infiltrates into the relatively shallow, sandy soils or runs off as sheet flow into Drag Lake.

3.3 **Ecological Setting**

3.3.1 Vegetation Communities

The Subject Property is comprised of various deciduous and coniferous forest types.

The topographic plateau which barely extends into the central-east portion of the Subject Property is comprised of a maple hardwood community (G058Tt) having developed on coarse, dry-fresh soils. This vegetation community is dominated by Sugar Maple (*Acer saccharum*) alongside American Basswood (*Tilia americana*), Ironwood (*Ostrya virginiana*), and Red Oak (*Quercus rubra*). The herbaceous layer contains White Trillium (*Trillium grandiflorum*) and False Soloman's Seal (*Maianthemum racemosum*) alongside various upland sedges such as Star-like Sedge (*Carex radiata*).

Along the upper and mid-slopes is a White Pine – Mixedwood (G054Tt) containing copious Eastern White Pine alongside the hardwood species found in G058Tt along with White Birch (*Betula papyrifera*) and Large-toothed Aspen (*Populus grandidentata*). Typical understory shrubs include Canada

Fly Honeysuckle (*Lonicera canadensis*), Northern Bush Honeysuckle (*Diervilla lonicera*), and Choke Cherry (*Prunus virginiana*).

The lower slopes are comprised of a hemlock-cedar conifer woodland (G013Tt) comprised primarily of Eastern Hemlock (*Tsuga canadensis*) and Eastern White Cedar (*Thuja canadensis*), alongside Red Oak, Green Ash (*Fraxinus pennsylvanica*), and Sugar Maple. Northern Bush Honeysuckle and Beaked Hazel (*Corylus cornuta*) are occasional in the shrub layer, with understory species including Large-leaved Aster (*Eurybia macrophylla*), Bracken Fern (*Pteridium aquilinum*), and Canada Mayflower (*Maianthemum canadense*).

3.3.2 Breeding Birds

Breeding bird surveys were undertaken on 11 June and 30 June 2024. A total of 22 bird species were recorded during the breeding bird surveys (with 3 additional bird species recorded incidentally during other field activities). The assemblage and abundance of birds recorded generally reflects the prevailing structure and composition of on-site vegetation communities and variable habitats of the Study Area (e.g., forest, lake, nearby disturbed open areas). The full survey results indicating each bird species' breeding status by survey station can be found in **Appendix 4**. The locations of significant bird species recorded are shown on **Figure 3**. A general summary of the breeding bird communities present within the Study Area is provided below.

Bird species observed along the shoreline of Drag Lake included Bald Eagle (*Haliaeetus leucocephalus*), Common Loon (*Gavia immer*), and Herring Gull (*Larus argentatus*), which was observed with no breeding evidence.

The forested community had several possible and probable breeders including American Robin (*Turdus migratorius*), Black-capped Chickadee (*Poecile atricapillus*), Blue Jay (*Cyanocitta cristata*), Broad-winged Hawk (*Buteo platypterus*), Cedar Waxwing (*Bombycilla cedrorum*), Chestnut-sided Warbler (*Setophaga pensylvanica*), Brown Creeper (*Certhia americana*), Downy Woodpecker (*Dryobates pubescens*), Eastern Wood-pewee (*Contopus virens*), Golden-crowned Kinglet (*Regulus satrapa*), Great Crested Flycatcher (*Myrarchus crinitus*), Ovenbird (*Seiurus aurocapilla*), Pine Warbler (*Setophaga pinus*), Red-eyed Vireo (*Vireo olivaceus),* Veery (*Catharus fuscescens*), Yellow-bellied Sapsucker (*Sphyrapicus varius*), and Yellow-rumped Warbler (*Setophaga coronata*).

One (1) significant bird species were recorded during the targeted breeding bird surveys: Eastern Wood-pewee. The documented location of this species is shown in **Figure 2** with its habitat requirements described in **Section 4**.

3.3.3 Aquatic Habitat Assessment

Drag Lake is located upstream of the Drag River and Spruce Lake in the broader Drag River Quaternary Watershed. Drag Lake is a coldwater lake with a maximum depth of 51 m and water clarity up to 6.5 m. The lake is considered a "reservoir lake" to maintain the Trent-Severn Waterway water levels.

According to the provincial Aquatic Resource Area (ARA) dataset, several sportfish species are known to be present in Drag Lake including Brown Trout (*Salmo trutta*), Cisco (*Coregonus artedi*), Lake Trout (*Salvelinus namaycush*) and Smallmouth Bass (*Micropterus dolomieu*), which are expected to likely be introduced into the lake historically. Other smaller-bodied or forage fish known to be present

include Bluntnose Minnow (*Pimephales notatus*), Brook Stickleback (*Culaea inconstans*), Finescale Dace (*Chrosomus neogaeus*), Pumpkinseed (*Lepomis gibbosus*), and Rock Bass (*Ambloplites rupestris*). Feeder fish include Longnose Sucker (*Catostomus catostomus*) and White Sucker (*Catostomus commersonii*). Drag Lake is a Lake Trout lake per Schedule B of the Municipality of Dysart et al. OP, although is not considered a "Lake Trout Lake at Capacity".

The nearshore environment fronting the shoreline of the Subject Property is predominately forested with limited groundcover (i.e. pine needle litter). Limited riparian plant species were present, excluding Eastern White Cedar (*Tsuga occidentalis*), and no emergent or submergent aquatic vegetation was observed. At the northwestern portion of the shoreline the bank was slightly undercut with substrate consisting of large to medium sized cobbles (60%), gravel (30%), and sand (10%). Continuing along the northern shoreline, the substrate contained boulders (20%) in addition to an increased number of cobbles (70%) and a decrease in gravel (15%) and sand (5%). There was an overall increase in slope along much of the shoreline and the banks were noted to be fairly stable.

The shoreline was mapped as Type 2 (important) (i.e., rather than Type 1 or "critical") in the original SER prepared in 2012; this determination aligns with the fish habitat assessment contained herein and thus the previous Type 2 habitat classification has been verified and confirmed by Terrastory. According to Schedule B of the Municipality of Dysart et al OP, Critical Fish Habitat (i.e., Type 1) has been mapped at South Bay where a watercourse and wetland are present; however, this area is greater than 100 m southwest of the Subject Property.

3.3.4 Incidental Wildlife Recorded

Efforts to incidentally document wildlife were made during all site visits by Terrastory in 2025. White-tailed Deer (*Odocoileus virginianus*) tracks were documented, along with a Red Fox (*Vulpes vulpes*).

4 SIGNIFICANCE ASSESSMENT

Based on the biophysical information collected during background information gathering (per **Table 1**) and the results of Terrastory's site assessments (per **Sections 2.2** and **3**), the following is a list of significant natural features/habitats and/or potential natural hazards within the Subject Property and may constrain development:

- Portions of the Subject Property is comprised of **moderate to steeply sloping areas**.
- Drag Lake provides **fish habitat** for a diverse fish community, including Lake Trout.
- A screening and assessment of candidate or confirmed Significant Wildlife Habitat (SWH) is provided in **Appendix 5**. Overall, the proposed development is not expected to negatively impact SWH, a conclusion that aligns with the previous SER prepared in 2012.
- A screening and assessment of Endangered and Threatened species is provided in **Appendix 6**. Overall, the proposed development is not expected to negatively impact any Endangered or Threatened species (or their habitat), provided that the mitigation measures recommended in **Section 5** below are adhered to.

5 EFFECTS ASSESSMENT AND MITIGATION

The purpose of this SER Update is to present a biophysical characterization of the Subject Property and Adjacent Lands to demonstrate (as required under Section 17.5.3 of the Municipality's OP) that

the lands are suitable for the proposed development and that development will not be unduly constrained by site limitations. The potential for adverse effects on the natural environment and natural heritage features are considered in light of the proposed reduction in the shoreline setback for the residence and accessory structure from 45 m (as permitted by current zoning) to 30 m (as proposed through the ZBA).

Several natural features and species of interest were documented (or may occur) within the Subject Property pursuant to the assessments presented in **Section 4** and associated appendices. The following effects assessment provides an evaluation of the potential for the ZBA application to result in negative effects to such environmental components and site constraints and offers technical recommendations to mitigate such effects where warranted. Certain technical recommendations offered herein apply to several natural features and/or species simultaneously; as such, all technical recommendations should be read and considered in their entirety. The baseline or existing conditions against which the application is assessed are treated as the state of the Subject Property at the time of the site assessments. The effects assessment herein is based on the site plans provided in **Appendix 8**.

5.1 Proposed Development Plan

As-of-right development permissions for the Subject Property allow for the construction of a dwelling and septic system a minimum of 45 m from the shoreline of Drag Lake. This setback was recommended through a previous SER prepared in 2012 by others. This 45 m setback for what was then "Lot 3" was recommended due to "steep slopes adjacent to the shoreline" (p. 41 of the original SER). The original SER included slope steepness mapping in Figure 3 which appears to derive from a characterization of the "geophysical setting" of the Subject Property using "Ontario Geological Survey Mapping, topographic and Ontario Base Maps (OBM), soils mapping, aerial photography, available ANSI report (Brunton 1990), and wetland evaluations".

The slope steepness mapping contained in Figure 3 of the original SER by others does not appear to have been prepared using a site-specific topographic survey or precise on-site verification. Slopes on the Subject Property as reviewed by Terrastory and indicated on the topographic survey (see **Appendix 3**) were shown to be moderate to steep in places, but also differ meaningfully from what was indicated in the original SER by others. In particular, a flat terrace or bench along which the existing access driveway is centred (and where the residence is proposed) is neither shown precisely in the slope mapping nor described in the original SER by others. It was also found that portions of the Subject Property are in fact quite steep along the 45 m shoreline setback in certain areas (see **Figure 2**), suggesting that the 45 m setback recommended in the original SER did not fully restrict the residence beyond certain steep slope areas. Overall, while the original SER provided a reasonable approximation of on-site slopes, the more precise delineation as shown in the topographic survey and described herein (see also **Appendix 2** and **Appendix 3**) reveals a distinct terrace which may be suitable for construction beyond the minimum 30 m setback from Drag Lake.

The flat terrace or bench in which the dwelling is proposed is relatively narrow in width. On this basis, Terrastory recommended that the project Civil Engineer (Duke Engineering) incorporate a review of the slope from a geotechnical perspective to further demonstrate that the development as proposed is suitable and presents no additional risk of erosion beyond what would be expected by developing consistent with existing as-of-right permissions. The accompanying Stormwater Management and Servicing Report (SMSR) includes this slope assessment and concludes that "the development is not expected to pose any risk to the lake through stormwater or erosion" provided

that the recommendations contained therein are implemented. The SMSR is provided in **Appendix 7**.

The proposed development plan is provided in **Appendix 8**. It is Terrastory's understanding that certain components of the proposed development plan are either preliminary (e.g., driveway alignment, leaching bed location) or not currently available (e.g., shoring treatment, location of the soak-away pit) and will be finalized as part of a future site plan agreement (should the ZBA application be approved). The technical recommendations provided herein will therefore steer future development.

5.2 Feature-based Effects Assessment and Technical Recommendations

As described above in **Section 5**, the proposed development has been directed to a generally flat terrace/bench (referred to as a "plateau" in the SMSR), whereas the proposed ancillary structure (garage) is also sited on generally level ground. While the proposed building locations are suitable, additional measures are recommended herein to minimize the potential for during or post-construction erosion issues and maintain the existing ecological, hydrological, and topographical conditions of the Subject Property.

5.2.1 Steep Slopes and Fish Habitat

Where development and/or site alteration activities are proposed adjacent to waterbodies that support fish and/or aquatic organisms, adverse effects may occur via the following pathways (amongst others):

- Alterations to surface water and/or groundwater contributions to the watercourse from construction (e.g., dewatering, etc.), grading that modifies the existing topography or drainage, and/or increased coverage of impervious surfaces (e.g., roads, roofs, etc.);
- Increased sediment loadings and/or nutrient enrichment within the watercourse via runoff exiting from development areas during and post construction. This may alter water quality and/or degrade habitat quality via increased turbidity, eutrophication, contamination by toxic substances, changes in pH, etc.
- Introduction of invasive species including aquatic organisms and aquatic plants.
- Increased human activity (i.e., encroachment) in the vicinity of the watercourse which may result in bank compaction, exploitation of fish, dumping, etc.

Vegetated buffers help to maintain healthy shorelines and nearshore environments by stabilizing soil, reducing the erosive velocity of runoff, and encouraging infiltration. As runoff flow rates are attenuated by vegetated buffers, deleterious materials (e.g., suspended sediments, nutrients, and pollutants) settle out before entering any downgradient waterbodies. Shoreline setbacks are important for various ecological, hydrological, and geomorphological reasons, and taken collectively help to avoid water quality impairment, protect fish habitat, regulate water temperatures, stabilize slopes and banks, offer terrestrial and aquatic habitat, and provision wildlife connectivity/movement corridors. Where steeper slopes are present, there is an added risk of water quality impairment resulting from the increased erosive potential of water flowing downgradient.

Based on the above, Terrastory offers the following recommendations to maintain the buffering function of the on-site shorelands:

- **The proposed residence and garage will be restricted a minimum of 30 m from the high-water mark of Drag Lake, excepting any decks attached to the residence which may not extend closer than 27 m to the shoreline (per zoning).**

- **Any footpaths to the shoreline shall consist of permeable materials (e.g., native substrate, mulch), be minimized in width (≤ 2 m), and will follow an alignment that minimizes vegetation disturbance and erosion.**

- **Existing vegetation (including trees, shrubs, and understory herbaceous cover) within 30 m of the shoreline of Drag Lake and on steep slopes will be retained (beyond the proposed attached deck and shoreline access footpath).**

- **Native tree/shrub plantings will be installed in the "Shoreline Buffer Enhancement Area" indicated on Figure 3.**

The proposed driveway and leaching bed will remain beyond the 45 m setback (as permitted under existing zoning).

The project Civil Engineer has confirmed that the proposed building location (see **Appendix 8**) is suitable and does not pose added risk from a stormwater or erosion perspective (see **Appendix 7**). On this basis, the following measures are recommended to carry forward relevant mitigation measures contained in the SMSR:

- **All relevant recommendations contained in the Stormwater Management and Servicing Report will be implemented.**

- **Roof leaders/downspouts shall be directed away from the shoreline and be discharged into soak away pits (or equivalent low-impact development option, as determined by a qualified professional).**

It is understood through review of the SMSR that a shoring system is needed to stabilize the slope upgradient of the proposed dwelling. It is further understood based on discussions with the project Civil Engineer that the shoring treatment will be determined and designed at the site plan stage. On this basis, the following recommendations are provided to direct finalization of the future shoring treatment:

- **Any necessary shoring will minimize alteration of the existing slope and associated vegetative conditions to the maximum extent practicable.**

- **Any necessary vegetation disturbance along steep slopes will be addressed through restoration including native tree/shrub plantings and placement of native seed mix (as necessary).**

During construction it is anticipated that the proposed development areas will contain exposed soils, which are inherently unstable and have a greater potential for runoff into adjacent areas (including downgradient Drag Lake) during rainfall events. The most effective erosion and sediment control

system emphasizes the prevention of erosion first, minimizes sediment transport off-site through a multi-barrier approach, and involves regular inspection and maintenance. To protect Drag Lake from construction-related impacts, the following measures are recommended:

- **Erosion and Sediment Control (ESC) measures (e.g., installation of silt fence) will be incorporated into the final development plans forming part of the site plan agreement, and will include the following minimum items (amongst others, as deemed necessary):**
    - **Schedule work to avoid weather conditions which increase the potential for erosion and sedimentation (i.e., rain, strong wind, etc.).**
    - **Exposed soils will be restricted to the smallest area for the shortest period of time.**
    - **Sediment fence will be installed prior to the commencement of site preparation and other construction-related activities.**
    - **Sediment fence will fully enclose the proposed areas of development or disturbance, be installed properly (e.g., trenched in, etc.), inspected regularly (i.e., daily, following storm events, etc.), and repaired immediately when necessary (e.g., breaches eliminated, sediment accumulations removed, etc.).**
    - **Any necessary stockpiles or temporarily stored topsoil, fill, or aggregate material will be piled as low as practicable and isolated by sediment fence.**
    - **Locate all fuels, construction materials, and other potentially deleterious substances (if needed on-site) a minimum of 30 m from the high-water mark of Drag Lake and away from steep slopes. Minimize storage of such materials on-site.**
    - **Contractor will be prepared to immediately deploy spills response equipment (e.g., absorption pads, etc.) if necessary. All spills will be reported to the Ontario Spills Action Centre (1-800-268-6060) as soon as possible.**
    - **Non-biodegradable erosion and sediment control materials (including accumulated sediment if any) will be removed once construction is complete and disturbed areas are stabilized.**

Terrastory's soil assessment has confirmed that the prevailing soil texture on-site is consistent with other soils found commonly across the southern Canadian Shield, which are suitable for septic installation (also confirmed in the original SER). The proposed leaching bed has been conceptually sited well beyond 45 m from the shoreline of Drag Lake. It is unknown at this time whether the proposed septic system will require imported soils to establish a raised bed and achieve Ontario

Building Code standards. Given the above, Terrastory recommends the following in the context of the proposed septic system:

- **The replacement septic system will be sited a minimum of 45 m from the high-water mark of Drag Lake.**
- **The septic system will promote uniform distribution of septic effluent across the leaching bed, through (for example) use of a dosing system or equivalent technology.**
- **Any imported soil required to construct the septic system will be coarse-textured (i.e., sandy) and must have a demonstrated ability to retain phosphorus (i.e., typically a minimum of 500 mg phosphorus per kg of soil).**
- **Final location of the septic system is to be confirmed by a licensed installer and should conform to the other overlapping recommendations provided herein.**
- **The replacement septic system will be inspected a minimum of once every 3 to 5 years to confirm proper function and ascertain need for pumping.**

5.2.2 Habitat of Endangered and Threatened Species

Per the assessment in **Appendix 6** a total of six (6) Endangered bat species are considered to have a possible likelihood of occurrence on the Subject Property given their habitat associations and current distribution in southern Ontario:

1) Little Brown Myotis (*Myotis lucifugus*)
2) Northern Myotis (*Myotis septentrionalis*)
3) Tri-colored Bat (*Perimyotis subflavus*)
4) Eastern Red Bat (*Lasiurus borealis*)
5) Hoary Bat (*Lasiurus cinereus*)
6) Silver-haired Bat (*Lasionycteris noctivagans*)

Overall, the Subject Property provides generalized roosting and feeding habitat for Endangered bats, consistent with other abutting properties and those in the wider landscape. Adherence to standard mitigation measures for bats is considered sufficient to avoid "damage or destruction" of habitat as defined in the *Endangered Species Act*. On this basis, the following recommendations are offered to protect Endangered bats:

- **All necessary tree removals will be completed outside the primary bat activity period (i.e., to be completed between October 1 and March 31). If limited tree removal is required during the restricted timing window, consult a qualified ecologist and/or MECP for further direction.**
- **If construction activities occur during the active bat season (i.e., April 1 and September 30), work will be restricted to daylight hours only and the use of artificial lighting will be avoided.**

- **Any lighting incorporated into the final building designs should be "dark-sky friendly" and directed downward (i.e., towards the ground) to the extent practicable.**

Certain Threatened herpetofauna, particularly Blanding's Turtle (*Emydoidea blandingii*) and Eastern Hog-nosed Snake (*Heterodon platirhinos*), also occur within the local landscape but are unlikely to occupy the area within or immediately adjacent to the proposed development envelopes (see **Appendix 6**).

5.2.3 Other Natural Environment Considerations

Some vegetation removal (i.e., woody and herbaceous vegetation) is required to facilitate development. To further minimize potential adverse effects to the natural environment and wildlife during construction, the following measures are recommended:

- **All necessary vegetation removal (e.g., trees, meadow vegetation) will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and March 31). Should minor vegetation removal be proposed during the restricted timing window within readily searchable habitat types, a bird nesting survey will be undertaken to confirm the presence or absence of nesting birds or bird nests within or adjacent to the areas subject to vegetation clearance. The bird nesting survey is to take place within 48 hours of vegetation removal.**

- **Incorporation of Bird-Friendly Guidelines into the residence design such as those published in City of Toronto's "Best Practices for Bird-Friendly Glass" (or equivalent standards) should be considered at detailed design.**

- **Any Landscape Plans prepared as part of the development approval should incorporate species native to the local landscape.**

- **All vehicles and machinery (i.e., construction equipment) entering the Subject Property during construction shall follow relevant best practices for reducing the spread of invasive species outlined in the Clean Equipment Protocol for Industry (Halloran et al. 2013).**

5.2.4 Summary of Technical Recommendations

All technical recommendations provided in **Section 5.2** are reiterated in **Appendix 9**.

6 APPLICABLE NATURAL HERITAGE AND ENVIRONMENTAL POLICIES

The following sections summarize the various municipal, provincial, and federal environmental policies that may apply to the proposed development plan and describe how the recommendations provided in this SER Update will address these policies (where applicable).

6.1 Municipality of Dysart et al. Official Plan (December 2024 office consolidation)

The Municipality's OP is a legal document prepared as required under section 14.7(3) of the *Planning Act*. An OP sets out goals, objectives, and policies that direct and manage land-use and future development activities and their effects on the social and natural environment of a municipality. Provincial plans that offer direction on matters of provincial interest are implemented principally through the Municipality's OP. Provided herein is a description of relevant environmental and natural heritage policies contained within the Municipality's OP and an assessment of whether the ZBA application addresses such policies.

The Subject Property is designated Waterfront Residential Area per Schedule A (Map 5, Dudley Township) under the Municipality's OP and is further subject to Special Policy Area LSP-4 (Blueberry Trail, Drag Lake). There are no significant natural features mapped within the Subject Property per Schedule B (Natural Heritage Features and Areas) per the Municipality's OP.

A summarized and condensed list of key natural heritage provisions of the Municipality's OP that pertain to the ZBA application considered herein is provided below.

- **Policy 5.1.2 (Lakes and Rivers):** Development in shorelands is setback to preserve its natural and visual characteristics and conserve natural features. In general, the minimum setback for most lots created after 11 March 2004 is 30 m.
- **Policy 5.2.2 (Lake Trout Lakes):** Table 1 indicates that Drag Lake is a "Not at Capacity" Lake Trout lake.
- **Policy 5.3.4 (Significant Natural Heritage Features):** Significant natural heritage features in the Municipality include:
    - Significant habitat of endangered and threatened species
    - Critical fish habitat
    - Provincially significant wetlands
    - Wetlands indicated on the County of Haliburton wetland mapping
    - Significant wildlife habitat (certain SWH types only)
    - Significant ANSIs
- **Policy 5.3.4.3 (Where Development May be Permitted):** Development may be permitted in the habitat of species of conservation concern (an SWH type) where it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.
- **Policy 5.3.4.4 (Adjacent Lands):** Provides "Adjacent Lands" distances for significant natural features.
- **Policy 9.1.2 (Areas of Use Limitation):** Shorelands with slopes of 25% or more, eroding/unstable slopes, and/or water tables within 1.5 m of the surface (including organic soils/wetlands) are considered "Areas of Use Limitation". Development within or along "Areas of Use Limitation" on existing lots of record can be considered where supported by a Site Evaluation Report.
- **Policy 17.5.3 (Site Evaluation Report):** outlines the information which must form part of a Site Evaluation Report (as contained herein).

This SER Update satisfies all relevant information that must be contained within an SER. The conceptual development plan (see **Appendix 8**; to be finalized at site plan stage) achieves a minimum 30 m setback from the high-water mark of Drag Lake. Critical fish habitat and provincially

or County significant wetlands are absent, while no negative impacts to any SWH types are anticipated.

While the proposed development must be supported by a reduction in the shoreline setback from 45 m to 30 m, it is shown herein (see **Section 5**) that the original SER lacked site-specific topographic information (i.e., topographic survey) and otherwise did not clearly document the presence of a flat terrace/bench area outside the 30 m shoreline setback. The results of the accompanying SWSR (see **Appendix 7**) shows how development can proceed without posing risks to stormwater runoff or erosion, provided that all technical recommendations outlined therein are implemented. It is understood that the development designs will be finalized as part of a future site plan agreement (should the ZBA be approved).

Provided that Terrastory's recommended mitigation measures (summarized in **Appendix 9**) are carried out in full, it is concluded that the proposed development envelopes are suitable and that the proposed development is not unduly constrained by site limitations or natural heritage constraints.

6.2 County of Haliburton Official Plan (2017)

The Subject Property is designated "Rural Land" per Schedule A under the County of Haliburton's OP. The County's site evaluation and natural heritage policies are overall consistent with those contained in the Municipality's OP as described in **Section 6.1**. Provided that Terrastory's technical recommendations (summarized in **Appendix 9**) are implemented in full, it is concluded that the proposed development envelopes are suitable and that the proposed development is not unduly constrained by site limitations or natural heritage constraints.

Implementation of the restriction on vegetation removal within 30 m of the shoreline (outside of the immediate envelope of the proposed dwelling/deck) will also serve to demonstrate consistency with the County's Shoreline Tree Preservation By-law (No. 3505).

6.3 Provincial Planning Statement 2024, pursuant to the *Planning Act*, R.S.O. 1990, c. P. 13

The Provincial Planning Statement (PPS) is promulgated under the authority of the *Planning Act* and came into effect on 20 October 2024, replacing the previous PPS that came into effect on 1 May 2020. The PPS provides direction to municipalities on land-use matters of provincial interest and sets the policy framework for regulating the use and development of land. Municipal OP's must be consistent with the PPS. Per its preamble, the PPS *provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment*.

The principal PPS policies that apply to natural heritage protection are outlined in section 4.1. While recognizing that the natural heritage protection framework is not intended to limit the ability of agricultural uses to continue (Policy 4.1.9), the PPS instructs that *natural features and areas shall be protected for the long term* (Policy 4.1.1) and that their diversity and connectivity be *maintained, restored or, where possible, improved* (Policy 4.1.2). In Ecoregion 5E the PPS separates significant features into three categories:

1) Those in which development and site alteration are not permitted, including 1) Provincially Significant Wetlands and 2) Significant Coastal Wetlands (Policy 4.1.4);
2) Those in which development and site alteration are not permitted unless it can be demonstrated that no negative impacts on the significant natural feature and/or its functions

will occur, including: 1) Significant Wildlife Habitat, 2) Significant Areas of Natural and Scientific Interest, 3) Non-significant Coastal wetlands, and 4) Adjacent Lands (Policy 4.1.5 and 4.1.8).

3) Those in which development and site alteration are not permitted except in accordance with federal/provincial requirements, including: 1) fish habitat (Policy 4.1.6) and 2) habitat of Endangered and Threatened Species (Policy 4.1.7).

In considering the aforementioned PPS policies, it has been determined that the proposed development plan addresses relevant natural heritage provisions of the PPS for the following reasons:

- Per **Section 4** of this report, no Significant Wetlands, Coastal Wetlands, or Areas of Natural or Scientific Interest, are present within the Subject Property or Adjacent Lands.
- Per **Section 5.2** and **Appendix 5** of this report, no negative impacts to any candidate or confirmed Significant Wildlife Habitat are anticipated (given implementation of other overlapping technical recommendations).
- Per **Section 5.2** and **Appendix 6** of this report, Fish Habitat and Endangered/Threatened species habitat will be protected in accordance with provincial and federal requirements.

6.4 Provincial *Endangered Species Act*, S.O. 2007, c. 6

The *Endangered Species Act* (ESA) is administered by MECP and protects designated Endangered and Threatened species in Ontario from being "killed" or "harmed" (Section 9) or having their habitat "damaged" or "destroyed" (Section 10). "Habitat" is defined in Subsection 2(1) as a "dwelling-place" (and immediately surrounding area) for animals, the "critical root zone" for vascular plants, and for other species (e.g., bryophytes, lichens) "an area on which any member of a species directly depends in order to carry on its life processes". Activities that constitute habitat damage and/or destruction can only proceed subject to the requirements of Section 17 or (in limited circumstances) an activity registration under O. Reg. 242/08.

The ESA will be replaced by the recently enacted *Species Conservation Act* (SCA) once proclaimed into force at a later date. Until that time, the statutory requirements of the ESA (as described above) remain in effect.

A detailed assessment of potential and confirmed Endangered and Threatened habitat within the Subject Property is provided in **Appendix 6**. Per this assessment, and provided that relevant technical recommendations outlined in **Section 5.2** are implemented in full, it has been determined that the proposed development plan is consistent with the species and habitat protection provisions of the ESA.

6.5 Federal *Fisheries Act*, R.S.C. 1985, c. F-14

The amended federal *Fisheries Act* (Bill C-68) received Royal Assent in June 2019 while the updated fish and fish habitat protection provisions came into force in August 2019. Subsection 34.4(1) of the amended *Fisheries Act* prohibits all work, undertaking, or activity from causing the death of fish (other than fishing). Subsection 35(1) requires that project activities not result in the "*harmful alteration, disruption or destruction of fish habitat*" (HADD) unless undertaken in accordance with the requirements of a statutory exemption per subsection 35(2). Based on the Fish and Fish Habitat

Protection Policy Statement (August 2019), HADD is interpreted by DFO to include "*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish*".

Consistent with the assessment carried out in **Section 5.2** and provided that relevant technical recommendations outlined in **Section 5.2** are implemented in full, it has been determined that the proposed development plan is consistent with the fish and fish habitat protection provisions outlined in the *Fisheries Act*.

6.6 Federal *Migratory Birds Convention Act*, S.C. 1994, c. 22

Subsection 5(1) of the Migratory Birds Regulations under the *Migratory Birds Convention Act, 1994* (MBCA) prohibits the disturbance or destruction of nests, eggs, or nest shelters of a migratory bird without authorization. Subsection 5(2) of the Migratory Birds Regulations allows for damage or destruction of nests which lack a live bird or viable egg with the exception of inactive nests associated with species listed under Schedule 1. In Ontario, the nests of Schedule 1 species are afforded year-round protection (i.e., regardless of the presence or absence of a live bird or viable egg), inclusive of the following species:

- Black-crowned Night Heron (*Nycticorax nycticorax*)
- Cattle Egret (*Bubulcus ibis*)
- Great Blue Heron (*Ardea herodias*)
- Great Egret (*Ardea alba)*
- Green Heron (*Butorides virescens*)
- Pileated Woodpecker (*Dryocopus pileatus*)
- Snowy Egret (*Egretta thula*)

The provincial *Fish and Wildlife Conservation Act, 1997* (FWCA) extends the protection of bird nests and eggs to certain non-migratory species not listed under the Migratory Birds Regulations (e.g., Corvids, Strigids, Accipitrids). Section 7(1) of the FWCA prohibits a person from destroying, taking, or possessing the nest or eggs of a bird that belongs to a species that is wild by nature. Section 7(3) identifies that section 7(1) of the FWCA does not apply to a person who destroys, takes, or possesses the nest or eggs of a bird described in subsection (a) in accordance with the authorization of the Minister, or subsection (b) in the circumstances prescribed by the regulations. The nests of certain non-migratory bird species are not protected under the FWCA (e.g., Red-winged Blackbird).

Provided that the recommendations outlined in **Section 5.2.3** are implemented in full (i.e., prohibition on vegetation removal during the bird breeding season), no impacts to breeding birds or bird nests protected by the MBCA or FWCA are anticipated.

7 CONCLUSIONS

In accordance with the Terms of Reference for this study (**Appendix 1**) and relevant policies, the preceding Site Evaluation Report Update provides a detailed characterization of the natural environment occurring within and adjacent to 3 Gonnsen Trail in the Municipality of Dysart et al. This report has been prepared in support of a Zoning By-law Amendment application submitted to facilitate a reduction in the setback to the shoreline of Drag Lake from 45 m (as recommended in the original SER by others) to 30 m (as supported herein). Included herein is a comprehensive approach to identifying the presence or absence of several significant natural features afforded

varying degrees of protection by applicable environmental policies. Potential negative impacts to the identified significant natural features and/or site constraints (i.e., steep slopes) are described with mitigation measures and technical recommendations offered to avoid or minimize such impacts as appropriate.

The slope steepness mapping contained in the original SER by others does not appear to have been prepared using a site-specific topographic survey or through precise on-site verification. Slopes on the Subject Property as reviewed by Terrastory and indicated on the topographic survey (see **Appendix 3**) were shown to be moderate to steep in places, but also differ meaningfully from what was indicated in the original SER by others. In particular, a flat terrace or bench along which the existing access driveway is centred (and where the residence is proposed) is not shown in the slope mapping nor described in the original SER by others. It was also found that portions of the Subject Property are in fact quite steep along the 45 m shoreline setback in certain areas (see **Figure 2**), suggesting that the 45 m setback recommended in the original SER did not fully restrict construction of the residence beyond certain steep slope areas. Overall, while the original SER provided a reasonable approximation of on-site slopes, the more precise delineation (see **Appendix 3** and as described herein) reveals an additional terrace which appears suitable for construction at and beyond a 30 m setback from Drag Lake.

It has been determined that the proposed development envelopes are suitable and that the proposed development is not unduly constrained by site limitations or natural heritage constraints provided that all technical mitigation measures recommended herein (summarized in **Appendix 9**) are implemented in full. This determination relies on a Stormwater Management and Servicing Report (see **Appendix 7**) which includes a slope assessment and erosion analysis. It is advised that such technical recommendations be incorporated into the necessary site plan agreement should the Zoning By-law Amendment be approved by Council.

8 REFERENCES

Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, and Ontario Ministry of Natural Resources Ontario Nature. 2001. "Ontario Breeding Bird Atlas: Guide for Participants."

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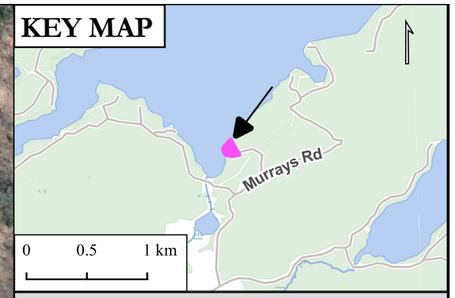
KEY MAP



Legend

Area of Assessment

Subject Property

GENERAL NOTES:
-Features depicted herein should not be used in place of a professional survey.
-Numeric scale is for a 11x17 inch print.

TERRASTORY
environmental consulting inc.
info@terrastoryenviro.com 289.309.7040

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Location:
3 Gonnsen Trail
Municipality of Dysart et al.

Project No.: 24070

Date: 2025-04-30

By: TK **Checked:** --

Orthophotograph Date: 2018 (SCOOP)

Figure 1:
Location of the Subject Property

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Legend

Area of Assessment

- Subject Property

Built Structures and Infrastructure

- Private Access Driveway (from survey)

Biophysical Features and Conditions

- Overland Runoff Direction
- Topographic Contours (0.5 m; from Survey)
- Generally Flat Terrace between Toe and Top of Slope
- Vegetation Communities

Significant Natural Features

Special Concern and Provincially Rare Species

- Eastern Wood-pewee (Contopus virens) - Special Concern

Significant Natural Feature Boundaries

- Physical Top of Bank (approx.) - delineated by Terrastory on-site
- Regulated High Water Mark (approx.) from Survey

VEGETATION COMMUNITY CODES:

UPLAND

G013Tt - Very Shallow, Dry to Fresh: Hemlock - Cedar Conifer

G054Tt - Dry to Fresh, Coarse: Red Pine - White Pine Mixedwood

G058Tt - Dry to Fresh, Coarse: Maple Hardwood

GENERAL NOTES:

-Features depicted herein should not be used in place of a professional survey.

-Numeric scale is for a 11x17 inch print.

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info@terrastoryenviro.com 905.745.5398

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Location:

3 Gonnsen Trail
Municipality of Dysart et al.

Project No.: 24070

Date: 2025-04-02

By: TK **Checked:** --

Orthophotograph Date: 2018 (SCOOP)

Figure 2:

Biophysical Features and Conditions

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Drag Lake

EXACT DRIVEWAY ALIGNMENT AND LEACHING BED LOCATION TO BE CONFIRMED AT DETAILED DESIGN

INSTALL SILT FENCE TO ISOLATE ALL AREAS OF DISTURBANCE

Legend

Area of Assessment
- Subject Property

Built Structures and Infrastructure
- Private Access Driveway (from survey)

Biophysical Features and Conditions
- Topographic Contours (0.5 m; from Survey)

Significant Natural Feature Boundaries
- Physical Top of Bank (approx.) - delineated by Terrastory on-site
- Regulated High Water Mark (approx.) from Survey

Proposed Activities
- Dwelling Envelope
- Driveway (conceptual)
- Leaching Bed
- Garage
- Deck

Buffers / Setbacks
- Shoreline + 30 m (proposed through ZBA)
- Shoreline + 45 m (per existing zone)

Recommendations
- Shoreline Buffer Enhancement Area (flat clearing to be revegetated)

GENERAL NOTES:
-Features depicted herein should not be used in place of a professional survey.
-Numeric scale is for a 11x17 inch print.

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info@terrastoryenviro.com 905.745.5398

N | 1:750 | 0 5 10 15 20 25 m

Location:
3 Gonnsen Trail
Municipality of Dysart et al.

Project No.: 24070
Date: 2025-04-02
By: TK **Checked:** --
Orthophotograph Date: 2018 (SCOOP)

Figure 3:
Proposed Development Plan

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Appendix 1. Terms of Reference

From: Kris Orsan <korsan@dysartetal.ca>
Sent: Friday, May 17, 2024 11:43 AM
To: Melissa Markham <melissa@mmplanning.ca>
Cc: Jeff Iles <jiles@dysartetal.ca>; Andrew Noel <andrewnoel77@gmail.com>; Tammy Wilson <twilson@dysartetal.ca>
Subject: RE: Pre-Consultation Meeting - D09-PC-2024-004 (Madlo Enterprises Inc.)

Good morning, Melissa,

Thank you for your correspondence.

Staff had an opportunity to further review the studies and reports which supported the approval of the original created lots through plan of subdivision. Please find staff comments in purple text below.

If you have any questions, please let us know.

Have a good long weekend.

Kind regards,

Kris.

From: Melissa Markham <melissa@mmplanning.ca>
Sent: Tuesday, May 14, 2024 10:05 AM
To: Tammy Wilson <twilson@dysartetal.ca>
Cc: Kris Orsan <korsan@dysartetal.ca>; Jeff Iles <jiles@dysartetal.ca>; Andrew Noel <andrewnoel77@gmail.com>
Subject: RE: Pre-Consultation Meeting - D09-PC-2024-004 (Madlo Enterprises Inc.)

Good Morning Tammy,

Can you confirm that you received this email.

Thank you,

Melissa

Melissa Markham, MCIP, RPP

Melissa Markham Planning & Associates

1025 Rebecca Lane

Huntsville, ON P1H 2J6

705.783.8217

www.melissamarkhamplanning.com

From: Melissa Markham
Sent: Thursday, May 9, 2024 10:41 AM
To: Tammy Wilson (twilson@dysartetal.ca) <twilson@dysartetal.ca>
Cc: Kris Orsan (korsan@dysartetal.ca) <korsan@dysartetal.ca>; Jeff Iles (jiles@dysartetal.ca) <jiles@dysartetal.ca>; Andrew Noel <andrewnoel77@gmail.com>
Subject: Pre-Consultation Meeting - D09-PC-2024-004 (Madlo Enterprises Inc.)

Good Morning Tammy,

Thank you for the comments and pre-consultation follow-up. I have had an opportunity to review the reports submitted in support of the subdivision application.

In my review of these documents there does not appear to be any specific reason for the 45m setback on this property, other than the site evaluation stated that it was due to steep slopes and potential for erosion. The reports were submitted in support the lot creation within the subdivision.

1. The SER does recommend 45 metre setbacks for leaching bed and structures based on steep slopes, erosion, soil depth and protection of fish habitat and lake from development and erosion.
2. The SER was submitted in support of the subdivision approval contingent upon the implementation of the recommendation made within the study. Any deviation from the imposed setbacks/recommendation in the supporting study and implemented in the zoning of the approved lots would require new studies to address why reduced setback and location of development is considered more appropriate than what was approved by supporting studies and municipal approval of the lots.

The pre-consultation notes from the municipality, dated April 4, 2024, provided an extensive list of reports/studies/plans that would be required through an application to amend the setback. During our meeting it was agreed that these reports could be scoped and that we would review the existing studies and determine what may need to be addressed.

A site evaluation report will demonstrate to Council's satisfaction that location of the proposed development is suitable, and that development will not be unduly constrained by site limitations. The report will provide information on and evaluate the following:

1. Slopes and specifically address area of use limitation, show building envelopes and septic systems.
2. Soil depth, type, and moisture
3. Shoreline and upland vegetation
4. Overland and/or storm drainage
5. Fish and wildlife habitat.

6. Natural and cultural heritage protection.
7. And in general, if policies of Section 4 & 5 of the Municipal Official Plan can be met, and what mitigations measures may be required to do so.
8. Site Plan showing proposed dwelling, septic system location as confirmed by in environmental report (when prepared). If approved, site plan will need to be prepared by OLS to delineate features, recommendations of the SER.

Stormwater Management:

1. Please have engineer address original report related to new proposed development. This can be in a letter from engineer to confirm that proposed reduced setback of development is feasible and will not cause a negative impact or change from the original for for the approval of the lots. This will be peer reviewed by municipal engineer.

In my review of the Official Plan and Zoning By-law I believe that an application for development on a lot with steep slopes can be reviewed through the submission of a Site Evaluation Report. The Archaeological Report and SWM Report do not provide an opinion on setback and I do not believe that these need to be updated.

1. The stormwater report does make refence to steep slopes and rapid erosion, fish habitat and soil. Proposed development being moved closer into steep slopes and removing vegetation could result increased erosion and rapid runoff that would negatively impact the shorelands, lake and adjacent fish habitat.
2. The applicant is to address section 5.4.3 of the Official Plan related to Archaeological Resources. Justification can be addressed in the PJR.

In my opinion we will be proceeding with a Zoning By-law amendment to reduce the setback from 45m to 30m. The application will include a planning justification report and site evaluation report.

1. The municipality will require the applicant to address the SER and Stormwater Management Report and include the Planning Justification Report. See above noted requirements.

Let me know if a follow-up meeting is required, or whether I can provide this information in the planning justification report. I just wanted to clarify the requirements to ensure that the application would still be deemed complete without these studies.

1. Staff are available should you require a follow up meeting.

Thanks,

Melissa

Melissa Markham, MCIP, RPP

Melissa Markham Planning & Associates

1025 Rebecca Lane

Huntsville, ON P1H 2J6

705.783.8217

www.melissamarkhamplanning.com

Appendix 2. Representative Photographs

Photo 1. Proposed dwelling location with some felled trees, facing northeast (30 June 2024).

Photo 2. Proposed dwelling location with some felled trees, facing west (11 June 2024).

Photo 3. Adjacent to the proposed dwelling location, facing north towards Drag Lake (30 June 2024).

Photo 4. Dry to Fresh, Coarse: Red Pine – White Pine Mixedwood (G054Tt) at the top of slope, facing northwest (11 June 2024).

Photo 5. Very Shallow, Dry to Fresh: Hemlock – Cedar Conifer (G013Tt) sloping towards the shoreline (11 June 2024).

Photo 6. Dry to Fresh, Coarse: Maple Hardwood (G058Tt) sloping towards the shoreline (11 June 2024).

Photo 7. The shoreline substrate consisted of cobbles, gravel and sand along the northwestern section of the Subject Property (11 June 2024).

Photo 8. The shoreline substrate contained boulders, cobbles, gravel, and minimal sand along the northern section of the Subject Property (11 June 2024).

Appendix 3. Topographic Survey (T. A. Bunker Surveying Ltd.)

PLAN OF TOPOGRAPHIC SURVEY OF
LOT 3, REGISTERED PLAN 19M–16
GEOGRAPHIC TOWNSHIPS OF DYSART AND DUDLEY
MUNICIPALITY OF DYSART ET AL
COUNTY OF HALIBURTON

SCALE 1 : 250

0 1 3 5 10 15 20 METRES

C. D. BUNKER, O.L.S.
2024

BEARINGS ARE ASTRONOMIC AND ARE DERIVED FROM THE EASTERLY LIMIT OF LOT 3 REGISTERED PLAN 19M–16 HAVING A BEARING OF N28°15'50"W .

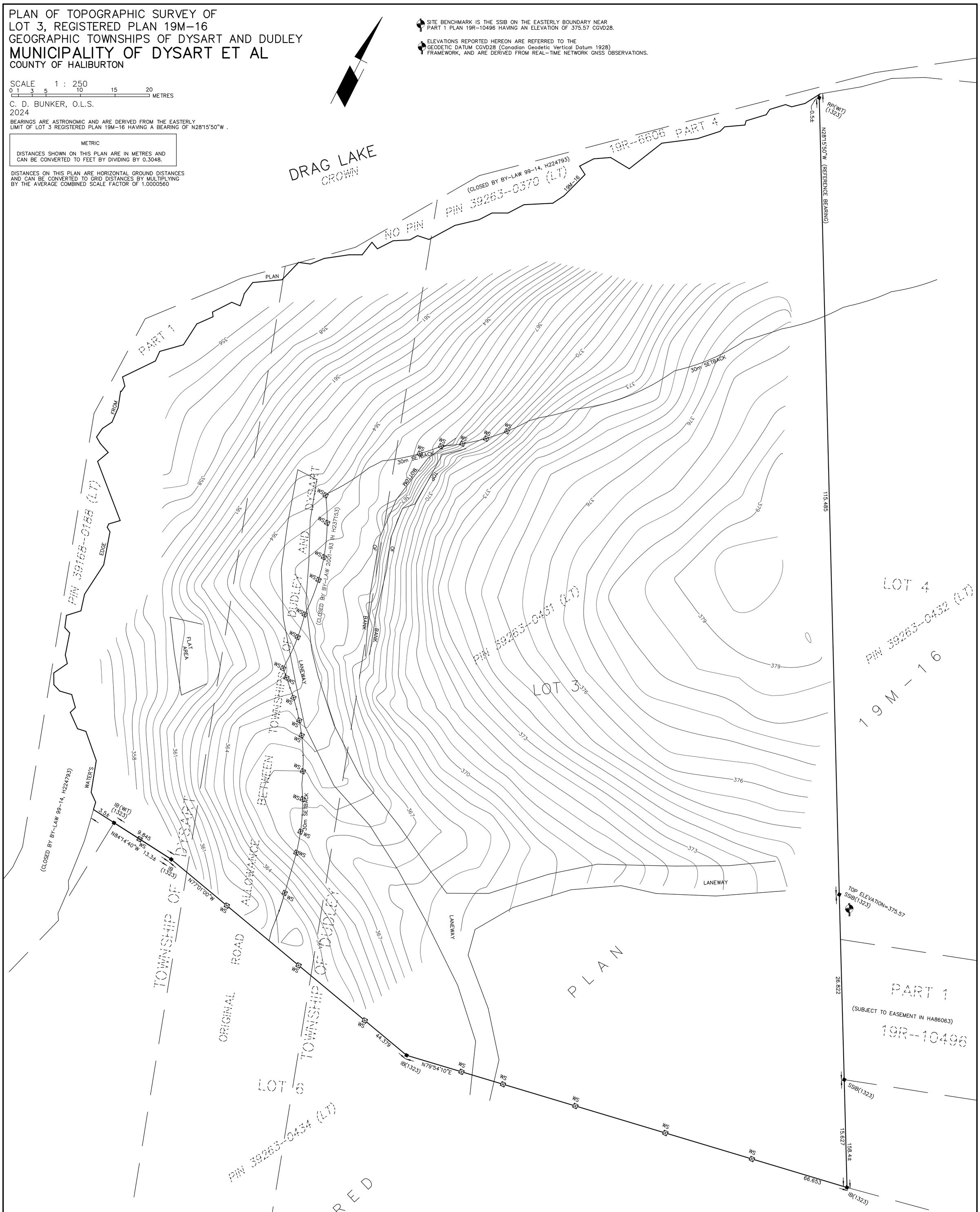
METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

DISTANCES ON THIS PLAN ARE HORIZONTAL GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE AVERAGE COMBINED SCALE FACTOR OF 1.0000560

SITE BENCHMARK IS THE SSIB ON THE EASTERLY BOUNDARY NEAR PART 1 PLAN 19R–10496 HAVING AN ELEVATION OF 375.57 CGVD28.

ELEVATIONS REPORTED HEREON ARE REFERRED TO THE GEODETIC DATUM CGVD28 (Canadian Geodetic Vertical Datum 1928) FRAMEWORK, AND ARE DERIVED FROM REAL–TIME NETWORK GNSS OBSERVATIONS.



LEGEND

SSIB	DENOTES SHORT STANDARD IRON BAR (0.025mX0.025mX0.60m)
IB	DENOTES IRON BAR (0.016mX0.016mX0.60m)
RP	DENOTES ROCK POST (ROCK ANCHOR AND BOLT WITH CAP)
■	DENOTES FOUND SURVEY MONUMENT
(1323)	DENOTES T. A. BUNKER SURVEYING LTD.
CGVD28	DENOTES CANADIAN GEODETIC VERTICAL DATUM 1928
(WIT)	DENOTES WITNESS MONUMENT
⊠WS	DENOTES WOOD STAKE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. – THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.

2. – THE SURVEY WAS COMPLETED ON THE 17TH DAY OF OCTOBER, 2024.

DATED

C. D. BUNKER
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION NUMBER V–86136.

T. A. BUNKER SURVEYING LTD.
150 JOHN ST. N. GRAVENHURST, ONTARIO. P. O. BOX 1180, P1P 1V4
705–687–5883
www.BunkerSurveying.ca
surveys@BunkerSurveying.ca
FB 351/43 FILE 5579

Appendix 4. Breeding Bird Survey Results

Common Name	Scientific Name	Srank	SARO Status	SARA Status	Area Sensitive[3]	Bird Species Recorded
American Robin	*Turdus migratorius*	S5				Probable
Bald Eagle	*Haliaeetus leucocephalus*	S4	SC		x	Possible
Black-and-white Warbler	*Mniotilta varia*	S5B			x	Probable
Blackburnian Warbler	*Setophaga fusca*	S5B			x	Possible
Black-capped Chickadee	*Poecile atricapillus*	S5				Possible
Blue Jay	*Cyanocitta cristata*	S5				Possible
Broad-winged Hawk	*Buteo platypterus*	S5B			x	Probable
Brown Creeper	*Certhia americana*	S5			x	Possible
Cedar Waxwing	*Bombycilla cedrorum*	S5				Possible
Chestnut-sided Warbler	*Setophaga pensylvanica*	S5B				Possible
Common Loon	*Gavia immer*	S5	NAR		x	Possible
Downy Woodpecker	*Dryobates pubescens*	S5				Possible
Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC		Probable
Golden-crowned Kinglet	*Regulus satrapa*	S5				Possible
Great Crested Flycatcher	*Myiarchus crinitus*	S5B				Probable
Herring Gull	*Larus argentatus*	S4B, S5N				Observed
Ovenbird	*Seiurus aurocapilla*	S5B			x	Possible
Pine Warbler	*Setophaga pinus*	S5B, S3N			x	Probable
Red-eyed Vireo	*Vireo olivaceus*	S5B				Probable
Veery	*Catharus fuscescens*	S5B			x	Possible
Yellow-bellied Sapsucker	*Sphyrapicus varius*	S5B, S3N			x	Probable
Yellow-rumped Warbler	*Setophaga coronata*	S5B, S4N				Possible

Subnational Ranks (S-Ranks) are interpreted as follows:

S1: Critically Imperiled - Extremely rare in Ontario; usually 5 or fewer occurrences in the province.

S2: Imperiled - Very rare in Ontario; usually between 5 and 20 occurrences.

S3: Vulnerable - Rare to uncommon in Ontario; usually between 20 and 100 occurrences.

S4: Apparently Secure – Apparently secure in the province, with many occurrences.

S5: Secure – Demonstrably secure in Ontario.

SH: Possibly Extirpated – Known from only historical records but still some hope of discovery.

SX: Extirpated – A species that is extirpated from Ontario.

SNA: Not Applicable – A conservation status risk is not applicable because the species is not a suitable target for conservation activities.

SNR: Unranked – Conservation status not yet assessed.

SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

Appendix 5. Significant Wildlife Habitat Assessment

Table 1. Results of the Significant Wildlife Habitat Assessment.

Ecoregion 5E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., "degradation that threatens the health and integrity" as defined in the 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Seasonal Concentration Areas of Animals			
Waterfowl Stopover and Staging Areas (Terrestrial)	**No.** Meadows, fields, and/or thickets that annually flood during spring and could support significant congregations of migrating waterfowl are absent.	--	--
Waterfowl Stopover and Staging Areas (Aquatic)	**No.** Large surface water features (e.g., ponds, lakes, bays, coastal inlets, large watercourses, etc.) and/or wetlands that annually flood during spring and could support significant congregations of migrating waterfowl are absent.	--	--
Shorebird Migratory Stopover Areas	**No.** Unvegetated open areas adjacent to surface water features (e.g., shorelines, beaches, mudflats, etc.) which could support significant congregations of migrating shorebirds are absent	--	--
Raptor Wintering Areas	**No.** While forest habitat is present, open habitats are limited to support significant congregations of wintering raptors.	--	--
Bat Hibernacula	**No.** Features that could support hibernating bats (e.g., caves, mine shafts, karsts, etc.) are absent.	--	--
Bat Maternity Colonies	**Yes.** Mature deciduous and mixed forests with a high-density (i.e., >10/ha) of large-diameter (i.e., ≥25 cm DBH) trees containing cracks/cavities may be present.	**Unlikely.** While detailed roosting habitat surveys (for snags/cavity trees) was not undertaken through this study, treed portions of the Subject Property are consistent with generalized forest conditions across Haliburton County. Based on the conditions observed, it is not expected that the Subject Property provides more suitable habitat for roosting bats than other forested areas in the local or wider landscape.	--
Turtle Wintering Areas	**No.** Surface water features and/or wetlands with soft, muddy substrate which do not freeze to the bottom during winter are absent.	**Unlikely.** While turtle emergence surveys were not undertaken as part of this study, the shoreline of the Subject Property provides generalized movement or feeding habitat and is not likely to support significant turtle overwintering activity.	--
Snake Hibernaculum	**Yes.** Features (e.g., small mammal burrows, rock crevices, etc.) and/or habitats (e.g., certain wetlands with a fluctuating water table, etc.) that could provide snakes with access below the frost line are present.	**Unlikely.** While spring emergence surveys were not completed, the Subject Property provides generalized forested habitat and in general lacks open areas which would support basking activity following emergence. Based on the conditions observed, it is not expected that the Subject Property provides more suitable habitat for emerging snakes than other forested areas in the local or wider landscape.	--
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	**No.** Features that could support nesting by Cliff Swallow and Northern Rough-winged swallow (e.g., eroding banks, sandy hills, borrow pits, steep slopes, cliff faces, etc.) are absent.	--	--
Colonially - Nesting Bird Breeding Habitat Breeding Habitat (Tree/Shrubs)	**No.** Swamp and treed fen communities are absent.	--	--
Colonially - Nesting Bird Breeding Habitat (Ground)	**No.** Rocky islands or peninsulas along lakes or large rivers are absent.	--	--

Ecoregion 5E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., "degradation that threatens the health and integrity" as defined in the 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Deer Yarding Areas	**No.** MNRF has not identified any deer yarding areas within the Subject Property and the Subject Property lacks vegetation communities that could provide thermal cover and lower snow depths in winter (e.g., coniferous forests and plantations, etc.).	--	--
Rare Vegetation Communities or Specialized Habitats for Wildlife			
Beach / Beach Ridge / Bar / Sand Dunes	**No.** Beach / beach ridge / bar / sand dune communities are absent.	--	--
Shallow Atlantic Coastal Marsh	**No.** Vascular plant species considered Atlantic coastal plain flora are absent.	--	--
Cliffs and Talus Slopes	**No.** Cliffs and talus slope communities are absent.	--	--
Rock Barren	**No.** Rock barren communities are absent.	--	--
Sand Barren	**No.** Sand barren communities are absent.	--	--
Alvar	**No.** Flora characteristic of alvars are absent.	--	--
Old Growth Forest	**No.** Based on a review of historical aerial photographs and completion of site visits; large Pine trees were present on the Subject Property. Although some of these trees are mature, it is unlikely these are old growth as it is located outside an area in Ontario considered Old Growth Forest (i.e. Algonquin Park).	--	--
Bog	**No.** Bog communities are absent.	--	--
Tallgrass Prairie	**No.** Flora characteristic of tallgrass prairies are absent.	--	--
Savannah	**No.** Flora characteristic of savannahs are absent.	--	--
Other Rare Vegetation Type – Red Spruce	**No.** Red Spruce are absent.	--	--
Other Rare Vegetation Type – White Oak	**No.** Treed communities dominated by White Oak are absent.	--	--
Waterfowl Nesting Area	**No.** Wetlands which may support nesting waterfowl are absent.	--	--
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	**Yes.** Forest communities adjacent to large surface water features are present.	**No**. No stick nests were documented on-site within the Subject Property or Adjacent Lands.	--
Woodland Raptor Nesting Habitat	**Yes.** forest communities that may support nesting raptors are present.	**No.** No stick nests were documented on-site within the Subject Property or Adjacent Lands.	--
Turtle and Lizard Nesting Areas	**Yes.** Exposed mineral soils adjacent to surface water features (e.g., lakes, ponds, etc.) and/or wetlands that may support turtles are present.	--	--

Ecoregion 5E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., "degradation that threatens the health and integrity" as defined in the 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Seeps and Springs	**No.** Areas where groundwater emerges at the surface and may support specialized habitat for plants and wildlife are absent.	--	--
Aquatic Feeding Habitat	**No.** Areas with abundant aquatic vegetation adjacent to stands of lowland conifers or mixed-woods, which would be expected to support feeding by White-tailed Deer or Moose, are absent.	--	--
Mineral Lick	**No.** Areas of upwelling groundwater (seepage) which would be expected to support use by White-tailed Deer or Moose are absent..	--	--
Denning Sites for Mink, Otter Marten, Fisher, and Eastern Wolf	**No.** Denning sites associated with the indicator mammal species were not documented.	--	--
Amphibian Breeding Habitat (Woodland)	**No.** Forests with wetlands, ponds, and/or pools that may support significant congregations of breeding amphibians are absent.	--	--
Amphibian Breeding Habitat (Wetlands)	**No.** Wetlands and surface water features (e.g., ponds, lakes, etc.) that may support significant congregations of breeding amphibians are absent.	--	--
Mast Producing Areas	**No.** American Beech and Red Oak do not act as dominant constituents of the canopy.	--	--
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	**No.** Wetland habitats of sufficient size with shallow water and emergent aquatic vegetation are absent.	--	--
Open Country Bird Breeding Habitat	**No.** Meadow habitats of sufficient size are absent.	--	--
Shrub/Early Successional Bird Breeding Habitat	**No.** Shrub/early-successional habitats of sufficient size are absent.	--	--
Special Concern and Rare Wildlife Species	**Yes.** See **Table 2** below.	**Yes.** See **Table 2** below.	**Possible.** See **Table 2** below.
Animal Movement Corridors			
Amphibian Movement Corridors	**No.** Significant amphibian breeding habitat is absent. Subject Property is not expected to act as a significant movement corridor between breeding and summer habitat for amphibians.	--	--
Cervid Movement Corridors	**No.** As MNRF has not identified any Deer Yarding Areas, significant Deer Movement Corridors are by extension also absent.	--	--
Furbearer Movement Corridor	**No.** As no denning sites have been documented, Furbearer Movement Corridors are by extension also absent.	--	--
Animal Movement Corridors			

Ecoregion 5E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 5E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., "degradation that threatens the health and integrity" as defined in the 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Eco-District 5E-11 – Rare Forest Types: Jack Pine	**No.** Subject Property is outside of Eco-District 5E-11 and Jack Pine are absent.	--	--
Eco-District 5E-13 – Rare Forest Types: Late Winter Moose Habitat	**No.** Subject Property is outside of Eco-District 5E-13.	--	--

Table 2. Results of the Special Concern and Provincially Rare Species Assessment.

Species	Status per O. Reg. 242/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., "degradation that threatens the health and integrity" as defined in the 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Birds					
Bald Eagle (*Haliaeetus leucocephalus*)	SC	Suitable habitat conditions	• Generally found feeding along waterbodies and shorelines, and adjacent deciduous and mixed forests. • Super-canopy trees are used for nesting and roosting. • Feeds largely on fish and carrion.	**Negligible.** Although a Bald Eagle was identified during both breeding bird surveys, no stick nests were identified within the Study Area.	--
Barn Swallow (*Hirundo rustica*)	SC	OBBA	• Nests in barns, bridge/culvert undersides, awnings/overhangs on sides of buildings, and (historically) tree cavities. • Forages in a variety of open areas including agricultural lands, meadows, prairies, woodland clearings, marshes, and above waterbodies.	**Negligible.** This species may forage over open areas on the Subject Property, however suitable breeding habitat is absent.	--
Canada Warbler (*Cardellina canadensis*)	SC	NHIC, OBBA, eBird	• Breeds and forages in a wet thickets, swamps, and mature deciduous forest.	**Negligible**. Suitable nesting habitat is absent within the Study Area.	--
Common Nighthawk (*Chordeiles minor*)	SC	OBBA, eBird	• Breeds and forages in a variety of open habitats with sparse cover of woody vegetation. • Also occupies urban areas and nests on flat roof tops.	**Unlikely.** Open habitats suitable for breeding by this species are absent within the Subject Property.	--
Eastern Whip-poor will (*Antrostomus vociferus*)	SC	OBBA, eBird	• Breeds and forages in semi-open deciduous and mixed forests, thickets, and their edges. • Requires nesting habitat adjacent to open habitats used for foraging.	**Unlikely.** The species tends to breed in thickets and wooded areas containing open canopy conditions, which are limited within the Study Area.	--
Eastern Wood-pewee (*Contopus virens*)	SC	OBBA	• Breeds and forages in relatively open, deciduous and mixed forests of various sizes (including urban forest fragments) and along forest edges.	**Confirmed.** Species identified as a probable breeder during breeding bird surveys.	**Negligible.** Development and site alteration activities are generally beyond the location where this species appears to be breeding within the Subject Property. This species is relatively common in Ecoregion 5E, and nesting locations may change on an annual basis. Any tree removal will occur outside the core nesting season for birds. See report for greater details.
Evening Grosbeak (*Coccothraustes vespertinus)*	SC	OBBA	• Breeds in open and mature mixed forest typically dominated by fir, White Spruce and/or Trembling Aspen	**Negligible.** Species not identified during breeding bird surveys.	--
Golden-winged Warbler (*Vermivora chrysoptera*)	SC	OBBA	• Breeds and forages in thickets and early-successional forests/thickets adjacent to deciduous or mixed forest.	**Negligible.** Species not identified during breeding bird surveys.	--
Olive-sided Flycatcher (*Contopus cooperi*)	SC	OBBA	• Breeds and forages in open coniferous or mixed coniferous forests with tall trees, often located near water or wetlands	**Negligible.** Species not identified during breeding bird surveys.	--
Peregrine Falcon (*Falco peregrinus*)	SC	OBBA, iNaturalist, eBird	• Nests on tall, steep ledges usually close to waterbodies, including cliffs, quarry walls, and buildings.	**Negligible.** Species not identified during breeding bird surveys.	--

Species	Status per O. Reg. 242/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., "degradation that threatens the health and integrity" as defined in the 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Rusty Blackbird (*Euphagus carolinus*)	SC	iNaturalist, eBird	• Breeds within coniferous swamps or within conifer forest with nearby bogs, marshes and ponds	**Negligible.** Species not identified during breeding bird surveys.	--
Wood Thrush (*Hylocichla mustelina*)	SC	OBBA	• Breeds and forages in second-growth and mature deciduous and mixed forests with a well-developed understory.	**Unlikely.** Although suitable habitat is present, this species was not identified during breeding bird surveys.	--
Insects					
Harlequin Darner (*Gomphaeschna furcillata*)	S3S4	Ontario Odonata Atlas	• • Breeds in bogs and swamps. • • Perches on vertical surfaces.	**Negligible.** Suitable habitat is absent; however this species may forage nearby.	--
Monarch (*Danaus plexippus*)	SC	Ontario Butterfly Atlas, iNaturalist	• Oviposits on Milkweeds (*Asclepias* spp.). • Generalist foraging that nectars in most areas with wildflowers.	**Negligible.** Ovipositing sites (i.e., species in the genus *Asclepias*) are absent, however the species may forage on the Subject Property.	--
Owl-eyed Bird-dropping Moth (*Cerma cora*)	S3S4	iNatualist	• Larvae feed on Pin Cherry and Hawthorn • Overwinters in dead wood	**Negligible.** Suitable habitat is absent.	--
Short-lined Chocolate Moth (*Argyrostrotis anilis*)	S3	iNaturalist	• Larvae feed on fruit trees (i.e. plum and crabapples) and hawthorns.	**Negligible.** Suitable habitat is absent.	--
Yellow Banded Bumble Bee (*Bombus terricola*)	SC	Suitable habitat range	• Occupies a range of open areas with nectaring sites. • Nests underground in abandoned rodent burrows or decomposing logs.	**Possible.** Species is a habitat generalist and occupies a wide range of areas.	**Negligible.** Foraging areas for this species are not limited in the general landscape.
Reptiles					
Eastern Ribbonsnake (*Thamnophis saurita*)	SC	Ontario Reptile and Amphibian Atlas	• Occupies edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation.	**Negligible.** Suitable habitat is absent.	--
Snapping Turtle (*Chelydra serpentina*)	SC	NHIC, Ontario Reptile and Amphibian Atlas, iNaturalist	• Occupies a variety of aquatic habitats with slow moving water. • Nests in exposed, usually coarse, friable substrate. • Known to make long-distance overland movements (i.e., several kilometers) between habitats.	**Possible.** Species may occupy feed, bask, overwinter, or move through vegetated areas along the shoreline.	**Negligible.** Areas of exposed soil shall have exclusion fencing (i.e. silt fence) during construction to prevent any turtles from nesting within the work area. In addition, sweeps for herpetofauna will be conducted during construction.

[1] Likelihood categories should be interpreted as follows:

Negligible: so limited that the assessed species can be assumed absent.

Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).

Possible: species presence plausible based on available information; no convincing evidence suggesting species could not occur on-site.

Probable: while not confirmed, available information suggests species has a high likelihood of being present.

Confirmed: species observed and/or evidence of occupation (e.g., tracks, etc.) documented.

Subnational Ranks (S-Ranks) are interpreted as follows:
S1: Critically Imperiled - Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or very few remaining hectares.
S2: Imperiled - Very rare in Ontario; usually between 5 and 20 occurrences in the province, or very few remaining hectares.

S3: Vulnerable - Rare to uncommon in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.
S4: Apparently Secure – Apparently secure in the province, with many occurrences.
S5: Secure – Demonstrably secure in Ontario.
SH: Possibly Extirpated – Known from only historical records but still some hope of discovery.
SX: Extirpated – A species or vegetation community that is extirpated from Ontario.
SNA: Not Applicable – A conservation status risk is not applicable because the species or vegetation community is not a suitable target for conservation activities.
SNR: Unranked – Conservation status not yet assessed.
SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

Appendix 6. Endangered and Threatened Species Assessment

Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	Species	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area[1]	Likelihood that Negative Effects to the Species or its Habitat (i.e., "Damage" or "Destruction" as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
		Birds			
THR	OBBA	Bank Swallow (*Riparia riparia*)	•Nests in natural or anthropogenically derived exposed, sandy substrates on vertical or steep surfaces. •Forages in a variety of open areas including agricultural lands, meadows, prairies, woodland clearings, marshes, and above waterbodies.	**Negligible.** While this species may forage over open areas on the Subject Property for brief periods during migration or forays from adjacent breeding sites, suitable breeding sites are absent from the Subject Property.	-
THR	Known from local landscape	Bobolink (*Dolichonyx oryzivorus*)	•Breeds and forages in hayfields, pastures, meadows, grasslands, and prairies which are often (but not always) greater 4 ha. •May be found in more marginal habitats (e.g., shrubby fields, smaller fields, etc.) during migration or following disturbance to breeding habitats (e.g., hay cutting).	**Negligible.** Suitable breeding habitat is absent from the Subject Property.	-
THR	Known from local landscape	Chimney Swift (*Chaetura pelagica*)	•Nests in large, uncapped chimneys and (historically) tree cavities. •May forage above a wide variety of anthropogenic (e.g., cities, towns) and natural (e.g., fields, forests) areas.	**Negligible.** While this species may forage over open areas on the Subject Property for brief periods during migration or forays from adjacent breeding sites, suitable breeding sites are absent from the Subject Property.	-
THR	Known from local landscape	Eastern Meadowlark (*Sturnella magna*)	•Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, prairies, and shrubby fields.	**Negligible.** Suitable breeding habitat is absent from the Subject Property.	-
END	eBird	Red-headed Woodpecker (*Melanerpes erythrocephalus*)	•Breeds and forages in open woodland and woodlands edges. It is also often found in parks, golf courses and cemeteries with many dead trees. Which the bird uses for nesting and perching.	**Unlikely.** Limited dead trees are present within the Subject Property and occurrences of this species have been made greater than 20 km west of the Subject Property during the species appropriate breeding season.	-
		Mammals			
END	Species distribution and on-site habitats	Eastern Red Bat (*Lasiurus borealis*)	• Maternity roost sites are typically within deciduous or coniferous forests of all age classes, with a preference for roosting in tall, large diameter trees. • Occurrences of roosting in anthropogenic structures are rare. • A migratory species primarily found in Ontario during the summer months, with summer habitat consisting of foraging, drinking, and roosting sites.	**Possible.** This species roosts in foliage in trees of a variety of sizes.	**Negligible.** A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats. Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
END	Species distribution and on-site habitats	Hoary Bat (*Lasiurus cinereus*)	• Maternity roost sites are typically within deciduous or coniferous forests of all age classes, with a preference for roosting in tall, large diameter trees. • Occurrences of roosting in anthropogenic structures are rare. • A migratory species primarily found in Ontario during the summer months, with summer habitat consisting of foraging, drinking, and roosting sites.	**Possible.** This species roosts in foliage in trees of a variety of sizes.	**Negligible.** A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats. Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
END	Species distribution and on-site habitats	Little Brown Myotis (*Myotis lucifugus*)	•Maternity roosts sites most often include buildings and large diameter trees with cracks, crevices, and/or exfoliating bark. •Overwinters in caves and mines that maintain temperatures above 0°C.	**Possible.** Forest/woodland communities within the Study Area could provide roosting opportunities for maternity colonies of this species within larger-diameter snags, cavity trees, or trees with cracks/crevices/loose bark. Other trees within or outside the forest/woodland communities (including smaller-diameter trees) may offer non-specific roosting habitat (i.e., "day roosts") for individual bats (males or non-reproductive females). The forest/woodland edge and canopy openings provide suitable foraging habitat for this species.	**Negligible.** A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided. See report for greater details.

Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	Species	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area[1]	Likelihood that Negative Effects to the Species or its Habitat (i.e., "Damage" or "Destruction" as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
END	Species distribution and on-site habitats	Northern Myotis (*Myotis septentrionalis*)	•Maternity roosts most often include large diameter trees with cracks, crevices, and/or exfoliating bark (buildings rarely used). •Overwinters in caves and mines that maintain temperatures above 0°C.	**Possible.** Forest/woodland communities within the Study Area could provide roosting opportunities for maternity colonies of this species within larger-diameter snags, cavity trees, or trees with cracks/crevices/loose bark. Other trees within or outside the forest/woodland communities (including smaller-diameter trees) may offer non-specific roosting habitat (i.e., "day roosts") for individual bats (males or non-reproductive females). The forest/woodland edge and canopy openings provide suitable foraging habitat for this species	**Negligible.** A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided See report for greater details.
END	Species distribution and on-site habitats	Silver-haired Bat (*Lasionycteris noctivagans*)	• Maternity roost sites are typically within decaying, large diameter deciduous or coniferous trees with heart-rot or exfoliating bark. • Known to occasionally roost on or in buildings. • A migratory species primarily found in Ontario during the summer months, with summer habitat consisting of foraging, drinking, and roosting sites.	**Possible.** Trees containing suitable cavities, cracks, or loose bark are present within the Study Area. Individual bats (i.e., non-reproductive females or males) with less specific roosting requirements may periodically roost within the Study Area and/or forage within or adjacent to the treed edges.	**Negligible.** A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided See report for greater details.
END	Species distribution and on-site habitats	Tri-colored Bat (*Perimyotis subflavus*)	•Maternal roosting sites include Maple (Acer spp.) and Oak (Quercus spp.) with dead/dying leaf clusters. •Overwinters in caves and mines that maintain temperatures above 0°C.	**Possible.** This species is rare in Ontario and associated with mature maple and oak forests. There are minimal maple trees on the Subject Property that could provide expected roosting habitat; however, theoretically suitable roosting habitat is available.	**Negligible.** A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats. Additional mitigation measures for construction and detailed design are also provided See report for greater details.
		Reptiles			
THR	Ontario Reptile and Amphibian Atlas, iNaturalist	Blanding's Turtle (*Emydoidea blandingii*)	•Occupies freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes, and swamps. •Nests in exposed, usually coarse, friable substrate. •Known to make long-distance overland movements (i.e., several kilometers) between habitats.	**Unlikely.** Suitable feeding and basking habitat (e.g., wetlands, large woodland ponds, smaller waterbodies) is negligible from the Subject Property and adjacent lands. Species is not typically associated with the shoreline of large lakes. Subject Property is not expected to act as a movement corridor.	-
THR	Known from local landscape	Eastern Hog-nosed Snake (*Heterodon platirhinos*)	•Occupies a wide range of habitats generally occurring on sandy, well-drained soil with open vegetative cover.	**Unlikely.** The Subject Property and Adjacent Lands generally lacks open areas with cover (e.g., junipers) to support basking, and lacks higher quality feeding habitat (i.e., areas with toads).	-
END	Known from local landscape	Spotted Turtle (*Clemmys guttata*)	•Occupies ponds, marshes, bogs and ditches with slow-moving water. •Nests in exposed, usually coarse, friable substrate.	**Negligible.** Suitable feeding and basking habitat (e.g., wetlands, peaty ponds) is negligible from the Subject Property and adjacent lands. Species is not typically associated with the shoreline of large lakes. Subject Property is not expected to act as a movement corridor and species does not tend to make long-distance overland movements.	-
		Plants			
THR	Known from local landscape	American Ginseng (*Panax quinquefolius*)	•Occupies rich, relatively undisturbed deciduous forests.	**Negligible.** Species not documented during vascular plant surveys.	-

Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	Species	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area[1]	Likelihood that Negative Effects to the Species or its Habitat (i.e., "Damage" or "Destruction" as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
END	Species distribution and on-site habitats	Black Ash (*Fraxinus nigra*)	•Occupies deciduous swamps (often peaty), floodplains, and wet woods.	**Negligible.** Species not documented during vascular plant surveys.	-

Negligible: so limited that the assessed species can be assumed absent.

Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).

Possible: species presence plausible based on available information; no convincing evidence suggesting species could not occur on-site.

Probable: while not confirmed, available information suggests species has a high likelihood of being present.

Confirmed: species observed and/or evidence of occupation (e.g., tracks, etc.) documented.

Appendix 7. Stormwater Management and Servicing Report (Duke Engineering)

DUKE
Engineering

CIVIL • STRUCTURAL ENGINEERS

June 19, 2025 Project No: 25-30-01

Andrew Noel
8 Cudworth Place
Toronto, ON
M9A 3R5

Dear Mr. Noel,

Re: Stormwater Management and Servicing Report
Gonnsen Trail, Lot 3
Dysart et al

Duke Engineering has been retained to complete an in-depth review of the original 2015 Stormwater Management & Servicing report completed by Metropolitan Consulting (MC), specifically regarding Lot 3 Gonnsen Trail. Our review is to justify the suitability of reducing the current 45m setback from the lake to 30m.

Site Location and Existing Conditions:

Referring to the topographic survey prepared by T. A. Bunker Surveying LTD, the site's legal description is Lot 3, Registered Plan 19M-16 in the Geographic Township of Dysart/Dudley, now in the Dysart et al, District Municipality of Haliburton. Please refer to Appendix A for the survey.

The lot conditions have largely remained the same as noted in the 2015 (MC) report. Lot 3 is approximately 1.26ha (3.11 acres) in area and is located at the south end of Drag Lake with approximately 174m of lake frontage. The lot is currently vacant but was the site of a former resort and camp. It is well vegetated with a mix of coniferous and deciduous trees, and the soil mainly consists of silty sand over bedrock of which there are a few outcrops. The land generally rises away from the lake toward the proposed cottage location and varies in slope with a higher plateau towards the rear of the lot. The lot drains towards Drag Lake with no apparent locations of standing water. A laneway to the site exists as noted on the attached site plan in Appendix B.

Proposed Development:

A single dwelling (cottage) with a footprint area of approximately 209m^2 of Gross Floor Area (GFA), is proposed to be constructed at the base of the west-facing slope. The area is a natural plateau, and at the time of my site review, some excavation existed into the bank. A septic bed and second driveway are proposed to be located on a relatively flat terrain at the top of the slope, as indicated on the attached site plan. A proposed garage is located to the south of the cottage development off the existing laneway location.

Lot Grading:

The natural grading of the lot is suited for development at the proposed envelope location. A plateau exists approximately at the 30m setback with a steep slope inland of the plateau. The steep slope appears to vary between 30˚-40˚ at this location. Based on a visual assessment, there appears to be signs of long-term slope failure on the steep terrain behind the proposed cottage location. Several trees were exhibiting soil creep with arched trunks and some signs of erosion. Lot grading at the proposed garage location exists as a stable plateau with existing drainage towards the lake. Proposed septic and driveway locations are located on a gradual slope atop the steep slope behind the proposed cottage.

The steep slope behind the proposed cottage development will require shoring to stabilize the slope. Stabilization can occur using stepped landscaping or a boulder retaining wall. If preferred, the proposed cottage could be designed for additional backfill to reduce the slope to under 26˚, revegetation, and consideration to surface runoff towards the development.

Grading of the proposed driveway can be completed using the cut and fill method into the bank with maximum final slopes of 2:1 and minimum 300mm-deep ditches on each side.

Stormwater Management:

The existing drainage is typical of the surrounding area and consists generally of sheet flow broken up partly by the existing laneway. At the rear of the lot is the top of the plateau, and there are no external flows directed towards the proposed developments.

For our review, we have matched the pre-development conditions used by the 2015 Metropolitan report with proposed post-development conditions. A hydrologic model has been created to estimate flows under pre/post-development conditions for a two-year storm event up to and including a 100-year storm event. The rational method was used to calculate peak flows with the drainage area out-letting to Drag Lake. Pre and post-development runoff coefficients have been taken from the Ministry of Transportation (MTO) Design Chart 1.07 Drainage Manual in Appendix C. Peak flows have been calculated using the MTO IDF Curve Lookup tool Appendix D and the pre/post-flows are summarized in Table 1 below. Calculations can be found in Appendix E.

Table 1: Peak Flow Summary

Storm Frequency	Pre-development Flow Rate (m^3/s)	Post-development Flow Rate (m^3/s)	Post-development Controlled Flow Required (m^3/s)	Post-development Controlled Flow from Site (m^3/s)
2-Year	0.0807	0.0790	0.0807	-0.0016
5-Year	0.1072	0.1050	0.1072	-0.0022
10-Year	0.1245	0.1219	0.1245	-0.0025
25-Year	0.1651	0.1617	0.1651	-0.0035
50-Year	0.2051	0.2007	0.2051	-0.0044
100-Year	0.2374	0.2323	0.2374	-0.0052

The post-development weighted runoff coefficient for the fully developed property is 0.27 which is a decrease of 0.01 over the pre-development runoff coefficient of 0.28. See Table 2 below and the calculations in Appendix E.

Table 2: Runoff Coefficient Calculations

Existing Conditions	Area	RC
Unimproved (Woodland)	1.172	0.25
Building	0.025	0.95
Gravel	0.05	0.60
Landscaping	0.013	0.20
Total:	**1.26**	**0.277**
Proposed Conditions	**Area**	**RC**
Unimproved (Woodland)	1.181	0.25
Building	0.021	0.95
Gravel	0.042	0.60
Landscape	0.016	0.20
Total:	**1.26**	**0.273**

The proposed cottage, realigned gravel driveway, soft landscaping and the removal of the old cottages and access routes, once reinstated with topsoil and seed, will aid in the decrease of the subject site's overall imperviousness from 6.95% to 6.3%. Refer to the total impervious summary Table 3 below.

Total Impervious Summary Table 3					
Pre / Post-dev.	Total Land Area (ha)	Building Area (ha)	Gravel (ha)	Landscaping -Grass (ha)	Total % Impervious
Pre-Dev	1.2600	0.0250	0.0500	0.0126	6.95%
Post-Dev	1.2600	0.0210	0.0420	0.0164	6.30%
				% Difference	-0.65%

Overall, the 100-year storm event demonstrates negative difference from pre-to-post-development of -0.0052m^3/s. As the property slopes toward Drag Lake, all runoff drains into the lake. In addition, given Drag Lake is a large waterbody, the decreased flow rates and percent of imperviousness from the proposed redevelopment portion of this lot are negligible; therefore, the stormwater need not be retained on site.

Stormwater Quality:

Generally, the stormwater runoff will be generated from soft landscaping. Therefore, the quality of the runoff will be similar to pre-development conditions, and typical oil and grit contaminates in the runoff will not be a concern for this project.

Erosion and Sediment Control:

Prior to construction commencing, it is imperative that the contractor installs all necessary erosion and sediment control (ESC) measures in accordance with the OPSD's 219 and OPSS 577 to mitigate erosion and prevent sediment loss from entering Drag Lake. This includes but is not limited to sediment control measures such as performing flow checks and placing filter/silt bags, silt fences, and straw bales. These measures will remain in place until construction has been completed, and all vegetation is fully established.

Additional basic principles shall be implemented to minimize erosion and sedimentation including:

- Minimize disturbance activities where possible.
- Install sediment control devices before any work commences and maintained during construction. Grading operations to control sediment movement and their locations shall be reviewed by the Engineer prior to site work commencing.
- Expose the smallest possible land area to erosion for the shortest possible time.
- Institute erosion control measures immediately as required.
- Reinstate all disturbed areas upon completion of work.
- Confine refuelling and servicing of equipment to areas well away from the drainage systems.
- Institute routine maintenance of control measures with monitoring by the owner and contractor in accordance with the construction mitigation plan and make repairs as necessary.
- Inspect control measures regularly through a monitoring and mitigation plan and make repairs as necessary. Bi-weekly inspections of the site erosion and sediment control shall be completed and documented.
- Seed temporary topsoil stockpiles to prevent wind erosion (if required).
- Restore/stabilize all proposed open space areas upon completion of grading.
- Routinely inspect and repair all erosion and sediment control measures during construction.
- Maintain temporary controls in place until the areas they serve are restored and stable.

If eaves troughs are to be used for collection of rainwater from the proposed cottage roof, then downspouts should be directed to soakaway pits as per the detail illustrated on Appendix F.

Wastewater & Septic:

The lot is proposed to have individual on-site wastewater treatment. We have reviewed the calculations provided by the 2015 Metropolitan report and agree that their conclusions are consistent with the proposed development. The proposed septic location will be located on the plateau at the rear of the proposed cottage. Wastewater will be gravity fed to a pump chamber and pumped to the septic and filter bed.

Detailed design will be required at time of permit to determine final septic design based on final architectural plans and site determined percolation rates.

Water Supply:

No proposed revisions are made from the 2015 Metropolitan report regarding water access. In addition, the potential for a drilled well has been indicated well outside of the 30m setback from septic.

Conclusions:

The proposed reduced lakeside setback from 45m to 30m will have no negative impacts from a site suitability standpoint provided that standard sediment control devices described above are installed and maintained to ensure there will be no sediment loss onto surrounding properties or into the fronting body of water. With the recommendations listed in this report, the development is not expected to pose any risk to the lake through stormwater or erosion. In addition to our recommendations, a detailed design to stabilize the slope behind the development as well as a septic design shall be completed at the permit stage in accordance with the finalized building plans.

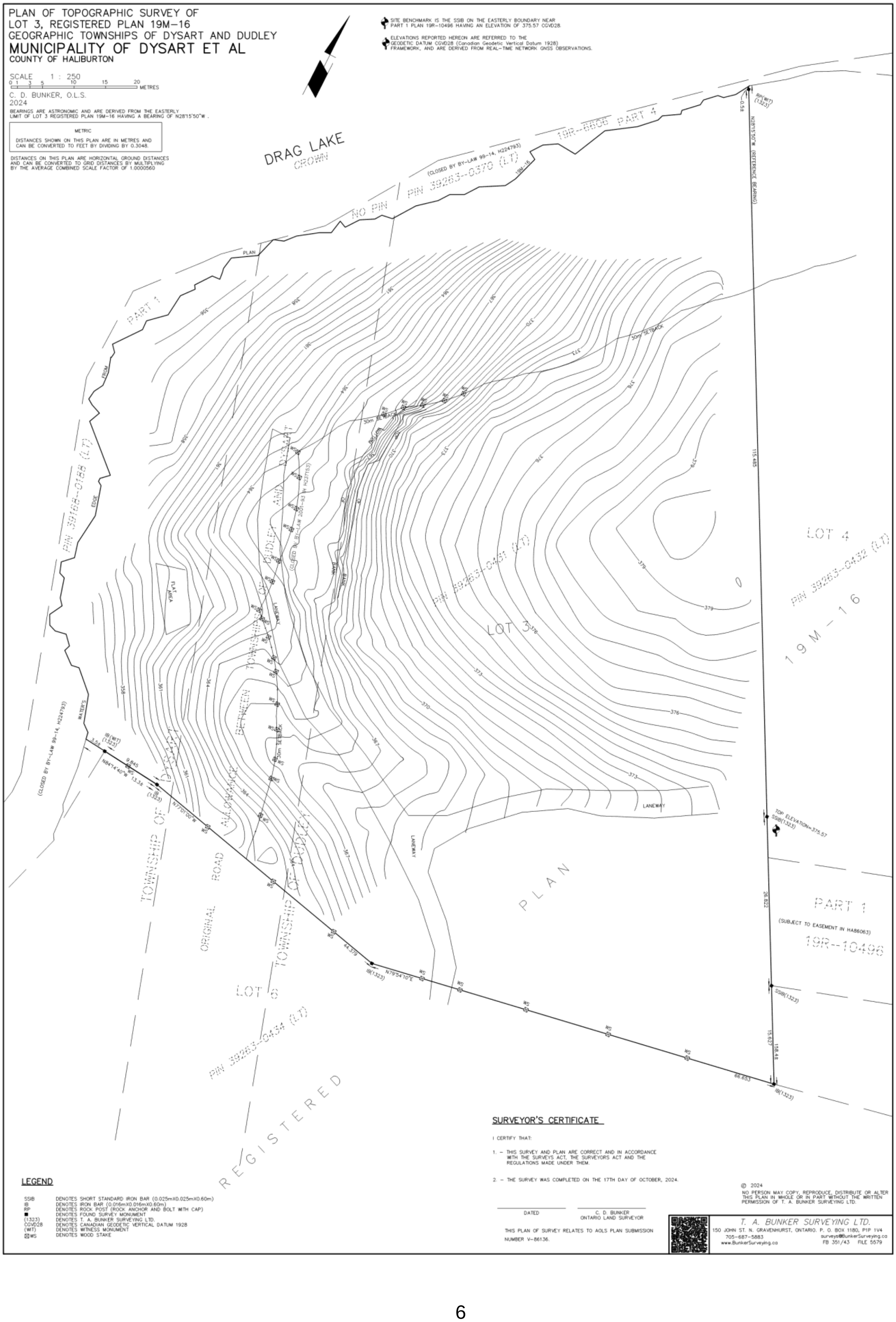
Should you have any questions or require additional information, please do not hesitate to contact me.

Yours truly,

Dan Duke, P.Eng.
Duke Engineering

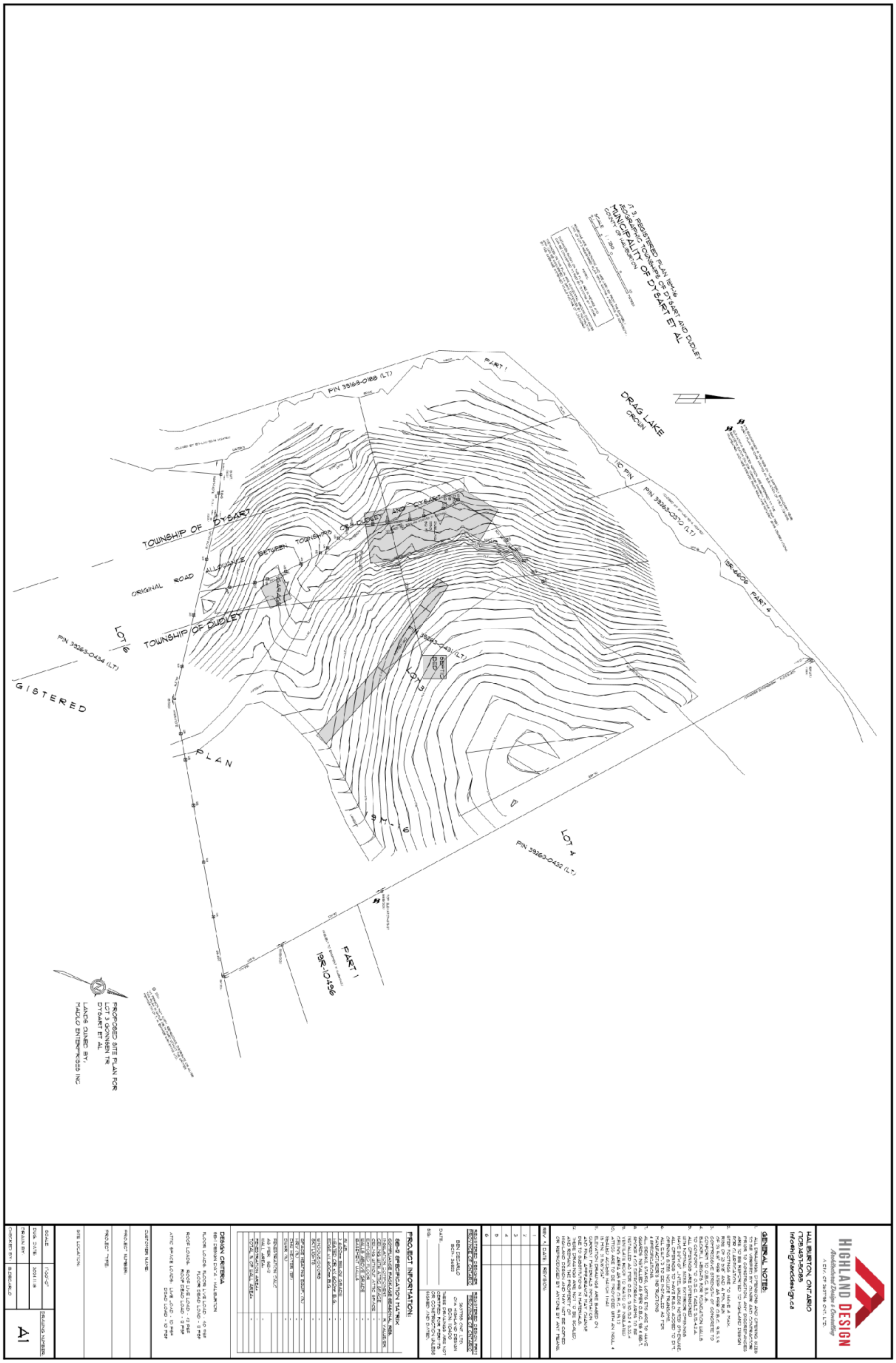
APPENDIX A

Topographic Survey


PLAN OF TOPOGRAPHIC SURVEY OF
LOT 3, REGISTERED PLAN 19M–16
GEOGRAPHIC TOWNSHIPS OF DYSART AND DUDLEY
MUNICIPALITY OF DYSART ET AL
COUNTY OF HALIBURTON
SCALE 1 : 250
METRES
C. D. BUNKER, O.L.S.
2024
BEARINGS ARE ASTRONOMIC AND ARE DERIVED FROM THE EASTERLY LIMIT OF LOT 3 REGISTERED PLAN 19M–16 HAVING A BEARING OF N28°15'50"W .
METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.
DISTANCES ON THIS PLAN ARE HORIZONTAL GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE AVERAGE COMBINED SCALE FACTOR OF 1.0000560
SITE BENCHMARK IS THE SSIB ON THE EASTERLY BOUNDARY NEAR PART 1 PLAN 19R–10496 HAVING AN ELEVATION OF 375.57 CGVD28.
ELEVATIONS REPORTED HEREON ARE REFERRED TO THE GEODETIC DATUM CGVD28 (Canadian Geodetic Vertical Datum 1928) FRAMEWORK, AND ARE DERIVED FROM REAL–TIME NETWORK GNSS OBSERVATIONS.
DRAG LAKE
CROWN
NO PIN
PIN 39263–0370 (LT)
(CLOSED BY BY–LAW 99–14, H224793)
19R–6606 PART 4
LOT 3
LOT 4
PIN 39263–0432 (LT)
19M–16
LOT 6
PIN 39263–0434 (LT)
PART 1
19R–10496
(SUBJECT TO EASEMENT IN HA86063)
REGISTERED PLAN
ORIGINAL ROAD ALLOWANCE BETWEEN TOWNSHIP OF DYSART AND TOWNSHIP OF DUDLEY
LANEWAY
TOP ELEVATION=375.57
SURVEYOR'S CERTIFICATE
I CERTIFY THAT:
1. – THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. – THE SURVEY WAS COMPLETED ON THE 17TH DAY OF OCTOBER, 2024.
DATED
C. D. BUNKER
ONTARIO LAND SURVEYOR
THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION NUMBER V–86136.
LEGEND
SSIB DENOTES SHORT STANDARD IRON BAR (0.025mX0.025mX0.60m)
IB DENOTES IRON BAR (0.016mX0.016mX0.60m)
RP DENOTES ROCK POST (ROCK ANCHOR AND BOLT WITH CAP)
■ DENOTES FOUND SURVEY MONUMENT
(1323) DENOTES T. A. BUNKER SURVEYING LTD.
CGVD28 DENOTES CANADIAN GEODETIC VERTICAL DATUM 1928
(WIT) DENOTES WITNESS MONUMENT
WS DENOTES WOOD STAKE
© 2024
NO PERSON MAY COPY, REPRODUCE, DISTRIBUTE OR ALTER THIS PLAN IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF T. A. BUNKER SURVEYING LTD.
T. A. BUNKER SURVEYING LTD.
150 JOHN ST. N. GRAVENHURST, ONTARIO. P. O. BOX 1180, P1P 1V4
705–687–5883
surveys@BunkerSurveying.ca
www.BunkerSurveying.ca
FB 351/43 FILE 5579

APPENDIX B

Proposed Site Plan


TOWNSHIP OF DYSART
ORIGINAL ROAD ALLOWANCE BETWEEN TOWNSHIPS OF DUDLEY AND DYSART
TOWNSHIP OF DUDLEY
DRAG LAKE
LOT 3
LOT 4
PART 1
19R-10496
PROPOSED SITE PLAN FOR
GENERAL NOTES
PROJECT INFORMATION
DESIGN CRITERIA
HIGHLAND DESIGN
A1

APPENDIX C

MTO Runoff Coefficients

Design Chart 1.07: Runoff Coefficients (Continued)

- Rural

Land Use & Topography[3]	Soil Texture		
	Open Sand Loam	Loam or Silt Loam	Clay Loam or Clay
CULTIVATED			
Flat 0 - 5% Slopes	0.22	0.35	0.55
Rolling 5 - 10% Slopes	0.30	0.45	0.60
Hilly 10- 30% Slopes	0.40	0.65	0.70
PASTURE			
Flat 0 - 5% Slopes	0.10	0.28	0.40
Rolling 5 - 10% Slopes	0.15	0.35	0.45
Hilly 10- 30% Slopes	0.22	0.40	0.55
WOODLAND OR CUTOVER			
Flat 0 - 5% Slopes	0.08	0.25	0.35
Rolling 5 - 10% Slopes	0.12	0.30	0.42
Hilly 10- 30% Slopes	0.18	0.35	0.52
BARE ROCK	COVERAGE[3]		
	30%	50%	70%
Flat 0 - 5% Slopes	0.40	0.55	0.75
Rolling 5 - 10% Slopes	0.50	0.65	0.80
Hilly 10- 30% Slopes	0.55	0.70	0.85
LAKES AND WETLANDS	0.05		

[2] Terrain Slopes

[3] Interpolate for other values of % imperviousness

Design Chart 1.07: Runoff Coefficients

- Urban for 5 to 10-Year Storms

Land Use		Runoff Coefficient	
		Min.	Max.
Pavement	- asphalt or concrete	0.80	0.95
- brick		0.70	0.85
Gravel roads and shoulders		0.40	0.60
Roofs		0.70	0.95
Business	- downtown	0.70	0.95
- neighbourhood		0.50	0.70
- light		0.50	0.80
- heavy		0.60	0.90
Residential	- single family urban	0.30	0.50
- multiple, detached		0.40	0.60
- multiple, attached		0.60	0.75
- suburban		0.25	0.40
Industrial	- light	0.50	0.80
- heavy		0.60	0.90
Apartments		0.50	0.70
Parks, cemeteries		0.10	0.25
Playgrounds (unpaved)		0.20	0.35
Railroad yards		0.20	0.35
Unimproved areas		0.10	0.30
Lawns	- Sandy soil		
- flat, to 2%		0.05	0.10
- average, 2 to 7%		0.10	0.15
- steep, over 7%		0.15	0.20
- Clayey soil			
- flat, to 2%		0.13	0.17
- average, 2 to 7%		0.18	0.22
- steep, over 7%		0.25	0.35

For flat or permeable surfaces, use the lower values. For steeper or more impervious surfaces, use the higher values. For return period of more than 10 years, increase above values as 25-year - add 10%, 50-year - add 20%, 100-year - add 25%.

The coefficients listed above are for unfrozen ground.

APPENDIX D

MTO IDF Curve Lookup

Ontario IDF CURVE LOOKUP

Active coordinate

45° 2' 45" N, 78° 25' 15" W (45.045833,-78.420833)

Retrieved: Thu, 15 May 2025 18:56:19 GMT

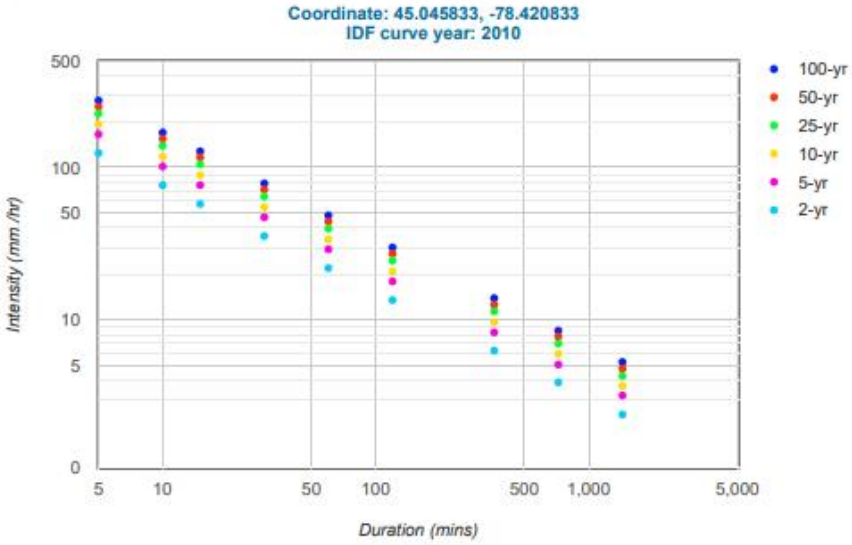
Location summary

These are the locations in the selection.

IDF Curve: 45° 2' 45" N, 78° 25' 15" W (45.045833,-78.420833)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 45° 2' 45" N, 78° 25' 15" W (45.045833,-78.420833)

Retrieved: Thu, 15 May 2025 18:56:19 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	21.9	29.1	33.8	39.8	44.2	48.5
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	124.4	76.6	57.7	35.6	21.9	13.5	6.3	3.9	2.4
5-yr	165.3	101.8	76.7	47.2	29.1	17.9	8.3	5.1	3.2
10-yr	192.0	118.3	89.1	54.9	33.8	20.8	9.7	6.0	3.7
25-yr	226.1	139.3	104.9	64.6	39.8	24.5	11.4	7.0	4.3
50-yr	251.1	154.6	116.5	71.8	44.2	27.2	12.6	7.8	4.8
100-yr	275.5	169.7	127.8	78.7	48.5	29.9	13.9	8.5	5.3

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.4	12.8	14.4	17.8	21.9	27.0	37.6	46.3	57.0
5-yr	13.8	17.0	19.2	23.6	29.1	35.9	49.9	61.5	75.7
10-yr	16.0	19.7	22.3	27.4	33.8	41.6	58.0	71.4	88.0
25-yr	18.8	23.2	26.2	32.3	39.8	49.0	68.3	84.1	103.6
50-yr	20.9	25.8	29.1	35.9	44.2	54.5	75.8	93.4	115.0
100-yr	23.0	28.3	32.0	39.4	48.5	59.8	83.2	102.5	126.2

Terms of Use

APPENDIX E

Stormwater Calculations

DUKE ENGINEERING	**Project:**	Lot 3 Drag Lake	**Date:**	17-Jun-25
	File No:	25-30-01	**Designed:**	TL
	Subject:	Pre Dev. Peak Flows Input 103 Pre-Dev	**Checked:**	DD

Subarea #	Area (ha)	Land Use	Runoff Coefficient (C Value)
1	1.172	Woodland	0.25
2	0.025	Building	0.95
3	0.050	Gravel	0.60
4	0.0000	Concrete	0.95
5	0.000	Asphalt	0.95
6	0.013	Landscaping	0.20

Pre Development		
Total Catchment Area	1.260	ha
Storage Area (lakes + wetlands)	0.00	ha
Flow Path Length	93.4	m
Flow Path Starting Elevation	379.50	m
Flow Path Ending Elevation	356.50	m
Flow Path Fall	23	m
Flow Path Slope	24.63%	%

MTO DYSART IDF CURVE VALUES						
Duration	2	5	10	25	50	100
5	124.4	165.3	192	226.1	251.1	275.5
10	76.6	101.8	118.3	139.3	154.6	169.7
15	57.7	76.7	89.1	104.9	116.5	127.8
30	35.6	47.2	54.9	64.6	71.8	78.7
60	21.9	29.1	33.6	39.8	44.2	48.5
120	13.5	17.9	20.6	24.5	27.2	29.9
360	6.3	8.3	9.7	11.4	12.6	13.9
720	3.9	5.1	6	7	7.8	8.5
1440	2.4	3.2	3.7	4.3	4.8	5.3

Watershed Characteristics			
Watershed Length, L (m) = 93.4	Watershed Fall (m) = 23.00	Watershed Slope, S_w = 24.6%	
Subarea #	Area (ha)	Runoff Coefficient	Land Use
1	1.172	0.25	Woodland
2	0.025	0.95	Building
3	0.050	0.60	Gravel
4	0.000	0.95	Concrete
5	0.000	0.95	Asphalt
6	0.013	0.20	Landscaping
Total % Impervious	7.0%		

Watershed Calculations

Total Area	Weighted Runoff Coefficient	Time of Concentration Formula
$A_{total} = A_1 + A_2 + A_3$	$C_w = \frac{A_1*C_1 + A_2*C_2 + A_3*C_3}{A_{total}}$	If $C_w < 0.4$ - use Airport Formula If $C_w \geq 0.4$ - use Bransby-Williams Formula
= 1.260	= 0.28	

Pre-Development Peak Flow Calculations

Storm Frequency	Runoff Coefficient	T_c Formula	T_c	i, Intensity (mm/h)	Q, Peak Flow	
2	0.277	Airport	9.01	82.4	0.081	m^3/s
5	0.277	Airport	9.01	109.6	0.107	m^3/s
10	0.277	Airport	9.01	127.2	0.124	m^3/s
25	0.305	Airport	8.70	153.5	0.165	m^3/s
50	0.333	Airport	8.40	174.7	0.205	m^3/s
100	0.347	Airport	8.25	194.2	0.237	m^3/s

Storm Frequency	Runoff Coefficient	L (m)	Sw	Airport	BW	Use		
2	0.277	93.4	24.6	9.01	2.74	9.01		
5	0.277	93.4	24.6	9.01	2.74	9.01		
10	0.277	93.4	24.6	9.01	2.74	9.01		
25	0.305	93.4	24.6	8.70	2.74	8.70	Adjusted C	25yr add 10%
50	0.333	93.4	24.6	8.40	2.74	8.40		50yr add 20%
100	0.347	93.4	24.6	8.25	2.74	8.25		100 yr add 25%

Dysart Rainfall Intensity Calculation Formula I = A x (tc/60)^B

Storm Frequency	Coef. A	Coef. B	Tc (min	I (mm/hr.)
2-yr	21.90	-0.699	9.01	82.45
5-yr	29.10	-0.699	9.01	109.56
10-yr	33.80	-0.699	9.01	127.25
25-yr	39.80	-0.699	8.70	153.47
50-yr	44.20	-0.699	8.40	174.72
100-yr	48.50	-0.699	8.25	194.18

DUKE ENGINEERING	**Project:**	Lot 3 Drag Lake	**Date:**	17-Jun-25
	File No:	25-30-01	**Designed:**	TL
	Subject:	Post-dev. Peak Flows Input 203 Post-Dev	**Checked:**	DD

Subarea #	Area (ha)	Land Use	Runoff Coefficient (C Value)
1	1.181	Woodland	0.25
2	0.021	Building	0.95
3	0.042	Gravel	0.60
4	0.0000	Concrete	0.950
5	0.000	Asphalt	0.95
6	0.016	Landscaping	0.20

Post-development		
Total Catchment Area	1.260	ha
Storage Area (lakes + wetlands)	0.00	ha
Flow Path Length	93.4	m
Flow Path Starting Elevation	379.50	m
Flow Path Ending Elevation	356.50	m
Flow Path Fall	23	m
Flow Path Slope	24.63%	

MTO DYSART IDF CURVE VALUES						
Duration	2	5	10	25	50	100
5	124.4	165.3	192	226.1	251.1	275.5
10	76.6	101.8	118.3	139.3	154.6	169.7
15	57.7	76.7	89.1	104.9	116.5	127.8
30	35.6	47.2	54.9	64.6	71.8	78.7
60	21.9	29.1	33.6	39.8	44.2	48.5
120	13.5	17.9	20.6	24.5	27.2	29.9
360	6.3	8.3	9.7	11.4	12.6	13.9
720	3.9	5.1	6	7	7.8	8.5
1440	2.4	3.2	3.7	4.3	4.8	5.3

DUKE ENGINEERING	**Project:** Lot 3 Drag Lake **File No:** 25-30-01 **Subject:** Post-dev. Peak Flows Data 203 Post-Dev.	**Date:** 17-Jun-25 **Designed:** TL **Checked:** DD

Used Rational Method for Calculating Peak Flows

Airport Formula	**Bransby-Williams (BW) Formula**	**Peak Flow Calculation**
$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.33}}$	$t_c = \frac{0.057 * L}{S_w^{0.2} * A^{0.1}}$	$Q = 0.0028 * C * i * A$
where: t_c = time of concentration	where: t_c = time of concentration	where: C = runoff coefficient
C = runoff coefficient	L = watershed length (m)	C = runoff coefficient
L = watershed length (m)	S_w = watershed slope (%)	i = rainfall intensity (mm/h)
S_w = watershed slope (%)	A = watershed area (ha)	A = watershed area (ha)

Watershed Characteristics

Watershed Length, L (m) = 93.4 | Watershed Fall (m) = 23 | Watershed Slope, S_w = 24.63%

Subarea #	Area (ha)	Runoff Coefficient	Land Use
1	1.181	0.25	Woodland
2	0.021	0.95	Building
3	0.042	0.60	Gravel
4	0.000	0.95	Concrete
5	0.000	0.95	Asphalt
6	0.016	0.20	Landscaping
Total % Impervious	6%		

Watershed Calculations

Total Area	Weighted Runoff Coefficient	Time of Concentration Formula
$A_{total} = A_1 + A_2 + A_3$	$C_w = \frac{A_1*C_1 + A_2*C_2 + A_3*C_3}{A_{total}}$	If $C_w < 0.4$ - use Airport Formula If $C_w \geq 0.4$ - use Bransby-Williams Formula
= 1.260	= 0.273	

Post-Development Peak Flow Calculations								
Storm Frequency	**Runoff Coefficient**		**T_c Formula**		**T_c**	**i, Intensity (mm/h)**	**Q, Peak Flow**	
2	0.273		Airport		9.06	82.1	0.079	m^3/s
5	0.273		Airport		9.06	109.1	0.105	m^3/s
10	0.273		Airport		9.06	126.8	0.122	m^3/s
25	0.300		Airport		8.76	152.8	0.162	m^3/s
50	0.327		Airport		8.46	173.8	0.201	m^3/s
100	0.341		Airport		8.31	193.2	0.232	m^3/s
Storm Frequency	**Runoff Coefficient**	**L (m)**	**Sw**	**Airport**	**BW**	**Use**		
2	0.2727	93	24.6	9.06	2.74	9.06		
5	0.2727	93	24.6	9.06	2.74	9.06		
10	0.2727	93	24.6	9.06	2.74	9.06		
25	0.3000	93	24.6	8.76	2.74	8.76	Adjusted C	25yr add 10%
50	0.3272	93	24.6	8.46	2.74	8.46		50yr add 20%
100	0.3409	93	24.6	8.31	2.74	8.31		100 yr add 25%

Calculated Rainfall Intensity From Dysart AES Data x (tc/60)^B			**I = A**
Storm Frequency	**Coef. A**	**Coef. B**	**Tc (min**	**I (mm/hr)**
2-yr	21.90	-0.699	9.06	82.13
5-yr	29.10	-0.699	9.06	109.13
10-yr	33.80	-0.699	9.06	126.76
25-yr	39.80	-0.699	8.76	152.79
50-yr	44.20	-0.699	8.46	173.85
100-yr	48.50	-0.699	8.31	193.15

DUKE ENGINEERING	**Project:**	Lot 3 Drag Lake	**Date:**	17-Jun-25
	File No:	25-30-01	**Designed:**	TL
	Subject:	FLOW SUMMARY Sub-watershed	**Checked:**	DD

Pre-Development Data		
Total Catchment Area	1.260	ha
Storage Area (lakes + wetlands)	0.00	ha
Flow Path Length	93.4	m
Flow Path Slope	24.63%	

Post-development Data		
Total Catchment Area	1.26	ha
Storage Area (lakes + wetlands)	0.00	ha
Flow Path Length	93.40	m
Flow Path Slope	24.63%	

Peak Flows Summary (m^3/s)

Method		2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Rational - Pre-Dev		0.0807	0.1072	0.1245	0.1651	0.2051	0.2374
Rational - Post-Dev		0.0790	0.1050	0.1219	0.1617	0.2007	0.2323
Total Increase		-0.0016	-0.0022	-0.0025	-0.0035	-0.0044	-0.0052

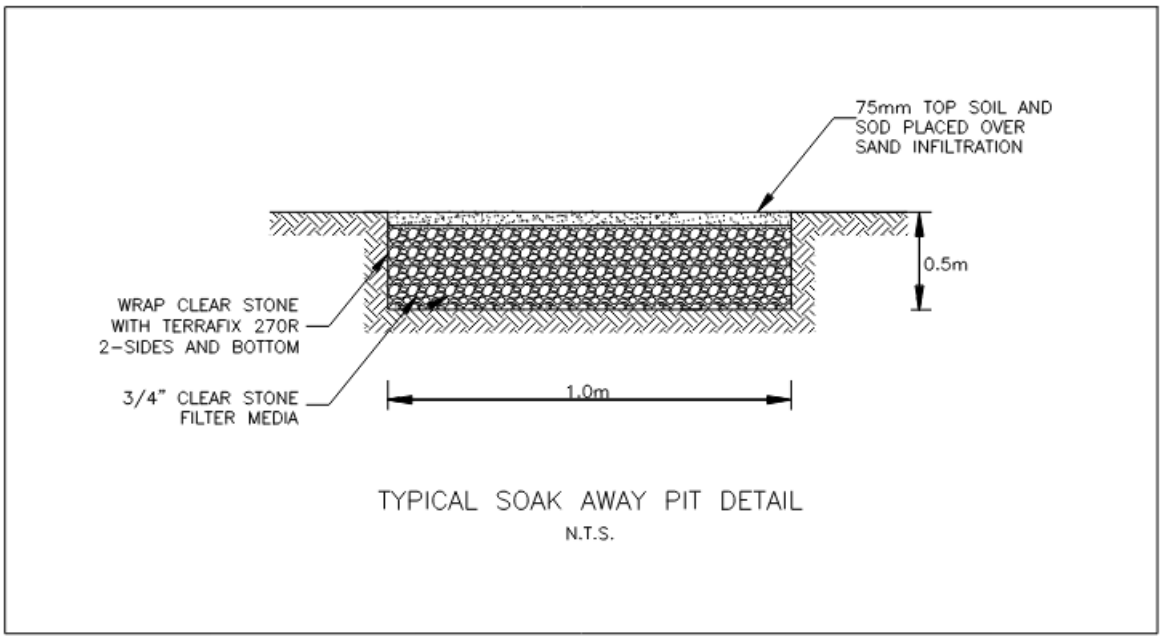
Total Impervious Summary

Pre / Post-dev.	Total Land Area (ha)	Building Area (ha)	Gravel (ha)	Landscaping -Grass (ha)	Total % Impervious
Pre-Dev	1.2600	0.0250	0.0500	0.0126	6.95%
Post-Dev	1.2600	0.0210	0.0420	0.0164	6.30%
				% Difference	-0.65%

Storm Frequency	**Pre-Development Flow Rate (m^3/s)**	**Post-Development Flow Rate (m^3/s)**	**Post-Development Controlled Flow Required (m^3/s)**	**Post-Development Controlled Flow from Site (m^3/s)**
2-Year	0.0807	0.0790	0.0807	-0.0016
5-Year	0.1072	0.1050	0.1072	-0.0022
10-Year	0.1245	0.1219	0.1245	-0.0025
25-Year	0.1651	0.1617	0.1651	-0.0035
50-Year	0.2051	0.2007	0.2051	-0.0044
100-Year	0.2374	0.2323	0.2374	-0.0052

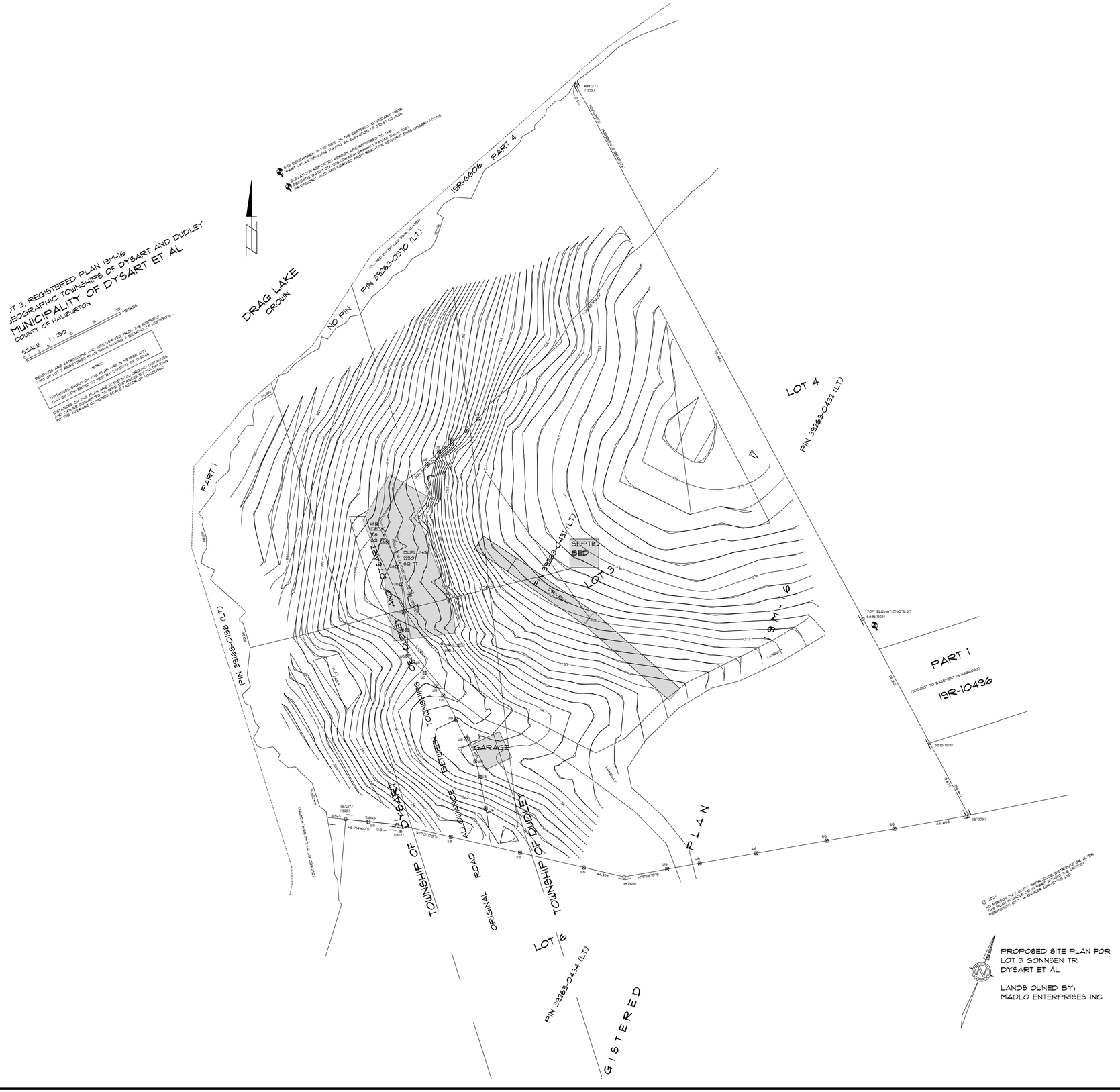
APPENDIX F

Soakaway Pit Detail



TYPICAL SOAK AWAY PIT DETAIL
N.T.S.

Appendix 8. Proposed Development Plan.



PROPOSED SITE PLAN FOR
LOT 3 GONNSEN TR
DYSART ET AL

LANDS OWNED BY:
MADLO ENTERPRISES INC

HIGHLAND DESIGN
Architectural Design & Consulting
A DIV. OF 2637795 ONT. LTD.

HALIBURTON, ONTARIO
(705)457-5085
info@highlanddesign.ca

GENERAL NOTES:

1. ALL DRAWINGS, DIMENSIONS AND OPENING SIZES TO BE VERIFIED BY OWNER AND CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED TO HIGHLAND DESIGN FOR CLARIFICATION.
2. STEP FOOTINGS ARE TO HAVE A MAX. RISE OF 23 5/8" AND A MIN. RUN OF 23 5/8" PER STEP AS PER O.B.C. 9.15.3.9
3. COMPRESSIVE STRENGTH OF CONCRETE TO CONFORM TO O.B.C. 9.3.1.6.
4. BACKFILL HEIGHTS FOR FOUNDATION WALLS TO CONFORM TO O.B.C. TABLE 9.15.4.2.A.
5. ALL OPENINGS ARE DIMENSIONED WITH NOMINAL SIZES. EXTERIOR OPENINGS HAVE 2-2"X10" LINTEL UNLESS NOTED OTHERWISE. ALL OPENINGS TO HAVE R.S.O. ADDED TO DIM. OPENING SIZES INCLUDE TRANSOMS.
6. ALL E.I.F.S. TO BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS & SPECIFICATIONS.
7. ALL DECKS, STAIRS, LOFTS ETC ARE TO HAVE GUARDS INSTALLED AS PER O.B.C. 9.8 & SB-7.
8. SMOKE & CO DETECTORS/ALARMS TO BE INSTALLED AS PER O.B.C. 9.10.19.2 & 9.33.4
9. VENTILATE ROOF TO RATIO OF INSULATED CEILING AREA AS PER O.B.C. 9.19.1.2
10. ATTICS ARE TO BE PROVIDED WITH AN INSUL. & SEALED ACCESS HATCH THAT 18 MIN. 21 5/8"X24"
11. ELEVATION DRAWINGS ARE BASED ON CURRENT MATERIALS INFORMATION AND FINAL APPEARANCE MAY CHANGE DUE TO SUBSTITUTIONS IN MATERIALS.
12. THESE DRAWINGS ARE NOT TO BE SCALED, AND REMAIN THE PROPERTY OF HIGHLAND DESIGN AND MAY NOT BE COPIED OR REPRODUCED BY ANYONE BY ANY MEANS.

REV. #	DATE:	REVISION:
1		
2		
3		
4		
5		
6		

REGISTERED DESIGNER PROVINCE OF ONTARIO	REGISTERED DESIGN FIRM PROVINCE OF ONTARIO
BEN DECARLO BCIN: 36922 DATE: _____ SIG: _____	2637795 ONT. LTD. O/A HIGHLAND DESIGN BCIN: 110400 THESE DRAWINGS ARE NOT CERTIFIED FOR PERMITS OR CONSTRUCTION UNLESS SIGNED AND DATED.

PROJECT INFORMATION:

SB-12 SPECIFICATION MATRIX	
COMPLIANCE PACKAGE-SEASONAL RES.	
INSULATION COMPONENT	R VALUE/ER
CEILING WITH ATTIC SPACE	-
CEILING WITHOUT ATTIC SPACE	-
EXPOSED FLOOR	-
WALLS ABOVE GRADE	-
BASEMENT WALLS	-
SLAB	
> 600mm BELOW GRADE	-
HEATED OR +/< 600mm B.G.	-
EDGE +/< 600mm B.G.	-
WINDOWS/DOORS	-
SKYLIGHTS	-
SPACE HEATING EQUIP. (%)	-
HRV (%)	-
DHW HEATER (EF)	-
DWHR (%)	-
FENESTRATION CALC AS PER SB-12	
WALL AREA=	-
FENESTRATION AREA=	-
TOTAL % OF WALL AREA=	-

DESIGN CRITERIA

SB-1 DESIGN DATA - HALIBURTON

FLOOR LOADS: FLOOR LIVE LOAD - 40 PSF
FLOOR DEAD LOAD - 12 PSF

ROOF LOADS: ROOF LIVE LOAD - 42 PSF
ROOF DEAD LOAD - 12 PSF

ATTIC SPACE LOADS: LIVE LOAD - 10 PSF
DEAD LOAD - 10 PSF

CUSTOMER NAME:

PROJECT NUMBER:

PROJECT TYPE:

SITE LOCATION:

SCALE:	1"=30'-0"	DRAWING NUMBER:
DWG. DATE:	2024-11-18	A1
DRAWN BY:		
CHECKED BY:	B.DECARLO	

Appendix 9. Summary of Technical Recommendations

Natural Feature	Technical Recommendations (per Section 5 of report)

Steep Slopes and Fish Habitat	• The proposed residence and garage will be restricted a minimum of 30 m from the high-water mark of Drag Lake, excepting any decks attached to the residence which may not extend closer than 27 m to the shoreline (per zoning).
	• Any footpaths to the shoreline shall consist of permeable materials, be minimized in width (≤ 2 m), and will follow an alignment that minimizes vegetation disturbance and erosion.
	• Native tree/shrub plantings will be installed in the "Shoreline Buffer Enhancement Area" indicated on Figure 3.
	• Existing vegetation (including trees, shrubs, and understory herbaceous cover) within 30 m of the shoreline of Drag Lake and on steep slopes will be retained (beyond the proposed attached deck and shoreline access footpath).
	• All relevant recommendations contained in the Stormwater Management and Servicing Report will be implemented.
	• Roof leaders/downspouts shall be directed away from the shoreline and be discharged into soak away pits (or equivalent low-impact development option, as determined by a qualified professional).
	• Any necessary shoring will minimize alteration of the existing slope and associated vegetative conditions to the maximum extent practicable.
	• Any necessary vegetation disturbance along steep slopes will be addressed through restoration including native tree/shrub plantings and placement of native seed mix (as necessary).
	• Erosion and Sediment Control (ESC) measures (e.g., installation of silt fence) will be incorporated into the final development plans forming part of the site plan agreement, and will include the following minimum items (amongst others, as deemed necessary):
	  • Schedule work to avoid weather conditions which increase the potential for erosion and sedimentation (i.e., rain, strong wind, etc.).
	  • Exposed soils will be restricted to the smallest area for the shortest period of time.
	  • Sediment fence will be installed prior to the commencement of site preparation and other construction-related activities.
	  • Sediment fence will fully enclose the proposed areas of development or disturbance, be installed properly (e.g., trenched in, etc.), inspected regularly (i.e., daily, following storm events, etc.), and repaired immediately when necessary (e.g., breaches eliminated, sediment accumulations removed, etc.).
	  • Any necessary stockpiles or temporarily stored topsoil, fill, or aggregate material will be piled as low as practicable and isolated by sediment fence.
	  • Locate all fuels, construction materials, and other potentially deleterious substances (if needed on-site) a minimum of 30 m from the high-water mark of Drag Lake and away from steep slopes. Minimize storage of such materials on-site.
	  • Contractor will be prepared to immediately deploy spills response equipment (e.g., absorption pads, etc.) if necessary. All spills will be reported to the Ontario Spills Action Centre (1-800-268-6060) as soon as possible.
	  • Non-biodegradable erosion and sediment control materials (including accumulated sediment if any) will be removed once construction is complete and disturbed areas are stabilized.
	• The replacement septic system will be sited a minimum of 45 m from the high-water mark of Drag Lake.
	• The septic system will promote uniform distribution of septic effluent across the leaching bed, through (for example) use of a dosing system or equivalent technology.
	• Any imported soil required to construct the septic system will be coarse-textured (i.e., sandy) and must have a demonstrated ability to retain phosphorus (i.e., typically a minimum of 500 mg phosphorus per kg of soil).
	• Final location of the septic system is to be confirmed by a licensed installer and should conform to the other overlapping recommendations provided herein.
	• The replacement septic system will be inspected a minimum of once every 3 to 5 years to confirm proper function and ascertain need for pumping.

Natural Feature	Technical Recommendations (per Section 5 of report)
Habitat of Endangered and Threatened Species	• All necessary tree removals will be completed outside the primary bat activity period (i.e., to be completed between October 1 and March 31). If limited tree removal is required during the restricted timing window, consult a qualified ecologist and/or MECP for further direction. • If construction activities occur during the active bat season (i.e., April 1 and September 30), work will be restricted to daylight hours only and the use of artificial lighting will be avoided. • Any lighting incorporated into the final building designs should be "dark-sky friendly" and directed downward (i.e., towards the ground) to the extent practicable.
Other Natural Environment Considerations	• All necessary vegetation removal (e.g., trees, meadow vegetation) will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and March 31). Should minor vegetation removal be proposed during the restricted timing window within readily searchable habitat types, a bird nesting survey will be undertaken to confirm the presence or absence of nesting birds or bird nests within or adjacent to the areas subject to vegetation clearance. The bird nesting survey is to take place within 48 hours of vegetation removal. • Incorporation of Bird-Friendly Guidelines into the residence design such as those published in City of Toronto's "Best Practices for Bird-Friendly Glass" (or equivalent standards) should be considered at detailed design. • Any Landscape Plans prepared as part of the development approval should incorporate species native to the local landscape. • All vehicles and machinery (i.e., construction equipment) entering the Subject Property during construction shall follow relevant best practices for reducing the spread of invasive species outlined in the Clean Equipment Protocol for Industry (Halloran et al. 2013).