

SCOPED NATURAL HERITAGE
EVALUATION
2 Arbour Trail
City of Barrie
April 2020



RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.



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April 17, 2020
RS# 2019-195

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SUBJECT: Scoped Natural Heritage Evaluation, 2 Arbour Trail, City of Barrie

RiverStone Environmental Solutions Inc. is pleased to provide you with the attached report. A summary of the key results and recommendations are provided at the beginning of the report. Detailed descriptions of the work completed, and the findings are provided in the subsequent sections.

Please contact us if there are any questions regarding the report, or if further information is required.

Best regards,

RiverStone Environmental Solutions Inc.

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REPORT SUMMARY

Type of Study Scoped Natural Heritage Evaluation		Date April 17, 2020
Project Manager Bev Wicks	Legal Description 2 Arbour Trail, City of Barrie	Development Proposed Zoning By-law Amendment
	Approval Authorities City of Barrie	Owner/Agent Mark Porter/Innovative Planning Solutions
<p><u>Report Summary</u></p> <p>This Scoped Natural Heritage Evaluation has been prepared to support an application for a severance/rezoning to permit one (1) new lot with a new single detached dwelling. During onsite review of existing conditions on the property in December 2019, it was determined that the lot contained 1) potential habitat of endangered and threatened species, and 2) fish habitat. Potential impacts of the proposed application (i.e., severance/rezoning and construction of a single residential dwelling) on the identified natural features and species of conservation interest were evaluated. The recommendations contained within Section 4 of this report (reiterated below) are intended to mitigate potential negative impacts on the identified features and species.</p>		

RECOMMENDATIONS

Habitat of Endangered and Threatened Species

- **Vegetation removal and other disturbances outside of the development envelopes should be minimized to the extent possible.**
- **Vegetation removal (i.e., felling of trees, clearing) must not occur on the subject property from April 1 to October 15, as this time corresponds to the active roosting season for Endangered bat species.**

Fish Habitat

In order to increase the amount natural vegetation within the riparian buffer area and help to enhance potential fish habitat, areas of naturalization are recommended. Naturalization is to occur in these areas on **Figure 2**. In addition, RiverStone recommends the following:

- **Any trees and shrubs located along the existing shoreline be left in a natural state.**
- **An aquatic vegetation along with anchored woody material and rocks that may emerge must remain as existing and must not be removed from the lakebed.**
- **Revegetation of the riparian area shown on Figure 2 is to be completed with a mix of tree and shrub species native to the local area. A suggested list of suitable species is provided below in Table 2 and on Figure 2. Following planting, these areas are to be left unmown and unmaintained, this will help to restore the natural vegetated buffer.**

- A total of four (4) Trees (three (3) to the east and one (1) to the west of the boathouse) (according to Figure 2) a minimum of 1.2 m (~4 ft) in height with a sufficiently developed root ball and 3 m apart are to be planted. Larger trees may be used is desired, Appendix 3 provides a planting guide.
- All tree installations should include rodent guards that are flush with the ground surface.
- A total of 81-88 shrubs (67-72 to the east and 14-16 to the west of the boathouse) (according to Figure 2) a minimum size of 30cm/1-3 gallon pot spaced 1 m apart. Larger shrubs may be used if desired, Appendix 3 provides a planting guide. Alternatives to species noted in Table 2 can be substituted, with the intent that all plantings be native to the local area.

Table 2. Suggested native plant species for revegetation area.

Common Name	Scientific Name	Form
Red Oak	<i>Quercus rubra</i>	Tree
Red Maple	<i>Acer rubrum</i>	Tree
Silver Maple	<i>Acer saccharinum</i>	Tree
Black Walnut	<i>Juglans nigra</i>	Tree
White Birch	<i>Betula papyrifera</i>	Tree
White Pine	<i>Pinus strobus</i>	Tree
White Spruce	<i>Picea glauca</i>	Tree
Balsam Fir	<i>Abies balsamea</i>	Tree
Alternate-leaved dogwood	<i>Cornus alternifolia</i>	Shrub
Red Osier Dogwood	<i>Cornus stolonifera</i>	Shrub
Common Elderberry	<i>Sambucus canadensis</i>	Shrub
Snowberry	<i>Symphoricarpos albus</i>	Shrub
Nannyberry	<i>Viburnum lentago</i>	Shrub
Chokecherry	<i>Prunus virginiana</i>	Shrub
Highbush cranberry	<i>Viburnum trilobum</i>	Shrub

Other Natural Features and Functions

- Vegetation removal (e.g., tree/shrub clearing, grading of open areas, etc.) should be completed outside of the primary breeding bird nesting window (i.e., between April 1 and August 31). If vegetation removal occurs during this period, a nest survey should be conducted by a qualified biologist within 5 days of commencement of construction activities to identify and locate active nests of bird species (where present) covered by the federal *Migratory Bird Convention Act, 1994* or provincial *Fish and Wildlife Conservation Act, 1997*. If a nest is located or evidence of breeding noted, a mitigation plan should be developed to avoid any potential impacts on birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.
- All recommendations within the Tree Inventory and Preservation Plan (Riverstone April 2020) be incorporated into the building permit.
- Tree preservation fence (barrier fencing) be installed in the location(s) provided within the Tree Inventory and Preservation Plan.

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1 BACKGROUND

RiverStone Environmental Solutions Inc. (hereafter “RiverStone”) was retained to prepare this scoped Natural Heritage Evaluation (NHE) as part of an application for a rezoning associated with a property located at 2 Arbour Trail (hereafter “subject property”) in the City of Barrie. The subject property is located in the southeast portion of the City of Barrie on the northeast corner of Cox Mill Road and Arbour Trail with frontage on Lake Simcoe (**Figure 1**). The application is for a Zoning By-law amendment is required to rezone a portion of the subject property to Residential Single Detached Dwelling Second Density (R2) to facilitate severance of the property. The rezoning and severance of the south portion of the property will then permit the development of a new detached dwelling while retaining the existing dwelling.

Per Schedule A of the City’s Official Plan (Office Consolidation January 2018), the subject property is designated “Residential” with no Natural Heritage designations indicated on Schedule H (Natural Heritage Resources). However, the property located <120 m to the west of the subject property is designated “Residential – Level 1 with Existing Development Designation Subject to 3.5.2.4.d”. The north portion of the subject property falls within the regulation limits of the Lake Simcoe Region Conservation Authority (LSRCA) as indicated on Schedule F of the Official Plan and LSRCA mapping. Based on a review of the City of Barrie Zoning Bylaw 2009-141 (Office Consolidation December 2017), the subject property is currently zoned Residential Single Detached Dwelling First Density (R1) and proposed to be rezoned to R2.

Based on communication and approval of a Terms of Reference that you received from the City of Barrie, it was determined that a NHE was required. The completion of this scoped NHE comments on all the applicable policy and legislation but is primarily scoped to address the natural heritage feature identified on Schedule H of the Official Plan as well as potential impacts to Endangered and Threatened species. A Tree Inventory Assessment has also been completed for the subject property and is provided under a separate cover.

2 APPROACH AND METHODS

While this NHE is scoped in accordance with details provided by the client, broadly speaking RiverStone employed the following approach:

1. Gather background biophysical information for the Subject Property and adjacent lands (~ 120 m from subject property boundaries) to become familiar with existing mapping of natural heritage features and occurrences of species of conservation interest prior to the site investigation.
2. Conduct site investigations to field-verify the presence or absence of natural heritage features and/or habitat for species of conservation interest identified during background information gathering, and to identify any additional significant features (where present).
3. Determine the potential for negative impacts associated with implementation of the proposed development and ways that these negative impacts can be mitigated via avoidance, minimization, and/or compensation measures (as necessary).
4. Determine whether the proposed application addresses applicable municipal, provincial, and federal environmental policies.

2.1 Information Sources used to Assess Site Conditions

Background biophysical information pertaining to the Subject Property and adjacent lands was collected from a variety of sources. This includes:

- **City of Barrie Official Plan** (Office Consolidation January 2018) for natural heritage feature mapping within and adjacent to the Subject Property, including:
 - Schedule A – Land Use
 - Schedule F – Conservation Authority Regulation Limits and Watercourses
 - Schedule H – Natural Heritage Resources
- **Lake Simcoe Region Conservation Authority (LSRCA) Interactive Mapping** to identify potential features of conservation interest on the Subject Property and determine whether LSRCA’s regulated area extends onto the Subject Property (accessed January 6, 2020 at <https://maps.lsrca.on.ca/EH5Viewer/index.html?viewer=LSRCARegulations>).
- **MNRF Natural Areas Mapping and Natural Heritage Information Centre (NHIC) database** regarding information on occurrences of species at risk (SAR), provincially tracked species, and natural heritage features near the Subject Property (squares: no squares on subject property; accessed January 6, 2020, at: <http://www.giscoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.htm>)
- **Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005** (Cadman et al. 2007) regarding birds that were documented to be breeding near the Site between 2001–2005 (squares: 17PK01; accessed at: <http://www.birdsontario.org/atlas/squareinfo.jsp>).
- **iNaturalist** database regarding all natural heritage species records near the Subject Property (squares: accessed January 6, 2020, at: <https://www.inaturalist.org/>).
- **Atlas of the Mammals of Ontario** (Dobbyn 1994) regarding mammals recorded near the Subject Property.
- **Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2** (Henson and Brodribb (2005) regarding terrestrial biodiversity within Ecodistrict 6E-6 (Barrie).
- **Great Lakes Conservation Blueprint for Aquatic Biodiversity, Volume 2** (Phair et al. (2005) regarding aquatic biodiversity within tertiary watershed 2EC (Black River-Lake Simcoe).
- **Physiography of Southern Ontario** (Chapman and Putnam 2007) for information pertaining to the physiography and soils within and adjacent to the Subject Property.
- **Digital Ontario Base Maps (OBMs; 1:10,000).**
- **Historical and Current Aerial Photographs** of the Subject Property and adjacent lands.

2.2 Site Investigations

The results of background information gathering outlined above in **Section 2.1** helped direct on-site data collection activities associated with the site investigation carried out by RiverStone on December 13, 2019. Evidence for the presence of a species (or use of an area by a species) was determined from visual and/or auditory documentation (e.g., song, call) and/or observation of nests, tracks, burrows,

browse, skins, and scats (where applicable). Natural features of conservation interest (e.g., SAR habitat, etc.) were digitized and delineated in the field with a high accuracy GPS. Features of interest were photographed, and all information collected was catalogued for future reference. Representative photographs detailing on-site conditions are provided in **Appendix 1**. Overall, the level of effort expended on-site was deemed adequate to document natural features and functions with recognized status given the location and scale of the proposed development plan.

2.2.1 Vegetation Community Characterization

Vegetation communities were delineated according to Ecological Land Classification (ELC) community tables (Lee et al. 1998). ELC defines ecological units or communities based on bedrock, climate (temperature, precipitation), physiography (soils, slope, aspect), and corresponding vegetation. Use of the system permits biologists and other land managers to use a common language to describe vegetation communities, which in turn facilitates the identification of communities likely to support features or functions of conservation interest. The ELC system is an organizational framework that can be applied at different scales. The ecological units most useful for site-specific evaluations are ecosites and vegetation types (also known as ecoelements). Vegetation types are the finest level of resolution in the ELC system and are recurring patterns found in the plant species assemblages that are associated with a particular ecosite (Lee et al. 1998). Where identified, the boundaries of wetland communities that occur on the subject property were delineated in the field according to the “50% wetland vegetation rule” specified by the Ontario Wetland Evaluation System (OWES).

2.2.2 Natural Heritage Resources

The City of Barrie Natural Heritage Resource Network includes the following:

- Provincially Significant Wetlands
- Non-provincially significant wetlands greater than 0.5 ha
- Significant Woodlands greater than 10 ha
- Significant habitat of endangered and threatened species
- Watercourses, minimum vegetation protection zones and connectivity linkages
- Environmental Protection Lands

The subject property and adjacent lands were assessed for the presence of the above features with reference to data collected via the desktop-based and on-site investigations as described herein. Features of interest were photographed, and all information collected was catalogued for future reference.

2.2.2.1 Endangered and Threatened Species

RiverStone’s primary approach to site assessment is habitat-based. This means that our field investigations focus on evaluating the potential for features within an area of interest to function as habitat for species considered potentially present, rather than searching for live specimens. An area is considered potential habitat if it satisfies a number of criteria, usually specific to a species, but occasionally characteristic of a broader group (e.g., several turtles of conservation interest use sandy shorelines for nesting, numerous fish species use areas of aquatic vegetation for nursery habitat).

Physical attributes of a site that can be used as indicators of its potential to function as habitat for a species include structural characteristics (e.g., physical dimensions of rock fragments or trees, water depth), ecological community (e.g., meadow marsh, rock barren, coldwater stream), and structural connectivity to other habitat features required by the species. Species-specific habitat preferences and/or affinities are determined from status reports produced by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Cadman et al. (2007), published and unpublished documents, and direct experience.

For the purposes of identifying species that warrant consideration during design and implementation of the proposed development plan, endangered and threatened species include those designated as “Endangered” or “Threatened” under O. Reg. 230/08 pursuant to the provincial *Endangered Species Act, 2007*.

2.3 Impact Assessment and Mitigation Measures

To carry out a defensible ecological assessment of potential impacts associated with implementation of the proposed development, RiverStone employs the following approach:

1. *Predict* impacts to existing biophysical features and functions on site based on the proposed development plan (from construction to post-completion), including both direct (e.g., vegetation clearance, etc.) and indirect (e.g., light pollution, encroachment post-development, impacts).
2. *Evaluate the significance* of predicted impacts to existing biophysical features and functions based on their spatial extent, magnitude, timing, frequency (how often), and duration (how long).
3. *Assess the probability or likelihood* that the predicted impacts will occur at the level of significance expected (i.e., high, medium, low probability).
4. Where the potential for negative impacts exists, ecologically meaningful *mitigation measures* are offered to avoid such impacts first, and where impacts cannot be fully avoided to minimize and/or compensate such impacts as appropriate.

2.4 Applicable Environmental Legislation and Policy

To assess whether the application satisfies relevant municipal, provincial, and federal requirements with respect to the natural environment, the following policies (e.g., statutes, regulations, plans, guidance documents, etc.) that may be applicable to the proposed application and were considered during both the field investigations and the impact analysis.:

- City of Barrie Official Plan (Office Consolidation January 2018)
- Provincial *Conservation Authorities Act*, R.S.O. 1990, c. C.27, including:
 - O. Reg. 179/06 – Lake Simcoe Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses
- Provincial *Lake Simcoe Protection Act*, S.O. 2008, c. 23, including:
 - Lake Simcoe Protection Plan, O.C. 977/2009

- *Provincial Policy Statement*, 2014, 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 (OMNR 2010)
- Provincial *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 (i.e. “Exemption Regulation”)
- Federal *Migratory Birds Convention Act*, S.C. 1994, c. 22, including:
 - Migratory Birds Regulations, C.R.C., c. 1035

3 BIOPHYSICAL FEATURES AND FUNCTIONS

3.1 General Site Conditions

At the time of RiverStone’s onsite assessment (December 13, 2019) the subject property was developed containing a dwelling with attached garage, boathouse, and associated paved driveway. The subject property is rectangular in shape bordered by Cox Mill Road to the west, Arbour Trail to the south, developed residential lot to the east and Lake Simcoe to the north. The property slopes west and north towards Cox Mill Road and Lake Simcoe. Other than Lake Simcoe, no watercourses, wetlands, or other aquatic features were identified on or adjacent to the subject property.

3.2 Vegetation

Existing vegetation communities on the subject property were assessed during the onsite investigation. A desktop exercise was undertaken to review vegetation community boundaries using background information sources and current aerial photographs; the mapped vegetated communities were ground-truthed and refined on-site. .

3.2.1 Cultural Meadow (CUM)

The subject property is primarily landscaped and consists of a single vegetation community comprised primarily of manicured grass with singular trees consisting of Norway Spruce (*Picea abies*) and White Spruce (*Picea glauca*), with Norway Maple (*Acer platanoides*), Silver Maple (*Acer saccharinum*) and White Spruce along the property boundary. Additional species noted along the shoreline of the property include: Reed Canary Grass (*Phalaris arundinacea*), thistle species (*Cirsium* sp.), Riverbank Grape (*Vitis riparia*), Bitter-sweet Nightshade (*Solanum dulcamara*), meadowsweet species (*Spiraea* sp.), and regenerating Black Walnut (*Juglans nigra*), Green Ash (*Fraxinus pennsylvanica*), Manitoba Maple (*Acer negundo*), and Siberian Elm (*Ulmus pumila*).

3.3 Natural Heritage Resources

Based on the biophysical information collected during background information gathering (per **Section 2.1**) and the onsite investigation completed by RiverStone (per **Section 2.2**), **Table 1** below summarizes the status of natural features of conservation interest on the subject property and adjacent lands as per the components of the City of Barrie Natural Heritage Resource Network outlined on Schedule H of the City’s OP along with features identified as Natural Core Areas identified in Section 8.3.2.1 of the City’s OP. RiverStone’s rationale for such determinations is provided in the sections that follow. Features of conservation interest mapping is provided in **Figure 2**.

Table 1. Status of the components of the City of Barrie Natural Heritage Resource Network and Natural Core Area within and adjacent to the subject property.

Features of Conservation Interest	Status of Natural Feature of Conservation Interest within the Subject Property	Status of Natural Feature of Conservation Interest within Adjacent Lands
Provincially Significant Wetlands	<i>Absent.</i> See Section 3.3.1.	<i>Absent.</i> See Section 3.3.1.
Non-provincially significant wetlands greater than 0.5 ha	<i>Absent.</i> See Section 3.3.1	<i>Absent.</i> See Section 3.3.1
Significant Woodlands greater than 10 ha	<i>Absent.</i> See Section 3.3.2.	<i>Absent.</i> See Section 3.3.2
Significant habitat of endangered, threatened species and species of species concern	<i>Potential.</i> See Section 3.3.3	<i>Potential.</i> See Section 3.3.3
Watercourses, minimum vegetation protection zones and connectivity linkages	<i>Absent.</i> See Section 3.3.4	<i>Absent.</i> See Section 3.3.4
Environmental Protection Lands	<i>Absent.</i> See Section 3.3.5	<i>Present.</i> See Section 3.3.5
Fish Habitat	<i>Present.</i> See Section 3.3.6	<i>Present.</i> See Section 3.3.6
Significant Valleylands	<i>Absent.</i> See Section 3.3.7	<i>Absent.</i> See Section 3.3.7
Significant Wildlife Habitat	<i>Absent.</i> See Section 3.3.8	<i>Present.</i> See Section 3.3.8
Sand Barrens and Savannahs	<i>Absent.</i> See Section 3.3.9	<i>Absent.</i> See Section 3.3.9

¹ - Shaded rows denote features of conservation interest for which negative impacts stemming from implementation of the proposed development plan are possible.

3.3.1 Wetlands

Per the results of the ELC vegetation mapping outlined in **Section 3.2**, no wetland communities are present on the subject property. Additionally, a review of the data available from the MNRF indicates that no Provincially Significant Wetlands are located within 120 m of the subject property.

3.3.2 Significant Woodlands

Based on Schedule H of the city’s OP and information gathered during the site investigation there is no forest community covering the subject property or adjacent lands (**Figure 1**). The subject property is within a residential subdivision containing scattered trees and/or small clusters of trees.

3.3.3 Habitat of Endangered and Threatened Species

The results of RiverStone’s desktop, habitat-based, and targeted assessments for endangered and threatened species and their habitat is provided in **Appendix 2**. A preliminary screening of background biophysical information identified several species with a potential to be present within the subject property based on existing records and/or range maps. This initial list of endangered and threatened

species was refined to those species that have the potential to occur within the subject property or were confirmed to be present based on the on-site assessments and field surveys.

Per the results of the **Appendix 2**, a total of three (3) endangered species have the potential to be impacted by the proposed development plan: Little Brown Bat (*Myotis lucifugus*), Northern Long-eared Bat (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*). An impact assessment for these species is provided in **Section 4.2.1**.

3.3.4 Watercourses, minimum vegetation protection zones, and connectivity linkages

Based on the review of the available Ontario Base Mapping and the results of RiverStone's onsite assessment are no watercourses present on the subject property. An inlet to Lake Simcoe is present ~ 70 m west of the subject property with Cox Mill Road, residential dwellings, and a boat docking facility between the subject property and the inlet.

3.3.5 Environmental Protection Lands

Based on a review of the City of Barrie Zoning By-law 2009-141 (Office Consolidation December 2017) the subject property does not contain any lands that fall within the Environmental Protection (EP) zone. However, there are lands ~45 m west of the subject property that are zoned EP. These lands are located adjacent the inlet of Lake Simcoe, to the west of Cox Mill Road and behind recently built residential home adjacent to the EP zone.

3.3.6 Fish Habitat

Water features that may contain fish habitat include lakes, ponds (other than human-made offline ponds), permanent and intermittent watercourses, headwater drainage features, and wetlands. Permanent, and intermittent watercourses wetlands and headwater drainage features were not observed on the subject property. However, as shown on **Figure 2**, the subject property frontage is situated on Lake Simcoe. The shoreline of the subject property provides potential fish habitat. An assessment of potential impacts associated with implementation of the proposed development plan on Fish Habitat is provided in **Section 4.2.2**.

3.3.7 Significant Valleylands

Although the prevailing topography of the subject property has a slight slope towards Lake Simcoe, there are no permanent or intermittent watercourses flowing through the subject property. Significant valleylands require the presence of a stream with a well-defined valley morphology having an average width of 25 m or more. Given this, no significant valleylands are present on the subject property.

3.3.8 Significant Wildlife Habitat

Results of the review of background information indicated that there is no significant wildlife habitat present on the subject property. Review of the Natural Heritage Reference Manual (OMNR 2010), indicates that the proposed severance does triggers Step 1 of Section 9.3.2 of the manual:

- Shoreline consent along a large inland lake, small inland lake or large river (denoted on 1:50,000 natural Topographic System maps as being tow lined) that is within 120 metres along the shoreline of an existing lot of record or a lot described in an application for subdivision or consent.

Based on this trigger, an evaluation of the subject property for SWH is required. The site evaluation of the subject property indicated that the property is dominated by anthropogenic lands of manicured lawn, paved driveway and hardened shoreline. With this information the following general categories of the Natural Heritage Reference Manual were taken into consideration:

- Seasonal Concentration Areas of Animals
- Specialized Habitats for Wildlife
- Habitat for Species of Conservation Concern (ex. Endangered/Threatened Species)
- Movement Corridors

Based on the criteria of the Natural Heritage Reference Manual, there are no general SWH communities that utilize anthropogenic communities as Candidate Significant Wildlife Habitat. It is the opinion of RiverStone, that there is no SWH present on the subject property.

3.3.9 Sand Barrens, Savannahs, and Tallgrass Prairies

Consistent with the description of existing vegetation communities on the subject property in **Section 3.2**, no Sand Barrens, Savannahs, or Tallgrass Prairies are present.

4 IMPACT ASSESSMENT AND RECOMMENDATIONS

4.1 Proposed Development Plan

The proposed development plan involves the construction of a new single residential dwelling on the new severed lot, and a change in the location of the driveway that services the existing residential dwelling from Arbour Trail to Cox Mill Road. The existing and new dwellings will be on city services. The proposed development overlaid on the subject property is provided on **Figure 2**.

4.2 Impact Assessment

Based on the results of RiverStone's assessment of features of conservation interest in **Section 3.3**, in concert with the proposed development plan described in **Section 4.1**, features of conservation interest occurring on the subject property that may be impacted by implementation of the proposed development plan include: 1) endangered bat habitat, and 2) fish habitat. RiverStone has also assessed the potential for impacts to the other natural features and functions that are afforded protection by relevant environmental policies (e.g., bird nests). The potential for negative impacts on these features is discussed below.

4.2.1 Habitat of Endangered and Threatened Species

Appendix 2 presents our assessment of potential impacts on endangered and threatened species. Overall, the potential for communities on the subject property to function as habitat for endangered or threatened Species is low. Large mature trees on the subject property may provide roosting habitat for endangered bats. To limit the potential for impacts to endangered or threatened species, RiverStone recommends the following measures:

- **Vegetation removal and other disturbances outside of the development envelopes should be minimized to the extent possible.**

- **Vegetation removal (i.e., felling of trees, clearing) must not occur on the subject property from April 1 to October 15, as this time corresponds to the active roosting season for Endangered bat species.**

4.2.2 Fish Habitat

Presently the shoreline of the subject property consists manicured yard extending to a retaining wall along the waterfront. In order to increase the amount natural vegetation within the riparian buffer area and help to enhance potential fish habitat, areas of naturalization are recommended. Naturalization is to occur in these areas on **Figure 2**. In addition, RiverStone recommends the following:

- **Any trees and shrubs located along the existing shoreline be left in a natural state.**
- **An aquatic vegetation along with anchored woody material and rocks that may emerge must remain as existing and must not be removed from the lakebed.**
- **Re-vegetation of the riparian area shown on Figure 2 is to be completed with a mix of tree and shrub species native to the local area. A suggested list of suitable species is provided below in Table 2 and on Figure 2. Following planting, these areas are to be left unmown and unmaintained, this will help to restore the natural vegetated buffer.**
- **A total of four (4) Trees (three (3) to the east and one (1) to the west of the boathouse) (according to Figure 2) a minimum of 1.2 m (~4 ft) in height with a sufficiently developed root ball and 3 m apart are to be planted. Larger trees may be used if desired, Appendix 3 provides a planting guide.**
- **All tree installations should include rodent guards that are flush with the ground surface.**
- **A total of 81-88 shrubs (67-72 to the east and 14-16 to the west of the boathouse) (according to Figure 2) a minimum size of 30cm/1-3 gallon pot spaced 1 m apart. Larger shrubs may be used if desired, Appendix 3 provides a planting guide. Alternatives to species noted in Table 2 can be substituted, with the intent that all plantings be native to the local area.**

Table 2. Suggested native plant species for re-vegetation area.

Common Name	Scientific Name	Form
Red Oak	<i>Quercus rubra</i>	Tree
Red Maple	<i>Acer rubrum</i>	Tree
Silver Maple	<i>Acer saccharinum</i>	Tree
Black Walnut	<i>Juglans nigra</i>	Tree
White Birch	<i>Betula papyrifera</i>	Tree
White Pine	<i>Pinus strobus</i>	Tree
White Spruce	<i>Picea glauca</i>	Tree
Balsam Fir	<i>Abies balsamea</i>	Tree
Alternate-leaved dogwood	<i>Cornus alternifolia</i>	Shrub
Red Osier Dogwood	<i>Cornus stolonifera</i>	Shrub
Common Elderberry	<i>Sambucus canadensis</i>	Shrub
Snowberry	<i>Symphoricarpos albus</i>	Shrub
Nannyberry	<i>Viburnum lentago</i>	Shrub
Chokecherry	<i>Prunus virginiana</i>	Shrub
Highbush cranberry	<i>Viburnum trilobum</i>	Shrub

4.2.3 Other Natural Features and Functions

The proposed land use changes will result in disturbance to vegetation (trees) within the proposed development envelope. The following measures are recommended to reduce adverse effects of development on the property's natural features and functions:

- **Vegetation removal (e.g., tree/shrub clearing, grading of open areas, etc.) should be completed outside of the primary breeding bird nesting window (i.e., between April 1 and August 31). If vegetation removal occurs during this period, a nest survey should be conducted by a qualified biologist within 5 days of commencement of construction activities to identify and locate active nests of bird species (where present) covered by the federal *Migratory Bird Convention Act, 1994* or provincial *Fish and Wildlife Conservation Act, 1997*. If a nest is located or evidence of breeding noted, a mitigation plan should be developed to avoid any potential impacts on birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.**

RiverStone has prepared a Tree Inventory and Preservation plan (under a separate cover) in accordance with the direction provided by the City of Barrie in the Tree Protection Manual (v2, Revised January 2010). To minimize potential impacts to trees on the subject property, RiverStone recommends the following:

- **All recommendations within the Tree Inventory and Preservation Plan (Riverstone April 2020) be incorporated onto the building permit.**
- **Tree preservation fence (barrier fencing) be installed in the location(s) provided within the Tree Inventory and Preservation Plan.**

5 APPLICABLE ENVIRONMENTAL LEGISLATION AND POLICIES

The following review summarizes the federal, provincial, and municipal environmental legislation and policies that are applicable to the proposed development application considered herein and describes how the recommendations provided in this report will permit the proposed land use changes to comply with these provisions.

5.1 City of Barrie Official Plan (Office Consolidation January 2018)

The Municipality's OP is prepared as required under section 14.7(3) of the *Planning Act*. The 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 across the Municipality. Provincial plans that offer direction on matters of provincial interest (e.g., Provincial Policy Statement, etc.) 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 how the proposed development plan addresses such policies.

Per Schedule A of the City's Official Plan (Office Consolidation January 2018), the subject property is designated "Residential". The subject property does not fall within any Natural Heritage Resource Areas as indicated on Schedule H. However, the subject property falls within 120 m of a Level 1 Area with Existing Development Designation Subject to Section 3.5.2.4 a) of the City's Official Plan. Level

1 resources represent critical components of the Natural Resources network. No development shall be permitted within these areas. Furthermore, the following applies:

- An Environmental Impact Study (EIS) will be required for any development or site alteration within 120 metres of an area identified as Level 1 on Schedule H.

Section 3.5.2.4 (b) A standard Terms of Reference for an EIS will be established by the City in consultation with the appropriate conservation authority, and may be scoped through the development process to reflect a specific feature or function at the discretion of the City in consultation with the applicable conservation authority. Additional Natural Heritage Resources identified through a site specific EIS will be categorized by Level and will be subject to the policies of this section. An amendment to the Official Plan is not required for minor amendments to Schedule H.

This NHE/EIS has been prepared as per the scope established in consultation with the City and provided to RiverStone by Innovative Planning Solutions. With the implementation of the mitigation measures outlined in this report, no negative impacts are anticipated as a result of the proposed development. Vegetation impacts associated with this development have been addressed in the Tree Inventory and Preservation Plan report (RiverStone, April 2020). This conclusion is contingent on adherence to the recommendations contained within this report. Based on this, the development would be consistent with the policies of the City of Barrie Official Plan as they pertain to the Natural Heritage Resource Area.

5.2 Lake Simcoe Region Conservation Authority Regulation 179/06, pursuant to the Conservation Authorities Act, R.S.O. 1990, c. C.27

LSRCA's regulatory jurisdiction extends to areas within and adjacent to valley and stream corridors, the Lake Simcoe shoreline, hazard lands (e.g., floodplains, steep slopes, etc.), watercourses, and wetlands as provided under O. Reg. 179/06 of the *Conservation Authorities Act*. The shoreline on the subject property is a LSRCA regulated feature with the extent mapped on **Figure 2**. Given that development and site alteration are proposed within LSRCA's regulated area, a permit/approval from LSRCA under O. Reg. 179/06 may be required.

The proposal includes rezoning the property to allow the severance of the existing lot into two lots, the construction of a new dwelling on the new lot, and redesign of the driveway into the existing dwelling. With the subject property is currently manicured to the waters edge, the proposed severance and development will not result in any additional loss of portions of vegetation within immediate shoreline area, however one (1) tree will be removed within the regulated area associated with Lake Simcoe.

To help enhance the water quality and aquatic habitat of Lake Simcoe, re-vegetation of the shoreline area has been recommended.

5.3 Lake Simcoe Protection Plan, pursuant to Lake Simcoe Protection Act, S.O. 2008, c. 23

The Lake Simcoe Protection Plan (LSPP) seeks to address long-term environmental degradation of the Lake Simcoe watershed. Chapter 6 provides targets, indicators, and policies for the protection of shorelines and natural heritage features. With the subject property being within the settlement area of Barrie, Policy Sections 6.32 to 6.34 apply to this development including:

- 6.33-DP An application for development or site alteration shall, where applicable:

- a. increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;
- b. include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;
- c. seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and
- d. establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.

6.34-DP Where, through an application for development or site alteration, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as natural self-sustaining vegetation.

As outlined above, the proposed severance and development will not result in a loss of any additional shoreline vegetation however, one (1) tree will potentially be removed within the regulated area associated with Lake Simcoe.

With the implementation of a recommended re-vegetation plan noted above in **Section 4.2.2** above and on **Figure 2**, that consisting of locally native plants along the shoreline of the subject property, fish habitat will be improved, a riparian buffer re-established and quality and quantity of urban run-off improved. General planting guidelines have been included in Appendix 3.

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

The significant natural feature documented on this property includes potential habitat for endangered and threatened species. Based on these identified features the following provisions from Section 2.1 of the 2014 PPS are relevant to this assessment:

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

Adherence to the recommendations provided in **Section 4.2.1** will minimize the potential for impacts to endangered or threatened species which is consistent with policy 2.1.7 of the 2014 PPS.

5.5 Provincial Endangered Species Act, S.O. 2007, c. 6

The *Endangered Species Act, 2007* (ESA) protects designated Endangered and Threatened species in Ontario from being killed, harmed, or harassed (s. 9) or having their habitat damaged or destroyed (s. 10). Provided that the recommended mitigation measures offered in **Section 4.2.2** are implemented in full, the proposed development activities are not expected to contravene the ESA.

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

Section 6 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. The provincial *Fish and Wildlife Conservation Act, 1997* (FWCA) extends the protection of bird nests and eggs to species that are not listed under the Migratory Birds Regulations (e.g., Corvids).

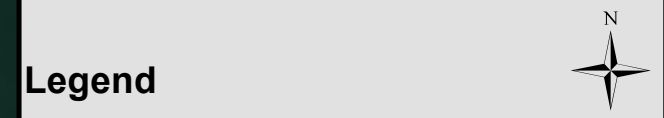
As recommended in **Section 4.2.3**, all clearing of vegetation required to implement the proposed development plan should be restricted to times outside of the period April 1 to August 31 inclusive. If development and site alteration must occur during this period, a nest survey should be conducted by a qualified avian biologist prior to commencement of construction activities to identify and locate active nests of migratory bird species covered by the MBCA or FWCA. If a nest is located or evidence of breeding noted, then a mitigation plan should be developed to address any potential impacts on migratory birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.

6 CONCLUSIONS

Based upon the findings presented in this report and contingent upon the implementation of the recommendations made herein, we conclude that the proposed severance and development application will not negatively impact any features of conservation interest protected under relevant municipal, provincial, or federal environmental policies as outlined. Given this, and providing that our recommended measures to minimize the potential for impact are implemented, RiverStone is of the opinion that the proposed severance and subsequent development is compliant with the relevant environmental legislation and policies. We advise that the recommendations in this report be incorporated into any development or building permits for the subject property.

7 REFERENCES

- Cadman, M. D., D. A. Sutherland, G. G. Beck, D. Lepage, and A. R. Couturier.** 2007. Atlas of the Breeding Birds of Ontario, 2001–2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, Ontario Nature, Toronto.
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- Dobbyn, J.** 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists. Toronto.
- Henson, B. L. and K. E. Brodribb.** 2005. Great lakes conservation blueprint for terrestrial biodiversity, volume 2: ecodistrict summaries. 344 pp.
- Lee, H. T., W. D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray.** 1998. Ecological land classification for Southern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch.
- OMNR.** 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second edition. Toronto: Queen's Printer for Ontario.
- Phair, C., B. L. Henson, and K. E. Brodribb.** 2005. Great lakes conservation blueprint for aquatic biodiversity: volume 2 - tertiary watershed summaries. 454 pp.



Legend
Ontario Base Mapping (OBM)
 — Roads
Planning Boundaries
 [Yellow dashed box] Subject Property

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:2,000	2019-195	Apr 16, 2020	JG

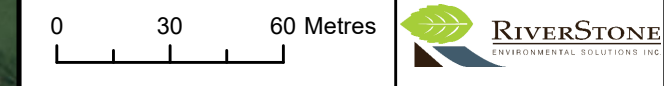


Figure 1. Location Of Subject Property.
 2 Arbour Trail, City of Barrie.

Prepared for Innovative Planning Solutions.

Inset: General Location Of Subject Property

Disclaimers:

- the scale text on this figure (e.g., 1:1000) is based on a 11x17" print. If this figure has been printed on a different page size, then only the scale bar is accurate.
- figure should not be used in place of a professional survey



Planting Plan (West Site):

14 - 16 shrubs consisting of at least 5 different species of the following:

- Alternate-leaved dogwood (*Cornus alternifolia*)
- Red Osier Dogwood (*Cornus stolonifera*)
- Common Elderberry (*Sambucus canadensis*)
- Snowberry (*Symphoricarpos albus*)
- Nannyberry (*Viburnum lentago*)
- Chokecherry (*Prunus virginiana*)
- Highbush cranberry (*Viburnum trilobum*)

1 Tree of either of the following species:

- Red Maple (*Acer rubrum*)
- White Birch (*Betula pendula*)

Planting Plan (East Site):

67 - 72 shrubs consisting of at least 5 different species of the following:

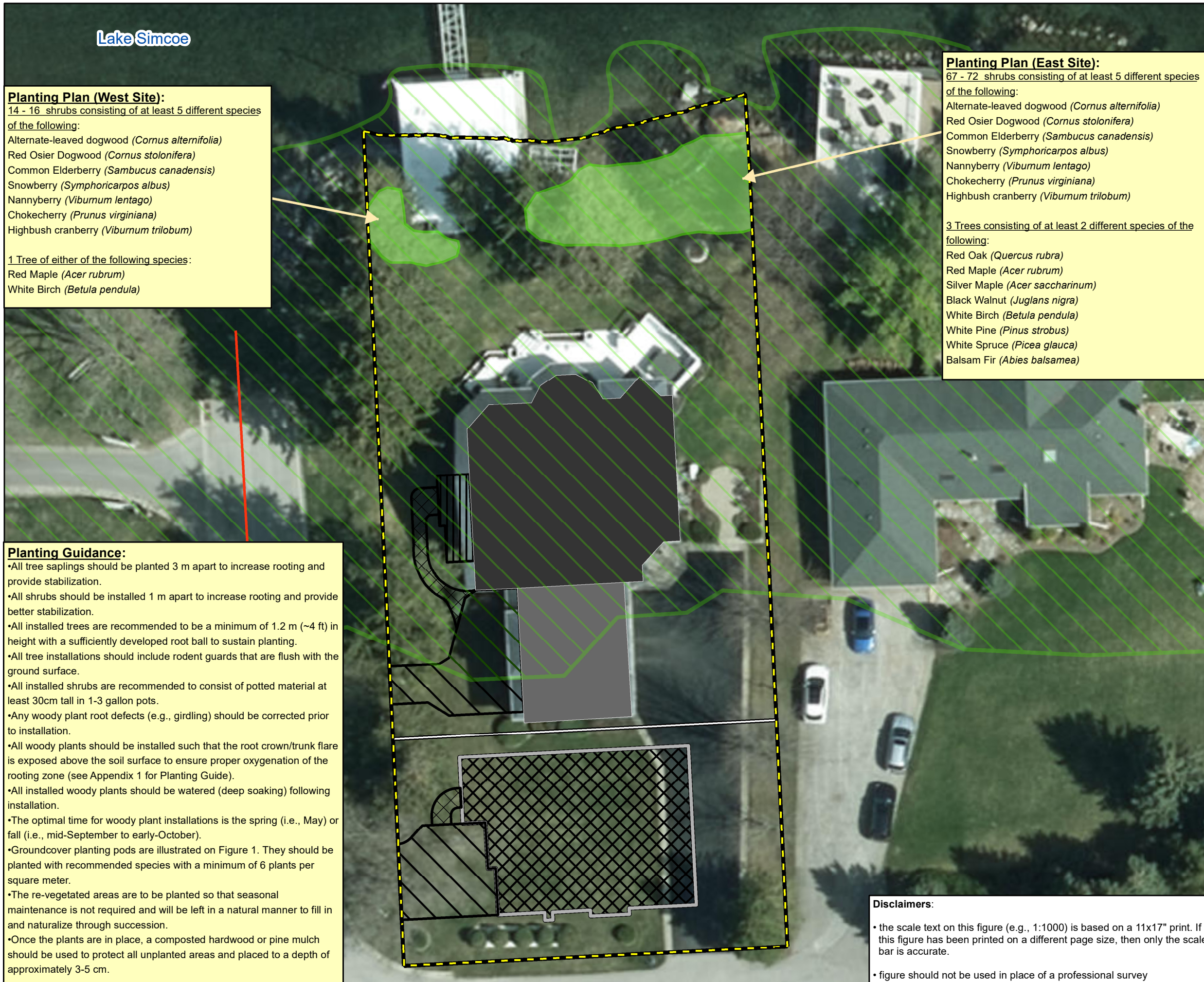
- Alternate-leaved dogwood (*Cornus alternifolia*)
- Red Osier Dogwood (*Cornus stolonifera*)
- Common Elderberry (*Sambucus canadensis*)
- Snowberry (*Symphoricarpos albus*)
- Nannyberry (*Viburnum lentago*)
- Chokecherry (*Prunus virginiana*)
- Highbush cranberry (*Viburnum trilobum*)

3 Trees consisting of at least 2 different species of the following:

- Red Oak (*Quercus rubra*)
- Red Maple (*Acer rubrum*)
- Silver Maple (*Acer saccharinum*)
- Black Walnut (*Juglans nigra*)
- White Birch (*Betula pendula*)
- White Pine (*Pinus strobus*)
- White Spruce (*Picea glauca*)
- Balsam Fir (*Abies balsamea*)

Planting Guidance:

- All tree saplings should be planted 3 m apart to increase rooting and provide stabilization.
- All shrubs should be installed 1 m apart to increase rooting and provide better stabilization.
- All installed trees are recommended to be a minimum of 1.2 m (~4 ft) in height with a sufficiently developed root ball to sustain planting.
- All tree installations should include rodent guards that are flush with the ground surface.
- All installed shrubs are recommended to consist of potted material at least 30cm tall in 1-3 gallon pots.
- Any woody plant root defects (e.g., girdling) should be corrected prior to installation.
- All woody plants should be installed such that the root crown/trunk flare is exposed above the soil surface to ensure proper oxygenation of the rooting zone (see Appendix 1 for Planting Guide).
- All installed woody plants should be watered (deep soaking) following installation.
- The optimal time for woody plant installations is the spring (i.e., May) or fall (i.e., mid-September to early-October).
- Groundcover planting pods are illustrated on Figure 1. They should be planted with recommended species with a minimum of 6 plants per square meter.
- The re-vegetated areas are to be planted so that seasonal maintenance is not required and will be left in a natural manner to fill in and naturalize through succession.
- Once the plants are in place, a composted hardwood or pine mulch should be used to protect all unplanted areas and placed to a depth of approximately 3-5 cm.



Legend

Ontario Base Mapping (OBM)

— Roads

Planning Boundaries

▭ Subject Property

Features with Recognized Natural Heritage Value - Identified by the Province or the Relevant Approval Authorities

▭ LSRCA Regulated Area

Features Taken from Existing Survey

▭ Garage

▭ Primary Residence

Measures Recommended by RiverStone to Prevent and/or Reduce Impacts

▭ Area to be Revegetated

Proposed Development and Site Alteration

▭ Lot Line

▭ Building Envelope for Primary Residence

▭ Driveway

▭ Walkway

▭ Open Porch

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:300	2019-195	Apr 16, 2020	JG



Figure 2. Development Plan and Recommendations.

2 Arbour Trail, City of Barrie.

Prepared for Innovative Planning Solutions.

Disclaimers:

- the scale text on this figure (e.g., 1:1000) is based on a 11x17" print. If this figure has been printed on a different page size, then only the scale bar is accurate.
- figure should not be used in place of a professional survey

Appendix 1. Select Photos from Site Visit





Photo 1. Tree cover along the west property boundary (December 13, 2019).



Photo 2. Existing dwelling and tree cover along the lake side of the property (December 13, 2019).



Photo 3. Trees along east property boundary (December 13, 2019).



Photo 4. Existing lawn area east of boathouse recommended for restoration (December 13, 2019).



Photo 5. Existing lawn area adjacent boathouse entrance recommended for shoreline restoration (December 13, 2019).



Photo 6. Existing lawn area to west of boathouse recommended for restoration (December 13, 2019).

Appendix 2. Assessment of Provincially Endangered and Threatened Species and their Habitat



Habitat-based Approach

Properly assessing whether an area is likely to contain Endangered or Threatened species for the purposes of determining whether a proposed development is likely to have a negative impact is becoming more difficult as the number of listed species increases. Approaches that depend solely on documenting the presence of individuals of a species in an area almost always underrepresent the biodiversity actually present because of the difficulty of observing species that are usually rare and well camouflaged. Given these difficulties, and the importance of protecting habitats of Endangered and Threatened species, RiverStone's primary approach to site assessment is habitat-based. This means that our field investigations focus on *evaluating the potential for features within an area of interest to function as habitat for species considered potentially present, rather than searching for live specimens*. An area is considered potential habitat if it satisfies a number of criteria, usually specific to a species, but occasionally characteristic of a broader group (e.g., several turtles use sandy shorelines for nesting, multiple bat species use dead or dying trees for roosting habitat). Physical attributes of a site that can be used as indicators of its potential to function as habitat for a species include structural characteristics (e.g., physical dimensions of rock fragments or trees, water depth), ecological community (e.g., meadow marsh, rock barren), and structural connectivity to other habitat features required by the species. Species-specific habitat preferences and/or affinities are determined from status reports produced by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Cadman et al. (2007), published and unpublished documents, and direct experience.

Table 1 provides RiverStone's desktop screening and on-site assessment for Endangered and Threatened species. RiverStone measures species- and feature-specific distances from the boundaries of proposed lots or development area(s)—rather than from the boundary of the significant natural heritage feature—and refers to this area as *adjoining lands (AL)*. Evaluating the likelihood of species' presence and the potential for negative impacts using this approach ensures that the Adjacent Lands test of the PPS will be met.

For the purposes of RiverStone's assessment, the *subject property* as shown in **Figure 1** is referred to as the Area of Interest (AOI) and the adjoining lands (AL) extents were measured from the boundaries of the AOI.

Appendix 3. Planting Guide



SITE PREPARATION AND PLANTING GUIDE

There are several steps you can take to successfully implement your re-vegetation plan and ensure that your plants are ecologically functional. The following information will guide you through good site preparation, selection of healthy plants, and proper planting techniques to increase the chance of successful establishment of your new plants.

Soil Improvement and Selection

Where a structure or vegetation has been removed from the property, new soil must be brought in for planting. A clay-loam soil is preferred to triple mix along shorelines as it has less nutrients and less risk of contaminating a neighboring water body. Imported topsoil should be locally sourced to avoid importing noxious weeds. Large garden and aggregate centers can often supply soils in bulk and delivery may be available to your site. When bringing new soil into a planting area, it is best to dump it on the new site, rake it out slightly above the preferred grade level, and let it settle for 1-3 days. Do not let exposed soils sit for more than a week as you increase the chance of recruiting weeds. If working with native soils, remove grass and other non-native vegetation from the re-vegetation area. Most plant roots grow horizontally over a distance 2-3 times the width of the root ball. As such, it is important to amend the soil adjacent to a planting site as well, if required.

Plant Selection

Look for species that have full, healthy foliage with no obvious signs of pest damage or disease when choosing plants for your project. For container stock, carefully remove the container and check to make sure that the roots appear full and healthy. The roots should not be entwined in the bottom of the container; this is a sign that the plant is “root bound” and it will be very difficult to get the plant to establish in the ground. Containerized plants are preferred to burlaped or bare roots trees. You will often have a higher rate of establishment and faster growth. At times, transplanting trees and shrubs from natural areas or areas that are going to be destroyed may be an appropriate source for plant material. Plants should never be removed from the riparian area of a lake or stream, and should only be from private land on which there is consent. Deciduous trees and shrubs should be transplanted in the early spring before the leaves come out, or in the fall after leaves have dropped. Transplanting of conifers should be limited to the spring. Trees and shrubs no larger than 60 cm in height should be selected, as larger, more established trees often do not transplant well. Extra care should be taken when digging trees to ensure the entire root ball and native soil is retained. Herbaceous material may be transplanted as well, but do not transplant while plants are in flower and they must be planted in similar conditions to what they were growing in.

Timing

Fall and spring are the best times of year to install new plants as soil temperatures are cool and there are often regular rains to water new plants. Environmental timing restrictions for your project may restrict plant installation to a less desirable period, such as midsummer. Plants installed during midsummer will need to be watered more regularly.

root ball. Create a deep basin of soil around the plant to encourage water retention. Water the area heavily but slowly on planting day to charge the soil and allow for settling prior to mulching.

Mulching and Weed Control

The use of organic mulch will enhance the health of your project area by retaining water, reducing evaporation, and limiting irrigation requirements. Mulch also supports a variety of beneficial insects and soil organisms that control pests and disease and allow for better nutrient and water uptake. Most weeds are pioneer species in bare soil and the use of mulch can greatly reduce weed seed germination. It is standard practice to apply a 4-7 cm layer of bark mulch around the base of the plant. Be sure to keep mulch away from the stem to prevent decay and rodent damage. Composted pine mulch is preferred over a cedar or coloured mulch. In areas where weeds are a bigger concern, lay overlapping sheets of cardboard or newspaper around the base of the plant and soak them with water prior to applying the mulch layer. This technique, commonly referred to as “sheet mulching”, prevents existing weed seeds and roots from sprouting. The paper fiber will break down in a year or so, adding humus to the soil. Imported topsoil can sometimes have a “seed bank” of non-native grasses and herbs. When a garden is first established it may have a flush of weeds in the first growing season. Hand weeding in the first and second year before weeds go to seed, will increase the success of your plant material and reduce maintenance in the future.

Tree Planting Diagram

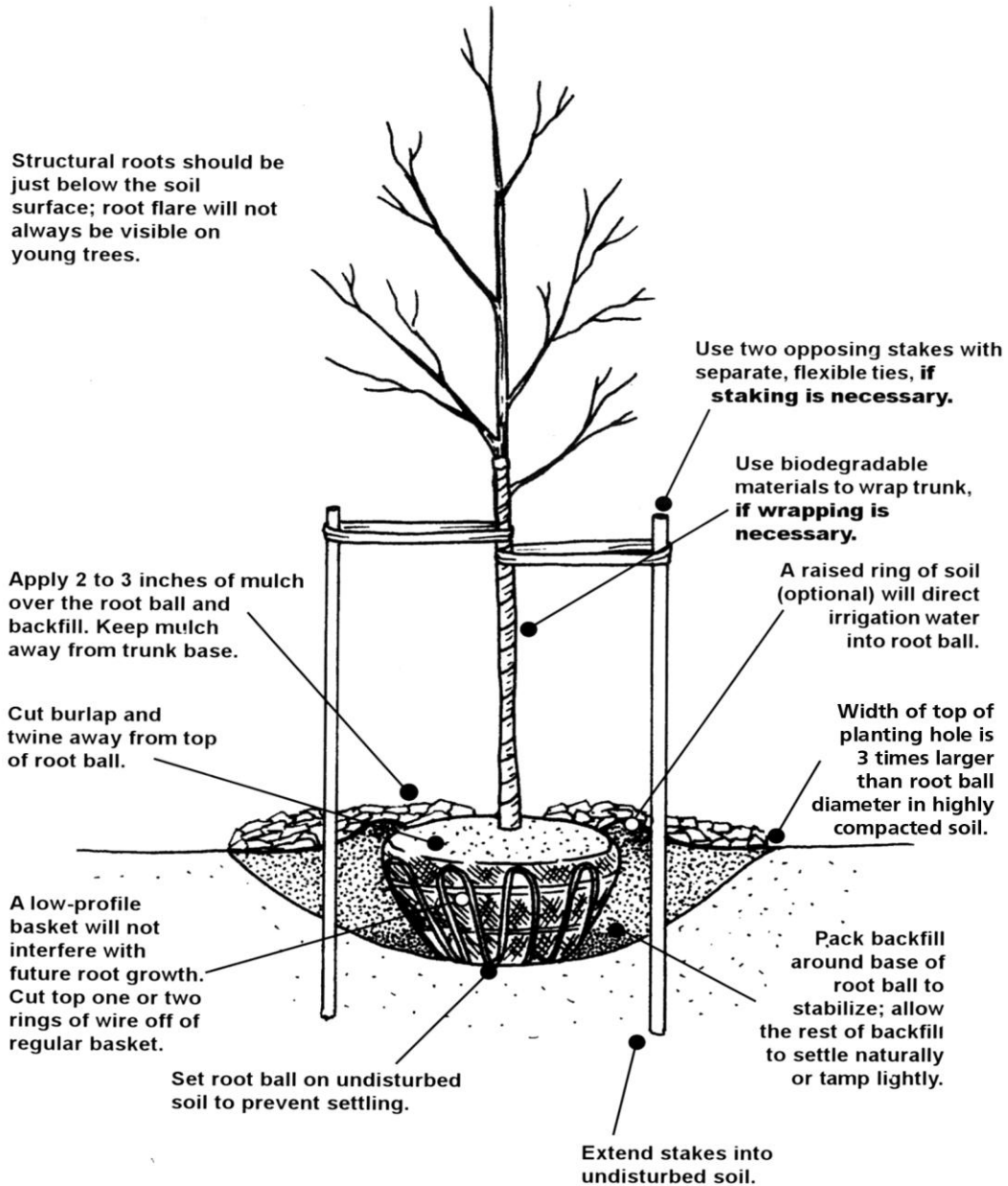


Figure 1. Diagram for planting container or burlap wrapped trees and shrubs. Source (http://chicagorainharvesting.files.wordpress.com/2011/05/trees_mortonarbdiagram.jpg)

Watering

The most important plant care activity throughout the first growing season is regular watering. Even the most drought tolerant plants can die during extended dry periods if the roots are not established. During the first summer, water plants at least once weekly under normal weather conditions. More frequent watering may be required during very hot seasons; depending on the soil type and exposure of your site you may need to water thoroughly every 3-4 days. To verify whether your soil needs watering, pull back some of the mulch in the planting area and assess the top soil; if the topsoil is dry, watering is required. Ensure that water is filtering down into the soil and that it is reaching to the roots. Regular watering during the first growing season encourages deep root growth. When plants are deeply rooted, they are better able to draw moisture from the soil in times of drought.

Protection

In some areas, you may need to protect trees and shrubs from rodent and/or beaver damage. In the winter, rodents can severely damage young trees and shrubs by chewing the bark at the base the plant. A plastic mesh tube buried to a depth of 3-5 cm will generally help reduce this type of damage. For beaver protection, pound stakes into the ground outside of the root zone and fence the area off with chicken wire to a height of at least 1 m. Deer will also browse on young trees and shrubs, making it very difficult to provide protection. In the winter months, young conifer species can be wrapped with burlap until they exceed typical browsing height. It is very difficult to exclude deer during the summer months; therefore, the best protection is to use plant species that the deer do not favor. Talk to your consultant or a local supplier about deer resistant plant species.