Arborist Report

1450 King Rd., Burlington, ON

Prepared for

Quantum Realty Management XII Inc.
2213 North Sheridan Way
Mississauga, ON
L5K 1A3

~~February 18, 2022~~
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Project No. P2021-560

Prepared by

GeoProcess
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1. Introduction

GeoProcess Research Associates Inc. (GRA) has been retained by Quantum Realty Management (the 'client') to complete an Arborist Report as per the City of Burlington Specifications Index for Tree Protection and Preservation (SPEC NO. SS12A).

The Subject Property is located at 1450 King Road, Burlington and comprises both city and privately owned property. The client is proposing to purchase the City of Burlington property and decommission the existing stormwater management (SWM) pond to allow for future development of the lands in the north-west corner of the North Service Road and King Road intersection. Through the land exchange, the client will rebuild a better functioning SWM facility north of the City's lands.

The proposed works include excavation, grading, and landscaping to install the new dry-pond SWM facility and the existing SWM facility will be decommissioned, filled in, and regraded.

This report is an amendment to the Arborist Report and Tree Preservation Plan that was submitted on February 18, 2022, and addresses the comments made by the City of Burlington that were received by email on April 11, 2022.

2. Methods

GRA conducted field studies on September 10th and 16th, 2021 to inventory and assess the existing trees for the Subject Property. An assessment of individual trees included all trees 10 cm in Diameter at Breast Height (DBH) or greater for the Subject Property, and trees within 6 metres from the property limit. GRA surveyed the location of trees using a handheld GPS tablet (+/- 3 m in accuracy).

Trees were assessed for condition using the following parameters:

- **Tree #** - numbers assigned to trees that correspond to their surveyed/mapped location;
- **Species** - common and botanical names provided in the inventory table;
- **DBH** - diameter (centimetres) at breast height, measured at 1.4 m above the ground;
- **Condition** - condition of trees was assessed as follows:
    - **Trunk integrity (TI)**: conditions on trunk that might affect likelihood of failure based on factors including co-dominant stems, cracks, decay, poor taper, lean, response growth, abnormal or missing/dead bark, etc.
    - **Crown Structure (CS)**: condition on crown structure that might affect likelihood of failure, including live crown ratio, presence of defects (including bark, weak attachments, cracks, decay, cavities), crown density.
    - **Crown Vigor (CV)**: an assessment of overall tree health classified as weak/under stress (poor), average vigor for its species and site condition with some signs of stress (fair), growing well and appears to be free of significant health stress factors (good).
- **Comments** - additional relevant detail.

For this report, tree ownership is defined as:

- "Subject Property Tree ": Trees with stem(s) on the subject property;
- "Neighboring Tree": Trees with stem(s) on adjacent private property; and,
- "Public Tree": Trees with stem(s) situated on City-owned land adjacent the subject property.

This report has been prepared under the following applicable municipal by-laws and guidelines of the City of Burlington:

- By-Law to conserve and protect trees on private land within the Urban Planning Area Boundary of City of Burlington (02-2020);
- By-law to regulate planting, maintenance and preservation of trees on or affecting public property (68-2013); and
- City of Burlington Specifications Index for Tree Protection and Preservation (SPEC NO. SS12A).

3. Inventory Results

The tree inventory documented fourteen different tree species (Table 1) with dbh ranging from 10 cm to 128 cm (Table A1). Of the fourteen species observed, two are non-native. The native species observed are common and secure within Ontario (S4 -S5) [1].

Table 1. Tree Inventory Results

Common Name	Scientific Name	S-Rank[1]	Inventory Count
American elm	*Ulmus americana*	S5	1
basswood	*Tilia americana*	S5	6
black walnut	*Juglans nigra*	S4?	2
bur oak	*Quercus macrocarpa*	S5	2
Manitoba maple	*Acer negundo*	S5	1
red maple	*Acer rubrum*	S5	2
red oak	*Quercus rubra*	S5	2
Russian olive	*Elaeagnus angustifolia*	SNA	6
shagbark hickory	*Carya ovata*	S5	19
trembling aspen	*Populus tremuloides*	S5	4
white ash	*Fraxinus americana*	S4	7
white oak	*Quercus alba*	S5	25
white pine	*Pinus strobus*	S5	2
white willow	*Salix alba*	SNA	14
		Total	**93**

[1] The NHIC assigns subnational ranks (S-Ranks) for species and plant communities in Ontario using the best information and considering factors such as abundance, distribution, population trends, and threats.

Trees were located predominantly along the western edge of the Subject Property where it abuts the natural heritage feature. The two most common species were shagbark hickory and white oak. Other trees were associated with the City of Burlington dry stormwater pond and included white willow, red maple and bur oak. These trees were likely planted as part of the pond construction. Dead trees comprised white ash and white oak, which have both been affected by invasive insects. The emerald ash borer (*Agrilus planipennis*) has decimated southern Ontario ash populations, while the European gypsy moth (*Lymantria dispar dispar*) has defoliated several oak woodlands. Several trees had remnant gypsy moth cocoons and egg masses on their trunks. There was evidence of leaf defoliation on all the identified oaks. Additional trees were inventoried along the edge of King Road. These trees were identified as the non-native and invasive Russian Olive (*Elaeagnus angustifolia*) and removal is advised to avoid further spread into the adjacent natural heritage feature.

4. Proposed Development and Impacts

The proposed development is a dry-pond facility that will be owned and controlled by the City of Burlington post development. The proposed dry pond is approximately 1.04 ha and is setback 10 m from the woodland limit which was staked on November 1, 2017, with staff from Conservation Halton and Halton Region. The pond will discharge into the City of Burlington storm sewer located within the King Road right-of-way (ROW). Landscape designs were provided by Adesso Design Inc. for both the SWM pond and setback area (Appendix B).

4.1. Trees Recommended for Preservation

Trees recommended for preservation have been assessed using one or more of the following criteria:

- Location sufficiently distanced from proposed site works and/or construction related stresses;
- Current health condition is acceptable;
- Tree poses a low hazard level to person or property; and
- General species tolerance to construction-related and other expected stressors.

Trees recommended for preservation are summarized in Table 2. All trees to be preserved are to be protected to the satisfaction of the City of Burlington prior to the commencement of construction. All tree protection measures are to remain in place during all stages of construction, as specified in City of Burlington Specifications Index for Tree Protection and Preservation (SPEC NO. SS12A). Refer to the Tree Protection and Mitigation measures in Section 5, Drawing No. 1-4 and Appendix C.

Table 2. Summary of Trees Recommended for Preservation

Tree Ownership	Quantity and Species	Count
Subject Property Trees	1 black walnut 1 Manitoba maple 7 shagbark hickory 1 trembling aspen 1 white ash 3 white oak 1 white willow	15
Neighboring Trees	1 red oak 10 shagbark hickory 1 white ash 11 white oak	23
Public Trees- ROW	2 trembling aspen	2
Public Tree- Natural heritage woodland	1 American elm 6 basswood 1 shagbark hickory 3 white ash 10 white oak	21
	Total	**61**

Sixty-one (61) trees are recommended for preservation. Twenty-two (22) neighboring trees (538 and 598 King Forest Court), 23 private and 13 subject property trees are to be preserved with non-fatal injury due to the minimum Tree Protection Zone (mTPZ) and/or Critical Root Zone (CRZ) encroachment.

Tree A (white oak) which is a neighboring tree (598 King Forest Court) is anticipated to sustain a nonfatal injury due to 15% mTPZ encroachment and 28% CRZ encroachment. Tree 2 (trembling aspen) is anticipated to sustain an 8% CRZ encroachment with no mTPZ encroachment and tree 4 (black walnut) is anticipated to sustain 20% mTPZ and 31% CRZ. Trees 2 and 4 are both less than 12.5 cm DBH, therefore the above instances of injury are expected to be even less as the DBH range for a 1.8 m mTPZ and 4.0 m CRZ is 11-40 cm.

Refer to Table A1 for the summary of the tree preservation plan and Drawing No. 1-4 for the preservation specifications. As per City of Burlington By-law 68-2013 and 02-2020, any work within the mTPZs of trees (i.e., Tree Injuries) will require a Tree Permit prior to the commencement of work.

4.2. Trees Recommended for Removal

Trees recommended for removal have been assessed using one or more of the following criteria:

- Location conflicts with proposed works to a degree that would compromise the long term structural and/or health integrity;
- Current health condition suggests tree is undergoing significant decline and/or death;
- Potential impacts from proposed works will cause the tree to become a hazard to person or property; and
- General species intolerance of construction-related and other expected stressors.

Table 3. Summary of Trees Recommended for Removal

Tree Ownership	Quantity and Species	Count
Subject Property Trees	1 black walnut 1 shagbark hickory 1 trembling aspen	3
Neighboring Trees	1 white oak	1
Public Trees- ROW	6 Russian olive	6
Public Tree- SWM Pond	2 burr ok 2 red maple 1 red oak 2 white ash 2 white pine 13 white willow	22
	Total	**32**

There are thirty-two (32) trees (3 subject property, 1 neighboring, 28 public) recommended for removal due to direct conflict with the proposed works and grading (Drawing No. 1). The degree of mTPZ encroachment for the trees summarized in Table 3 is expected to cause irreversible and fatal damage, and therefore they are recommended for removal.

Private

As per City of Burlington By-law 68-2013 and 02-2020, a Tree Permit is required prior to the removal of Tree # 5 as it meets the minimum 20 cm DBH threshold; the remaining two trees are not subject to the above By-laws as they are below the threshold size limit. Grading and installation of the new SWM facility encroaches 100% of mTPZ and CRZ of these trees.

Neighboring

Tree E is on the neighboring property 538 King Forest Court and requires removal for the installation of the 5.0 m wide hydro turf lined spill wall that connects the two properties. The adjacent property owners are to be consulted and made aware of the proposed development and potential impacts to Tree E and written consent that there are no concerns with the proposed treatment of the existing tree will need to be provided.

Public

There are six Russian olive trees along the King Road ROW that are proposed for removal. These trees are non-native and invasive, and removal is beneficial to the biodiversity of the adjacent natural heritage feature east of the property limit.

After the new SWM facility has been built, the land exchange agreement will facilitate the decommissioning of the existing SWM pond. This pond is to be filled and graded for future development. Therefore, the existing 22 trees, two of which are dead, will require removal. A Tree Permit is required for all works around City trees, under Public Tree Bylaw 68-2013, including the payment of the Tree Permit fee. Removal of City trees will require council approval.

4.3. Compensation

Compensation for private tree removals can be in the form of replacement trees or cash-in-lieu payment or both. The total amount of replacement trees is based on the tree size. Refer to Table 4 for the compensation amounts required as per Bylaw 40-2022.

Table 4. Compensation Summary

Trunk Diameter of Tree Removed	Compensation Ratio	Removal Trees within DBH Range	Compensation Amount
20-35 cm	2:1	2	4
36- 74 cm	3:1	1	3
> 75 cm	4:1	0	0
		Total	**7**

There are 29 trees proposed for removal that are less than 20 cm in DBH. The proposed replacement plantings are included in the Landscape Plan(s) for the Subject Property (Appendix B). The planting schedule for the naturalized setback area includes 36 trees and 224 shrubs. The planting schedule for the proposed SWM pond includes 58 trees, 259 shrubs. Seven (7) replacement trees are required, and the proposed landscape plan is planting 94 trees. Therefore, the proposed development enables a net benefit for the reduction of air pollution, water attenuation, moderation of the urban heat island effect, carbon sequestration, shade, habitat for wildlife, neighborhood character and health benefits.

5. Tree Protection and Mitigation Measures

The following section identifies recommended mitigation measures to avoid and minimize effects of the proposed works on the trees identified for preservation. The impacts to trees from the construction process can be severe and are often latent. Mechanical damage to tree structures (i.e., trunk, roots, and branches) as well as soil compaction from equipment, staging, material storage, and altered drainage patterns can cause potentially fatal impacts that may not become apparent until long-after construction is completed.

For these reasons, all trees to be preserved shall be afforded adequate protection measures in accordance with City of Burlington Specifications Index for Tree Protection and Preservation (Appendix C). Tree protection measures are to be installed prior to and remain throughout all stages of construction. The location of temporary tree protection hoarding is depicted graphically on the Tree Protection Plan (Drawing No. 1-4) accompanying this report. The following measures will ensure short- and long-term preservation of trees identified for preservation.

Construction Measures:

- A construction work plan should designate specific locations for stockpiling of soils and other material;
- Upon completion of construction works, site grading should ensure proper drainage of surface water to maintain original/pre-construction soil moisture regime conditions;
- Where root systems of protected trees are exposed directly adjacent to or damaged by construction work, they shall be trimmed neatly, and the area immediately backfilled with appropriate material to prevent desiccation; and,
- Trees to be preserved that have died or have been damaged beyond repair shall be replaced by the developer at his own expense with trees of a size and species approved by the City.

Tree Protection Measures:

Minimum tree protection zones (mTPZ) provide an approximation of the tree's critical root zone and are used for protection guidelines. The mTPZ is measured from the outside edge of the base of tree to the dripline. Table 5 provides a summary of the mTPZ and CRZ distances per DBH class for the City of Burlington.

Table 5. Minimum Tree Protection Zones per DBH Class

Diameter of Trunk (DBH)[1] in centimetres	mTPZ[2]	CRZ[2]
<10 cm	1.8 m	1.8 m
11-40 cm	2.4 m	4.0 m
41-50 cm	3.0 m	5.0 m
51-60 cm	3.6 m	6.0 m
61-70 cm	4.2 m	7.0 m
71-80 cm	4.8 m	8.0 m
81-90 cm	5.4 m	9.0 m
91-100+ cm	6.0 m	10.0 m

1 Diameter at breast height (DBH) measurement of tree stem taken at 1.4 m above the ground.

2 Tree Protection Zone & Critical Root Zone distances are to be measured from the outside edge of the tree base.

- Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the site and are to remain in place throughout the entire duration of the project. The barriers shall be maintained erect and in good repair throughout the duration of construction operations with breaks and unsupported sections repaired immediately. Tree protection may be not be removed prior to the completion of construction without written authorization from the Manager of Urban Forestry or designate;
- The required barrier is a 1.2 metre (4 ft) high orange plastic web snow fencing on 2" x 4" frame. Where orange plastic web snow fencing creates a restriction to sightlines, page wire fencing with reflective tape can be used;
- All supports and bracing used to safely secure the barrier should be located outside the mTPZ. All supports and bracing should minimize damage to roots;
- Where some fill or excavated material must be temporarily located near a mTPZ, a wooden barrier with silt fencing must be used to ensure no material enters the mTPZ;
- No materials or fill may be stored within the mTPZ;
- Equipment or vehicles shall not be operated, parked, repaired, or refueled within the mTPZ;

- No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the mTPZ without written authorization from the Manager of Urban Forestry or designate; and,
- A laminated Minimum Tree Protection Zone sign must be attached to the side of the Tree Protection where it will be visible by persons entering the site. Minimum size must be 10"x14".

Wildlife Disturbance Measures:

- Tree removal and clearing of vegetation should occur outside breeding bird season (March 31st to August 31st). If clearing of vegetation is to occur during breeding bird season, or if birds are suspected of nesting within this area, an ecologist should undertake detailed nest searches immediately prior (within 48 hours) to site alteration to ensure no active nests are present, and Trees identified for removal should be clearly marked with paint prior to their removal and felled into the proposed construction area. Effects on adjacent vegetation should be avoided during the felling process.

6. Conclusions

A total of 93 trees have been inventoried and assessed for possible preservation in the context of the proposed works. Sixty-one trees (61) are recommended for preservation. A Tree Permit is required to perform any work within the mTPZs of trees to be injured as per City of Burlington By-law 68-2013 and 02-2020. Thirty-two (32) trees (3 Subject Property, 1 neighboring, and 28 public) are recommended for removal due to direct conflict with the proposed works. Proposed replacement plantings are included in the Landscape Plan (s) for the Subject Property (Appendix B). The planting schedule for the naturalized setback area includes 36 trees and 224 shrubs. The planting schedule for the proposed SWM pond includes 58 trees, 259 shrubs.

If you have any questions regarding this submission, do not hesitate to contact us.

Respectfully submitted,
GeoProcess Research Associates Inc.



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Appendix A: Tree Preservation Summary

Table A1. Tree Preservation Plan Summary

Tree #	Common Name	Scientific Name	DBH	Trunk Integrity	Crown Structure	Crown Vigor	Overall Condition (%)	Condition Rating	mTPZ	mTPZ m^2	mTPZ encroachment (m^2)	mTPZ encroachment (%)	CRZ	CRZ m^2	CRZ encroachment (m^2)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
1	trembling aspen	*Populus tremuloides*	18	0.75	0.80	0.65	75%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	fissure in trunk/lower stems dead	Encroachment into mTPZ due to proposed SWM grading and facility installation	Private	Remove
2	trembling aspen	*Populus tremuloides*	12.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	3.95	8%		Potential disturbance within the TPZ is unavoidable, therefore place ¾ in thick plywood over an 8-in deep mulch in the TPZ to avoid or reduce soil compaction	Private	Save
3	black walnut	*Juglans nigra*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	12.5	70%	4.0	50.3	30.9	61%	fruiting/growing beside berm	Encroachment into mTPZ due to proposed SWM grading and facility installation	Private	Remove
4	black walnut	*Juglans nigra*	11	0.80	0.80	0.80	80%	Good	2.4	18.1	3.7	20%	4.0	50.3	15.8	31%	fruiting/thicket creeper	Potential disturbance within the TPZ is unavoidable, therefore place ¾ in thick plywood over an 8-in deep mulch in the TPZ to avoid or reduce soil compaction	Private	Save
5	shagbark hickory	*Carya ovata*	38	0.80	0.80	0.80	80%	Good	2.4	18.1	7.5	41%	4.0	50.3	21.7	43%		Encroachment into mTPZ due to proposed SWM grading and facility installation	Private	Remove
6	shagbark hickory	*Carya ovata*	26	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Gypsy Moth eggs	None	Private	Save
7	shagbark hickory	*Carya ovata*	10.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
8	shagbark hickory	*Carya ovata*	28	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
9	white oak	*Quercus alba*	32	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	leaf defoliation	None	Private	Save
10	shagbark hickory	*Carya ovata*	11	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
11	white oak	*Quercus alba*	67	0.80	0.80	0.75	80%	Good	4.2	55.4	0.0	0%	7.0	153.9	0.0	0%	leaf defoliation from Gypsy Moth	None	Private	Save
12	shagbark hickory	*Carya ovata*	23,25.5	0.75	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Codominant, included bark at base	None	Private	Save
13	white oak	*Quercus alba*	105	0.75	0.40	0.40	50%	Fair	6.0	113.1	0.0	0%	10.0	314.2	0.0	0%	dead canopy, epic br from lower larger limbs	None	Private	Save
14	shagbark hickory	*Carya ovata*	49	0.80	0.80	0.80	80%	Good	3.0	28.3	0.0	0%	5.0	78.5	0.0	0%	Gypsy Moth (GM) eggs	None	Private	Save
15	shagbark hickory	*Carya ovata*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
16	white ash	*Fraxinus americana*	12	0.65	0.75	0.65	75%	Fair	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB holes but live canopy	None	Private	Save
17	Manitoba maple	*Acer negundo*	16	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
18	white willow	*Salix alba*	10	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, inlcuded bark at base	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
19	white willow	*Salix alba*	19	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	growing in line with pipe outlet	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
20	white willow	*Salix alba*	13/15.5/33	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
21	white pine	*Pinus strobus*	14	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
22	white pine	*Pinus strobus*	12	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
23	white willow	*Salix alba*	28	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
24	white willow	*Salix alba*	11.5	0.75	0.75	0.80	75%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	dead larger oak on tr	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
25	white willow	*Salix alba*	19	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	slight lean	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
26	white willow	*Salix alba*	14	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	beside standing water	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
27	white willow	*Salix alba*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
28	white willow	*Salix alba*	9,12	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, inlcuded bark at base	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
29	white willow	*Salix alba*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
30	white willow	*Salix alba*	14	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove

Tree #	Common Name	Scientific Name	DBH	Trunk Integrity	Crown Structure	Crown Vigor	Overall Condition (%)	Condition Rating	mTPZ	mTPZ m²	mTPZ encroachment (m²)	mTPZ encroachment (%)	CRZ	CRZ m²	CRZ encroachment (m²)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
31	white willow	*Salix alba*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
32	white willow	*Salix alba*	13.5,10	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Codominant, included bark at base	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
33	red maple	*Acer rubrum*	12	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
34	white ash	*Fraxinus americana*	16.5	0.00	0.00	0.00	0%	Dead	-	-	-	-	-	-	-	-		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
35	white ash	*Fraxinus americana*	14	0.00	0.00	0.00	0%	Dead	-	-	-	-	-	-	-	-	suckering	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
36	red oak	*Quercus rubra*	18.5	0.80	0.80	0.75	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	some defoliation	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
37	burr oak	*Quercus macrocarpa*	18.5	0.80	0.80	0.75	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	some defoliation	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
38	burr oak	*Quercus macrocarpa*	13	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
39	red maple	*Acer rubrum*	11	0.65	0.75	0.65	68%	Fair	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	open wound on trunk	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
40	white willow	*Salix alba*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
A	white oak	*Quercus alba*	115.5	0.80	0.80	0.80	80%	Good	6.0	113.1	17.1	15%	10.0	314.2	87.3	28%	lower branches pruned	Potential disturbance within the TPZ is unavoidable, therefore place ¾ in thick plywood over an 8-in deep mulch in the TPZ to avoid or reduce soil compaction	Neighboring	Save
B	trembling aspen	*Populus tremuloides*	15	0.80	0.65	0.75	73%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	canopy die back	None	Public - ROW	Save
C	trembling aspen	*Populus tremuloides*	10,16	0.65	0.75	0.65	68%	Fair	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	smaller trunk stem is dead	None	Public - ROW	Save
D	shagbark hickory	*Carya ovata*	27	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
E	white oak	*Quercus alba*	19	0.80	0.80	0.80	80%	Good	2.4	18.1	11.4	62%	4.0	50.3	21.7	43%			Neighboring	Remove
F	shagbark hickory	*Carya ovata*	25,17	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
G	shagbark hickory	*Carya ovata*	19.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
H	shagbark hickory	*Carya ovata*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
I	shagbark hickory	*Carya ovata*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
J	shagbark hickory	*Carya ovata*	20	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
K	shagbark hickory	*Carya ovata*	20	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
L	white oak	*Quercus alba*	23	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
M	white oak	*Quercus alba*	33	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Dead branched (minor)	None	Neighboring	Save
N	shagbark hickory	*Carya ovata*	14.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
O	white oak	*Quercus alba*	13.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
P	white oak	*Quercus alba*	27.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
Q	red oak	*Quercus rubra*	44,65	0.80	0.80	0.80	80%	Good	4.2	55.4	0.0	0%	7.0	153.9	0.0	0%	some lower branch dieback. two trunks fused. Gypsy moth eggs	None	Neighboring	Save
R	shagbark hickory	*Carya ovata*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
S	white oak	*Quercus alba*	20,30	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-	snag habitat, loose bark	None	Neighboring	Save
T	shagbark hickory	*Carya ovata*	45	0.80	0.80	0.80	80%	Good	3.0	28.3	0.0	0%	5.0	78.5	0.0	0%	bat roosting habitat	None	Neighboring	Save
U	white ash	*Fraxinus americana*	16	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-	EAB	None	Neighboring	Save
V	white oak	*Quercus alba*	31.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
W	white oak	*Quercus alba*	32	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	defoliation	None	Neighboring	Save
X	white oak	*Quercus alba*	27.5	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM defoliation	None	Neighboring	Save
Y	white oak	*Quercus alba*	28	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM eggs, defoliation	None	Neighboring	Save
Z	white oak	*Quercus alba*	57	0.80	0.80	0.80	80%	Good	3.6	40.7	0.0	0%	6.0	113.1	0.0	0%		None	Neighboring	Save
AA	white oak	*Quercus alba*	32	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-		None	Public- NH Feature	Save
AB	white oak	*Quercus alba*	15	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	defoliation, GM eggs	None	Public- NH Feature	Save
AC	white oak	*Quercus alba*	21	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM defolation	None	Public- NH Feature	Save
AD	white ash	*Fraxinus americana*	17	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB	None	Public- NH Feature	Save
AE	white ash	*Fraxinus americana*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB	None	Public- NH Feature	Save
AF	white oak	*Quercus alba*	15,22	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM defoliation	None	Public- NH Feature	Save
AG	white oak	*Quercus alba*	30	0.80	0.80	0.60	73%	Fair	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	dieback and defoliation	None	Public- NH Feature	Save
AH	white oak	*Quercus alba*	32x2	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-		None	Public- NH Feature	Save
AI	basswood	*Tilia americana*	15,24,32	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	some insect defoliation	None	Public- NH Feature	Save
AJ	basswood	*Tilia americana*	12,17	0.75	0.80	0.80	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	epicormic branching at base	None	Public- NH Feature	Save
AK	white oak	*Quercus alba*	34	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	leaf defoliation, GM eggs	None	Public- NH Feature	Save

Tree #	Common Name	Scientific Name	DBH	Trunk Integrity	Crown Structure	Crown Vigor	Overall Condition (%)	Condition Rating	mTPZ	mTPZ m^2	mTPZ encroachment (m^2)	mTPZ encroachment (%)	CRZ	CRZ m^2	CRZ encroachment (m^2)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
AL	shagbark hickory	*Carya ovata*	17.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM eggs. note ash regen, lots of Buckthorn not much evidence of oak or hickory regen	None	Public- NH Feature	Save
AM	basswood	*Tilia americana*	13	0.00	0.00	0.00	0%	Dead	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Public- NH Feature	Save
AN	white oak	*Quercus alba*	23	0.65	0.40	0.40	48%	Poor	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	lower trunk epicormic branching	None	Public- NH Feature	Save
AO	basswood	*Tilia americana*	25	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Public- NH Feature	Save
AP	basswood	*Tilia americana*	23,28	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM eggs	None	Public- NH Feature	Save
AQ	white oak	*Quercus alba*	29	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	dieback, defoliation	None	Public- NH Feature	Save
AR	basswood	*Tilia americana*	13,30	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	ravine edge	None	Public- NH Feature	Save
AS	white oak	*Quercus alba*	28	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	healthy com to others less defoliation	None	Public- NH Feature	Save
AT	white ash	*Fraxinus americana*	11	0.75	0.40	0.40	52%	Poor	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB,top canopy dead	None	Public- NH Feature	Save
AU	American elm	*Ulmus americana*	18	0.80	0.65	0.40	62%	Poor	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Sparse canopy branches, Common buckthorn competition	None	Public- NH Feature	Save
AV	Russian olive	*Elaeagnus angustifolia*	14,18,10.5	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AW	Russian olive	*Elaeagnus angustifolia*	2*10	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AX	Russian olive	*Elaeagnus angustifolia*	16,15	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AY	Russian olive	*Elaeagnus angustifolia*	15,14,20,15,23	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AZ	Russian olive	*Elaeagnus angustifolia*	14,14	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
BB	Russian olive	*Elaeagnus angustifolia*	2*13	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove

Legend

DBH Diameter at Breast Height (cm)

TPZ Tree Protection Zone

GOOD Dead branches less than 10%; good compartmentalization on any wounds, no structural defects

FAIR 10-30% dead branches, size or occurrence of wounds present some concerns, minor structural defects.

POOR More than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects or disease, major structural defects.

DEAD Tree shows no signs of life

Appendix B: Landscape Plans

project #: 21-219

north

5 2 0 5 10 15
1:400 (m)

(2) Carya ovata
(2) Prunus virginiana
(7) Amelanchier sanguinea
(5) Cornus alternifolia
(12) Rosa blanda
(3) Prunus virginiana
(1) Acer saccharum
SPILLWAY LINED WITH HYDROTURF -REFER TO CIVIL PLANS
(5) Cornus racemosa
(2) Carya cordiformis
(3) Betula papyrifera
(17) Rosa blanda
(1) Acer saccharum
(6) Amelanchier sanguinea
(4) Prunus virginiana
(1) Tilia americana
4.5m SETBACK FROM STAKED TOP OF BANK
8.5m SETBACK FROM STABLE TOP OF BANK -REFER TO CIVIL PLANS
STABLE TOP OF BANK AS STAKED BY CONSERVATION HALTON NOV 1 2017 -REFER TO CIVIL PLANS
(7) Cornus racemosa
(1) Tilia americana
(4) Cornus alternifolia
FACILITY TOP = 121.00m
DESIGN OPERATING LEVEL = 120.50
PROPOSED NATIVE TERRASEED MIX -SEE TERRASEED NOTES'A' FOR SPECIES COMPOSITION
(5) Cornus racemosa
(7) Amelanchier sanguinea
(10) Rosa blanda
(1) Carya ovata
(3) Cornus alternifolia
(3) Betula papyrifera
(9) Viburnum lentago
PROPOSED SWM FACILITY -REFER TO CIVIL PLANS
BOTTOM OF POND (118.70)
DESIGN OPERATING LEVEL = 120.50
FACILITY TOP = 121.00m
EXISTING 5.0m HYDRO EASEMENT (TYP.)
(1) Carya ovata
(7) Rosa blanda
(3) Cornus alternifolia
(3) Prunus virginiana
(2) Acer saccharum
OVERFLOW SPILLWAY LINED WITH HYDROTURF -REFER TO CIVIL PLANS
10m SETBACK FROM STAKED DRIPLINE -REFER TO CIVIL PLANS
(4) Cornus racemosa
(4) Amelanchier sanguinea
DRIPLINE AS STAKED BY CONSERVATION HALTON NOV 1 2017 -REFER TO CIVIL PLANS
REFER TO L-2 FOR SWM FACILITY PLANTING PLAN
EXISTING 8.0m HYDRO EASEMENT (TYP.)
(3) Prunus virginiana
(1) Carya cordiformis
(2) Tilia americana
(2) Carya ovata
(7) Cornus alternifolia
DECOMMISSIONED STOCKPILE AREA -REFER TO CIVIL PLANS
(7) Amelanchier sanguinea
(5) Cornus racemosa
(12) Viburnum lentago
(2) Acer saccharum
(8) Rosa blanda
(2) Carya cordiformis
(8) Cornus alternifolia
(9) Viburnum lentago
(6) Prunus pensylvanica
(3) Cornus alternifolia
(2) Tilia americana
(8) Prunus virginiana
(7) Cornus racemosa
30m SETBACK
14m SETBACK
9m SETBACK
5.0m HYDRO EASEMENT
KING ROAD
NORTH SERVICE ROAD
PART 13 PLAN 20R-13497
AS IN INST. No. H834027
PART 13 PLAN 20R-13497
SUBJECT TO EASEMENT AS IN INST. No. H834027
BLOCK 1 PLAN 20M-1093
PIN 07194-0093

TERRASEED NOTES 'A':

1. *Areas to be seeded with naturalization mix shall receive an application of naturalization seed at the rate of 25-30 kg/hectare or 2 kg/100m² for spot applications, in the following mixture:*

*Native Woodland Edge Seed Mix**

Black Eyed Susan (Rudbeckia hirta)	1%
Evening Primrose (Oenothera biennis)	1%
Canada Anemone (Anemone canadensis)	1%
Canada Goldenrod (Soldago caesia)	1%
Woodland Sunflower (Helianthus divaricatus)	1%
Heart-leaved Aster (Aster cordifolius)	1%
Hairy Beardtongue (Penstemon hirsutus)	5%
Grass-leaved Goldenrod (Euthamia graminifolia)	5%
Big Blue Stem (Andropogon gerardii)	10%
Pennsylvania Sedge (Carex pensylvanica)	10%
Bottle Brush Grass (Elymus hystrix)	30%
Canada Rye (Elymus canadensis)	30%

*apply with Annual Oats (Avena sativa) nursecrop at 22kg/hectare.

Supplied by:
St. Williams Nursery & Ecological Centre (or approved equal)
P: 1-519-586-9116
W: www.stwilliamsnursery.com

2. *Contractor responsible for soil test to determine fertilizer rates. Results of soil test shall be provided to the Landscape Architect for review and approval.*
3. *Hydraulic mulch to be approved by the Landscape Architect shall be applied at the rate of 2100kg per hectare.*
4. *The contractor shall not carry out the work under adverse weather conditions such as high wind, frozen ground or ground covered with snow, ice or standing water.*
5. *Grade sub-grade, eliminate uneven areas and low spots, ensure positive drainage. Remove debris, roots, branches, stones in excess of 50mm diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride, dispose of removed material as directed by Landscape Architect.*
6. *Grade seed bed for terraseeding to a uniform surface and remove vegetation which may interfere with seeding operations. Loosen soil to depth of 25mm minimum and remove stones and foreign material which protrude more than 75mm above the surface.*
7. *All areas to be terraseeded to receive 150mm of topsoil.*
8. *Seeded areas to be maintained by contractor ensuring adequate water, fertilizer, maintenance and repair until seeded areas are properly established. Areas seeded in fall will be accepted in following spring, one month after start of growing season provided acceptance conditions are fulfilled.*

LANDSCAPE NOTES:

1. *All work to be carried out in accordance with by-laws and codes having jurisdiction over site location.*
2. *Complete all work to the satisfaction of the Landscape Architect.*
3. *Report any changes, discrepancies or substitutions to the Landscape Architect for review. Obtain approval from the Landscape Architect before proceeding.*
4. *It is the contractor's responsibility to determine existing service locations.*
5. *Exact locations of plant material will be determined by placement of site services such as hydro vaults, meters, utilities roof rain water leaders, driveways, light standards, etc.*
6. *All plant material locations to be staked or marked out and approved by Landscape Architect prior to installation.*
7. *Supply all plant material in accordance with the Canadian Standards for Nursery Stock (8th ed.).*
8. *Install plant material according to details shown.*
9. *Supply and place mulch in accordance with Canadian Landscape Standard (Section 10, Mulching). Disturbed soil areas around trees and shrubs are to be covered with shredded conifer bark mulch such as 'Cedar Bark Mulch' by All Treat Farms or 'Classic Cedar Mulch' by Gro-Bark, or approved equivalent. Alternative mulches must be approved by the Landscape Architect.*
10. *Contractor to utilize layout dimensions where provided*
11. *Provide planting bed area as noted on the drawing or to accommodate mature size of plant material.*
12. *All support systems must be removed by the contractor at time of final acceptance. No extras will be paid to complete this work*
13. *Supply and place topsoil in accordance with Canadian Landscape Standard (Section 4, Grading & Drainage and Section 6, Growing Medium) to a minimum depth of 150mm unless otherwise specified.*
14. *Supply and place sod in accordance with Canadian Landscape Standard (Section 7, Lawns & Grass and Section 8, Turfgrass Sod)unless otherwise specified.*
15. *Supply and place seed in accordance with Canadian Landscape Standard (Section 4, Grading & Drainage and Section 6, Growing Medium) unless otherwise specified. All 5:1 or greater slopes to be seeded with tacifier. Contractor to provide necessary erosion control protection as required to ensure soil stabilization and proper seed germination.*
16. *All dimensions in meters unless otherwise noted.*
17. *If discrepancies arise between plant material count shown on drawing and plant list, the drawing shall be considered correct.*
18. *Contractor to provide minimum one (1) year warranty (including trees on municipal property) from date accepted on all work unless otherwise specified.*
19. *Any site plan or grading and servicing shown is for information only. Refer to approved drawings.*
20. *Not for construction unless stamped, signed and dated by Landscape Architect.*
21. *Drawings not to be reproduced without written consent from Landscape Architect.*
22. *Approval of landscape plan to be obtained from municipality.*
23. *All plant material to be planted a minimum of 1.0m from any swales or ditches.*
24. *For grading and servicing information refer to the consulting Engineer's drawings.*
25. *For lighting information and power distribution refer to the electrical consultant's drawings.*

PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	SIZE	COND.	MATURE HT. (M)	MATURE SPR. (M)	O.C. (M)	REMARKS
6	Acer saccharum	Sugar Maple	50mm Cal.	W.B.	30.0	18.0	As Shown	Native to Ontario
6	Betula papyrifera	Paper Birch	50mm Cal.	W.B.	15.0	11.0	As Shown	Native to Ontario
6	Carya cordiformis	Bitternut Hickory	200cm Ht.	#10 cont.	20.0	15.0	As Shown	Native to Ontario
6	Carya ovata	Shagbark Hickory	200cm Ht.	#10 cont.	25.0	17.0	As Shown	Native to Ontario
6	Prunus pensylvanica	Pin Cherry	200cm Ht.	#7 cont.	10.0	4.0	As Shown	Native to Ontario
6	Tilia americana	American Linden	150cm Ht.	#7 cont.	25.0	15.0	As Shown	Native to Ontario
SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	COND.	MATURE HT. (M)	MATURE SPR. (M)	O.C. (M)	REMARKS
39	Amelanchier sanguinea	Roundleaf Serviceberry	30cm	#2 cont.	6.0	4.0		
33	Cornus alternifolia	Pagoda Dogwood	40cm	#3 cont.	4.0	7.0	As Shown	Native to Ontario
34	Cornus racemosa	Gray Dogwood	60cm	#3 cont.	3.0	3.0	2.5	Native to Ontario
28	Prunus virginiana	Chokecherry	60cm	#5 cont.	6.0	6.0	3.5	Native to Ontario
54	Rosa blanda	Meadow Rose	30cm	#2 cont.	1.3	1.5	1.4	Native to Ontario
36	Viburnum lentago	Nannyberry	50cm	#3 cont.	5.0	2.0	1.5	Native to Ontario

KEY MAP - N.T.S.



LEGEND

- property line
- proposed deciduous tree
- proposed shrub
- +125.20 existing elevation
- +(118.90) proposed elevation
- min. 150mm topsoil, fine grade & native woodland edge seed mixture - see terraseed notes 'A'

DRAFT
ISSUED FOR REVIEW & COMMENTS ONLY

REVISIONS/ SUBMISSIONS

#	DATE	DESCRIPTION
1	2022-02-14	Issued for review
2	2022-02-18	Issued for submission
3	2023-05-02	Issued for submission

STAMP

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
SCOTT PB HENDERSON
MEMBER

CLIENT
Quantum Realty Management

MUNICIPALITY
City of Burlington

PROJECT
1450 King Road

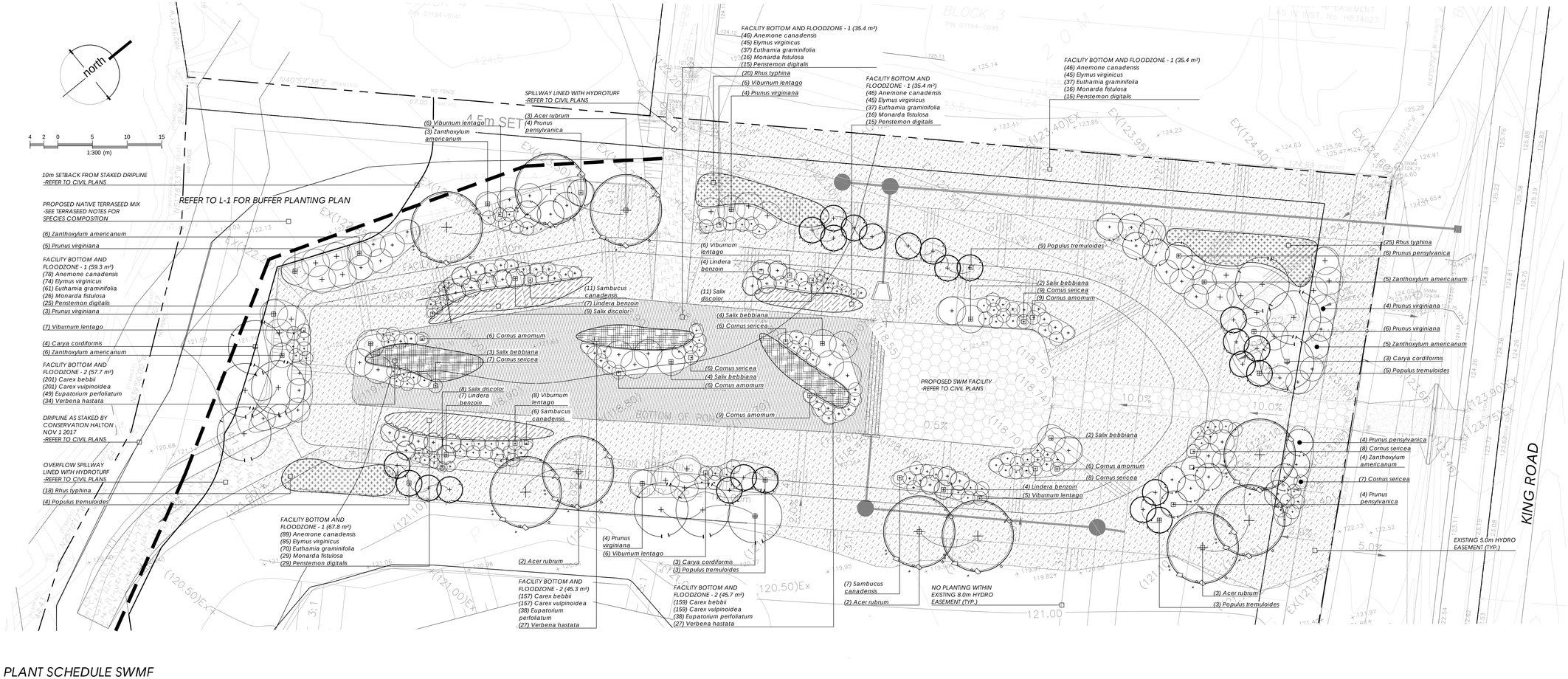
MUNICIPAL FILE NUMBER

SHEET
Buffer Planting Plan
L-1

adesso design inc.
landscape architecture
69John Street South, Suite 250
Hamilton, ON L8N 2B9
t. 905.526.8876
www.adessodesigninc.ca

REF:Project Files:Projects_2021:21-219_1450King Road Burlington:WC:Current Drawings:21-219_King_L1.VWX:L1 Landscape
LAST SAVED BY:dessoud13, Tuesday, May 2, 2023 12:25:21 PM - PLOTTED BY:Carleigh Ryan, Monday, May 2, 2023 12:26:47 PM

project #: 21-219



PLANT SCHEDULE SWMF

TREES	BOTANICAL NAME	COMMON NAME	SIZE	COND.	MATURE HT. (M)	MATURE SPR. (M)	O.C. (M)	REMARKS
10	Acer rubrum	Red Maple	50mm Cal.	W.B.	15.0	12.0	As Shown	Native to Ontario
10	Carya cordiformis	Bitternut Hickory	200cm Ht.	#10 cont.	20.0	15.0	As Shown	Native to Ontario
24	Populus tremuloides	Trembling Aspen	50mm Cal.	W.B.	12.0	5.0	As Shown	Native to Ontario
18	Prunus pensylvanica	Pin Cherry	200cm Ht.	#7 cont.	10.0	4.0	As Shown	Native to Ontario
SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**COND.**	**MATURE HT. (M)**	**MATURE SPR. (M)**	**O.C. (M)**	**REMARKS**
36	Cornus amomum	Silky Dogwood	30cm	#3 cont.	2.0	2.0	1.75	Native to Ontario
51	Cornus sericea	Red Osier Dogwood	50cm	#3 cont.	1.75	2.0	1.75	Native to Ontario
22	Lindera benzoin	Spicebush	40cm	#3 cont.	4.0	3.0	2.5	Native to Ontario
26	Prunus virginiana	Chokecherry	60cm	#5 cont.	6.0	6.0	3.5	Native to Ontario
15	Salix bebbiana	Beaked Willow	60cm	#3 cont.	5.0	10.0	5.0	Native to Ontario
28	Salix discolor	Pussy Willow	40cm	#3 cont.	5.0	1.5	1.1	Native to Ontario
24	Sambucus canadensis	Elderberry	50cm	#3 cont.	2.5	2.0	1.75	Native to Ontario
44	Viburnum lentago	Nannyberry	50cm	#3 cont.	5.0	2.0	1.5	Native to Ontario
29	Zanthoxylum americanum	Common Prickyash	30cm	#3 cont.	6.0	4.0	3.5	Native to Ontario
GROUND COVERS	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**COND.**	**MATURE HT. (M)**	**MATURE SPR. (M)**	**O.C. (M)**	**REMARKS**
213	Anemone canadensis	Canadian Anemone	--	#1 cont.	0.50	0.50	--	Native to Ontario
517	Carex bebbii	Bebb's Sedge	--	Plug	0.80	0.20		Native to Ontario
517	Carex vulpinoidea	Fox Sedge	--	Plug	0.90	0.50		Native to Ontario
204	Elymus virginicus	Virginia Wild Rye	--	Plug	1.5	0.60		Native to Ontario
125	Eupatorium perfoliatum	Common Boneset	--	#1 cont.	1.25	0.90		Native to Ontario
168	Euthamia graminifolia	Grass-leafed Goldenrod	--	Plug	1.0	0.60		Native to Ontario
71	Monarda fistulosa	Bergamot	--	#1 cont.	1.1	0.90		Native to Ontario
69	Penstemon digitalis	Beardtongue	--	#1 cont.	0.60	0.60		Native to Ontario
63	Rhus typhina	Staghorn Sumac	50cm	#3 cont.	2.5	2.5	2.0	Native to Ontario
88	Verbena hastata	Blue Vervain	--	#1 cont.	2.0	0.90		Native to Ontario

TERRASEED NOTES 'B':

1. *Areas to be seeded with naturalization mix shall receive an application of naturalization seed at the rate of 25-30 kg/hectare or 2 kg/100m² for spot applications, in the following mixture:*

OCS Shoreline Native Seed Mixture 8250*	
Green Bulrush (Scirpus atrovirens)	1%
Spotted Joe Pye Weed (Eupatorium maculatum)	1%
Purple Stemmed Aster (Aster punniceus)	2%
Swamp Milkweed (Asclepias incarnata)	2%
Blue Vervain (Verbena hastata)	9%
Blunt Broom Sedge (Carex scoparia)	10%
Sweet Flag (Acorus americanus)	10%
Fox Sedge (Carex vulpinoide)	25%
Virginia Wild Rye (Elymus virginicus)	40%

*apply with Annual Oats (Avena sativa) nursecrop at 22kg/hectare.

Supplied by:
OSC - Ontario Seed Co. Limited
P: 1-519-886-0557
W: www.oscseeds.com

2. *Contractor responsible for soil test to determine fertilizer rates. Results of soil test shall be provided to the Landscape Architect for review and approval.*
3. *Hydraulic mulch to be approved by the Landscape Architect shall be applied at the rate of 2100kg per hectare.*
4. *The contractor shall not carry out the work under adverse weather conditions such as high wind, frozen ground or ground covered with snow, ice or standing water.*
5. *Grade sub-grade, eliminate uneven areas and low spots, ensure positive drainage. Remove debris, roots, branches, stones in excess of 50mm diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride, dispose of removed material as directed by Landscape Architect.*
6. *Grade seed bed for terraseeding to a uniform surface and remove vegetation which may interfere with seeding operations. Loosen soil to depth of 25mm minimum and remove stones and foreign material which protrude more than 75mm above the surface.*
7. *All areas to be terraseeded to receive 150mm of topsoil.*
8. *Seeded areas to be maintained by contractor ensuring adequate water, fertilizer, maintenance and repair until seeded areas are properly established. Areas seeded in fall will be accepted in following spring, one month after start of growing season provided acceptance conditions are fulfilled.*

TERRASEED NOTES 'C':

1. *Areas to be seeded with naturalization mix shall receive an application of naturalization seed at the rate of 25-30 kg/hectare or 2 kg/100m² for spot applications, in the following mixture:*

OCS Stormwater Pond Native Mixture 8190*	
New England Aster (Aster navae-anglaie)	2%
Black Eyed Susan (Rudbeckia hirta)	3%
Canada Wild Rye (Elymus canadensis)	15%
Fox Sedge (Carex vulpinoide)	15%
Indiangrass (Sorghastrum nutans)	15%
Fowl Bluegrass (Poa palustris)	25%
Virginia Wild Rye (Elymus virginicus)	25%

*apply with Annual Oats (Avena sativa) nursecrop at 22kg/hectare.

Supplied by:
OSC - Ontario Seed Co. Limited
P: 1-519-886-0557
W: www.oscseeds.com

2. *Contractor responsible for soil test to determine fertilizer rates. Results of soil test shall be provided to the Landscape Architect for review and approval.*
3. *Hydraulic mulch to be approved by the Landscape Architect shall be applied at the rate of 2100kg per hectare.*
4. *The contractor shall not carry out the work under adverse weather conditions such as high wind, frozen ground or ground covered with snow, ice or standing water.*
5. *Grade sub-grade, eliminate uneven areas and low spots, ensure positive drainage. Remove debris, roots, branches, stones in excess of 50mm diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride, dispose of removed material as directed by Landscape Architect.*
6. *Grade seed bed for terraseeding to a uniform surface and remove vegetation which may interfere with seeding operations. Loosen soil to depth of 25mm minimum and remove stones and foreign material which protrude more than 75mm above the surface.*
7. *All areas to be terraseeded to receive 150mm of topsoil.*
8. *Seeded areas to be maintained by contractor ensuring adequate water, fertilizer, maintenance and repair until seeded areas are properly established. Areas seeded in fall will be accepted in following spring, one month after start of growing season provided acceptance conditions are fulfilled.*

LANDSCAPE NOTES:

1. *All work to be carried out in accordance with by-laws and codes having jurisdiction over site location.*
2. *Complete all work to the satisfaction of the Landscape Architect.*
3. *Report any changes, discrepancies or substitutions to the Landscape Architect for review. Obtain approval from the Landscape Architect before proceeding.*
4. *It is the contractor's responsibility to determine existing service locations.*
5. *Exact locations of plant material will be determined by placement of site services such as hydro vaults, meters, utilities roof rain water leaders, driveways, light standards, etc.*
6. *All plant material locations to be staked or marked out and approved by Landscape Architect prior to installation.*
7. *Supply all plant material in accordance with the Canadian Standards for Nursery Stock (8th ed.).*
8. *Install plant material according to details shown.*
9. *Supply and place mulch in accordance with Canadian Landscape Standard (Section 10, Mulching). Disturbed soil areas around trees and shrubs are to be covered with shredded conifer bark mulch such as 'Cedar Bark Mulch' by All Treat Farms or 'Classic Cedar Mulch' by Gro-Bark, or approved equivalent. Alternative mulches must be approved by the Landscape Architect.*
10. *Contractor to utilize layout dimensions where provided*
11. *Provide planting bed area as noted on the drawing or to accommodate mature size of plant material.*
12. *All support systems must be removed by the contractor at time of final acceptance. No extras will be paid to complete this work*
13. *Supply and place topsoil in accordance with Canadian Landscape Standard (Section 4, Grading & Drainage and Section 6, Growing Medium) to a minimum depth of 150mm unless otherwise specified.*
14. *Supply and place sod in accordance with Canadian Landscape Standard (Section 7, Lawns & Grass and Section 8, Turfgrass Sod)unless otherwise specified.*
15. *Supply and place seed in accordance with Canadian Landscape Standard (Section 4, Grading & Drainage and Section 6, Growing Medium) unless otherwise specified. All 5:1 or greater slopes to be seeded with tacifier. Contractor to provide necessary erosion control protection as required to ensure soil stabilization and proper seed germination.*
16. *All dimensions in meters unless otherwise noted.*
17. *If discrepancies arise between plant material count shown on drawing and plant list, the drawing shall be considered correct.*
18. *Contractor to provide minimum one (1) year warranty (including trees on municipal property) from date accepted on all work unless otherwise specified.*
19. *Any site plan or grading and servicing shown is for information only. Refer to approved drawings.*
20. *Not for construction unless stamped, signed and dated by Landscape Architect.*
21. *Drawings not to be reproduced without written consent from Landscape Architect.*
22. *Approval of landscape plan to be obtained from municipality.*
23. *All plant material to be planted a minimum of 1.0m from any swales or ditches.*
24. *For grading and servicing information refer to the consulting Engineer's drawings.*
25. *For lighting information and power distribution refer to the electrical consultant's drawings.*

KEY MAP - N.T.S.



LEGEND

- property line
- proposed deciduous tree
- proposed shrub
- existing elevation (+ 125.20)
- proposed elevation (+(118.90))
- min. 150mm topsoil, fine grade & shoreline native seed mixture - see terraseed notes 'B'
- min. 150mm topsoil, fine grade & stormwater pond native seed mixture - see terraseed notes 'C'

DRAFT
ISSUED FOR REVIEW & COMMENTS ONLY

REVISIONS/ SUBMISSIONS

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1	2022-02-14	Issued for review
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STAMP



CLIENT
Quantum Realty Management

MUNICIPALITY
City of Burlington

PROJECT
1450 King Road

MUNICIPAL FILE NUMBER

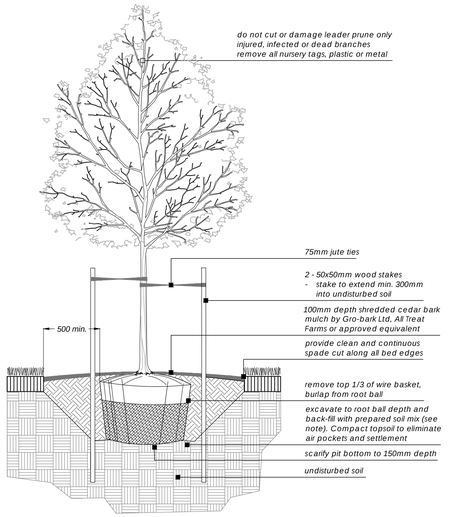
SHEET
SWM Facility Landscape Plan
L-2

adesso design inc.
landscape architecture

69John Street South, Suite 250
Hamilton, ON L8N 2B9
t. 905.526.8876
www.adessodesigninc.ca

PLOT Plotted: Date/Time: 2021-10-08 | 450 King Road & Bellamond Crt Consent Package | 1:300 | Xref: LAYOUT1 Unknown, SWMF
LAST SAVED BY: Stelios G. Tuesday, May 2, 2023 12:53:11 PM H:\CITIES\Burlington\1450 Cumberland Drive\Drawings\Planting\1450 King Road & Bellamond Crt Consent Package.dwg

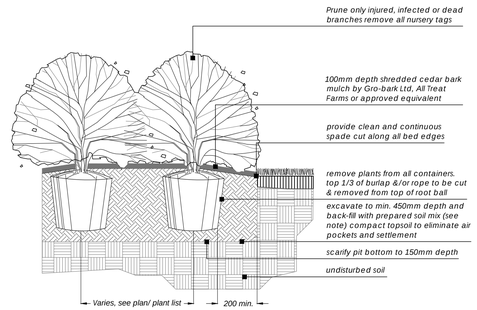
project #: 21-219



Balled & Burlapped/ Wire Basket Deciduous Tree

SCALE: NTS

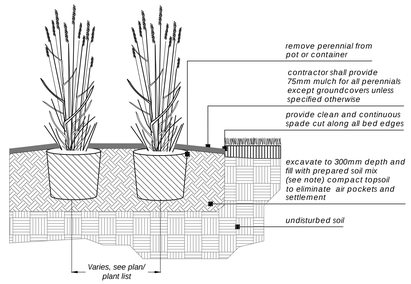
1
L-3



Container Grown Shrub

SCALE: NTS

2
L-3



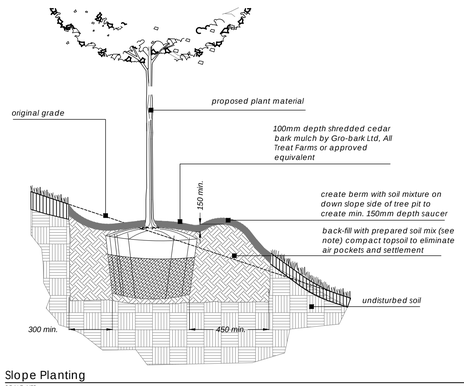
Container Grown Perennial

SCALE: NTS

3
L-3

PLANTING NOTES:

1. Soil mixture: four (4) parts native soil, one (1) part well rotted compost.If existing soil is not suitable provide triple mix topsoil or approved equal.
2. Saucer shall be soaked with water and mulched immediately following planting.
3. Massed shrubs shall be planted in continuous mulched beds unless otherwise noted.
4. Staking schedule;
   - < 30mm caliper size/ 2500mm ht. - one stake
   - > 30mm caliper size/ 2500mm ht. - two stakes
   - > 70mm caliper - three stakes
5. All support systems must be removed once tree is established.
6. All trees to be straight and planted vertically regardless of slope.
7. Top of root flare shall be positioned 50mm above grade.
8. The following depths of soil are required for planting;
   - 15cm topsoil for sod;
   - 30cm of topsoil for perennials;
   - 45cm of topsoil for shrubs;
   - 90cm of topsoil for trees



Slope Planting

SCALE: NTS

4
L-3

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REVISIONS/ SUBMISSIONS

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MUNICIPALITY
City of Burlington

PROJECT
1450 King Road

MUNICIPAL FILE NUMBER

SHEET
Details

L-3

adesso design inc.
landscape architecture

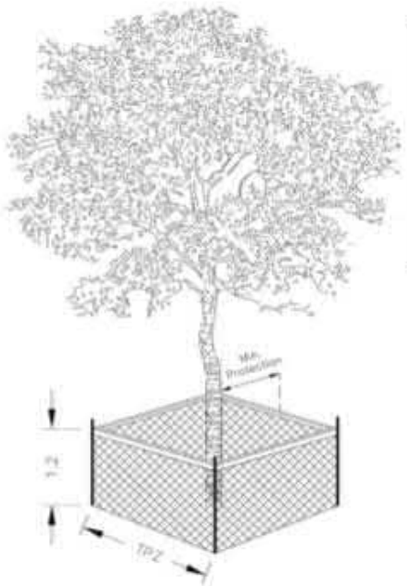
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Hamilton, ON L8N 2B9
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www.adessodesigninc.ca

REF:\\Projects (Burlington)\2021\21-219_1450 King Road, Burlington\05 Comm Drawings\21-219_Key_LAYOUT Planting Details
LAST SAVED BY:Rebecca.B, Tuesday, May 2, 2023 12:25:13 PM, PLOTTED BY:Carleigh Power, Tuesday, May 2, 2023 12:25:54 PM

Appendix C:

City of Burlington Tree Preservation Details

Tree Protection and Preservation
Specification No.: SS12A



Detail TP-1 – Tree Protection Detail.

Trunk Diameter (DBH) [2]	Minimum Tree Protection Zone (MTPZ) Distances Required [3]	Critical Root Zone (CRZ) Distances Required [3&4]
< 10 cm	1.8 m	1.8 m
11 - 40 cm	2.4 m	4.0 m
41 - 50 cm	3.0 m	5.0 m
51 - 60 cm	3.6 m	6.0 m
61 - 70 cm	4.2 m	7.0 m
71 - 80 cm	4.8 m	8.0 m
81 - 90 cm	5.4 m	9.0 m
91 - 100+ cm	6.0 m	10.0 m

NOTES:

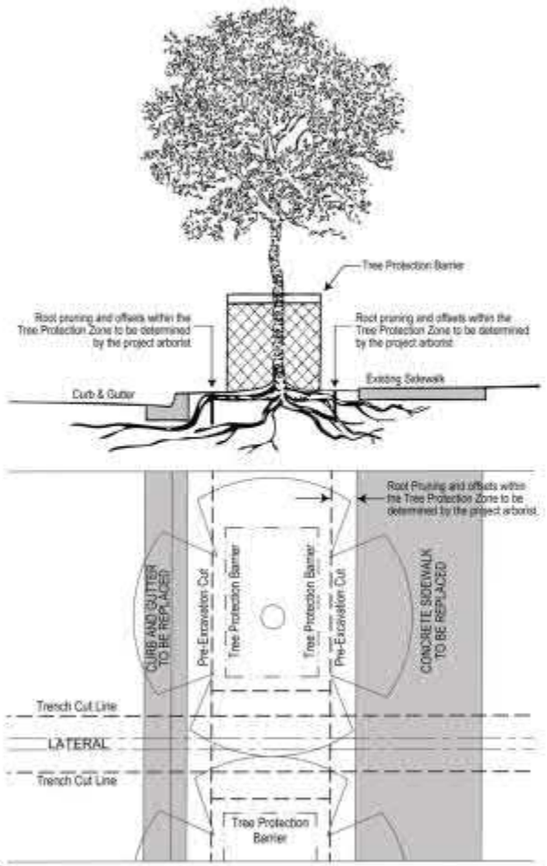
[1] The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the drip line.
[2] Diameter at breast height (DBH) is the measurement of tree trunk taken at 1.4 metres above ground.
[3] Minimum Tree Protection Zone and Critical Root Zone distances are to be measured from the outside edge of the tree base towards the drip line and may be limited by an existing paved surface, provided the existing paved surface remains intact throughout the construction work and is subject to Section 6 of this specification.
[4] Where work is being performed beyond the Minimum Tree Protection Zone but within the Critical Root Zone the works are subject to Section 8 of this specification.

TREE PROTECTION BARRIER

1. The required barrier is a 1.2 metre (4 ft) high orange plastic web snow fencing on 2" x 4" frame. Where orange plastic web snow fencing creates a restriction to sightlines, page wire fencing with reflective tape can be used.
2. Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the site and are to remain in place throughout the entire duration of the project. The barriers shall be maintained erect and in good repair throughout the duration of construction operations with breaks and unsupported sections repaired immediately. Tree protection may be not be removed prior to the completion of construction without written authorization from the Manager of Urban Forestry or designate.
3. All supports and bracing used to safely secure the barrier should be located outside the MTPZ. All supports and bracing should minimize damage to roots.
4. Where some fill or excavated material must be temporarily located near a MTPZ, a wooden barrier with silt fencing must be used to ensure no material enters the MTPZ.
5. No materials or fill may be stored within the MTPZ.
6. Equipment or vehicles shall not be operated, parked, repaired, or refueled within the MTPZ.
7. No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the MTPZ without written authorization from the Manager of Urban Forestry or designate.
8. A laminated Minimum Tree Protection Zone sign (See Detail TP-3 – Minimum Tree Protection Zone Sign) must be attached to the side of the Tree Protection where it will be visible by persons entering the site. Minimum size must be 10"x14".

Tree Protection and Preservation
Specification No.: SS12A

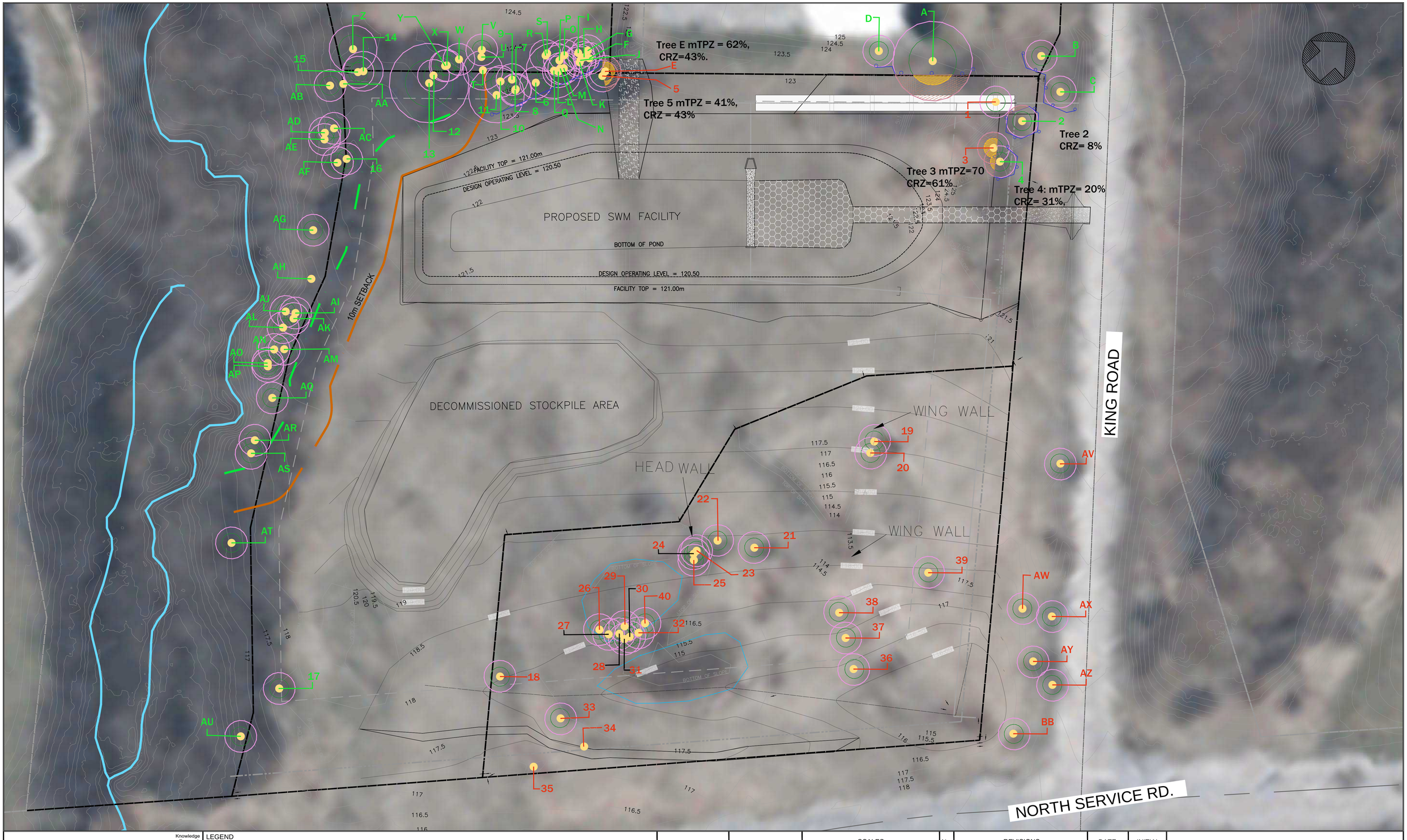
Detail TP-2 – Root Pruning Detail



NOTE:
For excavations perpendicular to to the curbing (ie. sidewalk, curbing, water or sewer laterals renewal)

(a) The contractor is to use a trench box to minimize the width of the open cut.
(b) When the lateral replacement is within the Tree Protection Zone of a tree, the contractor is to complete the works using trenchless technologies.

Drawing Figures



Knowledge Research Consulting

GeoProcess RESEARCH ASSOCIATES

PO Box 65506
Dundas PO
Dundas, ON
L9H 6Y6
(416) 452-5037
www.geoprocessresearch.com

LEGEND

- Tree Location
- Tree Protection Fence
- Tree Protection Zone
- TPZ Encroachment
- 1 Tree Identified for Preservation
- 34 Tree Identified for Removal
- CRZ

DRAFT
NOT FOR CONSTRUCTION

SEAL

SCALES

0 10 20 Meters
1:400

No.	REVISIONS	DATE	INITIAL
01	ISSUED FOR REVIEW	05/06/2022	K.G.

Arborist Report
1450 King Road, Burlington
Tree Protection Plan

Scale: 1:400 | Drawn By: S.G. | Drawing No. 01

Date Issued: 05/06/2022 | Checked By: K.G.

Tree #	Common Name	Scientific Name	DBH	Trunk Integrity	Crown Structure	Crown Vigor	Overall Condition (%)	Condition Rating	mTPZ	mTPZ m²	mTPZ encroachment (m²)	mTPZ encroachment (%)	CRZ	CRZ m²	CRZ encroachment (m²)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
1	trembling aspen	*Populus tremuloides*	18	0.75	0.80	0.65	75%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	fissure in trunk/lower stems dead	Encroachment into mTPZ due to proposed SWM grading and facility installation	Private	Remove
2	trembling aspen	*Populus tremuloides*	12.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	3.95	8%		Potential disturbance within the TPZ is unavoidable, therefore place ¾ in thick plywood over an 8-in deep mulch in the TPZ to avoid or reduce soil compaction	Private	Save
3	black walnut	*Juglans nigra*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	12.5	70%	4.0	50.3	30.9	61%	fruiting/growing beside berm	Encroachment into mTPZ due to proposed SWM grading and facility installation	Private	Remove
4	black walnut	*Juglans nigra*	11	0.80	0.80	0.80	80%	Good	2.4	18.1	3.7	20%	4.0	50.3	15.8	31%	fruiting/thicket creeper	Potential disturbance within the TPZ is unavoidable, therefore place ¾ in thick plywood over an 8-in deep mulch in the TPZ to avoid or reduce soil compaction	Private	Save
5	shagbark hickory	*Carya ovata*	38	0.80	0.80	0.80	80%	Good	2.4	18.1	7.5	41%	4.0	50.3	21.7	43%		Encroachment into mTPZ due to proposed SWM grading and facility installation	Private	Remove
6	shagbark hickory	*Carya ovata*	26	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Gypsy Moth eggs	None	Private	Save
7	shagbark hickory	*Carya ovata*	10.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
8	shagbark hickory	*Carya ovata*	28	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
9	white oak	*Quercus alba*	32	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	leaf defoliation	None	Private	Save
10	shagbark hickory	*Carya ovata*	11	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
11	white oak	*Quercus alba*	67	0.80	0.80	0.75	80%	Good	4.2	55.4	0.0	0%	7.0	153.9	0.0	0%	leaf defoliation from Gypsy Moth	None	Private	Save
12	shagbark hickory	*Carya ovata*	23,25.5	0.75	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Codominant, included bark at base	None	Private	Save
13	white oak	*Quercus alba*	105	0.75	0.40	0.40	50%	Fair	6.0	113.1	0.0	0%	10.0	314.2	0.0	0%	dead canopy, epic br from lower larger limbs	None	Private	Save
14	shagbark hickory	*Carya ovata*	49	0.80	0.80	0.80	80%	Good	3.0	28.3	0.0	0%	5.0	78.5	0.0	0%	Gypsy Moth (GM) eggs	None	Private	Save
15	shagbark hickory	*Carya ovata*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
16	white ash	*Fraxinus americana*	12	0.65	0.75	0.65	75%	Fair	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB holes but live canopy	None	Private	Save
17	Manitoba maple	*Acer negundo*	16	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
18	white willow	*Salix alba*	10	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, inlcuded bark at base	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
19	white willow	*Salix alba*	19	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	growing in line with pipe outlet	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
20	white willow	*Salix alba*	13/15.5/33	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
21	white pine	*Pinus strobus*	14	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
22	white pine	*Pinus strobus*	12	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
23	white willow	*Salix alba*	28	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
24	white willow	*Salix alba*	11.5	0.75	0.75	0.80	75%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	dead larger oak on tr	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
25	white willow	*Salix alba*	19	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	slight lean	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
26	white willow	*Salix alba*	14	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	beside standing water	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
27	white willow	*Salix alba*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
28	white willow	*Salix alba*	9,12	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, inlcuded bark at base	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
29	white willow	*Salix alba*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
30	white willow	*Salix alba*	14	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
31	white willow	*Salix alba*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
32	white willow	*Salix alba*	13.5,10	0.75	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Codominant, included bark at base	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
33	red maple	*Acer rubrum*	12	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
34	white ash	*Fraxinus americana*	16.5	0.00	0.00	0.00	0%	Dead	-	-	-	-	-	-	-	-		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
35	white ash	*Fraxinus americana*	14	0.00	0.00	0.00	0%	Dead	-	-	-	-	-	-	-	-	suckering	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
36	red oak	*Quercus rubra*	18.5	0.80	0.80	0.75	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	some defoliation	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
37	burr oak	*Quercus macrocarpa*	18.5	0.80	0.80	0.75	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	some defoliation	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
38	burr oak	*Quercus macrocarpa*	13	0.80	0.80	0.80	80%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%		Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove
39	red maple	*Acer rubrum*	11	0.65	0.75	0.65	68%	Fair	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	open wound on trunk	Encroachment into mTPZ due to proposed SWM pond decomissioning and fill	Public-SWM Pond	Remove

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Legend

DBH	Diameter at Breast Height (cm)
TPZ	Tree Protection Zone
GOOD	Dead branches less than 10%; good compartmentalization on any wounds, no structural defects
FAIR	10-30% dead branches, size or occurrence of wounds present some concerns, minor structural defects.
POOR	More than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects or disease, major structural defects.
DEAD	Tree shows no signs of life
Rating	(L) = light; (M) = moderate; (H) = heavy

SEAL

No.	REVISIONS	DATE	INITIAL
01	ISSUED FOR REVIEW	05/06/2022	K.G.

Arborist Report
1450 King Road, Burlington
Tree Protection Details

Scale:
Drawn By: S.G.
Drawing No. 02
Date Issued: 05/06/2022
Checked By: K.G.

Tree #	Common Name	Scientific Name	DBH	Trunk Integrity	Crown Structure	Crown Vigor	Overall Condition (%)	Condition Rating	mTPZ	mTPZ m²	mTPZ encroachment (m²)	mTPZ encroachment (%)	CRZ	CRZ m²	CRZ encroachment (m²)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
40	white willow	*Salix alba*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Private	Save
A	white oak	*Quercus alba*	115.5	0.80	0.80	0.80	80%	Good	6.0	113.1	17.1	15%	10.0	314.2	87.3	28%	lower branches pruned	Potential disturbance within the TPZ is unavoidable, therefore place ¾ in thick plywood over an 8-in deep mulch in the TPZ to avoid or reduce soil compaction	Neighboring	Save
B	trembling aspen	*Populus tremuloides*	15	0.80	0.65	0.75	73%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	canopy die back	None	Public - ROW	Save
C	trembling aspen	*Populus tremuloides*	10,16	0.65	0.75	0.65	68%	Fair	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	smaller trunk stem is dead	None	Public - ROW	Save
D	shagbark hickory	*Carya ovata*	27	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
E	white oak	*Quercus alba*	19	0.80	0.80	0.80	80%	Good	2.4	18.1	11.4	62%	4.0	50.3	21.7	43%			Neighboring	Remove
F	shagbark hickory	*Carya ovata*	25,17	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
G	shagbark hickory	*Carya ovata*	19.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
H	shagbark hickory	*Carya ovata*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
I	shagbark hickory	*Carya ovata*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
J	shagbark hickory	*Carya ovata*	20	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
K	shagbark hickory	*Carya ovata*	20	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
L	white oak	*Quercus alba*	23	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
M	white oak	*Quercus alba*	33	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Dead branched (minor)	None	Neighboring	Save
N	shagbark hickory	*Carya ovata*	14.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
O	white oak	*Quercus alba*	13.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
P	white oak	*Quercus alba*	27.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
Q	red oak	*Quercus rubra*	44,65	0.80	0.80	0.80	80%	Good	4.2	55.4	0.0	0%	7.0	153.9	0.0	0%	some lower branch dieback. two trunks fused. Gypsy moth eggs	None	Neighboring	Save
R	shagbark hickory	*Carya ovata*	18	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
S	white oak	*Quercus alba*	20,30	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-	snag habitat, loose bark	None	Neighboring	Save
T	shagbark hickory	*Carya ovata*	45	0.80	0.80	0.80	80%	Good	3.0	28.3	0.0	0%	5.0	78.5	0.0	0%	bat roosting habitat	None	Neighboring	Save
U	white ash	*Fraxinus americana*	16	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-	EAB	None	Neighboring	Save
V	white oak	*Quercus alba*	31.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Neighboring	Save
W	white oak	*Quercus alba*	32	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	defoliation	None	Neighboring	Save
X	white oak	*Quercus alba*	27.5	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM defoliation	None	Neighboring	Save
Y	white oak	*Quercus alba*	28	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM eggs, defoliation	None	Neighboring	Save
Z	white oak	*Quercus alba*	57	0.80	0.80	0.80	80%	Good	3.6	40.7	0.0	0%	6.0	113.1	0.0	0%		None	Neighboring	Save
AA	white oak	*Quercus alba*	32	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-		None	Public- NH Feature	Save
AB	white oak	*Quercus alba*	15	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	defoliation, GM eggs	None	Public- NH Feature	Save
AC	white oak	*Quercus alba*	21	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM defolation	None	Public- NH Feature	Save
AD	white ash	*Fraxinus americana*	17	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB	None	Public- NH Feature	Save
AE	white ash	*Fraxinus americana*	10	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB	None	Public- NH Feature	Save
AF	white oak	*Quercus alba*	15,22	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM defoliation	None	Public- NH Feature	Save
AG	white oak	*Quercus alba*	30	0.80	0.80	0.60	73%	Fair	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	dieback and defoliation	None	Public- NH Feature	Save
AH	white oak	*Quercus alba*	32x2	0.00	0.00	0.00	0%	Dead	-	-	0.0	0%	-	-	-	-		None	Public- NH Feature	Save
AI	basswood	*Tilia americana*	15,24,32	0.80	0.80	0.75	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	some insect defoliation	None	Public- NH Feature	Save
AJ	basswood	*Tilia americana*	12,17	0.75	0.80	0.80	78%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	epicormic branching at base	None	Public- NH Feature	Save
AK	white oak	*Quercus alba*	34	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	leaf defoliation, GM eggs	None	Public- NH Feature	Save
AL	shagbark hickory	*Carya ovata*	17.5	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM eggs. note ash regen, lots of Buckthorn not much evidence of oak or hickory regen	None	Public- NH Feature	Save
AM	basswood	*Tilia americana*	13	0.00	0.00	0.00	0%	Dead	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Public- NH Feature	Save
AN	white oak	*Quercus alba*	23	0.65	0.40	0.40	48%	Poor	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	lower trunk epicormic branching	None	Public- NH Feature	Save
AO	basswood	*Tilia americana*	25	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%		None	Public- NH Feature	Save
AP	basswood	*Tilia americana*	23,28	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	GM eggs	None	Public- NH Feature	Save
AQ	white oak	*Quercus alba*	29	0.80	0.80	0.65	75%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	dieback, defoliation	None	Public- NH Feature	Save
AR	basswood	*Tilia americana*	13,30	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	ravine edge	None	Public- NH Feature	Save
AS	white oak	*Quercus alba*	28	0.80	0.80	0.80	80%	Good	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	healthy com to others less defoliation	None	Public- NH Feature	Save
AT	white ash	*Fraxinus americana*	11	0.75	0.40	0.40	52%	Poor	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	EAB,top canopy dead	None	Public- NH Feature	Save
AU	American elm	*Ulmus americana*	18	0.80	0.65	0.40	62%	Poor	2.4	18.1	0.0	0%	4.0	50.3	0.0	0%	Sparse canopy branches, Common buckthorn competition	None	Public- NH Feature	Save
AV	Russian olive	*Elaeagnus angustifolia*	14,18,10.5	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AW	Russian olive	*Elaeagnus angustifolia*	2*10	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AX	Russian olive	*Elaeagnus angustifolia*	16,15	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AY	Russian olive	*Elaeagnus angustifolia*	15,14,20,15,23	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
AZ	Russian olive	*Elaeagnus angustifolia*	14,14	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove
BB	Russian olive	*Elaeagnus angustifolia*	2*13	0.75	0.80	0.80	78%	Good	2.4	18.1	18.1	100%	4.0	50.3	50.3	100%	Multi-stem, included bark	Encroachment into mTPZ due to proposed future site developement	Public- ROW	Remove

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Legend

DBH	Diameter at Breast Height (cm)
TPZ	Tree Protection Zone
GOOD	Dead branches less than 10%; good compartmentalization on any wounds, no structural defects
FAIR	10-30% dead branches, size or occurrence of wounds present some concerns, minor structural defects.
POOR	More than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects or disease, major structural defects.
DEAD	Tree shows no signs of life
Rating	(L) = light; (M) = moderate; (H) = heavy

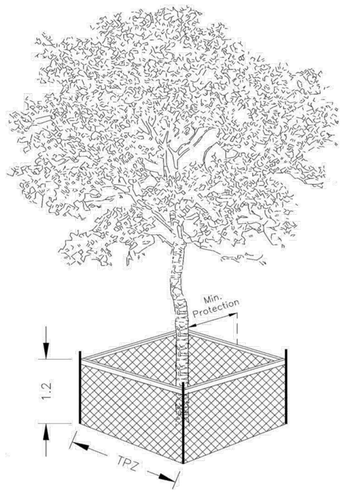
SEAL

No.	REVISIONS	DATE	INITIAL
01	ISSUED FOR REVIEW	05/06/2022	K.G.

Arborist Report
1450 King Road, Burlington
Tree Inventory table - 2

Scale:
Drawn By: S.G.
Drawing No. 03
Date Issued: 05/06/2022
Checked By: K.G.

Tree Protection and Preservation
Specification No.: SS12A



TREE PROTECTION BARRIER

Detail TP-1 – Tree Protection Detail.

Trunk Diameter (DBH) 2	Minimum Tree Protection Zone (MTPZ) Distances Required 3	Critical Root Zone (CRZ) Distances Required 3&4
< 10 cm	1.8 m	1.8 m
11 - 40 cm	2.4 m	4.0 m
41 - 50 cm	3.0 m	5.0 m
51 - 60 cm	3.6 m	6.0 m
61 - 70 cm	4.2 m	7.0 m
71 - 80 cm	4.8 m	8.0 m
81 - 90 cm	5.4 m	9.0 m
91 - 100+ cm	6.0 m	10.0 m

NOTES:

1 The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the drip line.

2 Diameter at breast height (DBH) is the measurement of tree trunk taken at 1.4 metres above ground.

3 Minimum Tree Protection Zone and Critical Root Zone distances are to be measured from the outside edge of the tree base towards the drip line and may be limited by an existing paved surface, provided the existing paved surface remains intact throughout the construction work and is subject to Section 6 of this specification.

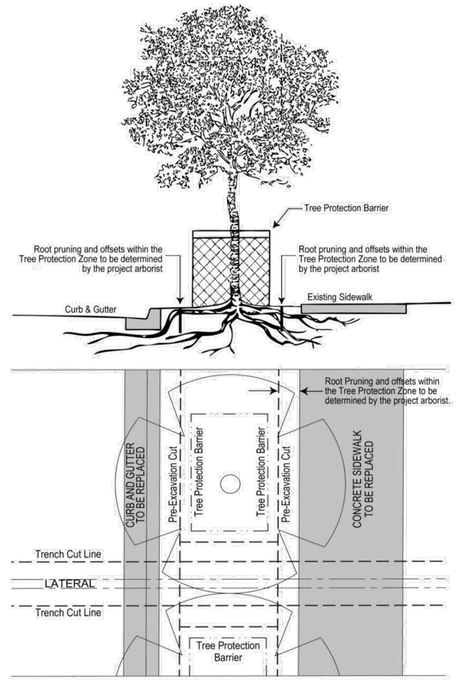
4 Where work is being performed beyond the Minimum Tree Protection Zone but within the Critical Root Zone the works are subject to Section 8 of this specification.

TREE PROTECTION BARRIER

1. The required barrier is a 1.2 metre (4 ft) high orange plastic web snow fencing on 2" x 4" frame. Where orange plastic web snow fencing creates a restriction to sightlines, page wire fencing with reflective tape can be used.
2. Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the site and are to remain in place throughout the entire duration of the project. The barriers shall be maintained erect and in good repair throughout the duration of construction operations with breaks and unsupported sections repaired immediately. Tree protection may be not be removed prior to the completion of construction without written authorization from the Manager of Urban Forestry or designate.
3. All supports and bracing used to safely secure the barrier should be located outside the MTPZ. All supports and bracing should minimize damage to roots.
4. Where some fill or excavated material must be temporarily located near a MTPZ, a wooden barrier with silt fencing must be used to ensure no material enters the MTPZ.
5. No materials or fill may be stored within the MTPZ.
6. Equipment or vehicles shall not be operated, parked, repaired, or refueled within the MTPZ.
7. No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the MTPZ without written authorization from the Manager of Urban Forestry or designate.
8. A laminated Minimum Tree Protection Zone sign (See Detail TP-3 – Minimum Tree Protection Zone Sign) must be attached to the side of the Tree Protection where it will be visible by persons entering the site. Minimum size must be 10"x14".

Tree Protection and Preservation
Specification No.: SS12A

Detail TP-2 – Root Pruning Detail



NOTE:
For excavations perpendicular to to the curbing (ie. sidewalk, curbing, water or sewer laterals renewal)

(a) The contractor is to use a trench box to minimize the width of the open cut.
(b) When the lateral replacement is within the Tree Protection Zone of a tree, the contractor is to complete the works using trenchless technologies.

CITY OF Burlington

TREE PROTECTION ZONE (TPZ)

No equipment or vehicles shall be operated, parked, repaired or refueled within the Tree Protection Zone.

No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the Tree Protection Zone.

No materials or fill may be stored within the Tree Protection Zone.

This tree protection barrier must not be removed prior to the completion of construction without written authorization from the City of Burlington, Urban Forestry Department.

For information, contact:
City of Burlington, Development and Infrastructure Division,
905-335-7642.

Notes:

The proponent is to be made aware of the following notes:

1. The Private Tree By-law is applicable to subject properties within the Urban Planning Boundary and the City Public Tree By-law is applicable City-wide. Private trees that are regulated and require removal or injury to facilitate projects works may require a tree permit depending on the timing of project works relative to planning application(s). Please consult with the City at all stages of your project (e.g., demolition) to ensure compliance.
2. A qualified professional (as defined in the City of Burlington's Pre-submission Checklist) is required to be retained to address potential impact on the existing trees on site during excavation operations to ensure no damage to the protected trees or their root systems.
3. The Owner is to be aware of the Migratory Birds Convention Act, 1994. This Act is implemented by Environment Canada and the Owner is to make every effort to avoid removal of vegetation from the period of October 1st and March 31st".

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DRAFT
NOT FOR CONSTRUCTION

SEAL

No.	REVISIONS	DATE	INITIAL
01	ISSUED FOR REVIEW	05/06/2022	K.G.

Arborist Report
1450 King Road, Burlington
Tree Protection Details

Scale: as shown | Drawn By: S.G. | Drawing No. 04
Date Issued: 05/06/2022 | Checked By: K.G.