

Tree Preservation Plan

Proposed Port Colborne Quarries Expansion (Pit 3)



Prepared for Port Colborne Quarries Inc.
by IBI Group
October 16, 2020

Document Control Page

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1 Introduction & Purpose

IBI Group (IBI) has been retained by Port Colborne Quarries Inc. to prepare a Tree Preservation Plan in support of the Natural Environment Level 1/2 Report (prepared by Golder Associates Ltd.). The following planning policies were reviewed through the preparation of this report:

“Region of Niagara Official Plan Policy 7.B.1.19 regarding Core Natural Features states:

Where development or site alteration is approved within the Core Natural Heritage System or adjacent lands as set out in Table 7-1 the applicant shall submit a Tree Saving Plan maintaining or enhancing the remaining natural features and ecological functions. The Plan shall be prepared in accordance with the Regional Forest Conservation By-Law and the local tree conservation By-Law as appropriate and its implementation monitored by a member of the Ontario Professional Forestry Association.

City of Port Colborne Official Plan Policy 4.1.2.5 regarding Natural Heritage Features:

Where development or site alteration is approved in accordance with the policies of this Plan, the applicant shall submit a Tree Saving Plan maintaining or enhancing the remaining natural features and ecological functions. The Plan shall be prepared in accordance with the administrable Tree Conservation By-Laws and related Environmental Impact Study and its implementation monitored by a member of the Ontario Professional Forestry Association or consultant who prepared the Environmental Impact Study.”

This Tree Preservation Plan has been prepared per the Section 9.0 Recommendations of the Natural Environment Level 1/2 Report and to fulfill the requirement set out by the City of Port Colborne.

This is Version 1.0 for Proposed Port Colborne Quarries Expansion (Pit 3).

Tree Preservation Plan, drawings L1 & L2 dated October 16, 2020, must be read and understood in conjunction with this report.

1.1 Location & Background

The site is bounded by Second Concession Road to the north, Highway 3 (Main Street East) to the south, the existing Port Colborne Quarry the west, and residential and agricultural lands and Regional Road No. 84 (Miller Road) to the east.

The total property size of the site proposed for the quarry expansion and ARA licensing is approximately 106.3 hectares (ha) in total area. The proposed Extraction Limit encompasses approximately 71.1 ha of the site with approximately 40 to 50 million tons of limestone resource proposed to be extracted to the same levels as the adjacent existing quarry.

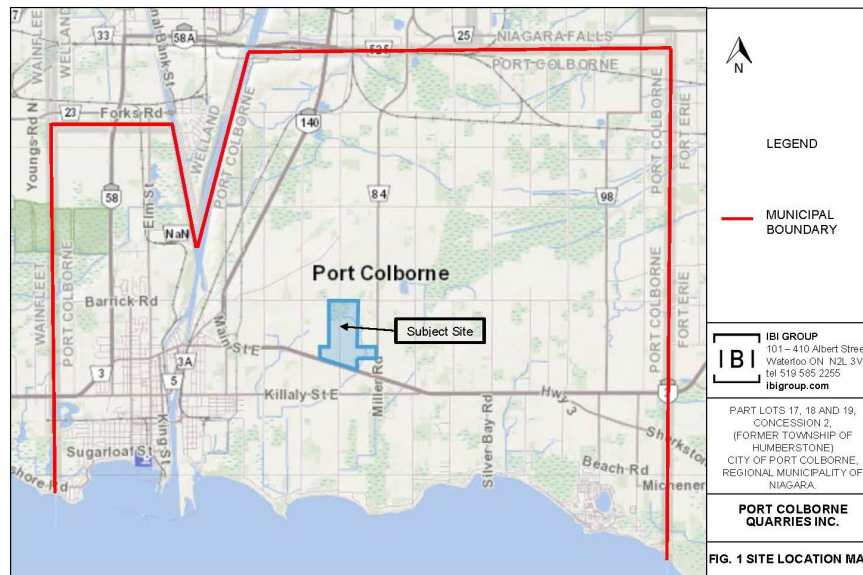


Figure 1 – Site Location Map

1.2 Existing Conditions

The site is predominantly open agricultural field with silver-maple mineral deciduous swamp (SWD3-2) and fresh-moist lowland deciduous forest (FOD7) ecological communities located along the northern property boundary. Refer to the Natural Environment Level 1/2 Report prepared by Golder Associated Ltd. for a full description and list of species within each community and extent and locations of these features.

The silver-maple mineral deciduous swamp (SWD3-2) is designated as a significant woodland per the City of Port Colborne Official Plan and is also designated a provincially non-significant wetland.

A fresh-moist lowland deciduous forest (FOD7-2) is located immediately south of an existing municipal drain, East Wignell Drain, which follows the southern boundary of the SWD3-2 feature and continues in a south-east direction to the eastern site boundary through a mixed deciduous swamp/deciduous forest located adjacent the site. Further north of this feature is another deciduous forest located adjacent the eastern site boundary. Humberstone Speedway is located in the southeast corner of the site and a residence is located in the northeast corner of the site.

2 Methodology

Ms. Daniella Giovanatto, OALA, CSLA, ISA Certified Arborist completed a general tree inventory and assessment of the existing trees located within the FOD7-2 feature on October 6, 2020. The feature was divided into three vegetation units based on similar characteristics composition and location.

The data collected during the general inventory included tree species, approximate quantity, general health condition, and DBH range. A list of shrub species observed on site has also been included for each Vegetation Unit for reference but should not be considered an exhaustive list. The tree inventory data has been compiled into the Existing FOD7-2 Tree Inventory Table, located on Drawing L2.

Approximate locations and extents of the vegetation units have been shown on the Tree Preservation Plan, drawings L1 and L2 included in Appendix 'A'.

The tree inventory data and unit locations were analyzed in conjunction with the proposed extraction limit for the quarry expansion. Vegetation unit removals and preservation opportunities have been identified and are available on the drawings located in Appendix 'A' and tree management recommendations for each unit have been identified in Section 3.0.

Construction Impact Mitigation strategies have been recommended for trees located adjacent to the proposed extraction limit.

2.1 Definitions of Measurements, Assessment, and Analysis

2.1.1 Measurements

Tree assessment includes specific measurements as part of the field review. Outlined below are measurements taken as part of the tree review:

DBH: Measurement of the trunk at 1.4 m above grade. Expressed as diameter range in centimetres.

Drip line: Measurement of the approximate extents of the branches as measured from the trunk of the tree. This also represents the general root zone of the tree. Expressed as a radius in metres.

2.1.2 Assessment of Condition

Outlined below are the detailed guidelines utilized for the condition classification:

Good: Defects if present are minor (e.g. twig dieback, small wounds), defective tree part is small (e.g. 5-8 cm diameter limb) providing little if any risk.

Fair: Defects are numerous or significant (e.g. dead scaffold limbs), defective parts are moderate in size (e.g. limb greater than 5-8 cm in diameter).

Poor: Defects are severe (trunk cavity in excess of 50%), defective parts are large (e.g. majority of crown).

Dead: Tree exhibits no signs of life.

3 Observations

The information presented in this section pertains exclusively to the FOD7-2 feature, referred to as the study area. For all other information pertaining to the other Ecological Land Communities (ELC) observed on site refer to the Natural Environment Level 1/2 Report prepared by Golder Associated Ltd.. Tree species observed in the study area included:

Manitoba Maple (*Acer negundo*)
Silver Maple (*Acer saccharinum*)
White Birch (*Betula papyrifera*)
Shagbark Hickory (*Carya ovata*)
Hawthorn Sp. (*Crataegus sp.*)
Green and Red Ash (*Fraxinus pennsylvanica*)
Eastern Red Cedar (*Juniperus virginiana*)
Eastern Larch (*Larix laricina*)
Eastern Cottonwood (*Populus deltoides*)

Trembling Aspen (*Populus tremuloides*)
White Spruce (*Picea glauca*)
White Pine (*Pinus strobus*)
Pear Sp. (*Pyrus sp.*)
White Oak (*Quercus alba*)
Swamp White Oak (*Quercus bicolor*)
Red Oak (*Quercus rubra*)
Pin Oak (*Quercus palustris*)
Willow Sp. (*Salix sp.*)
Eastern White Cedar (*Thuja occidentalis*)
White Elm (*Ulmus americana*)

An approximate total of 454 trees were observed within the study area. Refer to the Tree Preservation Plan, drawing L2 in Appendix A for a full list of tree species, approximate quantities, and vegetation unit locations observed within the FOD7-2 feature.

Signs of Emerald Ash Borer (*Agrilus planipennis*) were noted on the larger dead trunks of most Ash trees within the study area. Most Ash observed on site had multiple stems due to epicormic shoots (regrowth) growing from previously cut stumps or deceased stems. Health condition assessment considered epicormic growth where present resulting in most multi-stem clumps of ash being assessed in fair to good condition although previous Emerald Ash Borer damage may have occurred.

There were no rare, threatened or endangered species observed during the tree inventory.

3.1 Vegetation Units 'A' & 'B'

Vegetation Units 'A' and 'B' consisted primarily of multi-stem clumps of Green and Red Ash trees. Trees included in these units were located on the bank or within 2m of the top of bank of a section of the Wignell Drain. Isolated occurrences of other species noted in the Existing FOD7-2 Tree Inventory Table occurred throughout the extents of these vegetation units as presented on Tree Preservation Plan drawing L2.



Images 1 & 2 – Typical Ash clump regrowth with isolated other species growing along banks of Wignell Drain

3.2 Vegetation Unit 'C'

The larger trees observed within Vegetation Unit 'C' were predominantly native pioneer species such as Trembling Aspen and Eastern Cottonwood. Several other isolated trees in the 10 to 19 cm DBH range included Oak species, White Elm, Shagbark Hickory, Eastern Red Cedar and Ash. There were three (3) Pin Oaks and one (1) Swamp White Oak which were observed to be in the 20 to 29cm DBH range. The majority of trees observed within this unit were saplings with a DBH of less than 10cm.

Some specific observed characteristics of Vegetation Unit C include:

- mature clumps of multi-stem Willows, shrubs and Ash species regrowth along the eastern side of the unit



Images 3 & 4 – Multi-stem Willows and Ash species located along the west edge of the vegetation unit.

- grouping of approximately (25) 10 to 19cm DBH range Eastern Cottonwoods throughout the interior of the unit

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Images 5 & 6 – Eastern Cottonwood trees located in interior of vegetation unit.

- young coniferous and deciduous saplings which appear to have been planted based on the age, spacing, and species type naturalizing along the east and south edges of the unit (possible restoration planting includes Silver Maple, White Birch, Eastern Larch, White Spruce, White Pine and Eastern White Cedar)



Image 7 - Coniferous and deciduous saplings along south and west edges of vegetation unit

- Ash species present were mostly multi-stem clumps of epicormic shoots (regrowth) from previously cut stumps or deceased trunk with signs of Emerald Ash Borer present

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**TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)**

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Image 8 – Epicormic shoots on Ash (regrowth)

- Naturalized Oak species saplings and young trees throughout the unit with occurrences of Eastern Red Cedar, Pear, Manitoba Maple and Hawthorn Sp.



Image 9 – Oak species saplings and young trees throughout vegetation unit

4 Analysis and Recommendations

4.1 Tree Preservation

All woodlands, forests, and hedgerows located beyond the defined proposed extraction limits shall be preserved and protected in their entirety. Tree Protection Fencing should be installed at minimum of the drip line plus one metre per the locations and extents indicated on the Tree Preservation Plan drawing L1.

4.2 Tree Removals

Trees located within FOD7-2 community including Vegetation Units 'A', 'B', and 'C' are recommended for removal to permit the Phase 2 extraction work of the proposed quarry expansion. The presence of Emerald Ash Borer damage, high occurrence of Ash trees, pioneer species and possible restoration plantings, within the study area as well as the relatively young age of the trees present on site contribute to a low preservation priority for the FOD7-2 feature.

All removals shall be in accordance with Section 5.2 of this report.

5 Construction Impact Mitigation

5.1 Potential Construction Impacts to Trees

Trees are living organisms that react to changes in their environment. Trees can be damaged during construction without showing signs of damage until some years later. Most of the impacts relate to the removal of roots that results in the slow death of the tree as a result of its inability to absorb sufficient water and nutrients. Contained within this section are descriptions of the potential impacts this project may have on the trees, and impact mitigation methods that are intended to aid in the mitigation of impact during construction.

5.1.1 Soil Compaction and Root Damage

The leading cause of construction damage to trees is compaction of the soil around the roots or within the Tree Protection Zone (TPZ). The TPZ is the area around the tree or group of trees in which no grading or construction activity may occur. Equipment entering into a TPZ compresses the air pockets around the roots inhibiting the tree from absorbing nutrients and water. This damage ultimately degrades the health of the tree. Accordingly, during the removal stage, equipment used within the preservation zones should be restricted to ensure that the tree's roots are not disturbed, thereby assisting in maintaining their continued health. The TPZ is protected and delineated by the Tree Protection Fencing.

5.1.2 Mechanical Damage

Equipment can physically damage the trees through striking the trunk, limbs, and/or roots. Felled trees can also cause damage during the tree removal stage of construction. Some damage is unavoidable due to the proximity of adjacent trees; however, through the use of proper equipment and best management practices the damage can be minimized. The Contractor should be held responsible for all avoidable damage to the trees during all stages of development. Note: trees shall always be felled away from adjacent trees to be retained.

5.1.3 Root Damage

The success of tree preservation is dependent not only on protecting the root zone from compaction and damage; it is also contingent upon the ability to ensure that the structural roots within the root plate are not disturbed. Impacts to this area may result in the structural failure of these trees. Excavating soil 1 m outside a tree's drip line, or within a drip line can damage roots by tearing and splitting back to the stem. This damage can later lead to rot that can kill the tree. All work within the drip line of an existing tree shall be approved by an Arborist. When excavating the top 30-60 cm of soil adjacent to trees, care must be taken. Excavation should cleanly sever the roots prior to stripping and removal of soil. Exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree.

5.2 Protecting and Managing Trees During Construction

The following recommendations are presented to provide appropriate tree protection and management during the future development and construction of this project:

1. Tree Protection Fencing (TPF) should be installed to protect all trees identified for preservation. Tree Protection should conform to City of Port Colborne standards. Upon installation of the tree protection fencing, the Contractor should contact the Project Arborist to review and approve the fencing and its location prior to commencement of any site work. A written certification of the installed TPF will be provided to the City. The protection fencing should remain intact throughout the duration of the quarry extraction and rehabilitation works. The fencing should be inspected monthly and repaired as required. The fencing should be removed in its entirety at the completion of all rehabilitation works.
2. Upon receiving the necessary project approvals and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside of migratory bird nesting season, generally from April 1 to August 31. If removals occur within the restricted activity period, they shall be in accordance with the Migratory Birds Convention Act, 1994. Due diligence measures, including pre-clearing nest sweeps can be employed to reduce risk to nesting birds and to comply with Migratory Birds Regulations. These surveys will be completed by a qualified person such as a wildlife biologist or ornithologist.

The following is the process that shall be carried out if tree removals are requested during the restricted time frame indicated in the Migratory Birds Convention Act:

- i. Contact a qualified individual (i.e. wildlife biologist or ornithologist), to determine if nesting birds are within the tree removal disturbance area.
- ii. If the bird specialist has determined that there are nesting birds on site, there will be no tree removals/chipping conducted within the boundary set out by the specialist. Tree removals can resume within this once the migratory bird specialist has determined that the nest is no longer utilized.
- iii. If the bird specialist determines there are no migratory birds nesting within the disturbance area, the contractor will have a predetermined clearance window to conduct removals (as determined by the specialist). At the end of the clearance window, if removals and chipping are not complete, the bird specialist will return to the site and proceed with another assessment/nest sweep. This process will continue until all removals and chipping is complete.

3. The TPZ is the area around a retained tree that is to be protected by tree protection fencing. The TPZ is not to be used for any type of storage (e.g. storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.
4. Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees. In the event that roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, the Project Arborist shall be informed and the proper actions conforming to City Policies and By-laws shall be carried out.
5. Upon completion of the tree removals, all felled trees are to be removed from the site. No lumber or brush from the clearing is to be stored onsite. Any chipping, cutting or brush clean-up is to be completed outside the bird nesting season. If these activities are to occur within the restricted activity period, due diligence measures, including pre-clearing nest sweeps will be employed to reduce risk to nesting birds protected under the Migratory Birds Convention Act, 1994 and Migratory Birds Regulations. These surveys will be completed by a qualified biologist.
6. Excavation adjacent to trees to be preserved must be completed with due care and attention. Excavation should cleanly sever the roots prior to stripping and removal of soil. Should roots be encountered during excavation all exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree. Roots smaller than 2.5m (1 inch) should be cleanly cut using a sharpened spade or bypass pruners at the limits of excavation.

6 Disclaimer

The assessment of the trees presented within this report has been prepared using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree for structural defects, scars, external indications of decay, evidence of insect presence, discoloured foliage, the general condition of the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree or group of trees in all circumstances. Inevitably a standing tree will always pose some risk. Most trees have the potential for failure provided with the necessary combinations of stresses and elements. This risk can only be eliminated if the tree is removed.

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TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)

Prepared for Port Colborne Quarries Inc.

Although every effort has been made to ensure that this assessment is reasonably accurate the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection

Respectfully Submitted,



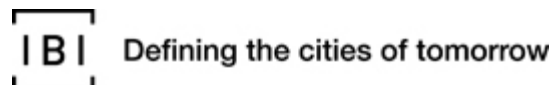
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TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)

Submitted to Port Colborne Quarries Inc.

Appendix A – Tree Preservation Plan

Drawings L1 & L2



CLIENT
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ISSUES

No.	DESCRIPTION	DATE
1	FOR SUBMISSION	2020-10-20

KEY PLAN

LEGEND

- LICENSED BOUNDARY
- - - - - LIMIT OF EXTRACTION
- - - - - PHASING BOUNDARY
- X X X X EXISTING POST & WIRE FENCE
- - - - - MUNICIPAL DRAIN
- MW17-3D, MW17-3S, F2 MONITORING WELLS
- ARCHAEOLOGICAL SURFACE FIND AND 70m BUFFER
- - - - - EXISTING TREE LINE (DRIP LINE)
- - - - - SURFACE DRAINAGE DIRECTION
- - - - - VEGETATION UNIT
- - - - - PROPOSED TREE PROTECTION FENCING
- TREE REMOVAL

CERTIFIED ARBORIST
ISA
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PROJECT
PIT 3 EXTENSION

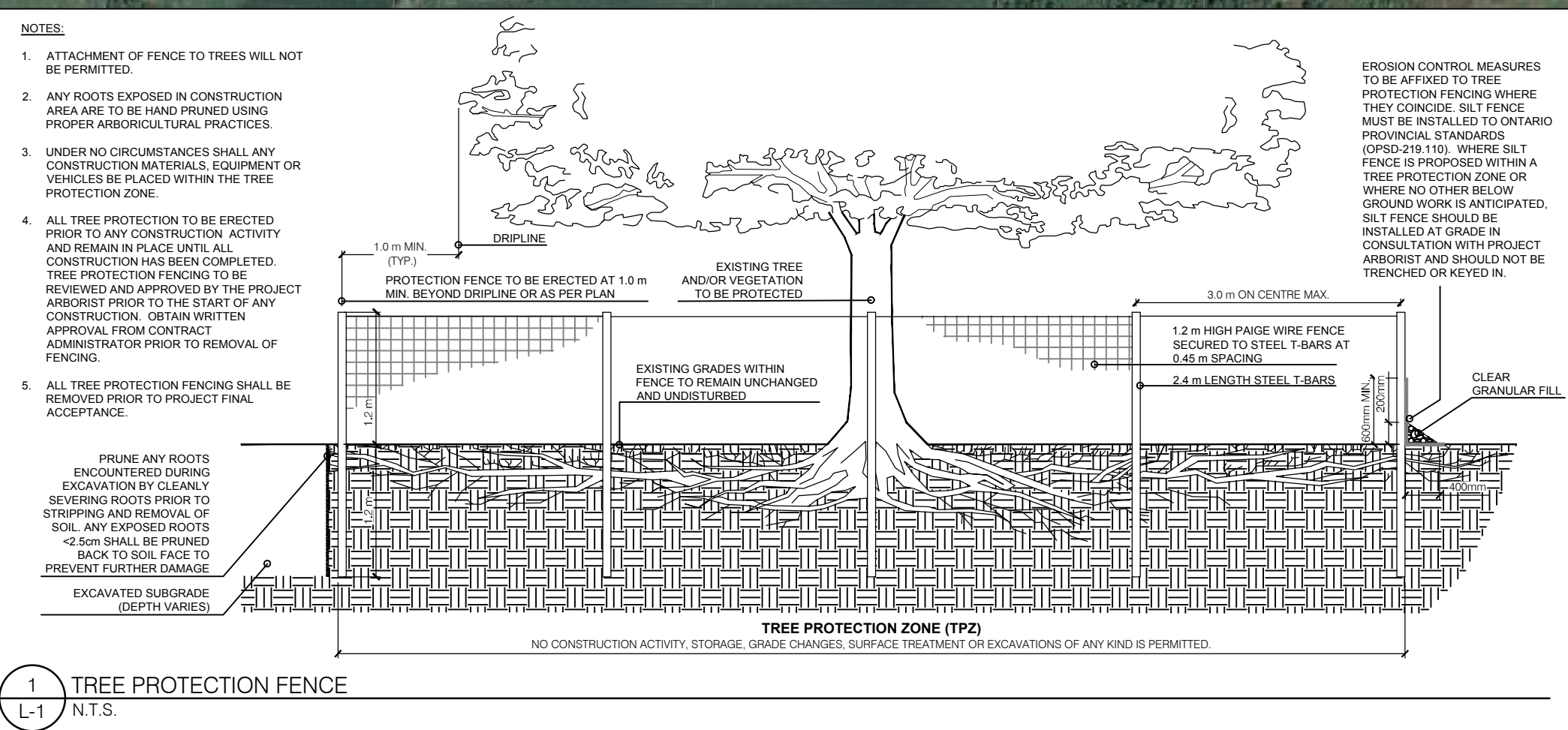
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DRAWN BY: D.G.
CHECKED BY: T.M.

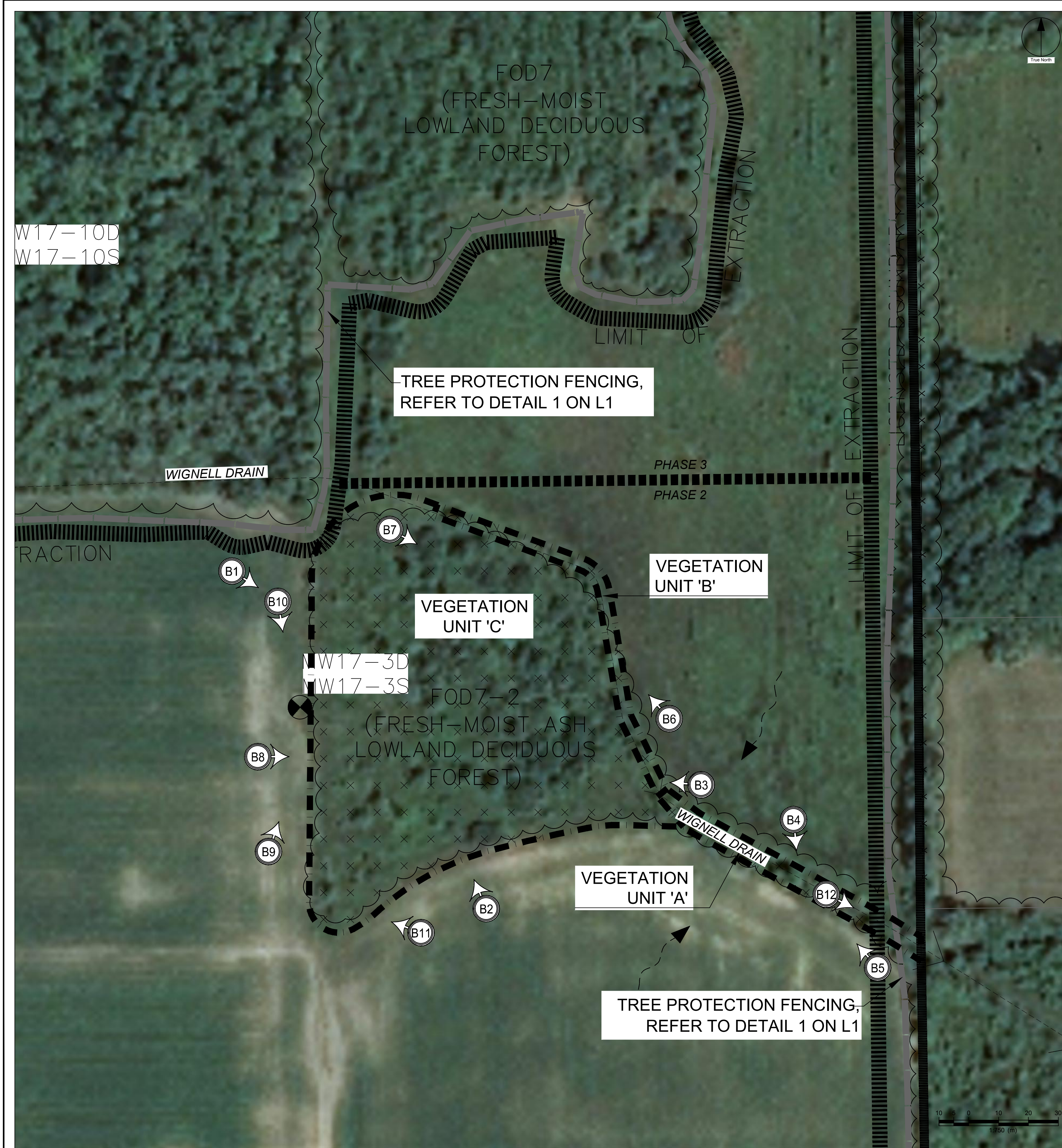
PROJECT MGR: D.S.
APPROVED BY: D.G.

SHEET TITLE
TREE PRESERVATION PLAN

SHEET NUMBER L1
ISSUE 1



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 Last Saved: October 19, 2020, by Daniela Giovannatto
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Existing FOD7-2 Tree Inventory Table
Pit 3 Extension
 Part of Lots 17, 18 & 19, Concession Road 2, Port Colborne, ON
 Data observed on October 6, 2020.

VEGETATION UNIT A					
Species	Common Name	Diameter at Breast Height (DBH) Range (cm)	Condition	Approx. Quantity	Recommendation
<i>Acer negundo</i>	Manitoba Maple	0 to 9	Fair to Good	1	Remove for Phase 2 Extraction
<i>Craetagus sp.</i>	Hawthorn Sp.	0 to 9	Fair to Good	6	
<i>Fraxinus pennsylvanica</i>	Green and Red Ash	0 to 9	Fair to Good	35	
		0 to 9	Poor	7	
		10 to 19	Poor	1	
<i>Juniperus virginiana</i>	Eastern Red Cedar	0 to 9	Good	3	
		10 to 19	Dead	1	
<i>Pyrus sp.</i>	Pear Sp.	0 to 9	Good	2	
<i>Quercus bicolor</i>	Swamp White Oak	0 to 9	Fair to Good	5	
		10 to 19	Good	3	
<i>Quercus palustris</i>	Pin Oak	10 to 19	Good	1	
		0 to 9	Fair to Good	1	
<i>Ulmus americana</i>	White Elm	0 to 9	Fair to Good	7	
		10 to 19	Good	5	
		10 to 19	Fair	1	
		10 to 19	Dead	1	
		20 to 29	Good	1	

Shrubs Present: *Comus racemosa* (Gray Dogwood), *Comus sericea* (Red Osier Dogwood), *Rhamnus cathartica* (Common Buckthorn), *Rhamnus frangula* (Glossy Buckthorn), *Toxicodendron radicans* (Poison Ivy), *Vitis sp.* (Grape Vine)

VEGETATION UNIT B					
Species	Common Name	Diameter at Breast Height (DBH) Range (cm)	Condition	Approx. Quantity	Recommendation
<i>Craetagus sp.</i>	Hawthorn Sp.	0 to 9	0 to 9	2	Remove for Phase 2 Extraction
<i>Fraxinus pennsylvanica</i>	Green and Red Ash	0 to 9	Fair to Good	5	
		0 to 9	Poor	8	
<i>Quercus bicolor</i>	Swamp White Oak	0 to 9	Fair to Good	1	
<i>Quercus palustris</i>	Pin Oak	0 to 9	Fair to Good	2	
<i>Salix sp.</i>	Willow Sp.	0 to 9	Fair to Good	5	
		10 to 19	Fair	1	
<i>Ulmus americana</i>	White Elm	0 to 9	Fair to Good	1	
		10 to 19	Good	1	

Shrubs Present: *Comus racemosa* (Gray Dogwood), *Parthenocissus quinquefolia* (Virginia Creeper), *Rhamnus cathartica* (Common Buckthorn), *Rhamnus frangula* (Glossy Buckthorn), *Rubus spp.* (Raspberry Spp.)

VEGETATION UNIT C					
Species	Common Name	Diameter at Breast Height (DBH) Range (cm)	Condition	Approx. Quantity	Recommendation
<i>Acer negundo</i>	Manitoba Maple	0 to 9	Fair to Good	2	Remove for Phase 2 Extraction
<i>Acer saccharinum</i>	Silver Maple	0 to 9	Fair to Good	2	
<i>Betula papyrifera</i>	White Birch	0 to 9	Good	~15	
<i>Carya ovata</i>	Shagbark Hickory	10 to 19	Good	1	
<i>Craetagus sp.</i>	Hawthorn Sp.	0 to 9	Fair to Good	5	
		10 to 19	Good	3	
<i>Fraxinus pennsylvanica</i>	Green and Red Ash	0 to 9	Fair to Good	45	
		0 to 9	Poor to Dead	5	
		10 to 19	Fair	3	
<i>Juniperus virginiana</i>	Eastern Red Cedar	0 to 9	Fair to Good	6	
		10 to 19	Fair	1	
<i>Larix laricina</i>	Eastern Larch	0 to 9	Good	10	
<i>Populus deltoides</i>	Eastern Cottonwood	0 to 9	Fair to Good	2	
		10 to 19	Good	25	
<i>Populus tremuloides</i>	Trembling Aspen	0 to 9	Fair to Good	27	
		0 to 9	Poor	8	
		10 to 19	Fair	1	
<i>Picea glauca</i>	White Spruce	0 to 9	Good	25	
<i>Pinus strobus</i>	White Pine	0 to 9	Good	45	
		0 to 9	Good	7	
<i>Pyrus sp.</i>	Pear Sp.	10 to 19	Fair	1	
<i>Quercus alba</i>	White Oak	10 to 19	Good	3	
		0 to 9	Fair to Good	5	
<i>Quercus bicolor</i>	Swamp White Oak	10 to 19	Good	7	
		11 to 29	Good	1	
<i>Quercus palustris</i>	Pin Oak	0 to 9	Fair to Good	30	
		11 to 29	Good	3	
<i>Quercus rubra</i>	Red Oak	0 to 9	Fair to Good	3	
<i>Salix sp.</i>	Willow Sp.	0 to 9	Fair to Good	45	
		11 to 29	Good	7	
<i>Thuja occidentalis</i>	Eastern White Cedar	0 to 9	Good	1	
<i>Ulmus americana</i>	White Elm	0 to 9	Fair to Good	11	
		10 to 19	Good	4	

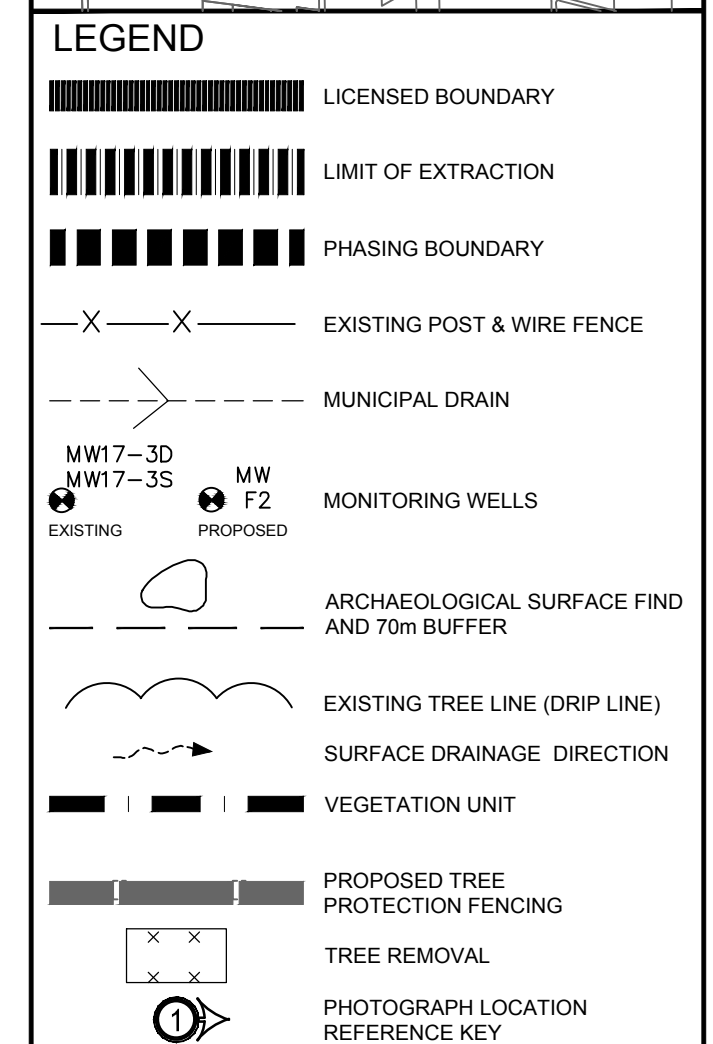
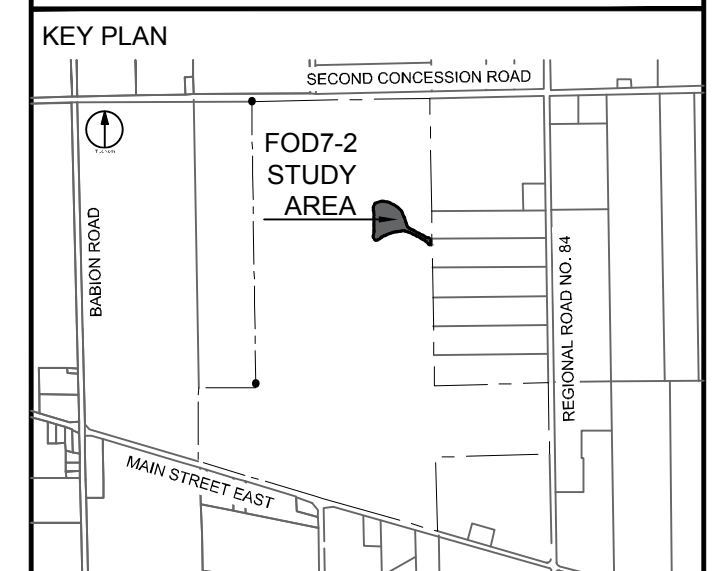
Shrubs Present: *Comus racemosa* (Gray Dogwood), *Comus sericea* (Red Osier Dogwood), *Lonicera tartarica* (Tartan Honeysuckle), *Parthenocissus quinquefolia* (Virginia Creeper), *Rhamnus cathartica* (Common Buckthorn), *Rhamnus frangula* (Glossy Buckthorn), *Rhus typhina* (Staghorn Sumac), *Rosa sp.* (Rose Sp.), *Rubus spp.* (Raspberry Spp.), *Salix sp.* (Willow Sp.), *Toxicodendron radicans* (Poison Ivy), *Viburnum recognitum* (Southern Arrowwood), *Vitis sp.* (Grape Vine)

Approximate Total Quantities Observed (All Vegetation Units): 454

CLIENT
PORT COLBORNE QUARRIES INC.
 222 MARTINDALE ROAD, P.O. BOX 1116
 ST. CATHERINES, ON, L2R 7A3

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ISSUES		
No.	DESCRIPTION	DATE
1	FOR SUBMISSION	2020-10-20



IBI GROUP
 Suite 101-410 Albert Street
 Waterloo ON N2L 3V3 Canada
 tel 519 585 2255
 ibigroup.com

PROJECT
PIT 3 EXTENSION

PROJECT NO: 115774	SCALE: 1:750
DRAWN BY: D.G.	CHECKED BY: T.M.
PROJECT MGR: D.S.	APPROVED BY: D.G.

SHEET TITLE
TREE PRESERVATION PLAN

SHEET NUMBER L2	ISSUE 1
---------------------------	-------------------

IBI GROUP

TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)

Submitted to Port Colborne Quarries Inc.

Appendix B – Site Photographs

Refer to Drawing L2 for photograph locations.

IBI GROUP

**TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)**

Submitted to Port Colborne Quarries Inc.



Image B1: Looking at west edge of Vegetation 'Unit C' from adjacent field



Image B2: Looking at south edge of Vegetation Unit 'C' from adjacent field



Image B3: Looking at west edge of Vegetation Unit 'C' from Wignell Drain



Image B4: Looking south at Vegetation Unit 'A' and Wignell Drain

IBI GROUP

**TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)**

Submitted to Port Colborne Quarries Inc.



Image B5: Looking at northwest at southeast edge of Vegetation Unit 'A' from adjacent field



Image B6: Looking northwest at Vegetation Unit 'B'



Image B7: Looking southeast at Vegetation Unit 'C' from northwest corner of study area

IBI GROUP

**TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)**

Submitted to Port Colborne Quarries Inc.



Image B8: Looking east at interior of Vegetation Unit 'C'



Image B9: Looking north at west edge of Vegetation 'Unit C'

IBI GROUP

**TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)**

Submitted to Port Colborne Quarries Inc.



Image B10: Looking south along west edge of Vegetation Unit 'C'



Image B11: Looking south-west at southern boundary of Vegetation Unit 'C'

IBI GROUP

**TREE PRESERVATION PLAN
PROPOSED PORT COLBORNE QUARRIES EXPANSION (PIT 3)**

Submitted to Port Colborne Quarries Inc.



Image B12: Looking at east property limit down centre of Wignell Drain

Daniella Giovanatto OALA, CSLA Landscape Architect

Daniella is a Landscape Architect and Arborist with over a decade of experience in a broad range of projects. She has a strong understanding of the natural environment which complements a background in horticulture. An extensive familiarity with both native and cultivated woody and herbaceous plant species allows her to create successful planting designs while encouraging both cultivated and natural environments to flourish.

Daniella has comprehensive experience in restoration and naturalization, tree management, construction and tender preparation, site inspection, and contract administration. Daniella has worked on numerous projects including stream restoration, compensation plans, buffer planting and habitat enhancement, park and splash pad design, renewable energy visual screening plans, street and utility expansions, pipeline projects and subdivision planting designs. Daniella uses her understanding of construction techniques and process to effectively manage and preserve existing trees during project construction as well as ensure successful implementation of landscape designs. She is comfortable working with various Conservation Authorities throughout Southern Ontario and has a comprehensive understanding of various regional and municipal tree by-laws and policies.

Daniella's professional experience allows her to see a project through from the initial design stages to constructed completion. She strives to create integrative designs which complement the surrounding natural and urban environments.

Representative Experience

Landscape Architecture

University of Waterloo, Northwest Campus – Waterloo, ON (2013) – Landscape Architect* – Prepared detailed construction plans and tender documents for the proposed development including layout, planting and grading plans for stormwater management ponds, streetscape design and roundabouts, entry features and two parks.

Huron Woods Subdivision – Kitchener, ON (2013-2014) – Landscape Architect* – Prepared street tree planting plans including soil volume calculations in accordance with City of Kitchener Urban Forestry requirements. Also prepared open space compensation and stormwater management planting plans.

Elora Gorge Splash Pad – Elora, ON (2012) – Landscape Architectural Intern* – Prepared the preliminary, detailed design, and construction drawings for a frog-themed splash pad at the Elora Gorge Conservation Area.

William Schwenger Park Splash Pad – Hamilton, ON – Landscape Architect* – Prepared the preliminary, detailed design and construction drawings for a splash pad and sun shelter at William Schwenger Park.

Education

Bachelor of Landscape Architecture with distinction, University of Guelph, Guelph, ON, 2009

Dale Carnegie Effective Communication and Human Relations, 2018

Experience

2019–Present

IBI Group, Waterloo, ON, Senior Landscape Architect

2012–2019

Stantec, Waterloo, ON, Landscape Architect and Arborist

Memberships

Ontario Association of Landscape Architects (OALA), Full Registered Member with Seal

Canadian Society of Landscape Architects (CSLA), Full Registered Member

International Society of Arboriculture, Member

Certifications

Certified Arborist No ON-1380A, International Society of Arboriculture, Milton, ON, 2010

Awards and Publications

DMG Scholarship Recipient, 2006

Landscape Ontario Post-Secondary Scholarship Recipient, 2008

J. Gurska, D. Giovanatto, T. McCormick, T. Dan. J. Gurska, D. Giovanatto, T. McCormick, T. Dan. Increasing Phytoremediation Efficiency at Petroleum Hydrocarbon Contaminated Sites: Aeration Amendments to Increase Willow Root Growth. 14th International Phytotechnologies Conference. September 25-29, 2017. Montreal, Quebec., 2017



Fairgrounds Community Park Splash Pad – Hamilton, ON – Landscape Architect* – Prepared the preliminary, detailed design and construction drawings for a harvest-themed splash pad at Fairgrounds Community Park.

Mountainview Heights Subdivision Plan Phase 1A – Hamilton, ON – Landscape Architectural Intern* – Prepared detailed planting plans for Phase 1 of the subdivision including stormwater management pond, buffer planting, floodplain naturalization, street tree planting, roundabouts, and entry feature.

Hilltop Subdivision, Stage 3 – Ayr, ON – Landscape Architect* – Provided site inspection and contract administration of street trees and stormwater management pond plantings. Coordination of Initial (Start of Warranty) and Final Acceptance Township approvals. Prepared RFQ documents for construction pricing. Oversaw planting maintenance program throughout two year warranty period.

710 Huron Road (Saddlebrook Court) – Kitchener, ON (2017) – Landscape Architecture* – Prepared street tree planting plans including soil volume calculations in accordance with City of Kitchener Urban Forestry requirements. Also prepared park block landscape plans for this development including a playground.

Waterloo Westside Subdivision – Waterloo, ON (2012-2016) – Landscape Architect* – Prepared detailed planting plans and tender documents for five stormwater management ponds and buffer planting along an Environmentally Sensitive Policy Area adjacent the development. Ponds and buffers were parts of the Vista Hills Subdivision and the Clair Creek Meadows Subdivision. Was responsible for the tender preparation and contract administration for the construction of these works.

Union Gas Compressor Station Site #2 – Milton, ON (2013-2014) – Landscape Architect* – The landscaping for this compressor station includes vegetated berm screening, stormwater management pond planting, and naturalization planting for site plan and conservation authority approvals. Prepared design drawings for Town of Milton Site Plan Approval and Conservation Halton approvals.

Edgewater Estates Subdivision – Kitchener, ON (2015-2018) – Landscape Architect* – Completed on-site inspection of street trees and support and coordination throughout City Acceptance process.

Victoria Park Lake Improvements Detailed Design and Construction – Kitchener, ON, Canada (2011-2012) – Landscape Architectural Intern* – Prepared detailed landscape design and tree protection plans and details for shoreline reconstruction, the addition of new park elements such as trails, a pedestrian bridge, landscaping and restoration works.

Victoria Park Village – Guelph, ON (2014-2015) – Landscape Architect* – Prepared detailed planting plans for entire subdivision development including five storm water management facilities, buffers, stream restoration, street trees, and habitat and forest edge enhancement while meeting compensation planting targets. Also developed detailed accessible trail signage and species at risk public educational signage.

Village Green Park Splash Pad – Hamilton, ON (2013) – Landscape Architectural Intern* – Prepared the preliminary, detailed design, and construction drawings for a splash pad at Village Green Park. Also prepared a tennis court grading plan.

Hilltop (Legacy) Subdivision, Phase 4 – Ayr, ON (2013-2014) – Landscape Architect* – Prepared conceptual landscape plans for an integrated park system throughout the subdivision to support the draft plan application.

Northview Estates Subdivision – Guelph, ON (2013-2016) – Landscape Architect* – Prepared tender documents and construction drawings for a park block, stormwater management pond and open space trail block and compensation planting plan. Provided arboricultural support for the removal of existing trees and declining ash within the open space trail block. Also oversaw invasive Phragmites treatment within the SWM pond. Was responsible for the contract administration of this project throughout construction and the two year warranty period and the City Final Acceptance process.



West Mill Street Urban Improvements - Elora, ON (2018) – Landscape Architect* – A modern streetscape design was implemented to improve the circulation, place making, urban form and connection with the Victoria Street Pedestrian Bridge in downtown Elora. The streetscape included improvements including updates to site furnishings, lighting, parking layout, planting areas and pavement treatments. Provided construction administration support during the construction stage of this project.

Werni Court Park, Waterloo, ON (2018) – Landscape Architect * - A moderate sized park that includes a mid-aged play structure, passive trail and seating. This park is located at the end of cul-de-sac and provides much needed active space for the community. Responsible for tendering and contract administration of this project throughout construction and the two year warranty period and the City Final Acceptance process.

Mountain Holly Court Parkette, Waterloo, ON (2019) – Landscape Architect* - Design of a small parkette that includes swings, accessible play features, a sand play area and passive seating in the Clair Creek Meadows Subdivision.

Vista Hills Park, Waterloo, ON (2018)– Landscape Architect* - Prepared the conceptual design for a large park that was connected with Vista Hills Public School. The design included a shared natural turf sports field, basketball court, small toboggan hill, playground, trails and neighbourhood connections. Planting was designed to screen views to back yards of the adjacent houses while still maintaining safety for the users within the park.

St. Moritz Park, Waterloo, ON – Landscape Architectural Intern* -Responsible for the tendering and construction administration of a large passive park that links a stormwater management facility and adjacent school This project included implementation of a trail system, stormwater management pond planting and soccer field.

Greenscapes, Ancaster, ON (2019) – Landscape Architect

Prepared detailed planting plans for a site plan including a storm water management facility, street trees, forest edge buffer enhancement and compensation and restoration plans. Also prepared an invasive species management plan and significant species transplant plan. Was responsible for a conceptual trail alignment through a woodland and a Stage 4 archaeological dig site.

Landscape Restoration

Bronte Creek Environmental Remediation Project – Oakville, ON (2013-2015) – Landscape Architect* – This project consisted of the preparation of a long-term vegetative restoration plan for a contaminated site adjacent Bronte Creek. The project had a phased implementation that corresponded to areas of the site as they tested at safe contamination levels. Proposed planting included successional and locally native plant communities to the Conservation Halton Authority's satisfaction.

Enbridge GTA Project – ON, Canada (2015-2016) – Landscape Architect* – Prepared restoration planting plans to satisfy Toronto Region and Area Conservation Authority, Credit Valley Conservation and City of Markham restoration requirements and compensation targets with consideration of infrastructure and hydro corridor planting constraints. Responsible for inspection of compensation planting.

Arboriculture

8121 Indian Trail, Tree Assessment and Remediation Value – Rockwood, ON, Canada – Certified Arborist* – Assisted the project arborist to prepare a tree assessment and remediation value report for an insurance claim following a grass fire at a private residence.

Child and Parent Resource Institute (CPRI) – London, ON – Certified Arborist* – Assisted the Project Arborist with tree inventory and field work on site. Prepared tree inventory CAD drawings



showing the location and drip line of all existing trees in relation to the proposed building construction.

Waterloo West Sanitary Sewer/Pedestrian Access Through ESPA#19 – Waterloo, ON – Certified Arborist* – Assisted the Project Arborist with the detailed tree inventory and assessment. Produced project drawings and worked with Project Arborist to develop an Edge Management Plan with compensation planting for necessary tree removals. On-site monitoring provided during tree removal operations.

University of Waterloo Northwest Campus Tree Management Plan – Waterloo, ON – Landscape Architectural Intern* – Prepared tree management drawings showing the location, drip line of all existing trees, and removal/ preservation recommendations as inventoried and assessed by the Project Arborist.

Newtonbrook Creek Pipeline Exposure Remediation – Toronto, ON (2016) – Certified Arborist & Landscape Architect* – Completed tree inventory and assessment for remediation of a pipeline exposure area in a Ravine and Natural Feature Protection Area. Completed an arborist report, tree management plan, and restoration plans to support the required City of Toronto and Toronto and Region Conservation Authority permitting process.

Keele NPS 30 Pipeline Exposure Remediation – Toronto, ON – Certified Arborist & Landscape Architect* – Completed tree inventory and assessment for the remediation of a pipeline exposure area in a Ravine and Natural Feature Protection Area along a portion of Lavender Creek. Completed an arborist report, tree management plan, and compensation and restoration plan to support the required Toronto and Region Conservation Authority and City of Toronto permitting process.

Western Beaches Tunnel Pumping System Improvements – Toronto, ON (2017) – Certified Arborist & Landscape Architect* – This project included tree inventory, analysis and landscape architectural support for the internal permitting, design and tendering of this project. Proposed impacts to trees were a result of the proposed upgrades and improvements to existing storm and sanitary sewer infrastructure located along Lake ON. Compensation and restoration plans were completed to the City of Toronto's requirements and approvals.

Saddlebrook Development – Kitchener, ON (2017-2018) – Arborist* – Prepared a Detailed Vegetation Plan for subdivision and site plan development within the City of Kitchener for the phased permitting and removal of existing vegetation. The project included the inventory and assessment of a conifer plantation, isolated landscape trees and naturalized areas including a small wetland. Endangered species were observed adjacent to the development site and were included in the coordination of appropriate assessment and review. Services provided included site inspection during construction.

Bala Subdivision Expansion Project – Richmond Hill, ON – Arborist* – Conducted arboricultural site review and inspection of existing trees for a CN Rail line twinning project.

TNPI Integrity Dig Program – Various, ON (2016-2018) – Arborist* – Arboricultural review and assessment of multiple sites across southern ON including desktop review of applicable tree by-laws, completion of arborist reports, tree preservation plans and required municipal permitting. Also prepared compensation and landscape restoration plans to support required Conservation Authority permitting.

Former Pergola Lands Subdivision – Guelph, ON (2014) – Certified Arborist & Landscape Architect* – Reviewed and inventoried trees within and adjacent to a Townhouse/Condominium/Multi-block development. Prepared tree management plans and arborist report to secure a tree cutting permit with the City and shared tree property owner agreements. Also completed a compensation planting plan and wildlife enhancement corridor.

Willow Creek Pipeline Exposure – Minesing, ON (2015) – Certified Arborist & Landscape Architect* – Completed a tree inventory and assessment for the proposed workspace of a pipeline exposure remediation effort. Completed an arborist report, tree management plan, and compensation



restoration plans to support the required Nottawasaga Valley Conservation Authority permitting process.

Basement Flooding Improvements Program Group 3 (BF13) – Toronto, ON, Canada (2015-2016) – Certified Arborist & Landscape Architect* – This project included tree inventory, analysis and tendering support for over 15 sites within the City of Toronto, some areas within a Ravine and Natural Feature Protection area. Proposed impacts to trees were a result of the proposed upgrades and reconstruction of existing storm and sanitary sewer infrastructure. Also completed compensation and restoration plans for Bestview Park to Toronto and Region Conservation Authority and City of Toronto Ravine and Natural Feature Department requirements and approvals.

Sawmill Regional Road 17 – Bloomingdale, ON – Certified Arborist* – Performed a tree inventory and analysis and prepared tree management plans and, an arborist report for the conceptual road improvement works through the community of Bloomingdale.

5 Arthur Street Development – Guelph, ON – Certified Arborist* – Prepared a tree inventory, management plan, and arborist report for the proposed mixed-use development on a former brownfield site in downtown Guelph.

Enbridge Gas Distribution Inc. GTA Project, Greater Toronto Area Pipeline, Multiple Sites – GTA, ON (2014 – 2015) – Certified Arborist* – Performed tree inventory and analysis for over 50 km of proposed pipeline construction. The alignment was proposed through multiple GTA municipalities including the Town of Milton, the City of Mississauga, the City of Brampton, the City of Toronto, the City of Vaughan, and the City of Markham. The project involved the preparation of several tree management plans and arborist reports as well as consultation regarding two signification woodlots. CTLA tree valuations and compensation calculations were completed for the City of Markham.

German Mills Creek Pipeline Exposure – Markham, ON (2015) – Certified Arborist & Landscape Architect* – Completed tree inventory and assessment for remediation of a pipeline exposure area. Completed an arborist report, tree management plan, and compensation restoration plans to support the required Toronto and Region Conservation Authority permitting process and the Regional Municipality of York Special Permit Application for work within a significant woodland.

Guild wood/Livingston Buried Cable Replacement – Scarborough, ON (2010) – Certified Arborist* – Reviewed and inventoried trees within a mature neighbourhood where potentially impacted by proposed underground hydro cable replacements.

Victoria Park Lake Improvements, Tree Management – Kitchener, ON, Canada (2011) – Certified Arborist* – Reviewed trees along lake edge which would be impacted by proposed shoreline improvements. Produced a detailed tree inventory plan and worked with the Project Engineers to mitigate impacts to existing trees.

Buried Cable Replacement - Tree Inventory and Assessment – North York, ON (2010) – Certified Arborist* – Reviewed and inventoried trees within the right of way of a mature neighbourhood that would potentially be impacted by the Stantec proposed underground hydro cable replacement. Worked with Industrial group to produce a tree management plan and design which proposed the least amount of impact to the existing trees.

Seniors Health and Wellness Village, Brampton, ON* - Certified Arborist (2018) – Prepared a tree management plan, and arborist report for the proposed site plan application for a new long-term healthcare facility. An existing cemetery was located within the limits of a proposed land swap between a Region of Peel long-term healthcare facility and City of Brampton park. An allé and perimeter planting of trees was a defining cultural heritage element of the cemetery. These trees required individual assessment and mitigation recommendations to limit impacts and commemorate trees that could not be saved in the development process. Arboricultural assessment formed part of the heritage impact statement for the site.

Renewable Energy, Solar



Nanticoke Solar EPC - 44 MWac Solar Farm – Haldimand County, ON (2017) – Landscape Architect* – Prepared landscape screening plans for a residence which abuts the solar farm.

Loyalist Solar Project - EPC - 54 MWac Solar Farm – Township of Stone Mills, ON (2018) – Landscape Architect* – Prepared visual screening landscape plans for a solar farm site and associates sub-station. Landscape plans were developed to maintain and supplement existing vegetation at site boundaries.

Recurrent Energy – 14 Solar Farms – Smiths Falls, Midhurst, Orillia, Southwestern, ON (2012-2014) – Landscape Architect* – Prepared visual screening landscape plans for fourteen solar projects located throughout ON. The projects were located near Smith Falls, London, Midhurst and Orillia and were designed to various FIT contract versions and screening requirements. Completed site inspections and landscape certification of installed screening for four sites.

Cornwall Solar – Cornwall, ON (2013-2014) – Landscape Architect* – Prepared visual screening landscape plans for a solar site located in Cornwall, ON. Visual screening design was completed to FIT 2.0 contract version specifications. Completed site inspections and landscape certification of the installed screening

Renewable Energy, Wind

Niagara Region Wind Farm – Township of West Lincoln, ON, Canada (2015) – Landscape Architect* – Prepared visual screening plans for transformer and transition stations at three sites along a proposed transmission line

Stream Restoration

Torrance Creek Natural Channel Design – Guelph, ON (2015) – Landscape Architect* – Prepared landscape restoration plans for the natural channel design of Torrance Creek as part of a subdivision development plan. The new channel will provide cold water habitat for fish as well as turtle nesting habitat. Prepared associated tender and construction documents.

Idlewood Creek Restoration – Kitchener, ON, Canada (2017) – Landscape Architect & Arborist* – Completed landscape restoration planting plans to implement riparian and woodland ecological communities to restore three areas disturbed by channel realignment and the decommissioning of two dam structures. Provided on-site review and contract administration of tree removals and vegetation clearing. Provided support for tender package development including landscape specifications and invasive species management.

Schneider Creek Naturalization – Kitchener, ON (2013) – Landscape Architect* – Prepared naturalized planting plans for the design of a natural channel replacement for a 3 km concrete channel through the centre of the City of Kitchener. Naturalized planting design included specifications for native plant successional communities and live staking.

Conceptual Design

Centennial Park Restoration – Sarnia, ON (2015-2016) – Landscape Architect* – Prepared conceptual design drawings for Centennial Park following required contaminated soil restoration works. Project included trail alignments, an outdoor stage/concert area, boardwalk, waterfront promenade, playground area, the incorporation of existing memorial installations, a healing garden and site amenities such as lighting, seating, and garbage receptacles.

Phytoremediation

Bronte Creek Phytoremediation Test Sites – Oakville, ON (2016) – Arborist* – Provided support to Stantec Environmental Scientists for on-site review of phytoremediation test planting sites to analyze the root growth of four native willow species with various treatments to increase aeration of soil within immediate rooting zones. Treatments including gravel amendment, perforated aeration pipe, Oxygen Release Compounds (ORC), and controls. Overall goal of test site was to assess whether increased aeration could contribute to aerobic degradation of petroleum hydrocarbons on contaminated sites.



Value Engineering, Peer Reviews and Mediation

Centre Wellington Activity Centre Peer Review – Centre Wellington (2018) – Arborist* – Peer review of the arborist report and tree management plans for a site plan in Elora, ON.

Post Construction Monitoring

Oshawa Creek Relocation – Oshawa, ON, Canada (2018) – Landscape Architect* – Completed site inspection and assessment of planted seed and vegetation health for post-construction monitoring program and reporting.

Chinguacousy Road Widening, Fish Habitat Compensation – Brampton, ON, Canada (2018) – Landscape Architect* – Completed site inspection and assessment of planted seed and vegetation health for post-construction monitoring program and reporting.

Invasive Species Management

The Meadows in the Glen Subdivision – Glen Williams, ON (2018) – Landscape Architect* – Prepared an Invasive Species Management Plan for the control and treatment of invasive European Reed Grass (*Phragmites*) within a stormwater management pond. Secured a Letter of Opinion from the Ministry of Natural Resources and Forestry for pesticide use for natural resource management. Site review and inspection of completed work and treatment plan.

Carriage Crossing – Waterloo, ON (2016) – Landscape Architect* – Prepared a Removal Work Plan for invasive European Reed (*Phragmites*) within the stormwater management ponds within Carriage Crossing Subdivision.

Northview Estates Subdivision Phragmites Control - Guelph, ON (2018)* – Landscape Architect- Coordination of a Common Reed Grass (*Phragmites*) removal strategy for a storm water pond. Removal strategy included mechanical removal, herbicidal application and monitoring.

*denotes projects completed with other firms



Tim McCormick OALA, APALA, CSLA

Associate Director - Practice Lead, Landscape Architecture

Tim is a passionate practitioner of Landscape Architecture and Arboriculture. Throughout his career, Tim has developed a specialty in the planning, design and construction of active transportation facilities, trails, complete streets, cultural heritage landscapes, parklands, urban parks, green infrastructure, low impact design (LID), and arboriculture. His experience includes work with large and small municipalities, National Heritage sites, National Parks, development of city wide active transportation detailed design, community and public park design, public consultation, site remediation, environmental assessments, interpretative signage, stream restoration, and arboriculture across Canada. Tim endeavors to create inclusive spaces that foster a sense of community through inclusive and interdisciplinary design. His expertise in construction management and project implementation allow him to push the bounds of the design and create safe and implementable design expressions that can be built. Tim believes in lifecycle project and asset management and he delivers projects that have considered not only the initial capital costs but all the maintenance and long term financial implications of the design.

Representative Experience

Active Transportation Planning and Design

Central Promenade, Waterloo Park - Waterloo, ON* – Central Promenade created a dedicated cycling trail combined with a separate pedestrian trail. Development of two separate 3.5 m wide trails with a central median that combined infiltration drainage with traditional infrastructure. Design included the addition of a 3.5 m wide 33 m long single span bridge, boardwalk lookout, boardwalk design to facilitate snow clearing, lighting, wayfinding signage, rest areas and community light displays. This project had extensive community input and involvement in the concept and detailed design. Project Value: \$2,400,000. Role: Project Manager

Regina Street - Spur Line Crossing - Waterloo, ON* – Review crossing alternatives for a priority cycling linkage on the Spur Line Trail. This trail is directly adjacent to a CN Rail line and connects to a shared space roadway. Working with our transportation engineering team to select a crossing that was safe and integrated with the trails and road networks. We recommended creating a PED X crossing for this location. Role: Project Manager

Iron Horse Trail - Central Sections - Kitchener, ON* – Iron Horse Trail (IHT) Central Section included the detailed design development and construction administration of a 3.6m wide multi-use trail along an existing rail corridor. This assignment included two CN Rail crossings, a new trail connecting Victoria Park to the IHT, lighting, wayfinding signage, accessible trail design and low impact design passive storm water features. Role: Project Manager

Education

Dale Carnegie Managers Training, 2014

Technical Writing for Professionals, University of Toronto, ON, 2011

Butternut Health Assessor #161, Ministry of Natural Resources, Kitchener, ON, 2009

Writing Great Technical Documents, University of Waterloo Continuing Education Course, ON, 2007

Green Roofs for Healthy Cities Course, Green Roof Design 101, Kitchener, ON, 2006

Dale Carnegie Effective Communication and Human Relations, 2005

Certified Arborist No ON-0899A, International Society of Arboriculture, Milton, ON, 2002

Honours Bachelor of Landscape Architecture, University of Guelph, Guelph, ON, 2002

Experience

2019–Present

IBI Group, Waterloo, ON, Senior Landscape Architect

2012–2019

Stantec, Waterloo, ON, Geographic Discipline Lead
Canada East/Team Lead Waterloo

2008–2012

Ecoplans, Kitchener, ON, Senior Landscape Architect/Manager

2008–2009

Landscape Architectural Solutions, Principle

2008

Urban Forest Solutions, Senior Arborist

2004–2008

Stantec, Kitchener, ON, Landscape Architect and Arborist

Memberships

Ontario Association of Landscape Architects (OALA), Full Registered Member with Seal

Atlantic Provinces Association of Landscape Architects (APALA), Full Registered Member with Seal

Canadian Society of Landscape Architects (CSLA), Full Registered Member

International Society of Arboriculture, Member

Certifications

ISA Certified Arborist, International Society of Arboriculture, Champlain, Illinois, 2003

Awards and Publications

2016 The David Erb Memorial Award for Exemplary Volunteer Services, OALA

2002 Chanasyk Medal for Professionalism, University of Guelph



Prince Albert National Park - Waskesiu, SK* – Working with Parks Canada staff to develop concept plans to improve 4 trail routes within the park. Trails were assessed and mapped in the field using GPS. Improvements included removal of stairs, reorientation to improve visitor experience, implementation of rest areas and improvements to existing infrastructure. Boardwalks were required to allow visitors to better access marsh area. Role: Landscape Architect

High Priority Active Transportation Routes - Waterloo, ON* – Development of the multi-use trail standards for the Trans Canada Trail within Waterloo and completed a loop trail design through the heart of the City. The trail routes extend through sensitive natural area, wetlands and urban streetscapes. The design was completed using OTM Book 18 and meets with AODA guidelines. Way finding signage was developed to be integrated through the trails network and has since been implemented City wide. The project included public consultation and engagement to develop a trails network that was functional, safe and assessable. Project Value: CAD 200,000. Role: Project Manager

Doon South Community Trails Environmental Assessment - Kitchener, ON* – Development of a trails master plan through an environmentally sensitive and Provincially Significant Wetland (PSW). The design included wetland mapping, trail layout plans, review of impacts at crossings, hydraulic modelling, graphic plans for circulation, and preparation of a scoped EIS for permitting with the conservation authority. Responsible for the preparation of the permit application and correspondence with the conservation authority through the approval process. Attended and worked with the City during a site walk with residents to layout the trail location to minimize tree impacts onsite. Role: Landscape Architect

Strasburg Creek Trails Crossing EA Addendum - Kitchener, ON* – Reviewing a trail crossing recommendation within an EA for flood controls along Strasburg Creek. Crossing alternatives reviewed included a 45 m long below grade crossing, at grade crossing and a pedestrian bridge with approach ramps. The preferred crossing alternative was determined through working with stakeholder groups through the consultation process. Role: Landscape Architect

Waterloo West Sanitary Sewer/Pedestrian Access Through ESPA#19 - Waterloo, ON* – Worked with the City on the implementation of naturalized forest edge planting, re-vegetation and implementation of an upgraded trail and bridge. The trail connects into the City of Waterloo's trail network. Role: Construction Inspector

Weber Street Grade Separation, Road Expansion and Streetscape Design - Kitchener-Waterloo, ON* – Responsible for the preparation of streetscape design including two parks, street trees and entry features for Weber Street in both Kitchener and Waterloo. Our design has been developed in consultation with the Project Engineer, Architect and Region staff. We have integrated architectural elements and planting to develop a pedestrian friendly solution including an urban multi-use trail through the entire design. Role: Landscape Architect

Lake Shore Road (Mississauga Street to Great Lakes Boulevard) - Oakville, ON* – This project included a detailed Arboricultural assessments of all of the trees along the road corridor, Cultural Landscape assessment, Landscape Architectural design and public consultation. The project extended from detailed design through to construction management. The recommendations within the Cultural Landscape assessment were implemented into the streetscape design. The trail network design was developed to be sensitive to the cultural landscape as well as work with the preservation of the existing trees. Graphic plans were prepared and presented at public consultation meetings. Role: Landscape Architect

Carriage Crossing Subdivision - Waterloo, ON* – Responsible for the preparation of detailed landscape plan for all phases of the subdivision. The landscape design includes entry features, community trails, two community parks and street tree planting plans. The design includes multi-use pedestrian trails with two connecting boardwalks. The boardwalks span the creek and move visitors through the trails network in the community. Role: Landscape Architect



Urban Parks

Filsinger Park - Kitchener, ON* – Park improvements included the removal of a concrete channel and implementation of a natural channel. Filsinger is a large park and the design needed to connect the trail connections, existing park uses and connections to Fenwick work. Through public consultation and detailed design the public desires. The design is a combination of active transportation, naturalization and urban park. Role: Landscape Architect

Victoria Park - London, ON* – Responsible for the preparation of detailed tree management and preservation recommendations. The plan included the successional planning for the trees within the park. Recommendations included annual pruning recommendations to maintain the health of the trees and promote public safety. Role: Certified Arborist

Victoria Park - Elora, ON* – Responsible for the preparation of phased tree management and succession plan for the trees within the park. Recommendations included strategic pruning and maintenance to maintain views to the gorge while promoting public safety. Role: Certified Arborist

Historic / Heritage Restoration

Former London Psychiatric Hospital - London, ON* – This hospital site includes heritage buildings and cultural landscapes. The trees were assessed for their health, quality and cultural significance on the site. Recommendations were made for the future preservation of the trees through the adaptive reuse of the site. Role: Arborist

Canadian Film Centre - Toronto, ON* – Responsible for the preparation of the tree management plans for the trees on the E.P. Taylor Estate in Toronto. The work included assessing the heritage trees and trees adjacent to the site improvements and new buildings on the site. Role: Certified Arborist

MacKenzie King Estate - Gatineau, QC* – Responsible for the preparation of conceptual restoration landscape plans and Iconic Tree Report, complete with tree risk assessment and maintenance recommendation for the heritage trees within the estate. Role: Project Manager/Landscape Architect/Certified Arborist

Urban Design

Uptown Public Realm Study - Waterloo, ON* – With introduction of the LRT train within Uptown Waterloo there is a great new potential for the re-envisioning of this space and how the community utilizes it. Extensive public and stakeholder consultation were undertaken to hear what the public wanted for their public realm. This included workshops, meetings and design charrette. From this process key recommendations and 'moves' for this space were envisioned to allow for the City of Waterloo to propel the Uptown into a usable, inviting and integrated public space. Role: Landscape Architect

Queen Street Place Making Plan - Kitchener, ON* – Development of a Place Making Plan that created an integrated street that local business, community and Downtown Kitchener. Critical thinking for the year round uses of the road beyond vehicles. Plans included the incorporation Low Impact Development (LID) design solutions, share cycling spaces, street and pedestrian interface and activation of the street as a space for everyone. Life cycle costing and planning were integrated into the development of the plan and extensive time was spend with stakeholder groups to develop the necessary support to advance the design into detailed design. Role: Landscape Architect

Mill Street Urban Improvements - Elora, ON* – A modern streetscape is required to improve the circulation, place making, urban form and implementation with the Victoria Street Bridge. The public was engaged though public meetings, website and specific meetings were held with the BIA to ensure the design worked with the businesses and the community. The streetscape includes improvements include updates to site furnishings, lighting, parking layout, planting areas and pavement treatments. Role: Landscape Architect



Elora LCBO Parking Lot - Elora, ON* – Low Impact Development (LID) design solutions were utilized to minimize the need for stormwater infrastructure in the development of a new parking area. The design needed to accommodate the maximum number of cars while respecting the historic building onsite. Trees and lighting were critical in the development of a new parking area. Role: Landscape Architect

Downtown Orillia Streetscape Improvement Plan - Orillia, ON* – Working closely with Orillia staff we undertook extensive public stakeholder engagement through in person meetings, online tools and design charrette. Working with the public we create recommendations to create a unique and inviting streetscape that facilitated the year-round activation of the street, integration with side streets and potential for full closures for events and the future. Site lines and visitor experience became key elements of design consideration as the downtown links the water to the rest of the community. Role: Landscape Architect

Table Rock Welcome Centre Plaza - Niagara Falls, ON* – Table Rock Welcome Centre Plaza is where millions of people come annually to experience the beauty and power of the Horseshoe Falls. This location has been a draw for people for centuries and working with Niagara Parks we re-envisioned the plaza and experiences that visitor will have while in the space. The design incorporated spiraling walls and feeling of motion much like water swirling around rocks. The design had to consider the experiences from ground plane through the views from high above on the inline railway and hotels on Clifton Hill. This design presented extensive challenges from the extreme conditions to the expectations of the visitors to this site. Role: Landscape Architect

Clarence Street (Design) - Silva Cell Street Tree Planting - London, ON* – Project Manager responsible for the preparation detailed design plans, tender drawings and contract documents for a sustainable urban forest plan using Silva Cell's to provide adequate soil volumes for the long term tree growth and health. This was the first design project in London using Silva Cells in the downtown. Role: Landscape Architect

King Street (Design) - Silva Cell Street Planting - London, ON* – Project Manager responsible for the preparation detailed design plans, tender drawings and contract documents for a sustainable urban forest plan using Silva Cell's to provide adequate soil volumes for the long term tree growth and health. The project was the first downtown implementation site using Silva Cells within the City of London and required substantial consultation with the utility and other departments within the City for their approval prior to construction. Role: Landscape Architect

King Street (Contract Administration) - Silva Cell Street Planting - London, ON* – Project Manager responsible for the construction implementation of the contract for the installation of street trees using Silva Cell's to provide adequate soil volumes for the long term tree growth and health. The tender was awarded and we undertook the contract manager responsible for the onsite monitoring, implantation of the design plans and construction onsite. Role: Landscape Architect

880 Bay Street - Toronto, ON* – Responsible for the preparation of landscape design for a 44 storey building in Toronto. The design included modern elements at street level, integrated lighting, integration of a third floor green roof and patio area and 44 floor green roof. All of the work was completed to the Toronto Green Standard. An arborist report was also prepared as part of the work program. Role: Landscape Architect

Can-Am Parkway - Cambridge, ON* – Tree management and assessment of the proposed road alignment. This included routing the roadway through an existing woodland feature. The design elements for this project included the preparation of edge management plans, detailed streetscape design and roundabout features. The design included the development of conceptual streetscape plans that included urban and rural cross sections, development of detailed design of the streetscape and round-a-bout feature complete with City entry signs. Onsite construction manager for the tree removals, edge management and landscape installations. Role: Landscape Architect / Arborist



Regulatory Advice and Consultation

Construction Impact Review - Toronto, ON* – Responsible for the detailed analysis of trees along the property boundary. Construction works on an adjacent property have impacted trees on the plaintiff's property. Report prepared for use by plaintiff's lawyers. Court case pending. Role: Certified Arborist

Windbreak Assessment - Chatham, ON* – Responsible for the preparation of a detailed analysis of damage to an agricultural hedgerow. Report prepared for use by insurance claim team and lawyers to reach a settlement. Role: Certified Arborist

Woodlot Analysis - Napanee, ON* – Responsible for the preparation of a tree inventory and wood analysis for the defendant. Review of trees removed on a neighbour's property. Report prepared for use by insurance claim team and lawyers to reach a settlement. Role: Certified Arborist

Landscape Restoration

Bronte Creek 5 Year Restoration Plan - Oakville, ON* – Long-term site restoration is required to mitigate onsite equipment and access roads associated with contamination clean-up. A five year plan was developed that provides long-term vegetative restoration recommendations that allow for the phased implantation as the contamination is cleaned up. Proposed planting included successional and locally native plant communities acceptable to the Conservation Halton Authority. Due to the proximity of site to Bronte Creek flooding and ice flow damage were consideration in the site design. Role: Landscape Lead

Northview Subdivision Phragmites Control - Guelph, ON* – Implementation of a Common Reed Grass (Phragmites) removal strategy for a storm water pond. Removal strategy included mechanical removal, herbicidal application and monitoring. Role: Landscape Architect

Killbride Wetland Restoration*, Hamilton, ON* – Work on an adjacent energy pipe line will require additional space and impact an adjacent wetland. Restoration included Common Reed Grass removal, plantings to minimize future invasive species entering the system, buffer planting and reintroduction of native species within this area. Role: Landscape Architect

GTA Pipeline Tree Management and Restoration - Milton, Mississauga, Halton Hills, Brampton, Toronto, Vaughan, ON* – Tree management and arborist support for more than 4500 trees for the length of pipeline. We determined permit requirements, management requirements, protection and mitigation management. Restoration plans were prepared as compensation for the removal of trees along the corridor. Plans were prepared for woodland edges, wetlands, buffers and grasslands. Native species and mixed age plantings were implemented to recreate the natural environment along the corridor. Design consideration includes short and long term management of the pipeline while still providing compensation for the construction impacts onsite. Role: Senior Landscape Architect/Certified Arborist

Bronte Creek Phytoremediation Test Site - Oakville, ON* – Working with a team of specialists including Toxicologist and Engineers we have established a test planting sites to access the success of various treatments with select plants to promote deep root growth for use in contaminate groundwater treatment. Plants were planted are various different depths and have been treated with different Oxygen Release Compounds (ORC) to see which species and planting depths are the most successful for deep root growth. Role: Landscape Lead

Enbridge Gas Distribution Inc. - GTA Project, Greater Toronto Area Pipeline - Multiple Sites, GTA, ON* – Prepared detailed restoration planting plans to satisfy Toronto Region and Area Conservation Authority, Credit Valley Conservation and City of Markham restoration requirements and compensation targets with consideration of infrastructure and hydro corridor planting constraints. Role: Landscape Lead



Lyndale South Subdivision Phragmites Control - Kitchener, ON* – Implementation of a Common Reed Grass removal strategy for two storm water ponds. Removal strategy included mechanical removal, herbicidal application and monitoring. Role: Landscape Architect

Bright C Station Buffer and Landscape Plans - Bright, ON* – This existing station required upgrades and an expansion to service our client's needs. Landscape buffers were developed to minimize impact and disturbance to the existing wetlands and forests adjacent to the site. The design uses native species to create a succession and low maintenance solution. Design consideration was also given to screening views from the adjacent properties and blocking the lighting on the site. Role: Landscape Lead

Woolwich Estates Buffer Enhancements - Waterloo, ON* – Cleaning up a former dump site required strong planning and being prepared for finding just about anything. The largest challenge was working to remove the garbage and debris while maintaining and protecting the existing trees onsite. Once all of the debris was removed enhancement planting was added to develop a healthy and stable edge, limit encroachment from neighbouring properties and provide a native understory that would limit the potential for invasive species introduction into the area. Role: Landscape Lead

Parkway Station Reforestation and Grassland Restoration - Milton, ON* – The site restoration for this station includes more than 13 hectares of reforestation, meadows, grasslands, flood plain and habitat creation. Reforestation areas have been designed to as a mixed age planting with pit and mounds. The meadows, grasslands and floodplains have been designed to work with existing regulated tributary as well as provide foraging grounds for Barn Swallows on the site. An existing house foundation will be demolished to provide a large snake hibernaculum. Other habitat elements include brush piles, logs, rock piles and nesting boxes. Role: Landscape Architect

Voisin Greenway - Kitchener, ON* – Analysis of the existing site conditions including tree and vegetation inventory along the corridor, review of bank and wall condition and documenting property encroachment. We prepared a detailed analysis plan that outlined the existing conditions and recommendations for wall replacements and selective vegetation removal to allow for better water flow through the channel. Managed site construction for repairs of the slope using a wood crib wall with stone toe protection and removal of vegetation throughout the greenway. Role: Landscape Architect

Guelph Lake Conservation Area, Educational Pond - Guelph, ON* – We developed a teaching ponds and wetlands with the Grand River Conservation Area that will be implemented into their future plans for a new Nature Centre within the Guelph Lakes Conservation Area. Design elements included the netting areas, deep water sections for fish, ledges for plants, berming for site observation and trails with lookouts for interpretation. The design balanced the cut/fill and allows for future site expansion without impacting the function of the pond. Role: Project Manager

Evans Pond Sediment Removal Plan - Kitchener, ON* – Onsite construction manager for the remediation and cleanup work associated with the breach of an erosion control fence. Sediment extended through a wooded area and into a pond. We worked with the client and contractor to secure the necessary permits and completed the removal of the sediment from the pond and within the floodplain area. The work included two years of monitoring on site to document the impacts of the breach and any subsequent remediation work. Role: Contract Manager

North Channel Pond Fish Habitat Creation - Kingston, ON* – Responsible for the riparian and habitat design for new pond constructed as part of a channel reconstruction. Habitat features included fish refuge and spawning areas. Logs were elevated within the pond to provide basking areas for turtles. Natural slope stabilization was provided with root wades and fascines which provided additional refuge habitat along the shore. Planting was designed to provide shade and slope stabilization. Role: Landscape Architect

Filsinger Stream Restoration - Kitchener, ON* – The City of Kitchener is removing more than 1.7 km of concrete channel through the centre of the city. Working with our stream restoration specialists we designed a natural channel including multi-use trails, bridges and parks. Naturalized planting was



implemented throughout and included live staking and floodplain planting. The design included the reuse of the removal trees to construct some of the in water structures. Role: Landscape Architect

Vegetation Assessments

Franklin Boulevard - Cambridge, ON* – Completed tree management assessment for the entire corridor from the 401 to Myers Road. Prepared tree management reports and mitigation recommendations reports for all of the trees within the project limits. Role: Arborist

Fairway Road Extension - Kitchener, ON* – Project manager responsible for assessment of the trees within the proposed ROW and bridge crossing of the Grand River. Cleared City of Kitchener and City of Cambridge conditions relating to the removal of the trees and future enhancement planting. Prepared and administered the tree clearing contract including all onsite inspections and direction. Role: Arborist

Trillium Community - Kitchener, ON* – Responsible for the Inventory and enhancement plantings throughout the subdivision. Responsible for overseeing the tree removals onsite and implementation of the tree preservation measures for the entire development. This project included managed the Butternut trees on the site. Role: Arborist

Enbridge GTA Pipeline - Milton, Brampton, Mississauga, Toronto, Vaughan and Markham, ON* – Lead Arborist responsible managing the detailed tree inventory for the working limits of the Enbridge GTA pipeline that extends from Milton to Markham. This work included agency management, inventory of more than 4,500 trees, restoration plans, mitigation recommendations and construction management. Role: Arborist/Landscape Architect

Highway 417 Riverside Road Exit - Ottawa, ON* – Responsible for the assessment of trees within a wooded area that would be impacted by road work construction. The property was owned by NCC and work was completed to their standards. Role: Arborist

Highway 417 from Highway 7 to Eagleson Road - Ottawa, ON* – Responsible for the vegetation assessment along the ROW. The field analysis was relayed to the design team to develop a sensitive approach to maintaining the trees while allowing for a functional design to be completed. Compensation and restoration were recommended for areas where tree removal was unavoidable. Role: Landscape Architect/Arborist

Neyagawa Boulevard - Oakville, ON* – The assessment of woodlot trees within a Road widening corridor. The work included detailed field inventory and analysis of the road design impacts to the trees. Responsible for meetings with Conservation authority and Regional staff to resolve concerns regarding impacts to the existing trees. Role: Arborist

Greengate Subdivision - Cambridge, ON* – Responsible for the Inventory of 1,300 trees onsite. Contract manager responsible for administering the tree removals onsite and implementation of the tree preservation measures for the entire subdivision. Role: Arborist

Highway 24, Cambridge to Brantford - Cambridge, ON* – Completed tree management assessment of the trees at the intersections and along the limits of the proposed work. Prepared tree management reports and mitigation recommendations reports for all of the trees within the project limits. Role: Arborist

Bus Rapid Transit (BRT) - Mississauga, ON* – This project included a detailed Arboricultural assessments of the trees along the corridor for the new bus route. Plans and permits were prepared for the removal of the trees. Additional construction management was undertaken to relocate endangered herbaceous materials from within the corridor to locations for future transplanting. Role: Arborist

Tremaine Road - Milton, ON* – Arboricultural review of the trees within the construction limits, reports for mitigation and enhancement and construction management. Worked with the project manager to resolve concerns with the residents impacted through construction. Role: Arborist



Groh Drive Subdivision - Kitchener, ON* – Conducting tree inventory and assessment of trees located within Phase 1 of the subdivision. Provided onsite review and recommendations through the construction process. Role: Arborist

Ardree Management Subdivisions - Newmarket, ON* – Conducting tree inventory and assessment of various subdivisions in Newmarket, Ontario. In response to Town comments on the site plan we completed a woodlot analysis and tree appraisal. Compensation recommendations were provided that were implemented in the site plan agreement for the development of the site. Role: Arborist

Sustainable Community Development

Doon South Community Trails - Kitchener, ON* – Developed a trails master plan through an environmentally sensitive and Provincially Significant Wetland (PSW). The design included wetland mapping, trail layout plans, review of impacts at crossings, hydraulic modelling, graphic plans for circulation, and preparation of a scoped EIS for permitting with the conservation authority. Responsible for the preparation of the permit application and correspondence with the conservation authority through the approval process. Attended and worked with the City during a site walk with residents to layout the trail location to minimize impacts to the trees onsite. Role: Landscape Architect

Doon Creek Subdivision - Kitchener, ON* – Responsible for the preparation of detailed landscape plans for Phase 1 of this subdivision. The landscape design includes environmental buffers, scenic trail corridors, trail guidelines, community trails, community parks, street tree plans, and arboricultural review. Responsible for the design of corridor crossing for Jefferson salamander. Contract Administration for environmental mitigation works throughout the development site. Role: Landscape Architect

Stauffer Woods Subdivision - Kitchener, ON* – Responsible for the preparation of detailed landscape plans for Phase 1 of the subdivision. The landscape design includes environmental buffers, scenic rail corridors, trail guidelines, community trails, community park, street tree planting plans and arboricultural review. Role: Landscape Architect

River Ridge Subdivision - Kitchener, ON* – Responsible for the preparation of street tree planting plans. The landscape design included using new sidewalk bridging details, topsoil requirements and calculating soil volumes for all of the street trees. Role: Landscape Architect

Carriage Crossing Subdivision - Waterloo, ON* – Responsible for the preparation of detailed landscape plan for all phases of the subdivision. The landscape design includes entry features, community trails, two parks and street tree planting plans. Role: Landscape Architect

Value Engineering, Peer Reviews and Mediation

Small Claims Court - Waterloo, ON* – Arborist Expert witness for a small claims case in the Provincial Court of Ontario. Successfully represented the clients' interests with regards to the safety and due diligence of work on the adjacent trees. Role: Certified Arborist

Ontario Municipal Board PL101394 - Hamilton, ON* – Arborist and Landscape Architect Expert witness for an OMB hearing. Successfully represented the clients' interests with regards to the construction impacts of a proposed site development on the adjacent trees. Role: Landscape Architect/Certified Arborist

Chedoke Browlands - Hamilton, ON* – Peer review of the tree management plans for a heritage site proposed for development within the City of Hamilton. Review work was prepared to be used for potential Ontario Municipal Board case. Role: Landscape Architect/Certified Arborist

Engineering Standards Review - Tecumseth, ON* – Peer review of the tree management plans for a subdivision in the Town of Tecumseth. Role: Landscape Architect/Certified Arborist



Tree Management Peer Review - New Tecumseth, ON* – Peer review of the tree management plans for a subdivision in the Town of Tecumseth. Role: Landscape Architect/Certified Arborist

Woodland Park Subdivision - Innisfil, ON* – Peer review of the tree management plans for a subdivision in the Town of Innisfil. Role: Landscape Architect/Certified Arborist

Big Bay Point Resort Development - Innisfil, ON* – Peer review of the environmental implementation, arborist reports, forest management plans, landscape plans and golf course plans. Commented on plans and report submitted for approval and reviewed work undertaken during construction on behalf of the Town. Role: Landscape Architect/Certified Arborist

Stream and River Restoration

Victoria Park Village - Guelph, ON* – Design implementation of new stream that is integrated into a large mixed use subdivision. The design utilizes wood and vegetation to stabilize the meander belt. A flood plain was introduced to allow for the stream to function as a natural system. The stream has been integrated into the plans for the entire subdivision which includes landscape buffers, SWM ponds, trails, bridges and forest edge enhancement. This project includes interruptive signage and extensive accessibility and inclusionary design features. Role: Landscape Lead

Moose Jaw River Bank Stabilization - Moose Jaw, SK* – Provided peer review and design consultation for the development of a bank stabilization plan. Key considerations included deep root species that can provide long term bank stabilization with the quickest possible germination. Role: Landscape Architect

Voisin Greenway - Kitchener, ON* – Analysis of the existing site conditions including tree and vegetation inventory along the corridor, review of bank and wall condition and documenting property encroachment. We prepared a detailed analysis plan that outlined the existing conditions and recommendations for wall replacements and selective vegetation removal to allow for better water flow through the channel. Managed site construction for repairs of the slope using a wood crib wall with stone toe protection and removal of vegetation throughout the greenway. Role: Landscape Architect

Lower Laurel Creek Restoration - Kitchener, ON* – Development of bank stabilization plan where Laurel Creek meets the Grand River. Design consideration needed to address a stream system that has large fluctuations in water volume and flows. Developed a functional solution that was accessible for the community and the City with a multidisciplinary design team. Role: Landscape Architect

Filsinger Park and Stream Restoration - Kitchener, ON* – Development of restoration management plans for the reconstruction of the more than 2 km of stream and trails. Through public facilitation the site development elements were reviewed and naturalization plans established. Three bridges span the stream and provide linkage to the main trail connection through the park. Trails are hard surfaced and meet the City's accessibility standards. Ash trees that had been removed by the City were reused in the in water structures within the stream. Role: Landscape Architect

Endangered Species/Species at Risk Assessments

Doon Creek Subdivision - Salamander Funnel Wall - Kitchener, ON* – Jefferson's Salamander is an endangered species and was observed on the development site. Working with the engineer, ecologist and field biologists we developed a funnel wall design that directed the salamanders towards their breeding grounds and limited their access to the development site. Key design elements included providing cover and hiding areas during times of movement, preparing the substrate to provide the desired materials to encourage movement but habitat creation. Role: Landscape Architect

Bracebridge Falls Generating Station, Butternut Assessment - Bracebridge, ON* – Completed a Butternut Health Assessment for Butternut trees located within the historic generation plant. These trees were reviewed and based on their characteristics they were found to be hybrid. Role: Arborist



Groh Drive, Butternut Permit - Kitchener, ON* – Completed a Butternut Health Assessment for the 3 Butternut trees on a development site. These trees were ‘non-retainable’ and did not require permits for the proposed work adjacent to them. Role: Arborist

OPP Police School, Butternut Assessment - Gravenhurst, ON* – Completed a Butternut Health Assessment for Butternut trees on the property. These trees were reviewed and based on their characteristics they were found to be hybrid. Role: Arborist

Trillium Communities, Butternut Permit - Kitchener, ON* – Complete Butternut Health Assessments for several Butternut trees on this property. These trees were a mix of ‘retainable’ and ‘non-retainable’ trees. Genetic testing was completed to assess if these trees were true Butternuts. Permits were secured prior to commencing work on and around these trees. Role: Arborist

Eby Estates, Butternut Permit - Kitchener, ON* – Completed a BHA for 1 tree that was ‘retainable’ and require a permit from the MNR for its removal. Prepared MNR permit including compensation planting and secured the permit for the removal the removal of this tree. Role: Arborist

Cucumber Magnolia, Bridge Street - Port Dover, ON* – Conducting tree inventory and assessment of a Cucumber Magnolia tree adjacent to the construction site. Cucumber Magnolia is an endangered species and is protected under the endangered species act. Completed an assessment of the tree and provided recommendations for the mitigation of construction impacts. The work included the installation of an 8 m high sheet pile wall 3 m off of the stem of the tree. Responsible for providing onsite supervision and construction management services during all of the work adjacent to the tree. Role: Arborist

National Historic Sites and National Parks

Rouge River National Urban Park - Toronto, ON* – The Rouge River Urban Park is constructing a new Northern Welcome Area and creating a main welcome area. Assessment of trees with Parks Canada staff and our Landscape Architects to determine potential impacts through construction. Project Ongoing. Role: Arborist

Cape Spear Lighthouse National Historic Site - St. John's, NL* – Parks Canada is rehabilitating the WWII Battery and Bunkers. We were tasked with creating an accessible and context sensitive design that respected the heritage of the site while creating a space that functions for all visitors. Elsewhere on the site there will be an upgrade to an existing access road to allow for better service access to the lighthouse. Provided professional support to develop seeding and landscape restoration specification for this road. Project Ongoing. Role: Landscape Architect

Trout Brook Campground - Cape Breton Highlands National Park - Cape Breton, NS* – Parks Canada is creating a new campground at an existing day use site. The site is isolated so alternative energy sources are being reviewed to provide a full service campground. The design will focus on visitor experience and being implemented into the existing site. Project Ongoing. Role: Project Manager, Landscape Architect

Prince Albert National Park - Waskesiu, SK* – Working with Parks Canada staff to develop concept plans to improve 4 trail routes within the park. Trails were assessed and mapped in the field using GPS. Improvements included removal of stairs, reorientation to improve visitor experience, implementation of rest areas and improvements to existing infrastructure. Boardwalks were required to allow visitors to better access marsh area. Role: Landscape Architect

Water

Basement Flooding Protection Program, Phase 3 - Toronto, ON* – Responsible for overseeing field review, production of plans, review of reports and working with the project team to balance tree management requirements and the necessary infrastructure improvements. Role: Lead Arborist

*denotes projects completed with other firms

